



**ANNUAL CONFERENCE OF GLOBAL INSTITUTE OF FLEXIBLE
SYSTEMS MANAGEMENT**

GLOGIFT 22

**TWENTY-SECOND GLOBAL CONFERENCE ON FLEXIBLE
SYSTEMS MANAGEMENT**

**THEME: SUSTAINABILITY, FLEXIBILITY & DIGITAL
TRANSFORMATION**

DECEMBER 9 - 11, 2022

[HYBRID MODE]

Organized By

**LM Thapar School of Management, Thapar Institute of
Engineering and Technology (Deemed to be University),
Derabassi, Punjab, India - 140507**

ISBN No.: 978-93-83893-12-6



GIFT Publishing Global Institute of Flexible Systems Management
B-51 (Basement), Sarvodaya Enclave,
(Near Mother International School), New Delhi-110017



Prof. Padmakumar Nair
Director TIET, Patiala
Former Director, LMTSM, Dera Bassi

Message from Director, L. M. Thapar School of Management

It is a matter of pride for LM Thapar School of Management (LMTSM), Thapar Institute of Engineering and Technology, Dera Bassi Campus to host GLOGIFT 22, The Twenty Second Global Conference on Flexible Systems Management (GIFT) during December 9-11, 2022. I express my gratitude to the GIFT society for awarding us this prestigious conference and collaborating for the joint organization. The theme of the conference, Sustainability, Flexibility and Digital Transformation is an apt theme and addresses the current issues faced by the society. At LMTSM our mission is to develop Globally Sensitive, Excellence Seeking management professionals with a Social Entrepreneurial Mindset. The pillars of our education include sustainability, global outlook, entrepreneurial, prosocial and evidence-based approach. I am happy to see that the themes of the conference merge well with our philosophy and endeavors.

It is heartening to see that a large number of delegates from prestigious institutes from India and abroad will be presenting their research. I am sure that the conference will meet its objectives of knowledge sharing and healthy discussions.

I extend a hearty welcome to all keynote speakers, invited speakers, delegates and the members of the GIFT society and wish the conference a great success.

Prof. Padmakumar Nair
Director, LM Thapar School of Management, Dera Bassi



Prof. Sushil
DMS, Indian Institute of Technology Delhi
Founder President, GIFT Society

Message from Founder President, GIFT Society

I am delighted to know that the Indian Institute of Management Shillong is hosting GLOGIFT 22, an international conference on the theme of "Sustainability, Flexibility and Digital Transformation". An international conference of this caliber signifies scientific cooperation through meetings and dissemination of knowledge to overcome the challenges of the changing business environment.

Governance, sustainability, and enterprise excellence need to be united to promote continuously relevant and responsible organizations through Sustainable Enterprise Excellence. A holistic, flexible, dynamic, innovative, and inclusive approach is required to ethically, efficiently, and effectively integrate equity, ecology, and economy to cater to the Triple Bottom Line of People, Planet, and Profit. I applaud the team efforts of all stakeholders for consistently putting together a step in this regard by inviting Industry Associates, Academicians, and Research Scholars from all parts of the world to contribute to this academic endeavor. The conference aims to provide a knowledge-sharing platform for disseminating research and experiential findings through empirical study, quantitative and qualitative systems modeling, case studies, contemporary emerging concepts, techniques, and state-of-the-art studies. On behalf of GIFT as the Founder President, and my behalf, I warmly welcome you all and extend my best wishes to all invited dignitaries and participants for the grand success of this event.

Prof. Sushil
Department of Management Studies
Indian Institute of Technology Delhi



Prof. T.P. Singh
President GIFT

Message from President, GIFT Society

GLOGIFT Conference is one of the two most prestigious initiatives of Global Institute of Flexible Systems Management (GIFT). The other one is the Global Journal of Flexible Systems Management, an A category journal indexed in ABDC. GLOGIFT conferences are organized annually with an endeavor to hold it in India one year and in some prestigious institute abroad the other year. We have been largely successful, in this allocation, barring some small deviations due to unforeseen circumstances, like COVID 19 pandemic. In India, the past conferences were organized in renowned institutes, including IIMs. GLOGIFT 21 was organized at IIM Shillong.

LM Thapar School of Management, Thapar Institute of Engineering & Technology is a premier institute of business studies. It has made a name for itself in a short span of about 10 years existence at its present location. The parent organization, Thapar Institute of Engineering is one of the most renowned institute of technical education in the country. It has a high NIRF ranking and is ranked in Times Higher Education World Rankings. Considering the high standards of education and research maintained by LM Thapar School of Management, the Governing Council of GIFT decided to organize GLOGIFT 22 at the school during December 9-11, 2023.

The theme of the conference “Sustainability, Flexibility and Digital Transformation” is an apt theme for the conference and focuses on the most relevant issues and research directions of the current times. I am happy to see that a large number of papers and research articles have been received from the faculty and researchers from prestigious institutes of the country and abroad. I am sure that the host institute will organize the conference in a very effective way taking care of the technical sessions, hospitality and other necessary aspects of the organization. The delegates will not only participate in discussions and learn but will enjoy the utmost care and hospitality Punjab is known for.

I wish the conference a great success.

Prof. T.P. Singh
President GIFT



Amit Prakash Jha
Assistant Professor, LMTSM
(Currently Assistant Professor, IIM Shillong)

Message from Secretary, GLOGIFT22

It is a matter of great honor to organize the *Twenty-Second* edition of the prestigious GLOGIFT Conference. The theme of this year's conference is "Sustainability, Flexibility and Digital Transformation". The theme is well suited at the time when we are coming out of the pandemic.

We have received multiple papers for the conference from across the country and abroad. It was a tough task to accommodate so many papers. Nevertheless, we tried to do our best. We received immense support from all the colleagues from LMTSM Dera Bassi and TIET Patiala. The conference wouldn't have been possible without our patrons' guidance. I take this opportunity to thank Prof. Padmakumar Nair and Prof. Sushil for the direction shown. I am indebted to Prof. T. P. Singh for the mentorship. I am thankful to Dr. Pradeep Kumar Hota and Prof Sreekumar Pillai for the colossal support and guidance in organizing the conference.

We received vast support from all the members of the conference committee including Dr. Vipul Gupta, Dr. Arunesh Garg, Dr. Sandeep Goyal, Dr. Rudra Rameshwar and Dr. Anuradha Thakur at each and every step during the planning and organizing the event. It was a matter of great joy to work with our faculty colleagues Dr. Piyush Kumar, Dr. Akanksha Batra, Dr. Kavita P and Mr. Siddaq Singh in order to make the event as great success. Last but not the least, I would like to thank Mrs. Aarushi Mahajan, Mrs. Harsimar Kaur, Mr. Abhinav and Mrs. Sarnish Kaur for their support at the operational level. I know that I missed out various other names and I offer my apology for not mentioning their name for want of space.

I would once again like to take this opportunity to express my thanks to all and almighty for making the event a success. I unequivocally take responsibility of any errors and omissions in organizing the 22nd GLOGIFT Conference.

Dr. Amit Prakash Jha
Assistant Professor, LMTSM
Organizing Secretary, GLOGIFT22

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Role of Communities of Practice to attain flexible and sustainable Future Prospects in the organization: Mediating Role of Training

Anjali Dutta¹ and Santosh Rangnekar¹
¹*Indian Institute of Technology Roorkee*

Abstract

Communities of practice are social learning resources, aiding employees in knowledge creation and sharing. On the other hand, training deals with systematic, structured and professionally organised learning interventions for the employees in the organisation. Building on Maslow's Hierarchy of needs theory, we posit that employees' participation in communities of practice positively relates to future prospects, and training benefits mediate the positive relationship. The data was collected from 217 employees working in manufacturing and service sector private and public Indian organisations. The findings suggested that the employee's participation in communities of practice positively results in a sustainable future prospect in the organisation, aligned with need fulfilment from the lower-order need for social security to the higher-order need for self-esteem. Further, training mediates the positive relationship between communities of practice and future prospects. Based on the findings, the implications for theory and practice are discussed. Moreover, future research avenues are also elaborated.

Keywords: knowledge; knowledge sharing; communities of practice; training; future prospects; career; career prospects; learning.

Understanding FinTech Platform Adoption with special reference to Budget Apps: Insights from Indian cities

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Abstract

FinTech platforms are emerging as critical facilitators in the digitization of the global economy. The recent COVID-19 outbreak has certainly hastened the uptake of FinTech platforms. This study examines the antecedents of people's acceptance of fintech services, particularly on online budgeting platforms. The current study expands on the basic construct of the Unified Theory of Acceptance and Use of Technology (UTAUT) by including financial consumption variables (such as perceived value and perceived risk). The empirical findings show that perceived ease of use, social influence, and perceived risk are all closely related to people's intentions to adopt fintech, while perceived risk, performance expectancy, and effort expectancy have a significant impact on value perception, which in turn affect their intentions to adopt budget tracking platforms. The suggested FinTech adoption model could advance the field of information technology (IT) adopting research by extending the UTAUT, which holds that people's adoption intention is indirectly influenced by their expectations for effort and performance through perceived value. Finally, the novel model's implications for present and future FinTech research are examined.

Keywords: FinTech adoption; Budgeting apps; IT adoption; Consumer behaviour; Perceived risk.

Relationship Between Per Capita Levels of Household, Food Service and Retail Estimates of Food Waste Across Nations

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Abstract

The fact that a sizable portion of food is produced but not consumed by humans has detrimental effects on the environment, society, and economy. Food waste reduction has numerous advantages for both people and the environment at the retail, food service, and household levels. However, until recently, the real scope of food waste and its effects were poorly understood. As a result, the opportunities presented by reducing food waste have largely gone unrealized. This study compares food waste across household, service and retail levels for 215 countries to assess whether any significant relationship exists between the levels. It is found that there is a significant relationship between service and retail food waste. This implies targeting reduction measures in one could have positive implication in reducing other as well. It can be further studied how customer behaviour—in all cultural contexts—plays a part in reaching the goal of reduction in food waste. As work progresses to ensure that everyone has access to wholesome, sustainable diets, an appeal is made to all to shop wisely, prepare meals ingeniously, and make food waste anyplace socially unacceptable.

Keywords: UNEP; Food waste; Factorial Design; ANOVA.

Wisdom and Mindfulness to Attain Social Sustainability: Mediating Role of Temperance

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Abstract

The relationships between wisdom, temperance, and mindfulness are examined in this study and their interplay to attain social sustainability is discussed. Mindfulness is required to enhance the sustainability of the workforce, which can be achieved by fostering temperance and wisdom among them. Data was collected from 232 employees working in India using self-reported questionnaires. Confirmatory factor analysis of the model was done with R studio. The Hayes PROCESS macro was used to test the relations using bootstrapped samples for statistical analysis robustly. A partial mediation between wisdom and mindfulness via temperance was found to be significant. This study implies that wisdom influences temperance, which helps employees become mindful, sustain their performance, and create a sustainable workplace culture and workforce. The implications and limitations are discussed.

Keywords: wisdom; temperance; mindfulness; social sustainability; structural equation modelling.

Application of Artificial Intelligence in Social Entrepreneurship

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Abstract

The study presented here emphasises the importance of entrepreneurial activities based on artificial intelligence how it positively impacts social and economic advancements worldwide. The youth today are eager to become entrepreneurs based on the latest technical knowledge and skills in Artificial Intelligence and Internet of Things. Digital entrepreneurship ventures aiming at developing sustainable cities, innovations to attain goals and enhance the economic status are of interest. The network diagrams presented in the study imply that currently the OECD countries are in the forefront in applying artificial intelligence for social entrepreneurship.

Keywords: artificial intelligence; innovation; OECD countries; social entrepreneurship; sustainable development; VOSviewer.

Rebounding from Failure Episodes: The Role of Counterfactual Thinking

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Abstract

In this experimental study, we investigate how entrepreneurs' ability to engage in counterfactual thinking could help them in learning from failure. Even though venture creation is filled with many failure-rebound episodes, the larger entrepreneurship literature has deemed failure as the complete shutdown of a firm. Taking cue from practice perspectives that have repeatedly underscored the importance of experimenting and learning from both positive and negative outcomes, we inquire how entrepreneurs learn from episodic failure. We define episodic failure as non-exit inducing temporary setbacks that pose challenges to the founders but could be overcome. The experiment has a 2 (type of priming: counterfactual vs. non-counterfactual) x 2 (outcome valence: positive vs. negative) x 4 (counterfactual thought: upward additive vs. downward additive vs. upward subtractive vs. downward subtractive) between-subjects factorial design. We perform content analysis to check for the quality and content of counterfactual thoughts generated and ANOVA to tease out the differences between the counterfactual thoughts generated by participant groups. The results from our experiment shall contribute to extending our understanding of entrepreneurial imagination, failure, and learning.

Keywords: Episodic Failure; Counterfactual Thinking; Experimental Methods; Entrepreneurial Learning.

Sustainable Agriculture: Remote sensing and ML-based digital farm management and yield prediction for cash crop in India

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Extended Abstract

According to the 2022 world population prospects from the department of Economics and social affairs, United Nations, the worldwide human population is expected to be 11 billion by the year 2100. With that much population, much more effort and innovation will be needed to sustainably increase agricultural production, improve the global supply chain, and decrease food losses and waste. To ensure that all suffering from malnutrition and hunger have access to nutritious food, many in the international community believe it is possible to eradicate hunger within the next generation by improving technology. The challenge of the resulting higher food production and energy needs while minimizing the environmental footprint in arable farming is the concept of variable rate applications using precision agriculture.

India is the world's third-largest energy-consuming nation, and a significant part of India's energy requirement is met through oil, which continues to rely on imports. India's share in global energy consumption is set to double by 2050. Rising energy demand and high reliance on imports pose significant energy security challenges. It also leads to a reduction in the forex reserve. To move towards a clean energy source, India is now focusing on blending ethanol with petrol to shift dependence from oil to domestically produced ethanol. Ethanol will be a potential opportunity to reduce reliance on oil imports and burn less fossil fuel while running vehicles. Ethanol is an agricultural by-product which is mainly obtained from the processing of sugar from sugarcane, but also other sources such as rice husk or maize. India started blending ethanol in petrol on a pilot basis in 2001. The Ethanol Blending Programme (EBP) of the Government of India seeks to achieve the blending of Ethanol with motor spirit to reduce pollution, conserve foreign exchange and increase value addition in the sugar industry, enabling them to clear cane price arrears of farmers [1]. The EBP program provides a target of 20% ethanol blending by 2025. By 2025, at a 20% blending level, ethanol demand will increase to 1016 Crore litres, increasing the worth of the ethanol industry by over 500% from around Rs. 9,000 Crore to over Rs. 50,000 Crore. Under EBP, Oil Marketing Companies OMCs have paid sugar mills nearly Rs.

42,000 Crore for ethanol supplies in the last seven years, which has helped mills to clear farmers' dues. One Crore litre of ethanol blended petrol can save around 20,000 tons of carbon dioxide emission. Greenhouse gases are also lowered by 192 lac tons from 2014-21 [1].

With the above-listed benefits, the proposed area of research is to perform remote sensing and machine learning-based crop health monitoring and advisory for sugarcane farmers and industry to contribute to the EBP programme. Remote sensing technology using satellite data in arable farming will contribute valuable information for crop analytics in plant protection and crop production processes to ensure sustainable agriculture as per United Nations Sustainable Development Goals, UN SDG 2.4.1, and to produce superior quality ethanol as well. Remote sensing is an important and integral part of the Indian Space Program (ISP) and the Department of Space (DOS), Government of India (GoI). It is one of the nodal agencies for the realization of the National Resources Information System (NRIS), Natural Resources Management System (NNRMS), the Integrated Mission for Sustainable Development (IMSD) & Crop Acreage and Production Estimation (CAPE). The remote sensing platform has become very productive for the agricultural domain because of the advancement in satellite sensors. The satellite images with up to 1 meter (Cartosat-2) of spatial resolution is available to work with. The precision agriculture-led digital farm operations will allow a farmer and industry to observe images of his fields and make timely decisions about managing the crops digitally to make sustainable agriculture and the EBP programme successful. One of the biggest hurdles in using satellite data is the cloud. During the monsoon seasons, the clouds almost cover the land and can be very tedious to work with; machine learning algorithms have been developed recently, which work in tandem with satellite data. Machine learning creates a cloud mask so that pixels belonging only to the land class are available in the satellite image as elucidated in the Figure 1.

NDVI (Normalized Difference Vegetation Index) is the parameter derived from satellite data and is one of the most important vegetation indexes [2]. Spectral reflectance signatures of different objects on the earth's surface are the reason for the different NDVI values of different objects. Light absorbed by the pigments of the leaf dominates the reflectance spectrum in the visible region (400–700 nm). Chlorophyll pigments a and b selectively absorb mainly from blue (400–500 nm) and red (600–700 nm) wavelengths.

There is less absorption over the “green” wavelengths (500–600 nm) and, thus, the green appearance of vegetation. Different vegetation types (healthy or unhealthy) will have different reflectance factors. Leaf pigments and cellulose are transparent to near-infrared wavelengths (700–1300 nm). Most of the energy is transmitted and reflected, dependent on leaf structural characteristics, which results in a high near-infrared (NIR) reflectance. The sharp rise in reflectance between the red and NIR regions is known

as the red edge and is used to identify the plant under stress. Similarly, unique features have different reflectance curves, i.e., soil, water, etc.

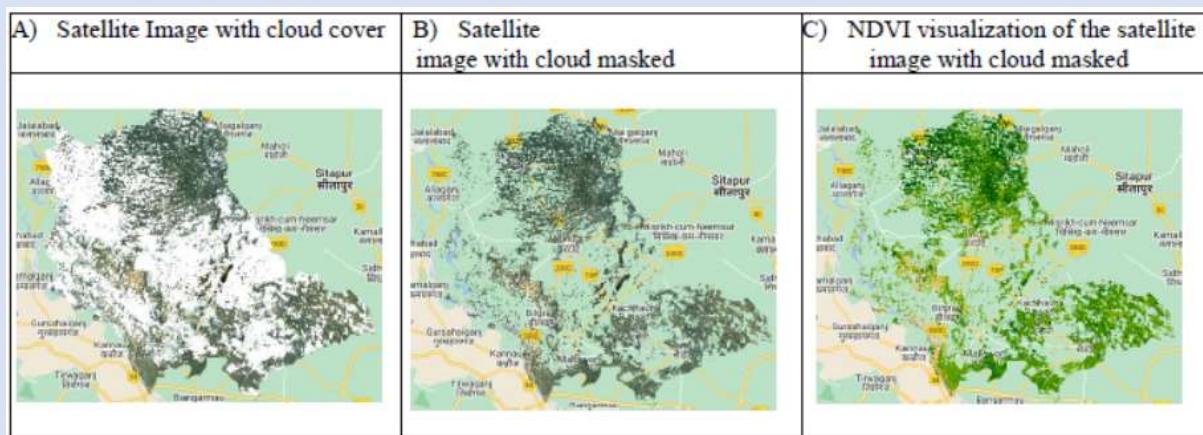


Figure 1: Satellite images of a district in Uttar Pradesh, a) With cloud cover, b) With cloud cover masked and c) NDVI visualization

NDVI value is particularly useful in sustainable agriculture, as it not only gives information about the crop's health but also helps predict its maturity [3-4]. The health of crops can be monitored so that time-required action can be taken. As mentioned above, much of the energy needed can be completed by ethanol produced using sugarcane, so it is important to monitor the sugarcane's yield, maturity and overall health, such as water stress. Further details of the crop health monitoring and yield prediction results will be presented in the full-length paper.

Keywords: Sustainable Agriculture; Remote sensing; Machine Learning; Digital farm management; Energy SDG

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Sudden dip in Productivity at Cement Manufacturing Unit: Management searches for the root-cause and the correction.

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Abstract

Daily dispatch of cement at a manufacturing Unit had fallen short of the expected by 200 - 300 tonnes per day for three days in succession in 2012. For a location, which was recently recognized as the best in the company, it had become a concern. Declared as the best Grinding Unit in the company, after the annual exercise to measure performance, against nine parameters, linked to operations, including power-consumption and cost of manufacture of cement, the Unit, was also assessed to be having the highest Engagement Index in the company, through a poll, conducted by Gallup. Labour at the Packing House, responsible for dispatch of cement, was on average with 8 years of experience at site and had a reputation for discipline. The workers belonged, mainly, to Bihar and Eastern Uttar Pradesh and were known or related to each other for years. Families of the workers of Packing House, stayed in the vicinity and were benefitted through Social Initiatives of the company, regularly. Unit Head, who used to monitor dispatches on hourly basis, was travelling and was in communication with the Commercial Head, responsible for dispatch. Commercial Head had tried to reach the vendor, who was an old company – hand and was operating major contracts at site, including Packing House. The vendor for Packing House, who had been associated with the Unit, since 1999 and was well-known to hierarchy of leadership in the company, was the “person to go to”, for local issues for the families of the management – staff, staying in the co-located colony. With loading and packing machines, displaying normal operating standards, outstanding Sales-orders, multiplying and seamless availability of trucks for dispatch, not a bottleneck, either, productivity of non-unionized labour was the immediate challenge to overcome, as it had started to impact the EBITDA at site.

Keywords: Productivity; EBITDA; Engagement Index

Multiple facets of Emotional Stability – Review and Future Direction

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Abstract

Due to the constantly changing environment, organisations have emerged in challenging situations. In addition to the employees' unproductive behaviour, anxiety, tension, and uneasiness are continually rising. Numerous researches have shown the importance of emotional stability, yet they are still in their infancy as a personality attribute. A comprehensive examination of how emotional stability influences numerous workplace characteristics is currently lacking. The current study aims to research emotional stability from the highly regarded ABDC (Australian Business Deans Council) approved publications in the A and A* category. This study is aimed to focus on the trend of the literature on emotional stability. Descriptive analysis of the study highlights the weightage portion of the emotional stability in the shortlisted articles, with are tabled year and journal-wise.

This research can be considered a vital factor for enhancing individual, group, and organisational workplace behaviour in coping with stressful situations in a dynamic environment. Furthermore, we classified publications into six clusters using bibliometric analysis in the VOSviewer software, showing the authors' collaborations among the countries.

The study uses meta-analysis to determine the research topic's past, present trends and future development. To ascertain how the knowledge domain for emotional stability has evolved over the years.

Keywords: Emotional Stability; Emotionally Stable; Literature Review; Meta-Analysis; Performance.

Barriers Hindering International Competitiveness of Small Enterprises

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Abstract

In this study an attempt is made to identify the barriers hindering the international competitiveness of small-scale enterprises. We have identified 10 factors that are hindering the international competitiveness of small enterprise. We have used TISM-P technique to establish the interplay among the select factors. Incorporating polarity into the model has made it more explanatory. The developed model will assist in understanding the interplay among the factors responsible for hindering the expansion of small enterprises at global platform. In addition to this, we have also employed MICMAC approach to classify the select barriers into four groups. The developed model will help the industry experts to design their strategies accordingly.

Keywords: Competitiveness; Small Enterprises; TISM; Barriers.

Illustrating sustainable supply cum livelihood practice by instancing Koraput Coffee of Odisha

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Abstract

The present paper attempts to showcase an ideal model of a sustainable supply chain with an instance of Koraput coffee. Through this case, the author has tried to highlight the sustainable supply chain model in the face of effective quality control of coffee cherries and beans, sustenance of beverage cash crops, and promoting the sustainable livelihood of tribal peasants apart from its branding & promotion at the global level. The present paper is based on data gathered through secondary sources like local news articles and telephonic and face-to-face interaction with local farmers and a few concerned government officials as well. The case is discussed with the help of SWOT analysis and the adopted data is based on a certain time frame starting in 2019 & onwards. It would be advantageous to investigate entrepreneurial endeavours, export policy, and extended SWOT analysis methods in the discussed context.

Keywords: Sustainable Supply, sustainable livelihood, promotion, Koraput coffee, farming.

Bibliometric mapping of mobile governance

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Abstract

This study aims to reveal research trends in the field of mobile governance. R-studio tool “biblioshiny” was used to perform bibliometric analysis on metadata obtained from the Web of Science Core Collection database. Authorship analysis, citation analysis, conceptual structure map, keyword analysis, source analysis, and thematic map were used for analysis. The findings indicate a growing interest in mobile governance. During, the year 2021, 478 articles were published. It was found that Simplice Asongu, and Yogesh Kumar Dwivedi are the most influential authors. Further, Telecommunications Policy and Sustainability are the most contributing journals. In addition, the USA was the most influential country. Emerging trends and major themes in the research area are discussed, along with future research directions.

Keywords: Bibliometric analysis; Mobile governance; Public policy

Drivers and Benefits of Green Supply Chain Management Practices in Manufacturing Organisations: An Indian Context

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Abstract

Green supply chain management has become a crucial idea in support of an outlook on environmental sustainability. SCM connects the whole value chain from beginning to end, and unites the manufacturing organisation both upstream and downstream. This creates the framework for GSCM practices, that promote environmental sustainability. All things considered, it is evident that during the past 20 years in industrialized countries, green supply chain management has advanced significantly from conventional supply chain management. Indian engineering organisations are also becoming more conscious. There are several internal and external forces that influence an organization's decision to employ GSCM procedures. Similar to individuals, practicing organisations can profit from a variety of real and intangible advantages. The causes and advantages of green supply chain techniques as seen by Indian engineering organisations in manufacturing, are summarized and discussed in this study piece. The research result offers a list of factors and advantages in order of perceived relevance, serving as a foundation for further study in this field.

Keywords: Green SCM; Sustainability; Manufacturing; Engineering

Improvement in Production Efficiency using Six Sigma Methodologies

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Abstract

The production efficiency of the industrial system is of major economic interest in the business concern. The sources of ineffectiveness and the main difficulties live in the choice of the actions of production especially when the machines play an important role in the process of production. In Gates India Private Limited, there is a significant wastage of wire which is used as reinforcement for hydraulic hoses. This wastage produces an adverse effect on the production efficiency of spiral line and thereby incurring losses to the industry. In the proposed work, definition of problem, root cause investigation and correlation analysis has been carried out for finding the reasons behind the problem and their affects. The results reveal that with the implementation of Six Sigma methodology, the efficiency of production significantly increases to 97.75% as compared to 92.74% before implementation. Hence, the suggested method's results in cost saving and subsequently help in improving overall economy of the industry.

Keywords: Improvement; Production Efficiency; Six Sigma; DEMAIC; Lean Manufacturing

When Weather made sustainable modes inferior goods for commute tours: The case of Indian metropolises

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Abstract

Due to a temperate weather mindset, planners and researchers in developing nations like India, assume economic affluence to be the sole determinant of choice of mode for commute tours. Thus, policies have failed to recognise the role of weather in this choice. In the present research, we additionally include meteorological conditions for understanding the choice of sustainable commute modes. We use city specific metrological and economic attributes. Our research shows that commute mode choice is influenced by both economic affluence and weather. Additionally, there is a contemporaneous relation between economic affluence and weather. From this, we infer that economic affluence alone may not be making mass transit systems inferior, but the interaction with the weather has the potential to transform this service into an inferior good. So, for increasing and maintaining shares of sustainable commute modes, infrastructural interventions that reduce weather-associated discomfort need to be envisaged. These policies will help countries achieve the goal of sustainable urban transport. Insights from this research are applicable across all geographies facing tropical climatic conditions.

Keywords: Weather; inferior good; public transport; sustainable city

Leadership Competencies for Sustainable Entrepreneurship

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Abstract

Entrepreneurship can be defined as the phenomena which involves challenging the status quo for delivering higher economic value with optimal risk and reward ratio on invested efforts. Researchers and practitioners over the years have come up with multiple theories in support of the concept of Entrepreneurship. These theories have also been categorized into different themes for better classification and reuse depending upon the social or business situation. A detailed review of 93 different theories across 10 discipline-based categories highlights two which could help us in ensuring that entrepreneurial efforts are sustainable, promote decent work and economic growth by reskilling the workforce with most relevant leadership or talent competencies. Effectuation Theory is process based, ideas oriented and enables strong contingency measures through collaborative partnerships between all individuals involved. Generativity on the other hand has strong focus on multi layered innovation and is future of work oriented. Both these theories also support some aspects of theories related to Knowledge Spillover (Management) and Human Capital. Sustainable Entrepreneurship has broadly been understood as efforts aimed at generating new products, services through organizational models which increase the quality of work and life. The initial research hypothesis based on literature review is that theories of Effectuation and/or Generative will be helpful in outlining skills and competencies which will help the new normal workforce adopt an entrepreneurial mindset for routine tasks and business expectations. Further, the sustainability overlay on these competencies can help organizations and individuals make progress on sustainable development goals, more specifically the goal around decent work and economic growth (i.e., SDG 8). The research paper aspires to curate a competency-based model for upskilling current and new leaders who will contribute towards an agenda including sustainability, entrepreneurship, future of work and human change management.

Keywords: SDGs; Entrepreneurship; Competencies; Future of Work; Leadership; Effectuation; Generativity.

Failures are the Pillars of Success: Entrepreneurial Experience and Ability to Create a New Business Venture after Failure

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Abstract

Serial entrepreneurs are a type of habitual entrepreneur who have disposed off or shut down at least one firm but again venture in the field and set up a new firm. The re-entry of an entrepreneur after venture failure is an under researched area. The present literature review studies the role of experience gained by the habitual entrepreneurs during their previous ventures in identifying opportunities, formulating strategies and temptations to re-enter the business market.

Keywords: Serial entrepreneur; Habitual entrepreneur; Failure; Re-entry; Experience

Crafting A Way Out in the Era of ‘Great Resignation’: Role of ‘Perceived Opportunity to Craft’

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Abstract

Ever-changing business environment, evolving aspirations of the employees coupled with the catalytic effect of the pandemic have given rise to unforeseen dimensions in the management. Employers are looking for various measures which can be instrumental in handling the challenges posed by these emerging realities. The recent phenomenon of ‘Great Resignation’ has necessitated a complete rethink of the efforts to retain employees and tackle the huge employee exodus. Burnout has become more real than ever and lack of flexibility and autonomy at the workplace has been pointed as a major reason for employee turnover. Research studies suggest job crafting is very effective in enhancing the flexibility by creating a better person-job fit, increasing employee engagement, and consequently decreasing the negative outcomes such as burnout and turnover intention. Studies also suggest that the possibility of the employees indulging in job crafting behaviour will be positively influenced by their favourable perceptions of the opportunities to craft, so their perceived opportunity to craft (POC) maybe the missing link in devising an efficient solution towards the employee turnover puzzle. This paper is an attempt to develop a theoretical framework which helps in bringing more nuanced perspective by examining employee turnover intention under the lens of POC.

Keywords: Turnover Intention; Great Resignation; Job Crafting; Perceived Opportunity to Craft; Burnout; Flexibility

Development of a Total Interpretive Structural Model to Overcome Barriers to Adoption of e-Office – An e-Governance Initiative

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Abstract

Bringing about change in a public sector organization is a herculean task. The change management depends on the will of the top management and acceptance by the end users. The resistance to change is obvious in IT related applications because of technological, economical and behavioural issues. The present study is regarding the implementation of “e-Office” application in public sector organization, a project to implement document management system and file tracking application in government organizations. Since its implementation, the application has got lukewarm response and majority of users have not adopted the system, resulting in huge backlog of files, wastage of financial resources and underutilization of related computer hardware. Total Interpretive Structural Modelling (TISM) has been used to identify the various factors hampering the implementation of e-Office application. The direct and transitive linkages between the factors have been depicted through a Digraph. Based on the MICMAC Analysis, recommendations have been discussed to develop strategies to mitigate the factors affecting the adoption of the application.

Keywords: e-Office; TISM; MICMAC; Public; TAM; Document Management System; File Tracking System; Paperless

Technology Adoption, Upper Echelons and the Corporate Social Responsibility Function

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Abstract

The paper aims to address the impact of upper echelon characteristics of the managers in adopting technology to handle operations in the Corporate Social Responsibility (CSR) department of a public sector company in India. Participatory Action Research (PAR) methodology has been followed in the CSR department of the company to identify the problems in technology adoption and improve the productivity of the employees. The findings show that the upper echelon characteristics of the managers play an essential role in enhancing the technical infrastructure and skills of the team members. The management's outlook on investments in non-revenue generating departments like CSR affects the process handling efficiency of the employees. The paper has implications for academia, businesses and policymakers as it discusses the selective adoption of technology in organizations.

Keywords: Corporate Social Responsibility; Upper Echelon Theory; Participatory Action Research

Sustainability Aviation: A Generative Design Approach

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Extended Abstract

Generative design is an artificial intelligence (AI) based topology optimization tool that enables design engineers to explore novel designs with less weight or volume while improving structural integrity for the intended function. The unique designs resulting from the generative design can be additively manufactured in the lab or industrial settings. solutions to design problems in several technical fields. Recent technology developments have given engineers and designers access to new manufacturing processes and fresh approaches to shape optimization. For instance, the variety of shapes that may be manufactured is growing and becoming more accessible due to additive manufacturing. As a result, we are significantly less

constrained by limitations connected to production procedures, allowing us to apply material optimisation methods more freely. A novel approach to mechanical design, called generative design, relies heavily on the interaction between the designer and the computer. The designer applies his creativity and analytical abilities while the machine takes advantage of its incredible computational capacity.

Since the industrial revolution, engineering design approaches have remained relatively the same. Most product development tasks are complex optimization problems. The design team takes an iterative approach, iterating technical analysis, interpretation, and refinement to refine the first best guess, leading to larger design cycles. However, each of these iterations is time consuming and expensive, and teams may only be able to achieve a few iterations within their development schedule. Moreover, once the design is frozen, design engineers can only consider alternative solutions that deviate significantly from core assumptions, so the final design is often sub-optimal. Digital simulation and analysis have become so fast that you can evaluate your designs in seconds or even faster. Algorithms can automatically adjust part geometry between simulations without requiring manual adjustments. These new generative designs systems use artificial intelligence techniques to explore a much larger universe of possible solutions, comparing the results of thousands of simulations to produce the most advantageous

combination of attributes for the design, delivering novel designs and reducing design cycle times. For some engineering problems, generative design algorithms already outperform human engineering teams. In addition, we can create non-intuitive solutions that would never have been found using

traditional methods. The most common use of generative design algorithms today is structural optimization. This is about creating a part that provides adequate strength, stiffness, and fatigue resistance with minimum material, therefore, reducing the direct material cost (DMC), a key performance indicator (KPI) for an industry and new product introduction (NPI) programs. Such applications are common when weight is the primary consideration, such as in the design of vehicles and aircraft (to reduce fuel consumption or increase payload), internal structural parts for handheld tools (to improve ergonomics), sports equipment (to enhance performance), or any product where shipping weight is a significant cost driver. Where materials are the primary cost driver, increased structural efficiency can deliver significant savings in both cost and sustainability. In every industry, from automotive to aerospace to sporting goods, generative algorithms have reduced part costs by 6-20%, part weight by 10-50%, and development time by 30-50%, as shown in Figure 1. For example, a power tool manufacturer reduced the weight of his die-cast support bracket by 26% and reduced the cost by 8% without affecting the interface between the part and the larger assembly. For a large drop-forged component, generative optimization resulted in a weight reduction of approximately 40% from the finished product.

	Tool head	Bracket	Piston
1 Original part			
2 Generated design			
3 Engineered output			
Description	Large, forged-steel hand-tool component. High material cost and difficult to operate due to weight.	Aluminum die-cast support bracket. Desire to reduce cost and weight, but preserve original profile.	Die-cast pump piston. Target to reduce piston weight, counter-balance weight, and load on motor.
Effort & time	1 design engineer for 3 days	1 design engineer for 2 days	1 design engineer for 1.5 days
Impact	Weight: 38% savings Cost: 15% reduction	Weight: 26% savings Cost: 8% reduction	Weight: 23% savings Cost: 12% reduction

Figure 1: Generative design outputs for three different parts and time, effort, material, cost and weight comparisons over conventional designs.

Generative design and additive manufacturing (AM) technologies are often considered natural partners. This is because AM machines do well with the complex, organic shapes such algorithms often produce. However, AM is not a prerequisite for implementing the generative design. Modern generative systems can be configured to accommodate manufacturing process constraints.

This paper utilises generative design software capability from Autodesk Fusion 360. It uses cloud-based computing to generate these generative models. It takes inputs from the designer on his system and sends it to generate a cloud-based study, and the results can be further provided to the designer through cloud storage. The generative design provides a range of designs that a designer can select to further create the original design or use the same generated design for the product. This is a major advantage over conventional designing, where a designer works for a week and creates only two or three designs. In contrast, a generative design study can create hundreds of results overnight. Generative design has many applications in various industries like aerospace and automobile. Rover designs have been created through generative design, which resulted in a 30 per cent weight reduction in the rover structure and added a huge advantage. Autodesk and Volkswagen Group have tested generative design capabilities by recreating the Volkswagen bus using generative design and making it aesthetically look good and more fuel efficient.

This paper targets designing a jet engine bracket posted as a challenge by GE Aviation in 2013. These jet engine brackets play a crucial role in supporting engine weight. The design has to be done in such a way as to reduce the mass of the bracket without compromising strength and stiffness using generative design. These brackets stay on the engine all the time. The target is to reduce the weight and ultimately increase operating profit margins. The structural constraints are defined at the base of the bracket mount. The next step involved is creating preserved geometry, not deforming where the bolts must be mounted and the hinge used to lift the engine.

After that, obstacle geometry ensures not to add unnecessary design in the defined space. The applied loading conditions include static vertical loading of 8000 lbs, horizontal loading of 8500 lbs and loading at 42 degrees from vertical of 9500 lbs outwards. Static torsion of 5000 lb-in is also applied at the hinge. The study objective was to minimize the mass with a factor of safety limit 2. Titanium 6Al-4V was assigned as material for the study. The initial mass of the bracket was 2052.17g. After the study is initiated, several models with different mass reduction and strength are created, and the required model as per strength and mass is selected. After the study is completed, the mass of the final design is 1038g. This mass reduction directly

links to lean manufacturing, which involves the reduction of waste. W.T. Carter et al. have mentioned that this small mass reduction is very important to airlines. The paper mentions that the average fuel cost is \$4500 or \$56 per passenger, and assuming the average person weighs 200 lb, including luggage, the fuel cost is \$0.28/ lb per trip. If one pound of weight is saved from all of its aircraft, the airline will save over \$380,000 annually. The mass from 2052.17g to 1038g will result in savings of \$89.3 million per year. So, using generative design to reduce

the mass without affecting the strength and stiffness of a part demonstrates lean manufacturing using advanced technologies. Further details of the generative design and results will be presented in the full-length paper.

Keywords: Sustainable aviation; Generative design; AI-based computational design; Lean Manufacturing; Topology Optimization; Additive Manufacturing

Building a TISM Based Conceptual Model of Antecedents and Consequence of Resilience in Small and Medium Enterprises (SMEs)

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Abstract

Small and Medium Enterprises (SMEs) are regarded as backbone of economy of nations across the globe. Regardless of their size, SMEs contribute significantly to the GDP and employment generation. Nevertheless, uninterrupted and unpredictable events coupled with inherent characteristics put SMEs at risk and make their survival questionable. However, by leveraging strengths and building necessary capabilities, SMEs can become resilient, manage and survive in the face of volatile environments. Therefore, identification of antecedents of resilience and their further analysis is very important to enhance the resilience of SMEs ecosystem and related policy formulation. Therefore, the present research explores and analyses the enablers that SMEs need to develop to improve their resilience. In this connection, the study adopts a qualitative methodology, expert opinion and Total interpretive structural modelling (TISM), to identify the antecedents of resilience in SMEs, and to analyse the inter-relationships among them. Further, based on the analysis, a conceptual model is derived. This model helps better understand how antecedents of resilience in SMEs and its resulting consequence are inter-related. Findings of the study are help the policy makers in drafting a robust policy to build resilient SMEs ecosystem. Further, the findings help SMEs managers to acquire necessary capabilities to build resilient SMEs.

Keywords: SMEs; Resilience; Antecedents; TISM

A Review of Machine learning Techniques in Traffic congestion prediction towards Sustainable Traffic Management Systems

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Abstract

Traffic congestion has developed into a serious problem on a global scale in the current situation. It is essential to comprehend the topic's finer details because the problem is an interdisciplinary challenge and encompasses areas from traffic management, information & communication technology use, and transport planning. The literature that already exists describes diverse studies, technologies, models, databases, and data extraction techniques for identifying, detecting, and forecasting traffic congestion scenarios. Depending upon the variety of traffic data, anomalies, crashes, congestion measures a variety of machine learning techniques finds its application. Our study suggests an approach combining Scientometric analysis with critical evaluations for a better understanding of the research topic. It makes it simple to understand the structural elements of the study theme, its importance, the current state of the issue, its past and present contributions to the theme, as well as prospective future contributions. The paper discusses traffic congestion in the context of forecasting, managing and anticipating it. Therefore, the study's goal is to determine author cooperation and collaboration, as well as the influence of each author's work, journals, and keywords. To determine the study theme's present and developing trends. To ascertain how the chosen field's knowledge base was formed. And to ascertain the evolution of the Knowledge domain for the chosen Research theme, the Co-Authorship network, Keyword Co-occurrence network, Document Co-Citation Networks, and Dual map overlay have been produced.

Keywords: Traffic Congestion; Scientometric Analysis; Co-citation networks; Cluster Analysis; Dual-Map Overlay

Subsistence Marketplace: A Structured Review and Implication for Future Research

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Abstract

The subsistence marketplace has received increasing attention from academics and practitioners across the management domain considering its huge market size. An analysis of existing literature suggests that research has been conducted in diverse areas and there is a need to integrate the diverse literature to identify different themes of research. To bridge this gap, this study presents a structured review of 94 articles published on the subsistence marketplace in the last five completed years, 2017-2021. It organizes the research into eight themes while studying thrust areas in each of the themes. Based on this research presents fruitful areas of future research.

Keywords: Subsistence marketplace; structured review; systematic review

Social Learning and Development in Organization: Nudge Theory a Tool

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Abstract

Heraclitus- “Change is the only constant”. Homo sapiens have always been resistant to change, be it change in behaviour, organization or external environment, this is nature, or this is how we are grown up. Humans by and large do not want to change their behaviour, knowingly or unknowingly. Change is not easily acceptable to humankind. But change is required otherwise, the existence of humankind is not possible. We have witnessed in the ice age how humans used to live, and with the adaptation of climatic changes, humans are still existing, how could they sustain? This can be achieved with the enforcement of learning. Humans learned the art of living with change in the climate. The paper discusses the theoretical and administrative ramifications of the significance of social learning and, most crucially, Nudge theory. On the basis of the study's existing findings, further research directions are recommended.

Keywords: Learning; Social Learning; Nudge Theory

Analysis of Secure Architectures using Hash Function Based on FPGA for Block Chain Enabled IoT Devices

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Abstract

Currently, a large number of cryptographic techniques have been developed to safeguard users' original data. In a variety of applications, cryptographic hash functions are employed to safeguard the validity and integrity of data. The most crucial primitive for data integrity and authentication is the hash function security. A cryptographic hash function serves as the foundation of the blockchain technology, which is built on cryptographic principles. Due to its recent integration with Internet of Things technology in different fields, blockchain is gaining popularity. Therefore, it remains difficult to deploy existing blockchain technology. Due to their high performance and low power consumption, application specific integrated circuits have served as primary substrate for lightweight cryptography up to this point. They can only be used in high volume applications because to their lengthy design cycle and extremely expensive non-recurring engineering costs. The power consumption difference between ASICs and FPGAs has started to close in recent years thanks to the development of low-cost, high-power Field Programmable Gate Arrays. This research provided an analytical assessment of secure designs for block chain enabled Internet of Things devices employing hash functions based on FPGA while considering high speed and small-area hardware architectures.

Keywords: Blockchain; field programmable gate arrays; internet of things; hash function.

How exceptional students can break-out in Challenge Countries: Examples of IIT student's short explorations in Japan

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Extended Abstract

Introduction

Indian Institutes of Technology (henceforth called IITs) has many achievements and contributions, including in helping nurture leaders for industrial competitiveness (e.g. Momaya, Bhat, Lalwani, 2017). However, trends seem to be downtrend in identifying and mentoring high potential students. For several reasons, exposure to East-Asia can open up unique opportunities for exceptionally capable IITB students.

The key objective of this exploratory study is to diagnose the problem to identify some success examples of alternate pathways. Sub-objectives can be listed as:

- Define institute effectiveness (e.g. for such a niche challenge arena)
- Find mid-to-long term advantages of taking such challenge: e.g. for
- Evolve factors and criteria to diagnose gaps
- Identify alternate paths, and long-term effectiveness of popular paths

From a practical view, we are trying to address questions such as: What are facts about trends of IIT students entering Japan thru different channels? Which channel had & can in future provide, a better learning for the students and researchers? Which other IITs seems to be moving faster?

Very Brief Literature Review

Considering the practical and exploratory nature of this study, the literature reviewed is discussed very briefly. The discontinuities such as Global Financial Crisis (2008) and corona crisis have encouraged major rethink on the paradigms of development we have been evolving over years and their sustainability. For instance, the dual diamond model of competitiveness that is smartly leveraged by the USA for competitiveness of their software, finance and other industries has limitations and can have adverse implications for competitiveness of the same industries in India.

Cooperative strategies between countries in the same region (e.g. Asia) may have better sustainability. The recently evolving competitiveness Assets-Processes-Performance (Competitiveness APP) framework indicated better opportunities for cooperation among the relevant countries in context of emerging industries such as nanotechnology as compared to diamond framework (Momaya, 2011). The

competitiveness APP framework has been applied across industries from mature industries (e.g. Architecture, Engineering, Construction, Operation and Maintenance {AECO}, Bhattacharya et al., 2021; Construction, e.g. Bhattacharya et al., 2012) to emerging industries such as telecom (e.g. Gupta et al., 2021), renewable energy (e.g. solar, Momaya and Chachondia, 2013) and has been found quite useful in context of start-ups.

Methods

For this practical study, we adapt a qualitative approach that draws on rich international experiences of select authors complimented by analysis of secondary data. Collectively, the authors have more than 12-person years of rich international experiences of entering in and doing immersions in advance countries of both the West, as well as East. For secondary data, sources included reports from academia, consulting firms, papers and other archival data in multiple languages including Hindi, English and Japanese.

Emerging Findings

The findings at this stage are very indicative, but sharper findings are emerging as we link data with experiential insights. International exposure at early stage can have major impact on constructs such as “International orientation”, “Strategic orientation” of a professional when s/he starts climbing the ladder in corporate world, particularly emerging multinational enterprises (EMNEs) from India. As born multi-lingual, many Indians are quite adept at learning an additional international language; early stage immersions help them achieve depths needed for professional experiences in international (e.g. R&D, Design / Engineering to management) contexts.

Sustained rise of Asia, not only in manufacturing, but even in knowledge and technology management, hints at major opportunities to correct imbalances. For instance, Anglo-saxon countries (USA attracted > 133k Indian students in 2019; Australia > 93k; Canada>74k) are attracting more than 80 % of outbound students from India. Japan attracted less than 0.25 % and each other East Asian country less than Japan (see Figure 1). At the same time, India’s dependence on the East Asia for manufactured goods, components, technology and finance is rising rapidly. For example, electronics and related industries are creating major imbalances in trade, technology and finances between India and East Asian countries. Such balances will have to be addressed and exceptional students, who pioneer entry can play a leader’s role.

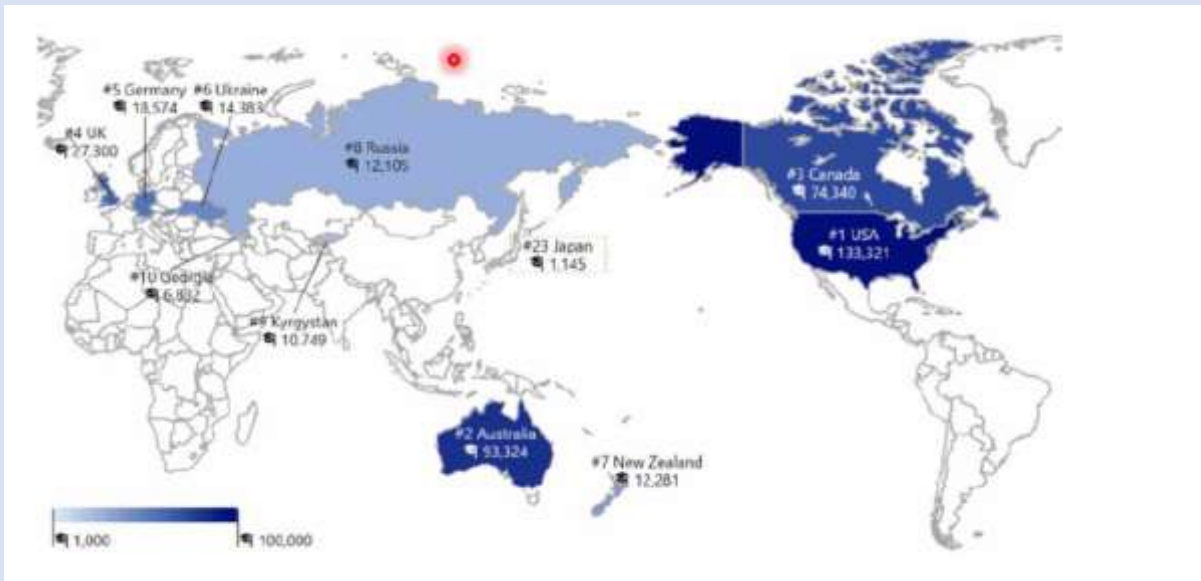


Figure 1. Glimpse of vast gaps in entry strategy of Indians in Japan as compared to select countries; Indian outbound students (Top 10 countries + Japan)

Considering perceived complexity in East Asia, we found that short-term exposure (e.g. 1 week to 8 weeks) can be low hanging fruits, before the students explore longer immersions (e.g. for graduate study or work). Conferences can provide an exciting opportunity to explore a country at low risks. For instance, GLOGIFT conference was taken to Japan in 2010 and provided affordable exposure to more than 20 people from India, including several students.

In next phase, we plan to explore the root causes of the vexing problem “

Starting from Japan (the most tried route by many IITB students), structure the problem “Major Gaps in IITB-Japan exchanges of students and experts” using a classical approach of “Problem Structuring” (for steps see, Momaya, Bhat and Lalwani, 2017) that has been used widely.

Keywords: International competitiveness; Cooperative strategies; Break-out in East Asia; Firm competitiveness

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Entrepreneurs' Strategic Responses to Covid-19

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Abstract

The COVID-19 pandemic triggered a renewed interest in understanding firms' strategic responses to crises. Retrenchment, persevering, innovating, and exit were identified as four strategic responses based on prior literature. We study the actual strategies employed by entrepreneurs in India, the third-largest startup ecosystem in the world, with all the pandemic problems accentuated in the developing economy context. Except for 'exit,' we found the three other strategies in implementation, and we discovered 'diversification' and 'alliance formation' as two additional strategic responses by these entrepreneurial firms. This study contributes to enriching our understanding of the strategies of entrepreneurial firms under conditions of uncertainty.

Keywords: Entrepreneurship; COVID-19; Crisis; Strategic response; Strategy

Investigating Capabilities of Business Process Modelling to Obtain Sustainability Scoring of Textile Fabrics via Green Business Process Management and Life Cycle Assessment

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Abstract

Textile processes are resource intensive and lack transparency in quantifying the environmental impacts of processes. Business Process Modelling using standardized notations enables process visualization and analysis, yet less is known about its applications in textiles. Based on a case study from a Berlin-based sustainable fabric retailer, this study investigates the capabilities of Business Process Modelling to obtain sustainability scoring of the textile fabrics to contribute to the existing body of knowledge. Using the Life Cycle Assessment method, four types of fabric finishing processes were modelled, and their sustainability scores were calculated using eight indicators identified in the literature. The findings show that when used in conjunction with the Life Cycle Assessment method, Business Process Modelling offers potential value to investigate and identify critical tasks, activities, and elements associated with the environmental impacts, yielding a transparent and comparable sustainability scoring.

Keywords: Business process modelling; textile fabrics sustainability; sustainability scoring; life cycle assessment; Green BPM

Does Social Mobilization effects the Financial Inclusion and Livelihood Promotion? Evidence from Sundargarh District of Odisha

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Abstract

Purpose: The purpose of the study is to assess the effect of social mobilization on financial inclusion & livelihood promotion among the tribal women of Sundargarh district (Odisha). Social mobilization is the process of mobilizing the rural poor into groups, community, team etc. This study focuses the social mobilization process performed under National Rural Livelihood Mission in Odisha.

Methodology of the Study: The study has interviewed 348 self-help group members from the tribal regions of the Sundargarh district. To evaluate the theoretical framework, the study selected the beneficiaries of National Rural Livelihood Mission which is the livelihood development scheme implemented nationwide in 2011 including Odisha.

Results: Social Mobilization facilitates in group formation, social capital development. It has positive and significant impact on financial inclusion. The respondents have formed a self-help group through social mobilization process under the NRLM scheme. In addition, through SHG-Bank linkage process, members of the self-help groups linked with the banking system. It is observed that SHG beneficiaries have engaged themselves in various economic activities such as mushroom farming, grocery shops, poultry farming, production of food and household items, tailoring etc. in order to fulfil their basic needs of life. It is evidenced that regular participation in the group activities have developed their socio-economic conditions. Therefore, social mobilization has positive and long-term effect of financial inclusion and livelihood promotion in Odisha.

Originality/Novelty: There are lacks in literature that covers the financial inclusion and livelihood development of tribal community in Odisha. So, the study focuses on the social mobilization process of the tribal women of a backward district i.e., Sundargarh of Odisha and asses its impacts on financial inclusion and livelihood promotion.

Conclusion: Social mobilization process of tribal women under the NRLM scheme facilitates in formation of a strong social capital among group members through regular participation in the group activities. In the meantime, these groups were facilitated by the mission coordinators and the groups linked to bank or financial institutions. Participation in group activities and availability of financial services fuel the group members towards entrepreneurial activities and hence livelihood got promoted among the tribal women of Odisha. So, the main root of the study is the social mobilization that directly and indirectly promotes the financial inclusion and livelihood promotion.

Keywords: Social Mobilization; Financial Inclusion; Livelihood Promotion; Tribal Women; NRLM

‘Tough times call for flexible implementations’: Exploring the relationship between human resource flexibility, organizational resilience, and organizational performance

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Abstract

In recent years, the concept of organizational resilience has become the new buzzword amongst corporate leaders and executives. The changes and disruptions in the business environment, such as the global pandemic of 2019, force organizations to keep operating under high levels of uncertainty. Management scholars necessitate organizational resilience as a greater source of thriving and renewal in times of adversity. However, the challenge lies in identifying the factors that contribute to such resilience. Previous literature has highlighted the positive role that individuals can play in anticipating and responding to a complex-and-dynamic business environment. In this regard, we emphasize the need to build on the inherent flexibilities of an organization’s internal resources embedded in the form of human resource (HR) flexibility to anticipate and respond to the complex and dynamic business environment and contribute to organizational resilience. Further, organizational resilience leads to greater organizational performance. Thus, we propose a conceptual framework in the form of an antecedent-consequence model of organizational resilience that explores the relationship between human resource (HR) flexibility, organizational resilience, and organizational performance. Research hypotheses and future research agenda are also discussed.

Keywords: Organizational Resilience; Internal Flexibility; Human Resource (HR) Flexibility; Organizational Performance; Strategic Human Resource Management

Modelling economic sustainability practices in the Indian healthcare sector: An integrative decision approach using AHP and e-IRP

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Extended Abstract

Purpose: Amongst the 17 Sustainable Development Goals, put forward by United Nations Development Program (2015), ‘health’ occupies a critical position being a key feature of human development and has a significant impact on the three pillars of sustainability i.e. social, environmental, and economic determinants. Nevertheless, many researchers have noted negative environmental impacts caused by healthcare, and numerous studies have focused on environmental impact mitigation. Thus, a better understanding of the economic, environmental, and social impacts of healthcare organizations is needed Globally, healthcare systems struggle to maintain service delivery due to rising demand, limited resources, and rising user expectations. In addition to addressing the consequences of the Covid-19 pandemic and the risk of other outbreaks, never before has it been more crucial to sustain innovation and development, and the ability to redesign sustainable services is essential for the future delivery of effective and efficient healthcare worldwide.

Healthcare has become one of India’s largest sectors - both in terms of revenue and employment. It is growing at a brisk pace due to its strengthening coverage, services and increasing expenditure by public as well private players. With the growing population, increased consumption of resources, and rise in ‘lifestyle-oriented’ diseases, the future of this industry and its working will have a huge impact on the country’s development. However, the expenditure on the Indian healthcare sector both from public funds as well as private sources is amongst the lowest in the world and a large number of challenges need to be addressed urgently. Also, the economic crisis has severely impacted the sustainable structure of enterprises, particularly in developing nations such as Brazil and India. Although sustainability focuses on preserving resources for future generations and encompasses three aspects - environment, society, and economy referred to as a triple bottom line (TBL) approach, social sustainability, which the majority of researchers refer to as corporate social responsibility (CSR), and economic sustainability, which focuses on organizational cost reduction through the adoption of sustainable practices, have not received as much attention as environmental sustainability, particularly in emerging economies. These two dimensions have experienced a more severe crisis, as society and the economy have been affected the most and are attempting to recover.

Limited research has been conducted on these areas which primarily represent the contexts of developed nations. Even within those studies, the social and economic factors often integrate with the environment either separately or together through a TBL approach. As a result, in this study, we concentrate on the concept of economic sustainability in India's healthcare sector to cover the setting of a rising economy.

Hence, on the basis of literature synthesis, the following research gaps highlight the significance of this study: first, there is a need for such studies that focus on the economic aspect of sustainability practices in the healthcare sector; second, there are very few studies that focus on economic sustainability in emerging economies; and third, only a few pieces of research have attempted to use a hybrid decision approach based on AHP and e-IRP TO methodologically assess the dominant interactions between the actions (criteria) for economic sustainability practices in the healthcare sector. The Interpretive ranking process (IRP) is a multi-criteria decision-making procedure based on an interpretive paired comparison. e-IRP is the modified version of IRP and incorporates implicit and transitive dominance in pairs. Therefore, the e-IRP technique enables decision makers to comprehend the interpretive reasoning underlying the superiority of one component over the other in each pair-wise comparison. Whereas, AHP is a highly effective multi criteria decision-making technique for addressing the complexity of decision-making and it enables decision-makers to simplify complex problems and depict them in a hierarchical format. The findings are expected to investigate and illustrate the relationship between economic sustainability practices in healthcare organizations and various performance outcomes.

Hence, based on the gaps mentioned above, this study has three main research objectives:

1. Determine the most relevant criteria for economic sustainability practices from the literature in the context of healthcare.
2. To analyse the identified criteria for economic sustainability practices by evaluating the logic for the dominance of one element over the other in each pair-wise comparison using e-IRP in relation to performance objectives identified.
3. To prioritize the identified criteria (actions for economic sustainability practices) for strategic decision-making using the Analytic hierarchical process (AHP).

Design / Methodology / Approach: The study applied a combined approach based on multi-criteria decision-making methods - the Analytical Hierarchy Process (AHP) and the efficient interpretive ranking process to examine the criteria for economic sustainability practices identified from the literature implemented in the healthcare organizations. The results based on the analysis of AHP and e-IRP are expected to illustrate the relationship among the criteria for economic sustainability practices in the healthcare organizations.

Findings: The present study identified the following criteria from the literature for economic sustainability practices in the healthcare sector:

- Innovation
- Corporate governance
- Risk and crisis management
- Brand management
- Procurement practices
- Revenue diversification / Financial planning

The above-mentioned economic sustainability practices (ranking variables) were ranked against the following sustainable performance outcomes (reference variables) in the e-IRP approach:

- Economic performance
- Social performance
- Environmental performance
- Competitive advantage

The findings based on the ranking of economic sustainability practices with respect to various performance measures on the dominance index in the e-IRP approach suggest that innovation and technological management play a significant role in guiding the overall performance and competitive advantage in healthcare organizations.

However, AHP analysis of the economic sustainability practices reveals that risk and crisis management has the first priority, followed by innovation, corporate governance, procurement practices, revenue diversification and brand management according to the obtained weights to attain economic sustainability in the healthcare organizations. Hence, the results of the comparative analysis of the criteria introduced in this paper could help simplify the decision process.

Research limitations and future research direction: The current study focused on the economic aspects of sustainability in the healthcare sector; nevertheless, there is still a gap in defining the social and environmental aspects of sustainable practices in the healthcare industry. As a result, future studies should study the three sustainability aspects in the healthcare setting and empirically validate the model to investigate their impact on healthcare performance. Other modelling approaches, such as TISM and SEM, can be used to supplement the research.

Conclusion: The ranks produced from the usage of the efficient Interpretive Ranking Process (IRP) and AHP on economic sustainability practices may assist policymakers and healthcare administration in making more informed judgments regarding healthcare services. Consequently, hospital administration should explore diversifying economic sustainability strategies in light of the study's findings about the integrative decision-making approach. The model proposed in this study provides a

logical framework for comprehending the significance of various economic sustainability practices in strategic decision-making processes and would aid managers and practitioners in interpreting the impact of key strategic practices on the performance of healthcare organizations.

Social Implications: This research sets the path for a better understanding of sustainability practices in the healthcare sector. By examining the economic component, this study provides a platform for future studies on the transition to sustainable healthcare.

Originality/value: This research is one of a few studies that examine the economic aspect of sustainability practices in the healthcare industry with the simultaneous utilization of AHP and e-IRP.

Keywords: Sustainability practices, economic sustainability practices, e-IRP, AHP, healthcare sector, multi-criteria decision-making techniques, healthcare performance.

Modelling Change Forces Affecting Employee's Well-Being – An Integrated IRP-ISM-TISM Approach

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Extended Abstract

Purpose – Today's dynamic business environment is characterized by unprecedented organizational changes at a very large scale. Acceleration of the digital transformation of organizations, increased administrative use of temporary and gig workers, and altered work tasks for new product development have created an urgent need for frequent and high-quality organizational management-to-employee communication in the business world (Connley, Hess & Liu, 2020). Faced with these unprecedented problems, firms must adapt to improve their external and internal functioning by modifying their business continuity plans, updating their workforce management strategies and policies, and downsizing (American Productivity & Quality Center, 2020). To successfully implement changes and minimize their negative effects, it is crucial to have a comprehensive understanding of the attitudes and behaviours of employees toward the changes (Shin, Taylor, & Seo, 2012). Organizational change, particularly unplanned organizational change, can result in many problems, questions, and uncertainties for employees, which can negatively impact their relationships with their businesses. Negative feedback and reactions to organizational change from employees, such as resistance, resentment, and disengagement, can impede the success of organizational change implementation (Oreg, Bartunek, Lee, & Do, 2018).

Large-scale organizational changes occur with increasing frequency (Bughin, Hung Byers, and Chui, 2011; De Meuse, Marks, and Dai, 2010) and are a significant predictor of employee attitudes and behaviors (Conway et al., 2014; van den Heuvel et al., 2013; Meyer et al., 2010). Exposure to organizational change negatively impacts well-being at work, as measured by a variety of indicators, such as an increased risk of mental health problems (Bamberger et al., 2012; Loretto, Platt and Popham, 2010), increases in poor self-rated health (Ferrie et al., 1998; Kivmaki et al., 2001), and adverse sleep patterns (Ferrie et al., 1998). Therefore, researchers have established that organizational transformation events are connected with decreased employee well-being (Bamberger et al., 2012; Benach et al., 2014). Further, the job demands-resources model advocates that job demands negatively impact employee health and well-being (Demerouti et al., 2001). Therefore, it becomes imperative to study the role of forces of change in influencing employees' subjective well-being.

India's Information Technology and Information Technology Enabled Services (IT-ITeS) sector is undergoing a rapid transformation that is altering the business climate in India. It consists of software creation, consulting, software management, online services, and business process outsourcing (BPO). It is the largest private sector employment and contributes around 8% of India's GDP (2020). The Indian IT sector is one of those industries that must undergo continuous change to survive. Innovation in technology and the creation of new products and software are vital to the IT industry's ability to compete and thrive in the commercial sector. Consequently, it becomes crucial to effectively conduct change initiatives that successfully manage change and combat its counterproductive behaviors. Therefore, the experts in this study were employees working in the Indian IT sector.

Firstly, the purpose of this study was to identify the change forces operating in the Indian IT industry based on a literature review. These forces were validated by selected experts from the Indian IT industry. Secondly, these forces were ranked by the experts with reference to influencing employees' subjective well-being. Qualitative techniques were used to develop this hierarchy of inter-relationships of change forces. Thus, this study presents an IRP application for change forces and deploys TISM to derive weights of reference variables in IRP.

Methodology – In this study, an integrated approach of Interpretive Ranking Process (IRP) and Total Interpretive Structural Modelling (TISM) is adopted to identify and rank the change forces relevant to the Indian IT industry. The interpretive ranking process (IRP) was used in this study to study the inter-relationships among actors and performance variables. The methodology based on the interpretative ranking process (IRP) is used to rank the actors concerning measurable performance measures. All factors are allocated equal weights in the Interpretive Ranking Process (IRP) approach. When situations contain a large number of variables, the IRP complexity level is greater than any other qualitative technique. Therefore, this study aimed to rank and investigate the inter-relationships between forces of change and the subjective well-being of employees.

In this integrated methodology, IRP was used to rank the initiatives based on their benefits in the form of the well-being of employees. These rankings are verified by quantifying each initiative's dominance using TISM-derived weights for the criterion. The dominance matrix in IRP is often created by counting the dominance associations. However, differing criteria's weights (reference variables) could impact the final ranking. The paper used a novel methodology developed by Sushil (2017). The weights of the criteria are determined using TISM in this integrated methodology. The weighted criteria are used to execute the IRP, which has improved the value of the net dominance of various variables and increased the effectiveness of the IRP in decision-making.

Findings – The IRP model depicted that new technology was the most significant force of change in the context of employees' subjective well-being. The IT industry has to deal with continuous

upgradation and shift in technology. This also means unlearning the current mode of working and skills. This creates both a positive impact in the form of engagement and accomplishment of employees and also a negative impact in the form of work-life conflict, tighter deadlines, and workload. New technology and innovation, as a driving force behind change in the IT sector, encourage companies to adapt in response to changing market demands. This explains the significance of new technology's force in influencing employees' subjective well-being. The second most crucial factor came out to be globalization. The world these days is witnessing large-scale implementations of artificial intelligence, cloud computing, and machine learning. Companies are becoming increasingly globalized, which has led to drastic changes in their day-to-day operations. The information technology sector is one of those sectors impacted by globalization the most because organizations have to undergo technological advancements to compete with others. As a result, globalization is essential in bringing organizations onto the path of change initiation in this study. The third most important force of change came out to be competitive pressure. The business world is facing tremendous changes that force organizations to adapt and respond quickly. These pressures are causing strain on employees who have to upskill themselves regularly. New opportunities and customer needs were ranked next in the IRP model. The Indian IT industry now has more opportunities for growth owing to advances in artificial intelligence, cloud computing, and machine learning. A robust national research plan and higher education policy have produced a supply of highly valuable skills that support the IT industry. Additionally, earlier mission-oriented policies supported the development of efficient technology districts, which have recently given rise to many start-ups and creative IT companies. Along with the digitalization of many other industries, new software development models have emerged due to shifting client demands and mounting innovation pressure. This has changed conventional methods for managing software development, leading to more intricate organizational structures and coordination between various levels of management, staff, and other departments. Competitive advantage is established in Industry 4.0 through close collaboration with partners, effective change management, adequate adaptation capacity in the organization chart at future postings, and investing in new technologies. Internet speed, IT sector development, and cutting-edge technology are currently in place in large-scale production facilities. Mergers and acquisitions and government policies and legislations were ranked the last in the hierarchy of forces of change. They had the most dependence power in all seven forces of change. Government policies and legislations have a limited role to play in the Indian IT industry because its working does not require government sanctions. Therefore, government policies and legislations were dependent on other forces of change. Our findings, thus, reveal new technology and globalization as the two most fundamental change forces driving well-being.

Value/Contribution – This study is the first attempt to use an integrated approach of IRP and TISM to rank the “forces of change” with reference to the "subjective well-being” of employees. No previous study has examined such a relationship by using this methodology. This study is a novel attempt deploying the multi-criteria decision-making (MCDM) technique in the area of change and human resource management. In this study, a newly developed ranking system called IRP is being used to rank change forces operating in the Indian IT sector. This study has provided a framework that practitioners can use to effectively manage change forces in their organizations and improve their employees' well-being.

Limitations – Although the research provided a framework for the TISM-IRP approach of multi-criteria ranking, it has to be further investigated with a more objective method for managing forces of change and subjective well-being. Secondly, although the premise of determining the weightage of criteria using TISM has been ascertained, the comparative advantage of the suggested method relative to the weights determined by other methods such as AHP, TOPSIS, etc. has not yet been determined. Also, this study examined forces of change in India's IT industry, which could affect the generalizability of the study's results. Future studies can undertake this research in other sectors, such as the manufacturing and services sector. This study included forces of change affecting the well-being of employees. Future studies can explore other forces which are important for IT sector employees. Finally, other MCDM techniques such as ANP, TOPSIS, AHP, DEMATEL, etc, or their integration can be used for examining these relationships.

Keywords: Forces of change; Subjective well-being; Interpretive Ranking Process (IRP); Total Interpretive Structural Modeling (TISM); Indian IT industry

The effect of Participative Management style on Employee Learning: The Mediating of Strategic Planning Processes

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Abstract

This paper integrates the organizational learning theory with resource-based theory to examine the effect of strategic planning processes on participative management and learning at work relationships using the mediation model. The hypotheses were checked on a sample of 480 employees employed in India's public and private sector organizations, using Structural equation modelling to test model fit. A mediation analysis using the Hayes PROCESS macro was conducted to assess the hypothesis. The finding of the study advocate that the participative management style is positively related to learning at work. Furthermore, strategic planning processes have mediated the association between participative management style and learning at work. Results asserted that managers and practitioners should emphasize participative management and empowerment in the organization rather than the typical hierarchical structure. The study's findings imply that adopting a participative management style can be placed in position by giving employees access to strategic planning procedures, which will boost learning at the workplace. The contemporary study is pioneering in examining the proposed model connecting participative management style, strategic planning processes, and learning at work.

Keywords: learning; participative management; strategic planning processes

Study and Analysis of Wastage Reduction of Wire in hose manufacturing using DMAIC Methodology of Six Sigma

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Abstract

The waste reduction is a matter of significant concern in a Hose manufacturing facility. In Gates India Private Limited, Wastage of wire is only in Rewinder and Spiraller machine. DMAIC Methodology is used to reduce the wastage of wire scrap in hose manufacturing. To find the reasons behind the wastage of wire, data is collected in several ways: Visual inspection of process, time study, Information from staff, line members, production reports. Root cause analysis is performed which helps to determine the exact reasons behind the problem. Well defined implementation plan is prepared for clear communication. The performance of line was monitored on a continuous basis for improvement. Six Sigma DMAIC methodology quality techniques can be successfully used to achieve high production rate, reduce losses and help to reduce wastage. The results reveal that the role of experience of every individual and working together as a team plays a vital role for the improvement in wastage reduction. Implementation of skilled operators reduces the wire scrap about 50%. Further, the study concluded that Setup end problem is solved on spiral machine by replacing the wire counter meter on rewinder machine. The wire broken problem is explained and resolved to some extent by reducing taper rewinding, taper routing, cross routing, regular checking the pack tension and regular preventive maintenance of bobbin pack.

Keywords: Improvement; Production Efficiency; Six Sigma; DMAIC; Manufacturing

Flexible HR Response Strategy Framework Through Network Analysis of Email Communication: A Select Study

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Abstract

Employee engagement and satisfaction is crucial for any IT organisation, more so because it suffers from a very high attrition rate (Harikumar et. al, 2022). There is a need to be responsive to their intellectual and development needs within the organisation. Staff email communication is expected to be a key indicator towards flexible corporate planning and employee engagement strategies. Through this channel employees can share their views and concerns with the human resources department.

The current study uses the qualitative methodology of cyber-ethnography for further insights to suggested remedial strategies. Cyber-ethnography has emerged as an appropriate tool in the digital community research. The interpretative research methods traditionally associated with the social sciences enforce preconceived ideas and normative. Cyber-ethnography allows a reflexive methodology to emerge, thus enabling the participants of virtual communities to define their own reality and perimeters.

The research suggests techniques of utilising the tools of machine learning, topic modelling, network analysis and graph visualisation to analyse large volumes employee email conversations with the department of human resources. The results of the analysis can be utilised to conceptualise flexible response strategies of employee engagement for better organisational, financial, and operational outcomes.

Keywords: Strategy; Flexibility; Human Resource; Network Analysis; Email Communication; Topic Modelling; Machine learning; Graph

Corporate Social Irresponsibility

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Abstract

The concept of Corporate Social Responsibility (CSR) is widely used in common parlance amongst the business world at current times which can be noticed through a myriad of complimentary transformations in their proclamations and publications. Mounting attention has been given to the narratives and notations on CSR in the past literature (Flammer, 2013) and its impact on firm performance. However, its counterpart CSI is often assumed to be taken implicitly in the CSR literature. This paper provides a discussion of Kölbel et al. (2017), which explored the relationship between Corporate Social Irresponsibility and Financial Risk by analyzing 539 international panel firms issuing public debt covered by the database RepRisk AG during 2008- 2013.

Keyword: corporate social responsibility; corporate social irresponsibility; RepRisk; financial risk

Impact of Enterprise Flexibility on Firm's Competitiveness: An Empirical Study of Select Pharmaceutical Firms in India

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Extended Abstract

Purpose – Today's business environment is highly dynamic and uncertain, and it is becoming increasingly important for businesses to incorporate flexibility into the processes for their survival and to maintain competitiveness. This prompted us to investigate how organizations deal with the problem of flexibility and its interrelationship with competitiveness. Due to the pharmaceutical industry's dynamics and uncertain environment, it is critical to investigate the role of various forms of flexibility in increasing competitiveness. The research objective is to investigate the relationships between enterprise flexibility and competitiveness at the macro and micro levels using the statistical tool Multiple Regression on sample data collected during an empirical survey.

Design/methodology/approach – The data were collected in the form of a structured questionnaire from 324 higher-level managers in Indian pharmaceutical firms. Hypotheses were framed in order to check if enterprise flexibility is a predictor of firm competitiveness. To find out the relationship between the research variables, multiple regression analysis was applied.

Findings – In this paper, an effort has been made to understand the significance of enterprise flexibility as a key resource for enhancing competitiveness in the face of today's VUCA environment. According to regression analysis, enterprise flexibility is a strong predictor of competitiveness. The study also demonstrates that 'enterprise flexibility' significantly impacts firm competitiveness not only at the macro level but also at the micro level. All of the various types of enterprise flexibility have significant relationships with all of the micro variables of firm competitiveness.

Managerial Implications – The study's findings are expected to fill a knowledge gap among top executives in pharmaceutical companies, allowing a more effective strategy formulation. In the rapidly changing pharmaceutical sector, practitioners can use the interdependence of enterprise flexibility and firm competitiveness as valuable input.

Originality/value – In the Indian pharmaceutical sector, there is no research to find out how enterprise flexibility and firm competitiveness are related. As a result, it is critical to investigate the relationship between enterprise flexibility and competitiveness in the Indian pharmaceutical sector.

Keywords: Competitiveness; Enterprise Flexibility; Multiple Regression; Pharmaceutical Industry

Flexibility Versus Certainty About Taxing Digital Economy in Developing Countries: A Case Study of India

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Abstract

Indian taxation universe faces the challenge of characterizing income as royalty which is defied through devising new business models comprising of digital products and services combined with contractual arrangements between related enterprises. This paper investigates the flexibility of the Indian taxation institutions while governing the taxation issues of the Multinational Enterprises carrying out commercial activities in India under Digital Economy. A case study-based approach has been employed on data collected from judicial and quasi-judicial decisions made during the last 10 years of international taxation in respect of MNEs carrying out commercial activities. This study's results indicate that with the risk of withdrawal of equalization levy, uncertainty in overcoming the nexus and characterization threshold and the complexity of Pillar One implementation along with the narrowness of the number of companies coming under its scope, as of now, leaves the developing country like India in a lose-lose situation.

Keywords: Digital economy; Indian taxation; Tax avoidance; Multinational enterprises; Tax flexibility

A systematic review for application of emerging disruptive technologies for humanitarian supply chain management

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Abstract

Purpose: The purpose of this study is to review the past year's papers and develop a framework for understanding challenges and solutions to implement disruptive technologies (artificial intelligence, big data, 3-D printing) for humanitarian Supply Chain management. The growing importance of humanitarian operations has created an urgent need to overcome the challenges currently encountered on the ground. Delays, congestion, poor communication, and a lack of accountability may represent opportunities to test the reported benefits of emerging disruptive technologies. This study examines the literature on implementing disruptive technologies to unearth current trends and potential future research directions in humanitarian Supply Chain management.

Design/methodology/approach: This is a systematic review of humanitarian Supply Chain management published between 2012 and 2021. As a methodological approach, it uses a five-stage procedure for the review: formulation of the research question(s), locating and identifying relevant studies, selection and evaluation of studies, analysis or synthesis, and results reporting.

Findings: The implementation of digital technologies will help near-real-time information, visibility, traceability, and accountability. As a result, there may be less congestion in the supply chain, more options for relief fulfilment, and improved collaboration among stakeholders.

Originality/value: This study provides a comprehensive overview of the humanitarian Supply Chain management context, identifying areas of extensive and limited coverage. The literature on humanitarian supply chains focuses on isolated applications of technology, and there is a lack of a framework for understanding challenges and solutions, which this article aims to fill. Furthermore, it identifies potential future research directions on technology implementation, with the goal of hastening the transition for the benefit of funding bodies and researchers.

Keywords: Humanitarian supply chain management; artificial intelligence; big data; 3-D printing

Modelling the Adoption Factors for Developing Future Freight Transportation by Integrating Cyber-Physical Systems and the Internet of Things: A Theoretical Perspective

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Abstract

Digital transformation of various production and logistics systems required the integration of various functions. These functions are connected with cyber-space with the digital movement of goods. The Cyber-Physical System (CPS) and the Internet of Things (IoT) both have the potential to provide cyber connectivity with the physical object. Moreover, IoT will be helpful in providing interconnectivity for integrating value-added networks in freight transportation. Thus, integration of CPS and IoT will help to reduce the logistical, and operational costs and enhance freight transport dynamics to be more efficient, sustainable, and effective. Hence, modelling the CPS-IoT adoption factors is necessary to build futuristic freight transportation more efficiently. The proposed research framework is based on decision-making that identifies integrated CPS-IoT adoption factors based on a literature review and classifies based on the STEEP framework. The factors are analysed with the Interpretive Structural Modelling (ISM) approach. The theoretical model is validated with an emerging economies context. This study's findings can help freight transport organisations to improve CPS adoption decisions for providing clean and optimized freight transport operations and services. This study also captures managerial implications and policy recommendations based on Hierarchical Relationship Model to boost CPS-IoT adoption in emerging economies.

Keywords: Integrated CPS-IoT systems; Intelligent freight transport; adoption factors; decision-making; HRM

Best in some ways but not others: Paradox of stagnant institutional competitiveness despite competitive individuals

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Abstract

Indian Institute of Technology Bombay (IITB in short) is one of the oldest premier technical public educational institutions in Indi. It is regularly featured in many national and international rankings. However, despite being home to some of the brightest minds in the world and despite possessing very mature processes the institute seems to have stagnated massively on multiple fronts. In this exploratory study, we present the indicative findings of a preliminary research project conducted to collect and compile evidence to better understand the said paradox. In so doing, we add to the extant theory of competitiveness by factually verifying a paradoxical edge case wherein possessing world-class assets and best-in-class processes does not translate to improved institutional competitiveness.

Keywords: Institutional competitiveness; paradox; organizational flexibility; start-up competitiveness

A Comprehensive Review on Cross-Border Electricity Trade

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Abstract

Energy production and consumption-induced anthropogenic climate change has a severe environmental and economic impact, posing a major challenge for the society. Nonetheless, energy as a factor of production is crucial for sustainable economic development and social well-being. The significance and the need for affordable and clean energy can be gauged from Goal 7 of the UNSDGs (United Nations Sustainable Development Goals), which recommends “to ensure access to affordable, reliable, sustainable and modern energy for all”. Renewable energy is a viable solution for our energy needs as it not only aids in energy security but also facilitates sustainable development; however, the associated reliability and intermittency issues constitute the major barriers to renewable energy expansion. The extant literature suggests cross-border electricity trade (CBET) as a possible solution to these issues, thus providing a new direction toward energy cooperation and security. Although vast literature exists on cross-border energy trade, there is a dearth of comprehensive review of the same. The present work is an attempt to present a literature review on CBET as it is gaining importance among researchers for managing energy needs sustainably. We have classified the available literature into seven sub-domains. The first sub-domain discusses the techno-economic theoretical framework of CBET, while the second sub-domain focuses on some specific geographical regions of the world vis-à-vis CBET like Europe, South America, South Asia, North America, etc. The third sub-domain constitutes literature on CBET based on the methodological framework adopted by the researchers. The fourth sub-domain discusses the economic and environmental advantages associated with CBET. The fifth sub-domain deals with the importance of CBET and renewable energy nexus. The sixth sub-domain constitutes the research on impediments to CBET. Lastly, the seventh sub-domain comprises research on policies and recommendations for overcoming the barriers to CBET. The paper presents a thematic classification of the available literature and briefly explains the current state of CBET knowledge, which should be useful for future researchers and other stakeholders.

Keywords: Cross-Border Electricity Trade; Renewable Energy; Sustainability

Modelling Barriers to Blockchain Technology Adoption in The Indian Healthcare Sector: An MCDM (Multi-Criteria Decision Making) Approach

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Extended Abstract

Introduction: Blockchain is a revolution on par with the Internet. It is a revolutionary technology poised to have a tremendous economic impact equal to that of the Internet in recent decades. Experts hail it as internet 2.0. Finance, charity, retail, government, insurance, agriculture, and other industries actively use blockchain development services, and healthcare is no exception. It aids in the creation of well-defined workflows by making record and identity management, transaction processing and goods provenance, and traceability easier.

The decentralization of the web and the disintermediation of many online services will be enabled by blockchain technology. People's interactions with automated data processing and the IoTs (Internet of Things) have transformed how we used to store information, remember events, and recall them. Likewise, decision-making has also evolved into an art form.

According to Don Tapscott (2016), the scope of blockchain extends beyond financial services. There are many other potential areas, including voting, real estate, supply chain management, and healthcare. Healthcare is open for change since it faces issues that blockchain can address with its immutability, fraud prevention, and ability to transfer data between firms without requiring trust. (Bell et al., 2018). The Healthcare sector, in terms of revenue generation and employability, is one of the biggest sectors in India. It includes medical services, infrastructures like hospitals and clinics, medical equipment and its manufacturing units, medical tourism, medical insurance, the manufacture of drugs, and several other provisions that facilitate patient healthcare. It contains several industries of different natures, ranging from research and manufacturing to facilitating management. It is the sector that touches every person in and across the country in one way or the other. Researchers worldwide are indulging in studies investigating the scope of blockchain technology in the healthcare sector and tackling the challenges and problems to make it more efficient and easier to use. (McGhin et al., 2019).

Methodology: In order to integrate blockchain technology in the Indian Healthcare Sector, there are substantial potential barriers that we want to look into. A thorough review of the literature and the contribution of subject matter experts from the healthcare sector, academia, and IT professionals, helped to identify the constructs. A multi-perspective framework that combines elements of the technology–organization–environment (TOE) contexts for enterprises is used. The literature review

and expert interviews are followed by the Analytic Hierarchy Process (AHP). The AHP was developed by Thomas L. Saaty in the early 1970s and is a well-known and widely used multi-criteria decision-making process. The AHP is based on comparing criteria pairs followed by applying a methodology to calculate the relative importance of each criterion. Then, peer comparison scores the alternatives against the criteria to determine the best.

This paper identifies and later prioritizes 14 critical barriers in three categories: technological, organizational, and environmental (Table 1). This approach examines the relationships between identified constructs and assesses how strong those relationships are.

Table 1: Barriers to the implementation of Blockchain Technology in the Healthcare Sector

Dimensions	Factors
Technological	Complexity
	Compatibility
	Immaturity
	Security and Privacy Concerns
	Slow Processing Speed
Organizational	Lack of Adequate Skills
	Financial Barriers
	Lack of Management Commitment and Support
	Lack of Standards
	Lack of Awareness
Environmental	Legal Issues and Regulatory Challenges
	Market and Economic Readiness
	Security Concerns
	Lack of Government Incentives

The TOE framework is an appropriate and understandable way to group factors that affect the decision-making process for adopting innovative IT systems. From a theoretical perspective, the current work identifies the explicit characterization of the critical barriers to adopting Blockchain Technology as a more relevant contribution. This paper contributes to the identification of and determination of the relative importance of each barrier to the implementation of Blockchain in the healthcare sector of India.

From a practical point of view, this research contributes to the literature by providing expert insight on the topic. Another contribution of this work is that it compares the Barriers found in the literature with experts' opinions through the application of AHP.

Results and Discussion: To create the AHP questionnaire, the TOE framework was adopted to group the critical barriers validated by the literature and experts. As a result of the study, we obtained a set of barriers with priorities, which were determined based on the literature review and validated by the professionals who participated in the study (Table 2).

Table 2: Prioritization of the Barriers

Criteria	Sub-Criteria	Prioritization
Environmental	Legal Issues and Regulatory Challenges	1
Organizational	Lack of Adequate Skills	2
Technological	Complexity	3
Organizational	Financial Barriers	4
Environmental	Market and Economic Readiness	5
Technological	Compatibility	6
Technological	Immaturity	7
Environmental	Security Concerns	8
Technological	Security and Privacy Concerns	9
Organizational	Lack of Management Commitment and Support	10
Organizational	Lack of Standards	11
Environmental	Lack of Government Incentives	12
Technological	Slow Processing Speed	13
Organizational	Lack of Awareness	14

In a first comparative analysis, the essential criteria tend to be those linked to Technology, followed by those linked to organization and environment.

Keywords: Blockchain Technology; Technology Adoption; Healthcare; TOE; AHP, Fuzzy-DEMATEL

Flexible work practices during and post CoViD-19 pandemic crisis: Trends for sustainable HRM with a societal impact

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Abstract

Purpose – This study aims to explore the flexible work practices during and post the COVID-19 crisis and identify the trends and lessons for sustainable human resource management and its societal impact.

Design/methodology/approach – Research articles on work flexibility and flexible HR practices were downloaded from SCOPUS, and a bibliometric systematic literature review for exploratory analysis was conducted using VOSviewer software. Further, the topic modeling technique using Python software has also been applied to identify research themes published during and post the COVID-19 pandemic and suggest some future research directions.

Findings – The author found that employment conditions in terms of gig work, remote and hybrid work, work load, work-life balance and mental health concerns are trending topics. Additionally, the author identified themes through topic modeling, including “Building support and resilience through flexible work practices.”

Research limitations/implications – The results were derived from a data set extracted from SCOPUS. Thus, the author excluded all studies not listed in SCOPUS from the analysis. Future research with articles indexed in other databases should be investigated to get a more holistic perspective of specific themes.

Practical implications – This study provides a deeper understanding and proposes a framework suggesting flexible work practices that could be used for future research and industry practitioners to implement in their organizations towards building a more sustainable HRM driven workplace.

Originality/value – This study provides exploratory information from published articles on HR flexibility during and post the COVID-19 pandemic and generates themes that help understand the emerging and underpinned area of research.

Keywords: HRM flexibility; Flexible work practices; COVID-19 pandemic crisis; Topic modeling; Bibliometric analysis.

Reduction in Quality Control Testing of Liquid Syrup at Bulk Stage to improve the Capacity Utilization of Liquid Syrup manufacturing section

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Extended Abstract

Pharma Manufacturing Organisation are facing very stiff competition in the market. Continuous improvement in all aspect of working and moving towards excellence is the key for the survival and growth of any manufacturing organisation.

Mankind Pharma is leading the manufacturing of key pharmaceutical products such as tablets, hard gel capsules, soft gel capsules, syrups, & ointments and key over-the-counter products such as Manforce condoms, Manforce tablets, Prega news, Unwanted-72, Gas O fast, & Kabz End in the country. With the aim to develop continuous improvement culture and move towards operational excellence, the company has established 'Operational Excellence Department at Mankind Pharma' in 2016. Operational Excellence has set the long-term plan for moving towards excellence in a phased manner by carrying out project in the areas found critical or having the potential for improvement through systematic analysis of data of an operation.

This Paper presents the details of a project carried out by the authors to improve customer service level by focusing on improving equipment utilization from Initial/present level to the required achievable target level. First step of the project was to make the business case depending upon the present level, the Problems encountered with customer service level, constraints, & limitations. After making the business case by utilizing the data of the operations, factors affecting the customer service level were identified and their impact in percentage on the customer service level were found.

For the Further analysis of the data, Pareto Analysis has been carried out by the team comprising of members from cross functional departments and the vital few factors were identified. To identify the probable causes, Fishbone Analysis has been done the high impacting probable causes have been identified. To reach the root cause, Why-Why Analysis was carried out over each high impacting probable cause. Against the root causes, various action plans have been generated during the brainstorming sessions among the cross functional team members. Six numbers of the action plan were generated and their prioritization has been carried out by using the Impact and effort matrix where three action plans have been selected out of six on the basis of their high impact and low effort.

Meanwhile Management approval was taken for implementation of the selected ideas over the next 2-3 month after identifying the solutions. After the implementation, standardization of the improvement has been done by making the SOPs. Imparting the training, execution of the change control & One

points lesson for the shop floor members were the next steps. This Project resulted in significant improvement in the customer service level by improving the capacity utilization from 77% to 96%.

Keywords: Process improvement; DMAIC; Operational Excellence

Hierarchical Model for Big Data in E-Governance: Using Delphi and Total Interpretive Structural Modeling with Polarity (TISM-P)

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Abstract

This study explores the key elements of a hierarchical model for big data in e-governance. The model also depicts the polarity of relationships between the elements. The study uses Delphi followed by Total interpretive structural modelling with polarity (TISM-P). TISM is an enhancement of interpretive structural modelling (ISM) to explore the hierarchical models that aid in theory building in information and organization management. The polarity of relationship between elements makes the model more explanatory. The study selected a panel of 32 experts that included e-governance practitioners, consultants, and academicians with at least 5 years of working experience in e-governance. Analysis of experts' inputs after two rounds of Delphi led to a shortlist of 9 factors and 40 indicators (initially 46 indicators were identified from the literature review). Out of these 9 factors, 4 were constituent factors/ of E-Governance Performance vis-a-vis Efficiency, Transparency, Interactivity and Decision Support. The other 5 were big data related factors, vis-à-vis 'Information and Data', 'Information Technology', 'Organization and Management', 'Legal and Regulatory', and 'Institutional and Environmental'. Out of these 32 experts, responses from 4 experts were used to develop the hierarchical model. Out of 32 experts, 10 experts assessed the validity of the hierarchical model. The resulting hierarchical model for big data in e-governance depicted the polarity of relationship between elements apart from the different set of levels.

Keywords: Big data; Delphi; E-Governance; E-Government; Interpretive Structural Modeling (ISM); Performance; Polarity; Total interpretive structural modeling (TISM)

Technological innovation on green product innovation

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Abstract

Technological innovation is a vital driving force for the high-quality development of green products. Technology innovation for better green products improves the environmental and economic performance of the producing enterprises. Technological innovations intend to enrich manufacturing processes. In modern periods, ever-increasing attention to economic, social, and above all, environmental sustainability, recommends that technological innovations are techniques not only for decreasing costs but also for promoting sustainability of an enterprise. This study attempts to analyse the impact of technological innovation on green products manufactured by an enterprise.

Keywords: Technological innovation; green product; environmental sustainability; economic performance

Exploring the relationship between information technology and lean-agile-green strategies for healthcare emergencies

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Abstract

Public health emergencies such as disease outbreaks and pandemics require fast, reliable, and large-scale dispensation of necessary medical items (i.e., vaccines, medicines, and therapies) as countermeasures. Despite widespread health infrastructure and monitoring of all health aspects by institutions such as the World Health Organization (WHO), situations like the recent COVID-19 pandemic get out of control. The spread of COVID-19 in numerous waves revealed vulnerabilities in the global healthcare supply chain. During the COVID-19 emergency, enormous influxes of patients were recorded in practically every corner of the world, making it difficult to promptly provide them with needed treatment. In these emergencies, the strategic management of resources to benefit maximum population and flexibility in delivery becomes increasingly important. The literature trend shows that lean and agile strategies are used to create infrastructure surplus and make the system more flexible. The information technologies like IoT and blockchain also show huge potential in healthcare management. This study explores how information technology can help Lean-Agile-Green strategies achieve sustainability and flexibility in managing healthcare emergencies using the Interpretive Structural Modelling (ISM) methodology. The result shows that the IT capabilities help in achieving.

Keywords: Information Technology; sustainability; flexibility; healthcare management; lean; agile

Adaptation of Joel Greenblatt's & Philip Fisher's Portfolio Models on Indian Stock Market

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Abstract

Every investor has one common goal of creating a successful portfolio. The task of creating the portfolio needs investors to carry out a systematic approach to screen the stocks that to be added to create a portfolio. The right approach would be using the models that are already in place. Here in this study, portfolio is constructed using factors mentioned by Joel Greenblatt and Philip Fisher. The highlight of the study is creating and comparing the returns of the portfolio with the index returns. The stocks that are listed in the National Stock Exchange are considered for screening and creating the portfolio. The Study compares the returns of portfolio created using Greenblatt and Fisher fundamental factors and select the top 10 stocks out of 3500 listed companies to make a portfolio. Calculating the returns of portfolio constructed based on the Greenblatt's Model and Fisher's Model and comparing the returns of portfolio constructed using the factors combining the Greenblatt and Fisher. The final findings that confirms the portfolio constructed using the combined factors of Greenblatt and Fisher was successful and it beats the Nifty Index Returns.

Keywords: Portfolio; Investment; Capital market; Stock Selection; Portfolio Revision; Optimum Returns

Framing and Responding to Covid-19 by Leaders Across Cultures

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Abstract

The purpose of the study is to analyse how the leaders of different nations interpreted and responded to COVID-19. We have taken into consideration ten countries representing different cultures, namely India, Japan, USA, UK, Italy, France, South Korea, Netherlands, Taiwan, and Germany. We gathered data from online sources, including the interviews, press conferences, and public addresses by the leaders. We collected the documents in the time-frame of January 2020 to July 2020 and analysed the data qualitatively using ATLAS.ti software. We found that leaders' framing of the pandemic is grouped into economic, healthcare, and life framing. The responses of different countries are categorized under preventive measures, administrative responses, economic measures, and healthcare responses. We also highlight dominant characteristics of the leaders and discuss perceived nature of the pandemic. Our study implies that framing is as important as responses while looking at a given problem. Furthermore, it is recommended that the leaders should always have a broader vision in a challenging situation in order to handle multiple aspects of the challenge in hand. This study is a pioneer in identifying and highlighting how different leaders have framed/perceived the pandemic.

Keywords: Leadership; Strategy; COVID-19; Qualitative analysis

Does Adaptability enhance ability to handle stress? The role of Gender and Age

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Abstract

The current uncertainty in the work environment is a major source of stress and anxiety among employees. To address this concern, we checked the association between ability to adapt to different situations and stress tolerance among 202 executives working in Indian organizations using a nationally representative data. Based on stress and coping theory, we found a positive association between adaptability to situations and stress tolerance. We also checked for existence of individual differences in this relationship by evaluating the moderating effect of gender and age. A significant moderating effect of age over this linkage is detected. Finally, implications for theory and practice are discussed.

Keywords: Adaptability; Stress Tolerance; Moderation analysis; Stress and coping theory

Technology flexibility through the lens of innovation systems

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Abstract

Innovation systems exhibit numerous interrelations between the functional components of a business organisation. The influence of diverse aspects of business functions adds complexity to the structure of innovation systems. Even though innovation systems encompass multiple aspects of business operations, the role of technology is significant in an organisational setup since it directly impacts innovation performance. Through the lens of innovation systems, the study attempts to comprehend and conceptualise the nebulous concept of technology flexibility. In addition, the study explores the potential relationship between technology flexibility and innovation. The objectives of the study are fulfilled with the support of literature and a systemic review. With the review process, the study uncovered the dimensions of technology flexibility within the innovation systems. The multidimensional perspective on technology flexibility identified prominent research areas in this domain. Since there is a lack of frameworks and conceptual structures for comprehending technology flexibility, this review-based study can be taken further for empirical studies. Overall, this study demonstrates a contextual relationship between technology flexibility and innovation for enhanced business performance.

Keywords: Technology flexibility; Innovation systems; Innovation management; Strategic innovation; Systemic review

Identification and prioritization of value chain actors for sustainable organic farming policies in the hill region of India

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Abstract

Motivation: Agriculture plays a vital role in driving the economy of hill states in middle income world countries such as India. Consequently, this paper provides a holistic view and analysis of the end-to-end value chain of organic agriculture, prioritizing the factors impacting the sustainable development of small-scale organic farms in hilly regions.

Purpose: This paper addresses the gaps and problems faced by the organic farmers because of mismanagement and half implementation of policies. Secondly, analysis is done to ease the hurdles of policy-making processes for improving value chain policy issues.

Approach and Method: The best worst method (BWM) method is adopted for this research. This method is used on each actor of the value chain, illustrated through the results of the authors' first-hand survey of 50 organic farming experts.

Findings: The results show that the best-ranked value chain components for successful organic farming in the region are marketing and storage/warehouse, a marketplace for organic products, and next, well-planned extension activities with better product distribution channels.

Policy Implications: The application of this model can be utilized for more effective and integrated value chain and policy decisions for improving the operation of organic farmers in different agro-climatic regions.

Keywords: best worst method; organic farming; policy; sustainable; Uttarakhand; value chain

Readiness for change and Work-exploration Career Competency: The Mediating Role of Networking: A Study on Indian Manufacturing and I.T. Service enterprises

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Abstract

The present research investigates the impact of readiness for change in enhancing the work-exploration career competency through mediating role of networking competency. Authors performed systematic literature review to formulate hypothesis and proposed comprehensive framework of work-exploration career competencies interventions. Through the purposive sampling technique, data from 401 employees were collected through an online survey questionnaire from the manufacturing and I.T Service industries in India. Structural equation modelling and regression analysis indicated that readiness for change positively impacts networking and work-exploration career competencies. Furthermore, the association between readiness for change and work-exploration career competencies is partially mediated by networking competency. The results argue that enhancing the flexibility and readiness for change among employees would be an influential factor in developing the career competencies of employees. Furthermore, implications and future research avenues have also been discussed.

Keywords: Readiness for Change; Career competencies; Networking; Work-exploration; Flexibility

Identifying the interrelationships among collaborative practices implementation barriers to mitigate food wastage in the agri-fresh produce industry

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Abstract

Acquiring food and nutritional security is a significant step toward combating hunger and malnutrition. Collaborative practices can assist the agri-fresh produce industry in reducing agri-fresh produce loss and waste while also ensuring food and nutritional security. However, the industry's complex structure and the presence of multiple stakeholders make implementing collaborative practices difficult. The current study identifies and addresses the barriers to implementing collaborative as well as developing a framework using the grey-Decision Making Trial and Evaluation Laboratory (grey-DEMATEL) and Analytic Network Process (ANP) approach. The combined framework provides interrelationships and priority weight of such collaborative practice's implementation and their associated barriers. The influence relationship diagram assists managers and decision-makers in making the best decisions regarding the implementation of collaborative practices by understanding the critical dimensions and their attributes.

Keywords: Food waste; Food security; Collaborative practices implementation barrier; Agri-food industry; grey-DEMATEL and ANP

Assessing the impact of government policies on the strategy for the persistence of digital platform firms: A study of select consumer durable platform firms in India

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Abstract

The significance of the economic activities in the digital space in emerging markets like India has grown substantially. The dynamic and evolving nature of such markets calls for attention to platforms' survival strategies under various events to build agility for persistence. There are limited studies however available in the digital platform knowledge base focusing on the empirical assessment of the impact of the announcement of government policies causing chaos and uncertainty in emerging markets on the factors determining the strategic change in strategies for the persistence of digital platforms. Hence, to bridge this void in the literature, this paper attempts to identify the strategic change employed by the firms during the announcement and execution of government policies in India and also the impacted variables leading to the adoption of these strategies. The study findings are useful for managers to work on the parameters that help to accommodate the uncertainties and understand the means to cope better with any kind of shock in the future that could have an adverse impact on their persistence and growth.

Keywords: Persistence; Digital platform firms; Firm Strategy; Government policy

Evaluating the sociotechnical barriers and their strategic mapping for circular construction supply chain system

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Extended Abstract

To the ramping UN sustainable development goals (SDGs), many nations and organisations are in the surge to implement circularity through their policies for macro level implementation of circular economy (CE) and by operational strategies for operationalising CE in individual organisations. Among 17 SDGs, SDG 11 (sustainable cities and communities) and SDG 12 (responsible consumption and production) can be attained by implementing CE in the construction and building industry (CBI) because the CBI is vital in providing a built environment for industrial and domestic needs for balancing socioeconomic status. Where CE is a proven practical business approach to make the CBI sustainable, circularity implementation has faced severe barriers due to the established linear system. To analyse the transformation from the present linear system to a circular system, this study adopted a sociotechnical approach (STS) analysis by evaluating the part of linear relation from the STS perspectives in the CBI and analysed the interrelationships between six dimensions of STS theory and interconnections between the individual factors in each dimension for the circularity goals and barriers in CBI. These dimensions are

1. Goals of circular construction (GCC),
2. People barriers (PB),
3. Infrastructural barriers (IB),
4. Technological barriers (TB),
5. Cultural barriers (CB), and
6. Construction process and procedural barriers (CPB).

Essential three goals and twenty-six barriers finalised from previous literature and kept in the study after face validity from the academic experts. These twenty-six barriers are categorised into five barrier dimensions (apart from a GCC dimension) of the STST. The three essential goals considered are waste minimisation, resource efficiency and contribution to SDGs. In methodology, the Grey DISM (combination of Grey DEMATEL and ISM, the total influence matrix of Grey-DEMATEL converted to initial reachability matrix using limiting value to follow the ISM steps) method was used for interrelationship analysis from a survey of 18 experts from both industry and academia with a

confidence level of more than 95% evaluated with a consistency index of less than 5% of matrices from a survey.

Keywords: Sociotechnical systems theory; Barriers; Goals; CBI; Circular economy; Grey-DISM

Fringing Sustainability and Resilience: A Review of Incertitude in Literature

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Abstract

This paper intends to highlight one of the prevalent incertitude in literature regarding relation of sustainability and resilience. These two significant constructs overlap with the perspective of ensuring longevity and survivability of business (economics), environment, and human existence. However, the overlap has been misunderstood at times and demarcation has been dissolved by treating them to be same concepts, leading to a state of chaos and loss of essence for any of them when used under the umbrella of other one. Furthermore, whether resilience leads to sustainability or ensuring sustainable development leads to resiliency has been viewed differently by different researchers. The aim of this paper is to review existing literature associating or disassociating these two concepts and defining vector or direction of relationship between them.

Keywords: Sustainability; Resilience; Adaption; Transformation; Inherent resilience

Critical Success factors of Industry 4.0 in the Indian Manufacturing Sector from Lean Six Sigma Perspective

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Abstract

Industry 4.0 initiatives can influence the whole business system by transforming how the products are designed, produced, delivered and discarded. Industry 4.0 is relatively novel to developing nations, especially in India and needs a clear definition for proper understanding and practice in business. This paper aims to recognise key challenges to Industry 4.0 initiatives and analyse them to prioritise them for effective Industry 4.0 concepts for supply chain sustainability in emerging economies by taking the Indian manufacturing industry's perspective. Industry 4.0 initiatives can help industries incorporate environmental protection and control initiatives and process safety measures. However, the adoption of Industry 4.0 initiatives is not easy due to many challenges. The manufacturing industries have broadly accepted the lean six sigma method to improve production performance. The function of this method is to identify and minimise waste or non-value-added activities through continuous improvement. Industry 4.0 advocates would do well to focus not only on the technology but also on the managerial implications. The technology is exciting and will undoubtedly change operations in the years to come. But companies looking to participate in and benefit from Industry 4.0 must prioritise projects consistent with an external business strategy, identify the true benefits, and understand how ready they are to make the change happen. Survey-based review from LSS Experts & Management from Indian Manufacturing Sector has been represented to recognise key challenges to Industry 4.0 initiatives and analyse the identified key challenges to prioritise them for effective Industry 4.0 concepts.

Keywords: Lean Six Sigma; Industry 4.0; Indian Manufacturing Sector

An application of the GP-INGARCH-EVT combined approach in modelling the liquidity risk for estimating L-VAR

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Abstract

This study proposes an econometric methodology for estimating and forecasting liquidity-adjusted value at risk (L-VAR) measures according to Bangia et al. (1998) model. We apply the proposed methodology to daily individual stock returns and bid-ask spreads taken from twelve different countries across the globe. Following the two-stage approach of McNeil and Frey (2000), we use the EGARCH model on return series, and the generalized Poisson Integer valued GARCH (GP-INGARCH) model on spread series, which is a time series of count data, in stage one with a view to filtering the return and spread series to obtain their (nearly) identical and independently distributed (iid) residuals. In stage two, the EVT framework is safely applied to their iid standardized residuals. Thus, our proposed model is the EGARCH-/GP-INGARCH-EVT combined approach. Using our proposed approach, we estimate L-VAR according to the Bangia et al. (1998) model. To evaluate the relative performance of the proposed model, we also estimate L-VAR measure using other modified versions of Bangia et al. (1998) model in which we use EGARCH-EVT, Filtered Historical Simulation (FHS), and Cornish-Fisher Expansion approximation (CFE) approach for spread series. For the marginal distribution of returns, we keep EGARCH-EVT in all the models. Further, we estimate traditional VAR according to a benchmark VAR model using the EGARCH-EVT combined approach. Our back-testing results suggest that our proposed EGARCH-/GP-INGARCH-EVT model performed best in forecasting L-VAR. Furthermore, the least performance of the benchmark VAR model reveals that if the liquidity risk is neglected, the model cannot perform well.

Keywords: Liquidity; Liquidity-adjusted VAR; GP-INGARCH; EVT

Hedge and safe haven properties of Green assets

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Abstract

This study aims to investigate if green bonds, clean energy stocks, conventional bonds, energy commodities, and precious metals can serve as a hedge and safe-haven against fluctuations in the stock market using a vine copula approach. We aim to do this by appropriately capturing the joint distribution of assets in a multivariate framework in order to obtain risk minimizing portfolio weights of assets. Further, we use variance, VAR and CVAR as risk criteria to calculate the portfolio weights of these assets. We aim at achieving the following objectives: (a) To minimize the Global minimum variance (b) To minimize CVAR (c) To ascertain certainty equivalent tangency.

Keywords: Green assets; Hedge; Safe haven; joint probability distribution

Adopting "Design Thinking": Case of a Large Manufacturing Firm

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Abstract

Many business leaders continue to priorities, yet few are satisfied with their businesses' innovation skills. Many businesses experiment with innovation approaches brought in from the outside in their desire to become more innovative. In recent years, one of these sought-after innovation methodologies has been design thinking which is a mindset and a set of tools for innovation and development. Design thinking has created spectacular achievements in creative organizations like design consultancies, service firms but it has shown to be significantly more difficult to execute in large, established firms, especially if the organizational culture opposes the ideals that underpin design thinking. We demonstrate how a large, manufacturer of farm equipment's enterprise over a period of five years morphed the design thinking methodology to allow it to take root in many sectors of the organization and become an intrinsic element of the firm's innovation activities over time by including design thinking into their strategic plan, leadership programmes and into day-to-day activity. This paper also throws some light on other approaches which can be used for adopting design thinking in large organizations.

Keywords: Design thinking; Manufacturing firm; Innovation; Leadership; Strategy

Investigating shift in Electric vehicle mass adoption trend before and after COVID-19 in India

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Abstract

Reducing dependencies on fossil fuel is need of current hour for a sustainable future of mobility as, currently transportation is a major contributor of greenhouse gas production. These greenhouse gases are the main cause of climate change that is happening globally. India is also doing its share to mitigate this climate change. Promoting electric vehicle through various schemes and campaigns is one of many steps that are being taken by Indian government. In recent years a growth trend in Electric vehicle adoption is being observed in Indian market. This market growth observed before the COVID -19 years were very flat as compared to post COVID-19 years. Analysis of variance (ANOVA) is used widely in traffic and transportation studies, mainly for the checking difference in mean among the treatment groups. This study uses this technique to investigate this shift of curve in adoption trend before and after COVID 19 and its possible reasons. This study takes the city of Delhi, India, as the study area. A structured interview was conducted at four locations within the city to include different backgrounds in November 2019 and similar study is again conducted in 2021 December. A total of 300 respondents were approached. Overall, 209 respondents participated in the survey in year 2019. For 2021 same number of datasets are collected to check for the influence of COVID-19 among the treatment groups.

Keywords: Analysis of variance; Electric vehicle; Adoption; COVID-19

Delineating Personal Resources in the context of Human Resource Flexibility

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Abstract

This study aims to integrate the extant literature on personal resources within the JD-R framework, investigate the concept of personal resources as well as the underlying assumptions and analyse the ways in which personal resources may assist organisations in the development of adaptive behaviour and human resource flexibility. This paper is based on the review of secondary literature. This paper contributes toward developing an understanding of the role personal resources play in supporting human resource flexibility in organizations.

Keywords: Personal Resources; Human Resource Flexibility; Adaptive Behaviour; Job Demands Resources Model

Developing sustainable management structure using OEE Concept and Change Management

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Abstract

Leaner Organization Structures became a new normal about a decade back, as against the traditional hierarchical structures. Various established business houses including manufacturing setups and group companies attempted to De-Layer themselves. This initiative involved merging designations and roles to achieve a leaner organization. Flat or lean organizations were already prevalent in the IT and Knowledge based organizations. An effective organizational structure defines each employee's job and how it fits within the value chain of the organization (Kenton, 2021). Few even went up to the extent of cultural change and detailed hand holding. For such humongous changes, well devised Change Adaption program was adopted. However, lately, it has been found that the need and desire to have a hierarchy is felt wherein few organizations have already started planning for re-layering. This reverse journey is surely not an absolute return but with learnings from the flat model and retaining its virtues. This paper presents the results of one such delayering initiative adopted by a company; the inefficiencies and drawbacks of the resultant management structure and the compulsions to go back to the original system. The learnings from the entire exercise to develop a new comprehensive system for evolving more efficient and sustainable management structure are also presented.

The initiative was taken by the company because of several dyadic meetings. These Manager connect dyadic which repeatedly brought in a message of similar roles being played across levels. It also pointed towards movement from one level to the another to another not necessarily having a change in the nature of work, spans of control or even the geographical influence area. The time at which these feedbacks were received was quite the time when newer IT companies with the leaner structure were coming and setting up their offices in the country. In order to address the ask of the employees falling much in line with the organizations cost sensitivities, delayering the organization from 14 management levels to merely 7 levels was conceptualized. Tremendous amount of data, people positioning basis their existing roles, span of control and geographical area of influence, were looked at and mapped. Despite such a detailed activity which involved heavy analytics, series of discussions and meetings, management time, communication, clarity, designation change and course corrections, the new de-layered structure did not last long. It had to be reversed quite close to the original structure. This Paper is an attempt to examine the need for return to the hierarchical model while examining the benefits and

challenges in the de-layered organization. It is an insight into the depth of a refurbished avatar of one such hierarchical organization.

The chosen model for this retrospective study is the versatile SAP-LAP Framework Model. Which shall allow the study to map the situation-actor-process and then lead to learning-action-performance as per the SAP-LAP framework.

WHY SAP-LAP FRAMEWORK?

SAP-LAP framework was relied upon for this study, to look into the significance of actors and related processes. SAP-LAP being an innovative as also a holistic framework provides a methodical construct lens to appreciate human flexibility and the optimum level for this flexibility during management of change. A 'situation' is to be managed, with an 'actor' to withstand and deal with the situation and lastly the 'process' that responds to the situation or even recreate it. The 'situation', 'actor' and 'process' or just their interplay comprises of the SAP framework. The SAP-LAP model also synthesizes the analytic as well as synthetic modes of system inquiry. It goes up to analytical mode by analysing the processes, and lastly synthesizes all the learnings or actions with SAP.

Keywords: Organization Structure; Flat Organization; Lean Organization; Delayering; Relayering

Developing EBPO framework for assessing circular procurement practices in the construction and building industry

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Abstract

The sustainability of the construction and building industry (CBI) is a vital component for developing sustainable city infrastructure and contributing to the UN's SDG 11. Due to the high rate of natural resource consumption by construction activities, the CBI industry has become unsustainable and disturbing the urban and rural environment. Circular economy (CE) is a proven and practical business approach to making construction sustainable, with many examples in academia and practice. Procurement is essential to getting the desired result in any construction project. In recent years, there has been a decent growth in the research literature on circular procurement. However, to date, a lack of study promotes operationalising circularity with a long-term vision for the practice. In three steps, this study analyses the enablers, barriers, practices and outcomes (EBPO) of circular practices in construction procurement to prepare the operational strategies for circular construction procurement (CCP). These steps include 1. Using Pythagorean fuzzy AHP, ranked the elements in the EBPO, 2. The top 4 ranked EBPOs were analysed with three pillars (regulative, normative and cultural-cognitive) analytic framework of institution theory (IT), 3. By taking IT analysis as an input to the stakeholder engagement framework of multi-stakeholder theory (MST), generating operational strategies for long-range planning and execution of circularity in the CBI. In outcomes, circularity implementation has both negative and positive outcomes for institutions and stakeholders. Due to the stakeholder's pressure on firms to implement CE leads to a few negative outcomes like promoting opportunistic behaviour in private firms and corruptive behaviour in public agencies and positive outcomes like contribution to SDG 11 (sustainable cities and communities), improving resource utilisation and waste minimisation. This study included both types of outcomes in the analysis. And integrated IT and MST to attain collective decision inputs from institutions and stakeholders to implement circularity in CBI.

Keywords: Circular economy; Construction procurement; Institution theory; Multi-stakeholder theory; Pythagorean fuzzy AHP

Impact and Implementation Challenges of IFRS 17 Insurance Contracts

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Abstract

Globalisation resulted in adoption of single set of financial reporting standards by more than 150 countries in the form of International Financial Reporting Standards (IFRS) issued by the International Accounting Standard Board (IASB). IFRSs are considered as upgraded global accounting language. Primary objective of new standards is to improve transparency and comparability of financial reporting at global level. This new accounting language brings new challenges and new opportunities for reporting entities, preparers, auditors, regulators and other stakeholders. Recently IASB has issued a new standard IFRS 17 Insurance Contracts which will be applicable with effect from 1st Jan 2023 with transition date of 1st Jan 2022. The present study was aimed to understand the preparation level and likely impact of adoption of IFRS 17 on insurance entities. The study is primarily based on primary data, but past studies were also referred to build strong opinion on the topic under study. The study was conducted in the form of survey administered on 40 finance professionals working in the finance department of different entities. Study revealed that timing of recognition of revenue and profit is likely to be impacted the most. Under new accounting standard, entities will recognise revenue as and when related insurance services are provided instead of recognising entire insurance premium on receipt or due basis. The statistical tests revealed that IFRS 17 adoption will have significant impact on financial statements of insurance entities and there would be material implementation challenges which insurance entities would face with low preparation level.

Keywords: IFRS 17; Insurance Contracts; IFRS 4

An Examination of the Variables Influencing the Adoption of Blockchain Technology

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Abstract

The decentralized blockchain technology was initially created for Bitcoin cryptocurrency. Since the concept's invention in 2008, interest in Blockchain technology has been rising. The central characteristics of Blockchain that provide security, anonymity, and data integrity without any third-party organization in control of the transactions generates interest in it. As a result, it opens up exciting research areas, particularly from the perspective of challenges and limitations. This research aims to examine the factors that positively and negatively affect the adoption of blockchain technology.

Keywords: blockchain; security; privacy; trust; transparency; regulation

Why is the blue-line resistant to adopting modern innovations?

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Abstract

This paper aims to examine the role of personal dispositions in technology adoption among police officers, investigate the impact of technology use on job performance, and then discuss how individual personality is of critical importance when managing organizational efficiency. Theoretical contributions augment the extant literature and open new avenues for future research; practical implications help practitioners and policy-makers optimize resource allocation, enhance officers' job performance, create a safer living environment for citizens, and ensure a positive, sustainable change in society.

Keywords: Personality; Training; Police; CCTNS; Job Performance

Implications of Industry 4.0 on Maintenance Management: An Understanding and A Way Forward

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Abstract

Manufacturing is undergoing a revolutionary change with industry 4.0, improving manufacturing performance through customized product delivery, quality, productivity, etc. In the highly complex manufacturing environment, one of the most critical concerns is maintenance, and industries are tackling the digital transformation of this function from both a technology and management point of view. This study presents how maintenance management systems are evolving in the context of Industry 4.0. The purpose is to understand the new terminology used for maintenance with the digital transformation brought by Industry 4.0 and propose the need based on exploratory research techniques to investigate the maintenance practices in manufacturing industries employing Industry 4.0 technologies.

Keywords: Industry 4.0; Smart maintenance; E maintenance; Maintenance analytics

Identification of factors driving strategies in manufacturing MSMEs for enhanced social sustainability and performance

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Abstract

Many businesses have begun to include sustainable practices to progress toward sustainability-oriented innovation in today's environment. MSMEs are an essential part of the industrial sector and account for the majority of employment in both developing and developed countries. Several factors inspire businesses to embrace innovative strategic approaches that incorporate all three aspects of sustainability (i.e., Economic, Environment and Social). However, one aspect of sustainability has been overlooked in the literature: social sustainability. It refers to a process for creating sustainable, successful places that promote well-being by understanding what people need from the places they live and work. This study determines strategies for implementation of the same for the MSME sector. Five factors are found relevant, with 150 employees from the industry conducting principal component analysis. These include top management support, employee motivation, job satisfaction, employee welfare schemes and training and education. The optimum implementation of these factors in the strategy-making of the MSME sector can drive social sustainability to a large extent.

Keywords: Social Sustainability; MSMEs; Employees

Function Analysis System Technique– A Flexible Approach for Project Management

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Abstract

The 21st century has brought in the most of the technological advancement in the world. The business world is becoming more and more complex and so is the nature of the industrial projects. Projects and their solutions are the lifeblood of most businesses. Hence the success of the projects is a very important issue for the business to grow and the economy as well. The present study deals with the literature about managing complex projects. It throws light on the important factors of complex projects and brings out some correlations with the complexity science in solving the complex projects. The paper also suggests the study in the area of FAST diagramming in solving the complex projects and relates it with complexity science. The paper uses the technique of FAST diagramming for making a possible attempt in reducing the complexity of projects.

Keywords: Complex Projects; Success Factors; Complexity Science; FAST diagram

Impact of Spiritual Intelligence on LOHAS Consumers

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Abstract

Spiritual intelligence is the intellectual power of the soul. It is that power that allows us to heal and restore ourselves (Marshall and Zohar (2000)). Spiritual intelligence has been defined as "the intelligence with which we address and solve problems of meaning and value, the intelligence with which we can place our actions and lives in a broader, richer, meaning-giving context, the intelligence with which we can determine that one course of action or life-path is more meaningful than another." (Marshall and Zohar (2000)) Spirituality is defined as a connection to one's inner self that is not motivated by power, status, or monetary gain. It is also thought to have a strong connection to some transcendent reality. (Ball, Hampton, et al., 2001)

There are many different sorts of customers in the market, and each has a distinct level of thinking based on their requirements and goals. A significant subset of these consumers is the Lifestyle of Health and Sustainability (LOHAS) Consumer. LOHAS consumers refer to that group of consumers that focus on their health and their family's health while considering the requirement to protect the environment at the time of taking consumption decisions. They want to live a simple and sustainable lifestyle by taking care of their surrounding as well. Due to their different and sustainable kind of lifestyles, they are creating new opportunities for upcoming businesses. The way a person or group lives is referred to as their lifestyle (Cambridge Advanced Learner's Dictionary, 2008; The Oxford American Dictionary of Current English). LOHAS Consumers prioritize the good of society and avoid consuming harmful products, and spiritually intelligent people see the betterment of society as one of life's goals. The question of whether consumers' lifestyle choices have anything to do with spirituality now arises. Or is there a connection between LOHAS users and spiritual intelligence? With the use of this research, we hope to examine the relationship between spirituality and LOHAS Consumers.

Keywords: Spirituality at Marketplace; LOHAS Consumers; Healthy Lifestyle; Spiritual Intelligence

Factors triggering Digital Transformation Journey in organizations

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Abstract

Edwin Louis Cole once said, “Maturity comes not with age but with the acceptance of responsibility. You can only become young once but immaturity can last a lifetime” and when it comes to an organization in today’s world, one cannot afford to not be immature. A matured organization is the one, which has been stable and established for at least 5 years, has a clear sight of stable growth, a well-established set of products and loyal customers. Now when we talk of the 21st century, an organization apart from being matured also needs to be digitally matured. Organizations now embark on the journey of digital transformation which helps them reach the other end of the Digital Maturity curve. Through this paper, I have tried to bring forward the factors which trigger organizations to start their digital transformation journeys. Now these factors, external or internal, have a huge impact for the leadership to approve the digital transformation initiative for their organization.

Keywords: Digital transformation; digitalization; digital maturity; digital readiness

Smart Circular Economy Approach to Sustainable Municipal Solid Waste Management: Scale Development and Validation

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Abstract

The growing concern over the inadequate management of municipal solid waste has led to the deterioration of living conditions across cities in India affecting the environment and the health of the populace. The existing studies on municipal solid waste management (MSWM) focused on the social and economic dynamics. However, the environmental and health perspectives have been overlooked. Therefore, the present study is an effort to identify and analyze the factors of MSWM specifically affecting the environment and health of the people living in tier I and tier II cities in India. The study implemented structural equation modelling (SEM) to model the factors identified through extant literature surveys and experience surveys. A sample of 566 households has been considered for the survey using the technique of multi-stage sampling. The findings of the study suggest that the independent variables, namely, waste collection, waste transportation, waste segregation, waste treatment, and waste recycling positively affect the adoption of the concept of circular economy in MSWM. Moreover, the adoption of the variable technological advancement as a moderator between circular economy and sustainable MSWM system yielded positive results. The results of the study render valuable considerations to empower the municipal corporations to adopt a circular economy into MSWM through technological advancement ensuring minimizing the adverse impact on health and the environment. The study would help managers and policymakers to develop a robust and sustainable MSWM system enabled through the implementation of the concepts and elements of circular economy and state-of-the-art technologies to reduce adverse environmental and health impacts on the population.

Keywords: Municipal Solid Waste Management (MSWM); Circular Economy (CE); Sustainability; Environment and Health; Structural Equation Modelling (SEM)

Selected Full Papers
(Revised)

Role of Communities of Practice to attain flexible and sustainable Future Prospects in the organization: Mediating Role of Training

Anjali Dutta¹ and Santosh Rangnekar¹
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Abstract

Communities of practice are social learning resources, aiding employees in knowledge creation and sharing. On the other hand, training deals with systematic, structured and professionally organised learning interventions for the employees in the organisation. Building on Maslow's Hierarchy of needs theory, we posit that employees' participation in communities of practice positively relates to future prospects, and training benefits mediate the positive relationship. The data was collected from 217 employees working in manufacturing and service sector private and public Indian organisations. The findings suggested that the employee's participation in communities of practice positively results in a sustainable future prospect in the organisation, aligned with need fulfilment from the lower-order need for social security to the higher-order need for self-esteem. Further, training mediates the positive relationship between communities of practice and future prospects. Based on the findings, the implications for theory and practice are discussed. Moreover, future research avenues are also elaborated.

Keywords: knowledge; knowledge sharing; communities of practice; training; future prospects; career, career prospects, learning.

1.0 Introduction

Many uncertainties are taking place in this demanding economic environment (Bettiol & Sedita, 2011). Employees are consistently required to develop a knowledge base through community learning in organisations as a critical factor in adopting a good understanding of their job and organisational culture (Choi et al., 2020). Moreover, leveraging existing knowledge helps organisations position competitive advantage (Bamel & Bamel, 2018), aiding employees to realise and develop their value (Sims, 2018). A sustainable future prospect for an employee is characterised by knowledge about job skills and performance to uphold the desired level of employability (Bozionelos et al., 2020; Van der Heijden & De Vos, 2015).

Communities of practice are recognised as leading means to foster learning (Neufeld et al., 2013), and they are the means through which employees get familiar with their organisation fostering sustained employment and rewarding career prospects (Korte & Lin, 2013). However, literature concerning the relationship between communities of practice and future career prospects was not established earlier and suffered from certain limitations. First, beyond acknowledging the future career development of an employee due to knowledge sharing and learning through communities of practice (Ishiyama, 2016), the particular direct effect has not been fully explored (Zhao et al., 2018). Secondly, a recent study mentioned that dispositional employability indirectly affects future internal career prospects (Cerdin et al., 2020); thus, an antecedent has an indirect effect on future prospects via a mediator. This has resulted in a scarcity of understanding on how the structured and formalised intervention (training) provided by the organisations is more or less beneficial for human resource development (Wang et al., 2014), leading to better future prospects such as sustained employment, promotion, rewards and recognition resulting in career growth.

Anchored on Maslow's hierarchy of needs theory (1943), which states that human needs arrange themselves as a hierarchy. The appearance of one need usually depends on the satisfaction of another potent need. We posit that once the basic need for a job or employment is contented, another need for social security arises, which may be fulfilled by participating in communities of practice with a perspective of the social learning. Then, the higher-order self-esteem needs such as career advancement, rewards, the scope for future employability, and promotion is manifested by individuals (Taormina, 1997; Betz, 1984). Although the need theory has been criticised, it cannot be entirely possible that the immediate need should be fulfilled 100 per cent for the subsequent need to come up (Berl et al., 1984). An individual can move towards satisfying his/her next higher-order need when maybe a higher percentage of his lower-order need is fulfilled but not wholly. Thus, we conceptualised that when an individual attains his/her basic needs of social security and safety, he/she moves towards attaining higher needs of learning, thus paving the way for job promotion, rewards, employability and higher career prospects. These higher-order needs have also been further explored by McClelland (1965) as a need for achievement and a need for advancement. Thus, built on Maslow's hierarchy of needs theory, this study examines the perceived benefits of training as a linkage through which participation in communities of practice leads to a brighter future prospect for an employee.

The dual nature of knowledge, as tacit and explicit, is transferred among individuals in different ways. Technological advances have fostered the dispersion of explicit knowledge well (Griffith et al., 2003), but tacit knowledge can be transferred through group interactions (Bertels et al., 2011). However, within a structured training intervention, experienced mentors can provide on-the-job training through which tacit knowledge and creative ideas can be transferred as explicit knowledge (Guan & Frenkel, 2019).

Previous studies have explained the linkage between communities of practice and formal employee training (Chapple et al., 2020) and employee training as an antecedent to future prospects concerning career adaptability and advancements (Koen et al., 2012). Hence, we argue that an individual working in an organisation may participate in organisational communities of practice satisfying the social security need. Furthermore, by getting skilled through a planned and organised professional training intervention, employees attain structured and contextual learning benefits fostering better performance. This is followed by positive future outcomes that accomplish higher-order self-esteem needs and fulfil intellectual desires (Maslow, 1943). While when employees work with no more consideration about the physical materialistic gains from work, a stage of self-actualisation is achieved, fulfilling a superior need. Thus, we propose a mediating role of training in communities of practice and future prospects relationship.

The current study makes multiple contributions theoretically as well as practically. First, by analysing the underlying procedure for the communities of practice and future prospect relationships, this research enhances our understanding of the relationship between future prospects and their antecedents.

Secondly, this study aims to shed light on the process of attaining the basic to the higher-order need drawn from Maslow's hierarchy of needs, that is, from a lower-order social security need (participation in a community of practice) to fulfilling the higher-order needs of self-esteem, i.e., better future prospects in the organisation. Furthermore, employees may overcome their physical materialistic needs and move beyond self-esteem and towards self-actualisation, whereby selfless contribution to the organisation may remain the only objective.

Thirdly, since the earlier studies were conducted in the western context, this study investigates the communities of practice-future prospect relationship mediated by training in an Indian context.

2.0 Theoretical Background

2.1 Future Prospects

An employee's future prospect deals with those aspects that facilitate the desire to maintain employment in their current organisation (Taormina, 1997). It relates to employees' perception of critical factors responsible for staying in the organisation, such as satisfying needs and ambitions (Reichers, 1987). These perceptions include chances of continuing employment in the current organisation, increments, future assignments, bonuses, promotions, rewards and recognition. The ongoing future employment and anticipated future rewards are the facets of future prospects for an employee in their current organisation (Buchanan, 1974; Taormina, 2004). Chao (2012) states that future prospects for an employee deal with the probability of promotions and a secure career in the company, emphasising anticipatory socialisation at the workplace. Future prospects are associated with the fulfilment of achievement needs of employees (McClelland, 1961), providing chances for permanent employment and influencing the socialisation behaviours of newcomers (Benzinger, 2016). Moreover, in their study, Song et al. (2015) inferred the relationship between future prospects and general job satisfaction and intent to return, whereby they elaborated that employees who are contented with their future career prospects show higher job satisfaction. Nevertheless, an employee has to perform for a prosperous career that should be supported by training and learning; as Ashforth et al. (2007) mentioned, learning strengthens future prospects in the organisation.

Thus, building on the evidence from previous research on communities of practice and training based on the need theory, this paper addresses the following research questions: Do communities of practice influence employees' future prospects? Do the perceived training benefits influence the employees' higher future career prospects? Furthermore, does training mediate the relationship between communities of practice and future prospects?

2.2 Communities of practice

The concept of communities of practices was first developed by Lave & Wenger in (1991). Communities of practice are created in organizational premises to enhance mutual engagement, joint enterprise and shared repertoire. Through involvement in social learning systems, communities of practice have professionals associated with each other for a common purpose. They do not focus on accomplishing a specific task but on sharing knowledge, ideas and information related to common interests (Bettiol & Sedita, 2011). Researchers have focussed on communities of practice as a knowledge management system (Kirkman et al., 2011; Nisar et al., 2019). Several studies have comprehended the concept of communities of practice by encompassing several methodological perspectives (Bolisani et al., 2021; Haas et al., 2021; Mavri et al., 2021).

We have tried to focus on those mechanisms and the types of interventions involved in accomplishing the creation and development of communities of practices in social and workplace settings. Thus, we presented a comprehensive framework summarising the methodologies, research design characteristics and the mechanisms employed to reach the desired outcomes (Mukherjee & Dhar, 2022). This framework identifies four stages, wherein stage one highlights the elements employed as methodological features established by research design characteristics, and stage two evaluates the implementation features characterised by intervention design and delivery ways. Our evaluation of the methodologically robust investigations will aid future researchers in analysing and understanding the effectiveness of communities of practice and exploring varying methodological ideas for further research.

Furthermore, the model also displays stage three and stage four, wherein stage three depicts the impact evaluation related to the intervention effects on the outcome variable. The fourth stage refers to the evaluation of the mechanism related to the mediators and moderators, which has a significant role in

determining the effectiveness of communities of practice. This type of systematic documentation of the variable under study helps derive the intervention's building blocks and the mechanism through which they impact the outcome variable. Figure 1 displays the conceptual framework.

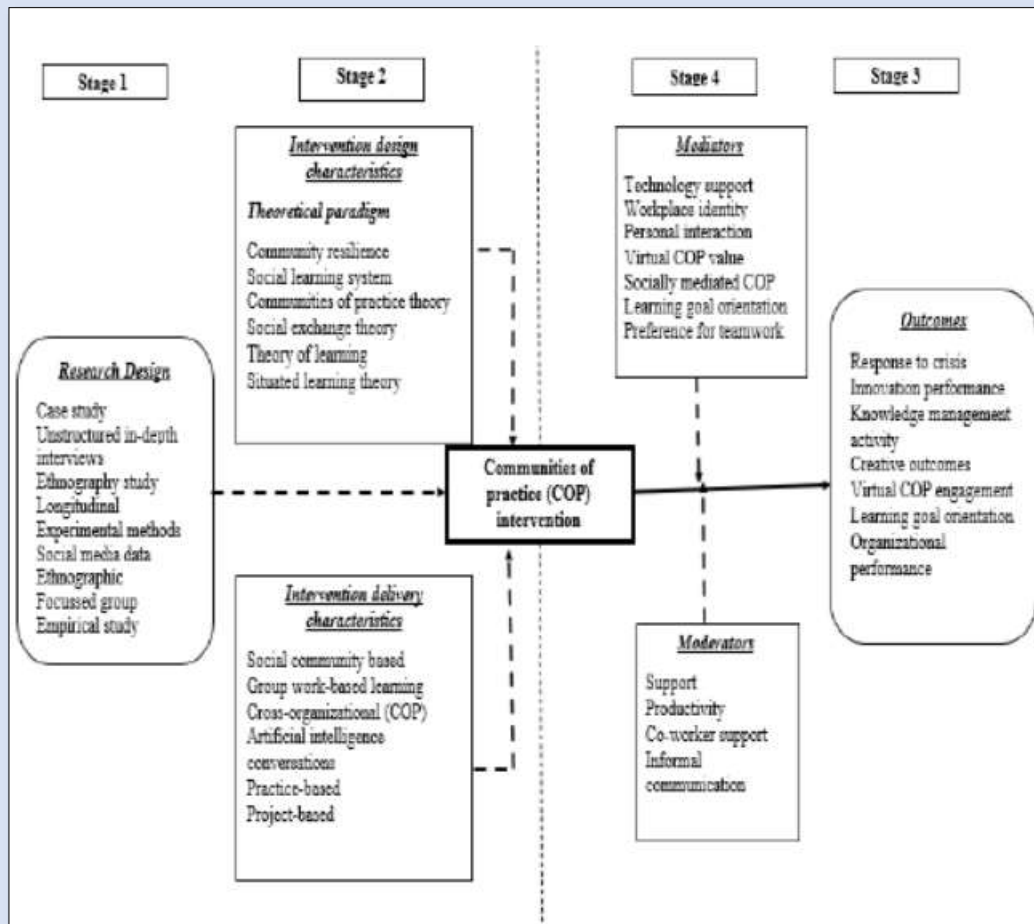


Figure 1. Structural Framework
 Note: COP, communities of practice

2.3 Relation Between Communities of Practice and Future Prospects

Wenger, E., and Snyder (2000) stated that a community of practice is an informal binding of a group of people with shared expertise and a passion for a joint enterprise. As a repository of knowledge in organisations, communities of practice have been the centre of research in the knowledge management domain. A community of practice is a widely accepted and implemented means of knowledge sharing to improve the organisations and employees' performance. They are built on the knowledge of the informed members of such practice communities for problem-solving through a technical or social binding (Chen & Hatzakis, 2008); as a result, sharing of knowledge, skills, and information are sought as a socialisation process (Haider & Mariotti, 2010; Korte & Lin, 2013). Communities of practice is a social participation process for situated learning (Veenswijk et al., 2010), leading to better future prospects and career advancement of an employee in their respective organisations (Taormina, 1997). Based on the social learning viewpoint, newcomers learn about the meaning and practices in the organisation by interacting with the community members. Similarly, communities of practice foster discussions regarding future prospects for the members (Lee-Kelley & Turner, 2017). Intrinsic motivations also play a significant role in participating in communities of practices (Haas et al., 2021), leading to a rewarding career (Zhao et al., 2018). If participating in communities of practice drives an individual's learning, knowledge sharing, and socialisation, the perceived effectiveness of communities

of practice paves the way for an individual's better future career prospects and growth. Based on the arguments and shreds of evidence from past studies, we hypothesise:

Hypothesis 1: Communities of practice effectiveness positively influence employees' future prospects in the organisation.

2.4 Relationship Between Communities of Practice and Training

Knowledge gained from the discussions through communities of practice can be formally provided to the participant employees through training, as it plays a vital role in organisational learning (Edvardsson et al., 2016). In communities of practices, knowledge dissemination and exchange of ideas and information regarding the application of vital job-related skills are shared (Wenger et al., 2002), but there is a need for a structured and professionalised training intervention for efficient and operative use of tools, instruments and job-related equipment including their benefits and limitations (King et al., 2016). Moreover, in a specific learning context, communities of practice are designed along with mutual engagement, joint enterprise and shared repertoire (Wenger, 1998). On the other hand, the formal and informal nature of the community of practices may not substantiate the practical implementation of knowledge gained. Thus, a formalised platform where learning can occur before a trainer or resource person for better skill delivery (Vanhove et al., 2016) and reflecting and transferring tacit knowledge (Jugdev, 2007) may be required, enhancing the effective implementation of learned concepts and skills. After receiving knowledge and ideas from communities of practice, an individual focuses on benefiting from the learned concept and, thus, participates in training intervention due to the perceived benefits he/she may get from training.

Furthermore, the quality of learned concepts increases when employees learn from a structured, planned and formalised intervention such as training. Thus, we can infer that employees who participate in communities of practices in their organisations may be trained through on-the-job or off-the-job training to gain knowledge and skills in a structured and planned manner to improve their performance. Hence, based on the above arguments from the literature, we hypothesise that:

Hypothesis 2: Employees' participation in communities of practice in the organisation is positively related to training.

2.5 Relationship Between Training and Future Prospects

Employees benefit from an organisation-based training program that helps them learn job-related skills (Tramarico et al., 2017). Training not only relates to a specific job assignment but may also anticipate and satisfy future needs and advancements, allowing employees to explore new ways to respond to future demands concerning the job and organisation (Shrivastava, 1983). On-the-job training raises the future productivity of organisations (Becker, 1962), aiding employees in instigating career prospects in their current organisations through management practices (Kim et al., 2011; Lambert & Vero, 2013). Training also helps an individual understand his role in the organisation, paving the way for future opportunities (Chao, 2012; Feldman, 1981). Recent studies have concluded that gaining job-related skills and internalising organisational culture through training leads to better performance (Cox & Warner, 2013), which improves career growth and employability (Bozionelos et al., 2020). Moreover, optimum chances for continued employment (Taormina, 1997; Cooper-Thomas et al., 2020), a rewarding career (Kim et al., 2011), and favourable career advancement in the organisation are the benefits achieved through training (Taormina, 2004). Fernández et al. (1999) have also stated that training drives better job performance and productivity, leading to a rise in salary and rewards. Mishra and Smyth (2015) mentioned that duration, as opposed to training frequency, has an apt role in career progression and broader future prospects. The perceived benefits of training for an employee may leverage better career prospects such as promotion and growth displaying effectiveness of training. Therefore, we posit that employees undergoing training provided by the organisation acquire

knowledge and upgrade their skills to perform better, leading to better prospects. This approach leads us to formulate our further hypothesis:

Hypothesis 3: Perceived benefits from training positively influences the future prospects of the employees.

While the literature on future prospects has identified communities of practice as essential antecedents (Bamforth & Abbott, 2019), efforts to understand how communities of practice influence employees' future prospects are scarce. Moreover, in their study, Vajjhala & Baghurst (2014) mentioned the importance of training for knowledge sharing, ultimately helping employees in their career prospects. Maslow's (1943) hierarchy of need theory is premised on the logic that when an individual's immediate need gets fulfilled, she/he moves toward achieving another need. Thus, gaining knowledge and the right skill for job performance is a prerequisite for an employee's professional growth (Ozclelik et al., 2001) and to a higher achievement in his or her career maintaining continued employment (Cooper-Thomas et al., 2020), manifesting esteem needs (promotion and recognition). Participation in communities of practice with a learning perspective emerges as a source of employee development leading to better future prospects (*H1*).

Furthermore, even if employees create and share knowledge regarding job tasks through participating in communities of practice (Lave & Wenger, 1991), they may gain the advantage of the transfer of such knowledge when they learn from formalised and structured training interventions offered by the organisations increasing the quality of learned concepts. Thus, the overall effect is that training should mediate the relationship between communities of practices and employees' future prospects. Hence, we hypothesise that:

Hypothesis 4: Training mediates the positive relationship between communities of practice and the future prospects of the employees.

3.0 Research Methodology

3.1 Sample and data collection

The empirical analysis was conducted on the data obtained from full-time (employees) respondents from the public and private sector, manufacturing and service organisations such as IT, education, power sector, banking, and transportation, mainly from northern India. The diverse population is considered based on the recommendations by Agarwal & Gupta (2018) that such a sample offers a more reliable and generalizable response. Based on the turnover, the organisations were selected with a turnover of more than a thousand million Indian rupees. According to the recommendation by Verma et al. (2020), the convenience sampling technique is a non-probability technique applied to collect data from a large dispersed population. Thus, the present study employs a cross-sectional research design with a convenience sampling method for data collection through a self-administered questionnaire consisting of a cover letter summarising the aim of the research. The respondents were assured of their anonymity and the exclusive use of the collected data for non-commercial research purposes only. The survey questionnaire consisted of the demographic characteristics of participants, such as age, organisational status, gender, job position, and qualification.

The survey instrument was sent through e-mail and WhatsApp to the participants as a Google form due to data collection constraints caused by the pandemic. Two hundred seventeen responses were obtained with a 21.7 per cent response rate out of the 1000 survey questionnaires mailed. Furthermore, all the responses in the google form were made compulsory; thus, the problem of incomplete and case-wise deletion of contaminated responses was not an issue, and we used all the available data. The gender of the respondents consisted of 73.7 per cent male and the rest female. About 71 per cent of participants

were 21 to 35 years of age, 26.7 per cents were 36-50 years, and 2.3 per cent were 51 years and above. The organisational status was 32.7 per cent public, and the remaining represented private organisations. At the same time, the educational qualification consisted of 2.8 per cent diploma holders, 34.6 per cent graduate employees, 53.5 per cent postgraduate and 9.2 per cent PhDs. The job position of employees is categorised into three sub-levels, with 17.5 per cent junior-level, 60.8 per cent middle-level and 21.7 per cent senior-level employees.

3.2 Measures

The survey respondents rated their participation in communities of practice, training programs organised by their company and future prospects in the same organisation on a seven-point Likert scale that ranged from strongly disagree to strongly agree for training and future prospects, and never to always for communities of practice. Table 1 displays the items of each construct with their respective factor loadings.

3.2.1 Communities of practice

A seven-item sub-scale adapted from Yi (2009) was taken to measure communities of practice. The items of the scale include items – “Meet with community members to work to encourage excellence in the community's practice.”, “Meet with community members to create innovative solutions for problems that occur at work”, and “Meet with community members to share their own experience and practice on specific topics with common interests”.

3.2.2 Training

A five-item subscale was drawn from the work of Taormina (2004) to assess the training perception of the respondents. The sample items included “The type of job training given by this organisation is highly effective”, “The training in this company has enabled me to do my job very well”, and “This company offers thorough training to improve employee job skills”.

3.2.3 Future prospects

The scale to measure the future prospects of an employee in the current organisation constitutes five items taken from Robert J. Taormina's (2004) organisation socialisation inventory. Sample items of the scale included “I expect this organisation will continue to employ me for many more years”, “There are many chances for a good career with this organisation”, and “I can readily anticipate my prospects for promotion in this company”.

Table 1. Internal reliability, item description and factor loadings

Items	Description	Loadings
Training		$\alpha = 0.95$
Training 1	"This organization has provided excellent job training to me"	0.906
Training 2	"The training in this company has enabled me to do my job very well"	0.935
Training 3	"This company offers thorough training to improve employee job skills"	0.959
Training 4	"Instructions given by my supervisor have been valuable in helping me do better work"	0.829
Training 5	"The type of job training given by this organization is highly effective"	0.949
Future prospects		$\alpha = 0.90$
Future Prospects 1	"There are many chances for a good career with this organization"	0.892
Future Prospects 2	"I am happy with the rewards offered by this organization"	0.910
Future Prospects 3	"Opportunities for advancement in this organization are available to almost everyone"	0.872
Future Prospects 4	"I can readily anticipate my prospects for promotion in this company"	0.861
Future Prospects 5	"I expect this organization will continue to employ me for many more years"	0.741
Communities of Practice		$\alpha = 0.96$
Communities of Practice 1	"Meet with community members to create innovative solutions for problems that occur at work"	0.92
Communities of Practice 2	"Meet with community members to share their own experience and practice on specific topics with common interests"	0.934
Communities of Practice 3	"Meet with community members to share success and failure stories on specific topics with common interests"	0.908
Communities of Practice 4	"Meet with community members to work to encourage excellence in the community's practice"	0.917
Communities of Practice 5	"Support the personal development of new community members"	0.867
Communities of Practice 6	"Send related information to members through the community e-mail list"	0.834
Communities of Practice 7	"Share ideas and thoughts on specific topics through company supported online community-of-practice system"	0.907

Source: The Authors

3.2.4 Control variables

As per Tharenou et al. (2007), the survey research method is appropriate for testing the associations between latent and control variables. We controlled for the demographic characteristic variable such as, age, qualification, job position, organisational status, and gender based on the earlier research carried out on the variables of this study (Delmas & Pekovic, 2013; Mishra & Smyth, 2015). Age as a control was taken as it showed a significant relationship with the core variables, including training (Bozionelos et al., 2020). Therefore, the results obtained are free from the possible influence of the control variables. Gender was coded as 1 = female and 0 = male, and modelled as category variable, age was exhibited as an ordinal variable, qualification was coded as 0 = diploma holder, 1 = graduate, 2 = postgraduate and 3 = PhD degree holder. Organisational status was modelled as a categoric variable with 0 = private organisation and 1 = public organisation. While job position was categorised as 0 = junior level, 1 = middle level and 2 = senior-level employee. The descriptive statistics, including the

control variables, are displayed in Table 1 to confirm the clarity of the analysis (Spector & Brannick, 2011).

3.3 Method of Analysis

To test the descriptive statistics and multiple regression analysis, we utilised IBM SPSS v.27. R and R-studio 1.3.1093.exe software was utilised for performing CFA and SEM to estimate the measurement model and path coefficients between the constructs. Finally, we utilised PROCESS macro model 4 with 5000 random bootstraps resamples at a 95% confidence interval (Hayes, 2018) to test the mediation model hypothesis.

4.0 Results

4.1 Descriptive statistics

Table 1 represents the descriptive statistics (mean and standard deviations) and correlations among the study variables. Age, gender, educational qualification, organisational status and job position as control variables are also included. We calculated the reliability scores to determine the psychometric properties of the variable under study. The coefficient of reliability (Cronbach α) for communities of practice is $\alpha = 0.96$, for training $\alpha = 0.95$, and future prospects $\alpha = 0.90$, demonstrating good reliabilities of the constructs (Fornell & Larcker, 1981).

4.2 Measurement model

Confirmatory factor analysis was conducted to test the measurement model. As per the recommendations of (Hu & Bentler, 1999; Hooper et al., 2008), the model indicated a significant fit with the data with, $\chi^2(114) = 81.33$, $p < .01$; CFI = .997; GFI = 0.99; RMSEA = 0.047, SRMR = 0.027 ascertaining a good measurement model. The measurement model was also scrutinised for common method bias to reduce the effect of data collection methodology through a shared method variance (Podsakoff et al., 2003). The common latent factor along with the study variables showed a good fit with the data $\chi^2(116) = 233.213$, $p < .001$; CFI = .96; RMSEA = .068, GFI = 0.9. The items also loaded significantly on their manifestation variables with $p < 0.001$.

To verify and validate further, we assessed the convergent and discriminant validities of the constructs. The composite reliabilities (CR) were analysed, ranging from 0.93 to 0.96, exceeding the threshold of 0.7 (Anderson & Gerbing, 1988; Nunnally et al., 1967). As per Fornell & Larcker's (1981) recommendations, the AVE ranged from 0.73 to 0.84, fulfilling the conditions of convergent validity. The discriminant validity of the constructs can be ensured if the average variance extracted (AVE) is higher than the square of the inter-factor correlations.

The condition of discriminant validity was also fulfilled with all the variables under study. Table 2 (shown in the next page) represents the AVE, CR, Cronbach- α , inter-factor correlations and their squares.

4.3 Structural model

Structural equation modelling (SME) was conducted to analyse the structural model and test the variables' hypothesised relationships. SEM indicated that the hypothesised training model fitted the data well with significant fit indices $\chi^2(114) = 50.041$, $p < .001$; CFI = .99; TLI = 0.997; RMSEA = 0.04, GFI = 0.998, SRMR = 0.027. The total effect of communities of practice on future prospects is positive and significant ($\beta = 0.376$, $p < 0.001$), supporting Hypothesis 1. There is a significant relationship between communities of practice and training ($\beta = 0.409$, $p < 0.001$); thus, Hypothesis 2 is supported. Similarly, the relationship between training and future prospects is positive and significant ($\beta = 0.719$, $p < 0.001$), supporting Hypothesis 3. The standardised path coefficient showed an insignificant influence of communities of practice on future prospects ($\beta = 0.082$, $p = 0.091$) when

training was added as a mediator between them. The indirect effect of communities of practice on future prospects through training is significant ($\beta = 0.294$, $p < 0.001$).

Table 2. Mean, Standard Deviation, Correlations and Reliabilities

	α	CR	M	SD	1	2	3	4	5	6	7	8
1 Gender	-	-	0.255	0.441	-	-	-	-	-	-	-	-
2 Age	-	-	0.312	0.512	-0.284**	-	-	-	-	-	-	-
3 Education	-	-	1.690	0.675	0.243**	0.001	-	-	-	-	-	-
4 Organisation Status	-	-	0.332	0.470	-0.059	0.187**	-0.132	-	-	-	-	-
5 Job position	-	-	1.041	0.626	-0.123	0.306**	-0.079	-0.109	-	-	-	-
6 Communities of practice	0.96	0.96	4.601	1.555	-0.022	0.167	0.135*	-0.054	0.112	0.807	0.139	0.110
7 Training	0.95	0.96	5.418	1.434	0.108	0.010	0.159*	-0.174	0.127	0.373**	0.840	0.476
8 Future prospects	0.90	0.93	5.545	1.261	0.099	0.177**	0.220**	-0.021	0.165*	0.333**	0.690**	0.734

*p < 0.05, **p < 0.01 (2-tailed). SD = Standard deviation. Values in bold diagonally = Average variance extracted. Value above the diagonal = Square of inter-factor correlations, CR = Composite reliability, values below the diagonal = Inter-factor correlations.

4.4 Mediation Model

A multiple regression analysis was conducted in SPSS 27 to analyse Hypothesis 4. The analysis showed that when communities of practice were added as predictor variables after the control variables in model 1, it accounted for 15 % of the variance (adjusted r^2). When training is added to model 2, it accounted for 50.3 % of the variance at a 0.001 significance level, representing that model 2 is additionally predictive compared to model 1. Table 3 displays the results of multiple regression analysis for hypothesis 4 with the control variables.

Table 3. Multiple Regression Analysis for Hypothesis 4

Predictors	Model 1	Model 2
Gender	0.125	0.060
Age	0.127	0.146
Qualification	0.133	0.096
Organizational status	0.008	0.091
Job position	0.123	0.057
Communities of practice	0.269***	0.039
Training		0.659***
Adjusted R ²	0.150	0.503
F value	7.373	33.455
P value	0.001	0.001

Note: ***p < 0.001, Future prospect as dependent variable

As the Sobel test is no longer well-thought-out and helpful in analysing the indirect effect of an independent variable on the dependent variable (Zhao et al., 2010; Hayes AF, 2018), we conducted the mediation analysis through model 4 of PROCESS macro with 5000 random bootstraps resamples at 95% confidence interval (Hayes AF, 2018). Mediation analysis in PROCESS macro showed that the indirect effect of communities of practice on future prospects via training was significant (effect = 0.199, CI = 0.127, 0.274). Zero does not fall between the lower and upper-level confidence interval range confirming the significant indirect effect. Furthermore, as the PROCESS macro also displays the total and direct effect of the independent variable on the dependent variable, we checked the direct effect of communities of practice on future prospects, which was insignificant (effect = 0.071, $p = 0.098$). In contrast, the total effect was significant (effect = 0.270, $p < 0.001$). This result shows a full mediation by training on the relationship between communities of practice and future prospects (Baron & Kenny, 1986). Table 4 represents the results of the mediation effects in PROCESS macro model 4. The statistical analysis confirmed the mediating role of training in the relationship between

communities of practice and future prospects. Figure 2 displays the mediation model with standardised path coefficients.

Table 4. Results of Mediation Effects in PROCESS Macro

Relationship	Total effect	Boot		Direct effect	Boot		Indirect effect	Boot	
		LLCI	ULCI		LLCI	ULCI		LLCI	ULCI
		Communities of practice → Future prospects	0.270***		0.167	0.373		0.071	-0.013

Notes: LLCI = Lower-level confidence interval, ULCI = Upper-level confidence interval. ***p < 0.001, mediator variable = Training. Bootstrap at 95% confidence interval with 5000 random bootstrap resamples.

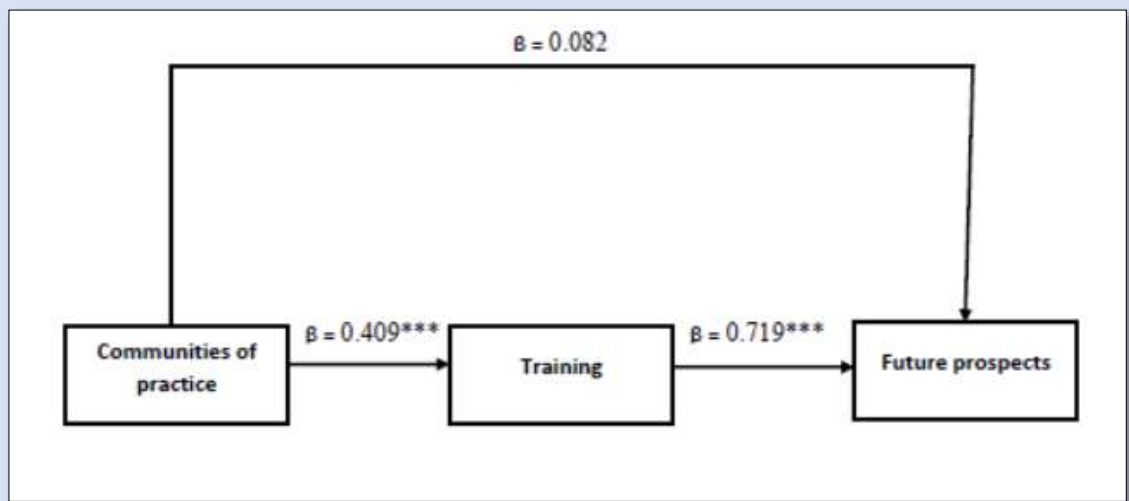


Figure 2 Structural model with standardised path coefficients

5.0 Discussion

The current study provides insights into the concept of communities of practice and its consequences. More importantly, it focuses on the role of training in gaining a better future prospect within the current organisation, which agrees with the argument by Ashforth et al. (2007) that learning strengthens future prospects in the organisation, and learning job skills and knowledge related to the organisational culture and work tasks are acquired from the training. This concept is of great value, as it clarifies the notion of future prospects and their antecedents. There is a dearth of studies dealing with future prospects, basically following communities of practice. This study aims to offer a richer conceptualisation of the connection between communities of practice effectiveness and future career prospects in the present organisation via training. Our concept of reward and brighter career prospects emerges out of Maslow’s (1943) hierarchy of needs theory, whereby we posit that participating in organisational communities of practice fulfils the primary social security need, and when it is fulfilled, individual moves towards satisfying a higher-order need of self-esteem and self-actualisation which relates to promotion and creativity. Our study also incorporates a comprehensive conceptual framework, which demonstrates the design and delivery characteristics of the communities of practice intervention and help future researchers in exploring the variable by following the proposed framework.

Training as a tool for learning and gaining knowledge related to one's job skills leads to better job performance and socialisation in the current organisation, paving the way for recognition and career advancements, which aligns with the arguments by R.J. Taormina (1997b), that workers after fulfilling their basic needs move towards their future prospects in current organisations. Knowledge sharing in organisations can be considered a voluntary behaviour of helping others (Brown & Duguid, 1991), arising in communities of practice. This research highlights the debate that knowledge sharing and learning from the organisational communities of practice can be contemplated as a preliminary stage in socializing in the organisation, whereby the feeling of belongingness can be expected, satisfying the basic need of an individual. However, when the immediate need is satisfied, an individual moves towards a more potent need of a higher-order hierarchy, agreeing with Maslow's hierarchy of needs.

This study investigates the role of communities of practice in the future prospects after undergoing formalised and structured training. Our findings suggest that training followed by communities of practice is vital in achieving a better future prospect for an employee. Our results demonstrate that the benefits of communities of practice relate positively to future career prospects, supporting the first hypothesis, showing that learning from communities of practice manages future prospects, which is in line with Taskin & Bridoux (2010) that knowledge is a source of competitive advantage paving the way for sustainable career prospects. Similarly, we hypothesised that participation in communities of practice is positively related to training, whereby employees participate in organisational communities of practice to gain knowledge through informalized relationships, which agrees with Weller (2020). Moreover, when they participate in a training program organised in a formal and professionalised manner acquiring structured instructions and information, the knowledge is transferred in a scheduled and systematic manner, supporting our second hypothesis.

Moreover, with the perceived benefits of training, employees may end up with better job performance, agreeing with our third hypothesis, which states that gaining knowledge from training leads to better future prospects in the organisation, which is in line with (Kim et al., 2011; Robert J. Taormina, 2004). Our study agrees with Xie et al. (2020), who have stated that training as a means of continuing education augments employees' skills and knowledge fulfilling sustainable development. The results also supported the mediating role of training in the relationship between communities of practice and future prospects, which agrees with (Koen et al., 2012), that resources from the organization training resource can help employees to overcome career obstacles and enhance future prospects. Since knowledge gained through communities of practice alone cannot play a vital role in securing better future prospects, an employee should undergo a professionalised training program to gain mastery over the skills and abilities required to perform their job better. It is also deep-rooted that employees have a better chance of future prospects in their current organisation when after fulfilling their basic lower-order needs, they move towards satisfying potent higher-order needs of gaining knowledge and skills for better performance, thereby leveraging higher career prospects, promotion, rewards, leading to self-esteem and actualisation needs. We further discuss the theoretical and practical implications of this study.

5.1 Theoretical implication

This study makes multiple contributions to the theory. It offers a hybrid nature of organisational communities of practice, which holds a social learning perspective associated with knowledge transfer (Fam, 2017), blending social collaboration and learning—built on Maslow's (1943) hierarchy of needs theory, the social integration characteristics of communities of practice aid employees in managing and satisfying their basic need of social security. We argue that because communities of practice help individuals socialise and gain knowledge related to their job and information related to their shared interests, they also pave the way for employees to fulfil their basic social security needs, thus contributing to Maslow's hierarchy of needs theory. Employees participate in company-organised training programs to fulfil potent higher-order needs to gain designed job skills and knowledge for

better job performance and socialisation. This may eventually lead to optimum future prospects in the organisation, supporting the arguments by Cerdin et al. (2020).

Our findings support Kirkman et al. (2011) study, representing that though employees face high job demands and responsibilities, they manage to involve in formal or informal communities of practices interacting and sharing knowledge with a learning perspective. This study proposes a novel methodology drawn from a benchmark theory of Maslow's need hierarchy, whereby it contributes to a theory based on the social learning system (community of practice), leading to better future career prospects, rewards, employability and recognition in the organisation, mediated by training, is one of its kind of study. Moreover, in their research, Vajjhala & Baghurst (2014) have suggested considering the role of organisational cultural factors in knowledge sharing and learning. Thus, we proposed communities of practice as a social entity at the organisational level for effective knowledge sharing leading to better future prospects.

5.2 Practical implication

The practical implication of belongingness and relatedness rests in the propensity for an intentional community of practice to engender a sense of personal credibility, increase organisational faithfulness and condense staff attrition, thereby securing sustainable future prospects. The findings of this study demonstrate the crucial role of communities of practice in rewarding future career prospects. To unleash need fulfilment as a human characteristic, motivation in the form of social involvement in communities of practice followed by a training program to gain knowledge, information and ideas for an optimistic future prospect should be provided. Since a training program is an essential HRM intervention provided to engage employees in receiving knowledge, learning essential job-related abilities, and coming up with innovative ideas leading to performance and productivity, organisations should offer a comprehensive, skill-based training program for the future prospects of their employees and for the organisation itself. Managers should bring meaning and value to the interventions provided to the employees, whether sponsored and company-driven community of practice or a systematically organised training program. Companies should initiate virtual digital platforms to share ideas and knowledge as a tool for thriving communities of practice, and virtual training should also be prioritised. It can also organise regular events as a gathering of community members, fostering a sense of belongingness. Communities of practice and training as an antecedent to future prospects can be explored to provide better avenues to strengthen employee retention. A training program should be effective by correlating its content with the employees' previous knowledge, capabilities, and future needs.

5.3 Limitations and future research

Though this study's results align with the established theory, the study has a few limitations to be attended to by conducting further research. The primary point is that the study is cross-sectional; inferences regarding causality may be limited. Secondly, the questionnaire was a self-reported data collection tool, and the data were collected simultaneously. The possibility of common method bias cannot be ignored even though statistical control was considered. Thus, a longitudinal study can be applied to the same conceptual model. Various other job control, demand and support factors can also be considered for studying their moderating effect on the mediation path. Other variables related to employees' psychological traits can also be considered mediators in the relationship between communities of practice and future prospects. The role of organisational factors can be evaluated as an antecedent to future prospects. Since the demographics of the respondents relates to the Indian context, the proposed model can be assessed with the execution of a reproducible study of other nations.

6.0 Conclusion

Communities of practice involve the constructive view of learning in a social context, allowing employees to share knowledge and exchange ideas. Drawn from Maslow's hierarchy of need theory, this study empirically tested the relationship between communities of practice and future prospects with the path from training. After satisfying the basic physiological, safety and social security needs by working in an organisation and being socially involved within communities of practice, an individual moves towards fulfilling higher-order self-esteem needs by recognition, rewards, promotion, employability, and future career prospects in their current organisation. This study proposes a novel framework with a benchmark theory, which demonstrates the role of communities of practice in achieving better future prospects through training.

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Understanding FinTech Platform Adoption with special reference to Budget Apps: Insights from Indian cities

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Abstract

Abstract

FinTech platforms are emerging as critical facilitators in the digitization of the global economy. The recent COVID-19 outbreak has certainly hastened the uptake of FinTech platforms. This study examines the antecedents of people's acceptance of fintech services, particularly on online budgeting platforms. The current study expands on the basic construct of the Unified Theory of Acceptance and Use of Technology (UTAUT) by including financial consumption variables (such as perceived value and perceived risk). The empirical findings show that perceived ease of use, social influence, and perceived risk are all closely related to people's intentions to adopt fintech, while perceived risk, performance expectancy, and effort expectancy have a significant impact on value perception, which in turn affect their intentions to adopt budget tracking platforms. The suggested FinTech adoption model could advance the field of information technology (IT) adopting research by extending the UTAUT, which holds that people's adoption intention is indirectly influenced by their expectations for effort and performance through perceived value. Finally, the novel model's implications for present and future FinTech research are examined.

Keywords: FinTech adoption; Budgeting apps; IT adoption; Consumer behaviour; Perceived risk

1.0 Introduction

FinTech has provided the public with cutting-edge financial services including online payments, budgeting, peer-to-peer lending, financial planning, crowdsourcing, and savings and investments as internet technology and the financial sector have become more deeply integrated. A budget app is a piece of software that aids in budget creation and, in many circumstances, revenue and expense tracking. Some even include sophisticated capabilities that may automate your savings goals, and monitor your net worth, credit score, and debt repayment. To view your entire financial picture in one location, most budgeting apps let you connect all of your bank accounts, investment accounts, credit cards, and loans. This is a significant improvement over manually recording your expenses, which can be tedious and imprecise.

Research on the fintech industry can be divided into two groups. One area of FinTech research is primarily concerned with how the transformation it has brought about will affect the established financial sector. The body of work in this area advances knowledge of the workings of fintech platforms. The other area of research focuses on determining what influences consumers' adoption of Fintech platforms. The availability of new technology to people will determine how widely FinTech platforms are used. As a result, to some extent, FinTech adoption behaviour could be considered financial technology adoption behaviour. Our knowledge of FinTech platforms is aided by prior research that focuses on investigating the adoption behaviour of financial-related technologies. However, the majority of research concentrates on certain FinTech services like peer-to-peer lending, online banking, and online payments.

Individuals' embrace of FinTech is logically reflected in their adoption of technology and consumption of financial services. The procedures by which customers access and utilize financial products, such as internet-based fund products and/or services, are referred to as financial services consumption. According to a number of consumer behaviour research, utility maximization plays a significant role in how consumers make decisions (H.-W. Kim et al., 2007; Sirdeshmukh et al., 2002; Zeithaml, 1988). Consumer behaviour and perceived value are connected (Gordon et al., 2018). Furthermore, the biggest barriers preventing people from using FinTech platforms, particularly online wealth management platforms, are the risky nature of financial products and the unpredictability of e-commerce (Lee, 2009; Thakur & Srivastava, 2014). In this paper, we concentrate on the FinTech services' budgeting platforms. There is still a need for a thorough knowledge of people's FinTech adoption from a perspective that blends technology adoption and financial services consumption characteristics, even though past research is useful in extending FinTech platform adoption from diverse angles.

2.0 Methods

This study examines the variables influencing people's intentions to adopt fintech, with a particular emphasis on platforms for budget tracking. In recent years, an increasing number of Indians have used the online wealth management services provided by FinTech platforms. This study benefits from India's high adoption rate. As a result, the information was gathered in India via online platforms for budgeting platforms.

2.1 Measurement

The constructs were adopted from extant literature and contextualized aligning with the purpose of the current study. The UTAUT (Venkatesh et al., 2003, 2012) has been modified to create scales for effort expectancy, performance expectancy, social influence, adoption intention, and facilitating conditions. The perceived risk scale was created using data from Pavlou (2003) and Kim, Ferrin, and Rao (H. J. Kim et al., 2020). The assessment for a perceived value is taken from Kim, Chan, and Gupta (H.-W. Kim et al., 2007) as well as Sirdeshmukh, Singh, and Sabol (Sirdeshmukh et al., 2002).

2.2 Data Collection

Data came from an online survey conducted in India. The overall effective sample size satisfies Hair, Black, Babin, and Anderson's recommendation for a minimum sample size of 150 samples for a model with seven or fewer components when similarities are moderate (standardized loading estimates were over 0.7).

3.0 Result and Discussion

Because it can simultaneously model numerous dependent variables and consider measurement errors, the structural equation model (SEM) was chosen in this investigation. Social science research frequently uses the partial least squares (PLS) and covariance-based (CBSEM) SEM methods. It was done to assess the validity and reliability, which included data on factor loadings, correlations, composite reliability (CR), and average variance extracted (AVE).

4.0 Conclusion

This study, which is based on the UTAUT, provides a complete model that, by incorporating financial services consumption variables, forecasts people's desire to adopt FinTech, with a particular focus on internet budget tracking platforms. Perceived value and perceived risk are the newly introduced constructs that can coexist with the UTAUT. These two characteristics were simultaneously verified in the FinTech setting, particularly on budgeting platforms, despite being researched separately in an

earlier study. The suggested model extends the UTAUT to the field of fintech and offers a thorough viewpoint on understanding fintech adoption.

The suggested model is helpful for understanding FinTech adoption behaviour because it looks at how people adopt FinTech based on how they perceive using technology and how they consume financial services. First, by combining perceived value and perceived risk with the fundamental construct of UTAUT, this study provides a thorough understanding of FinTech adoption, with a particular focus on online budget tracking platforms. Numerous e-commerce research contends that perceived risk is a deterrent to people's intentions to embrace online (de Luna et al., 2019; Shah et al., 2014).

Second, compared to the UTAUT baseline model, which is frequently used to examine the adoption of new technologies, the suggested FinTech adoption model is more successful in the context of online wealth management. To create the baseline for the UTAUT and carry out verification, we extracted measuring elements, such as effort expectancy, performance expectancy, adoption intention, and social influence.

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Wisdom and Mindfulness to Attain Social Sustainability: Mediating Role of Temperance

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Abstract

The relationships between wisdom, temperance, and mindfulness are examined in this study and their interplay to attain social sustainability is discussed. Mindfulness is required to enhance the sustainability of the workforce, which can be achieved by fostering temperance and wisdom among them. Data was collected from 232 employees working in India using self-reported questionnaires. Confirmatory factor analysis of the model was done with R studio. The Hayes PROCESS macro was used to test the relations using bootstrapped samples for statistical analysis robustly. A partial mediation between wisdom and mindfulness via temperance was found to be significant. This study implies that wisdom influences temperance, which helps employees become mindful, sustain their performance, and create a sustainable workplace culture and workforce. The implications and limitations are discussed.

Keywords: wisdom, temperance, mindfulness, social sustainability, structural equation modelling

1.0 Introduction

Emerging from the idea of sustainability, social sustainability has also gained attraction in the domain of business management. As the world focus on sustainable development, organisations are also looking for the sustainability of people in the organisations. Thus, it arouses attention toward sustainable employment, i.e., the level up to which employees can keep working in current and future situations (Van Dam et al., 2017). Employees must regularly acquire and appraise their abilities and proficiency to keep themselves apt for employment and evade skills worthlessness (Van Loo et al., 2001). In this study, we believe employees' intellectual character strengths (wisdom, temperance, and mindfulness) help them be socially sustainable.

In the personal context, achieving mindfulness involves reducing egoistic barriers to perception, partly attained by increasing explanatory filters recognition and biases with other internal processes, such as needs, wants, and defensive tendencies (Hays & Chen, 2008). Mindfulness means scanning the organization's environment and its continuous appraising and responding to the surroundings in the organizational context (Hays & Chen, 2008). Thus, by having a mindful approach, employees in the organisation can be boasted to achieve higher sustainability in their organisations. Sajjad & Shahbaz (2020) proposed that mindfulness interventions allow social sustainability at the personal and organisational levels and encourage social sustainability. The current study revolves around mindfulness and how a mindful approach can be developed in employees by focusing on the antecedents of mindfulness- wisdom and temperance as the relationships are suggested by past studies that reflected a positive association between "wisdom and mindfulness" (Brienza et al., 2018), "wisdom and temperance" (Sanz & Fontrodona, 2019), "temperance and mindfulness" (Duan & Ho, 2018). The study also tries to check if the results are affected by any demographic variables because some past studies consider age's role to be significant in the relationship between intelligence and mindfulness (Miao et al., 2018).

As mentioned, mindfulness has been identified to enhance social sustainability. There is a gap in finding the antecedents to mindfulness from an employee's perspective. Moreover, it also needed to be checked for any sequential model among the factors, i.e., whether they act as latent constructs or follow

any other model like mediation. The study's scope mainly focuses on the organisational context and on attaining social sustainability through mindfulness. However, the findings can be generalised in a psychological context. Considering the crucial role of mindfulness in achieving social sustainability, it becomes essential to know about the factors that may help achieve mindfulness. Thus, the present study attempts to bridge the gap and has identified and assured wisdom and temperance as factors leading to mindfulness through a mediation model. The role of wisdom and temperance in achieving mindfulness is in the study's focus, which has been identified as the critical factor in attaining social sustainability and having sustainable employees. Accordingly, the study effort to respond to the subsequent research questions:

1. Can mindfulness help to attain social sustainability?
2. Whether the mindfulness of the employees is affected by wisdom?
3. Does temperance affect the relationship between wisdom and mindfulness?
4. Is the relationship between wisdom, temperance, and mindfulness constrained by any demographical characteristics of people?

The study is based on the integrative mindfulness-social sustainability framework given by Sajjad & Shahbaz (2020). The authors have reproduced existing concepts and linked mindfulness to societal sustainability at the individual, organisational and societal levels. The model reveals the snuggled hierarchical order in associations between mindfulness and societal sustainability at three levels, i.e., individual, organisational, and societal. The Theoretical framework suggests that mindfulness interventions enable societal sustainability on the individual and organisational levels and ultimately lead toward social sustainability. Individual-level mindfulness practices could boost a person's capacities (e.g., reasoning, sentiment, approach, and behaviour) and individual well-being and eminence lifestyle (e.g., physical, mental, and emotional). Organisational-level training or interventions relating to mindfulness can intensify human capabilities (e.g., human capital), organisational citizenship behaviour (e.g., intellectual aptitude) and overall workforce functioning. Whereas at the social level, the promotion of being mindful may increase cooperative efforts for communal welfare and a healthful community (e.g., societal welfare and expansion through healthiness and individual services, improvement, cooperative joint associations and additional public and social actions).

Moreover, this study finds its underpinning in the Balance Theory of Wisdom (Sternberg, 1998), which defines wisdom as "consideration of and integration (or balance) of conflicting intrapersonal, interpersonal, and extra-personal interests, over the long and short terms, under the guidance of positive ethical values and a context-sensitive management of the situation at hand." (Grossmann, 2017, p. 235). We argue that the idea of balance proposed by the definition of wisdom in this theory would enforce the individual to have temperance to lead to that balance. Moreover, this balance would provide the perspective that would ultimately help the individual attain mindfulness.

The study's first objective was to explore the association between wisdom, mindfulness, and temperance. The second objective was inclined toward examining whether temperance is a mediating factor among wisdom and mindfulness. The last object was to test whether other controlled variables influence the relationships among wisdom, mindfulness, and temperance.

Social Sustainability

In his study regarding social sustainability, Woodcraft (2015) explained it as making sustainable and prosperous places that promote well-being by considering what individuals require from their community and workplaces. Social sustainability associates the physical world design with the social world's design, i.e., structure to encourage societal and cultural life, societal services, systems for resident involvement, individual and community areas to progress. Vallance et al. (2011) suggested that social sustainability has three components (i.e. development, bridge, and maintenance).

'Development' social sustainability is associated with meeting the elementary equality requirements between and within generations 'Bridge' social sustainability emphasizes altering actions to attain biological or ethereal eco-friendly targets. 'Maintenance sustainability' denotes community approval or social terms that may be sustained. Eizenberg & Jabareen (2017) proposed that social sustainability encompasses four correlated notions of social-oriented practices- Equity, Safety, Ecological-Presumptions, Urban Form. Every idea has an idiosyncratic function and includes significant social features. Connecting the social sustainability concept to organizations, Dunphy et al. (2000) theorized social sustainability on the organizational level as developing individual capabilities for sustainable elevated organizational performance and collective social well-being.

Wisdom and Temperance

The essence of wisdom is all about being conscious, either about the surroundings or oneself. It is studied as one of the individuals' most remarkable talents (Goetze & Lambert, 1961). The practice relating to wisdom converts practical and academic know-how by changing the feelings into the present and future behaviour (Klein & Bloom, 1995), directly associated with sustainable employment or social sustainability.

Sternberg (2004) mentions wisdom using intelligence and experience to establish an equilibrium between intrapersonal, interpersonal, and extrapersonal welfares. It can also balance revision to prevailing surroundings, redefine current settings, and choose unexplored territories over short and extended periods. Over the past few years, many studies relating to wisdom have been conducted in psychology, and various researchers have given many different definitions of construct wisdom (Yang, 2008). Most of these definitions can be classified into four groups, (a) combination of personality competencies, (b) human progression result, (c) collection of applied knowledge, and (d) procedure that occurs in contexts of life (Yang, 2008). Thus, the various reflections of wisdom can be named perspective, love of learning, creativity, curiosity, judgement & open-mindedness as given in subscale of character strength (Harzer & Ruch, 2014).

Sanz & Fontrodona (2019) has analyzed temperance in three different literature fields- Virtue Ethics, Positive Psychology and Competence-based Management. Based on the analysis, an explanation of temperance as "Moral Competence" was proposed. In the Virtue ethics field, Aristotle's definition in Nicomachean Ethics, written by his student Plato in 350 BCE (Ross & Urmson, 1984), was linked to temperance. In the words of Aristotle, "an ethical quality (and, therefore, temperance) is a "state of character concerned with choice, lying in a mean, i.e., the mean relative to us, this being determined by a rational principle, and by that principle by which the man of practical wisdom would determine it." (Ross & Brown, 2009) In Positive Psychology, Peterson & Seligman (2004) have explained a significant perspective of temperance. It can be exercised through four different character strengths- 'Forgiveness and Mercy', 'Humility and Modesty', 'Prudence' and 'Self-Regulation'.

'Forgiveness and Mercy' helps one manage the anger toward those who have done wrong. It focuses on tolerating others' limitations, providing them with an additional chance and not having revengeful. 'Humility and Modesty' helps the individual against arrogance by allowing one's achievements to outshine at their own. It suggests individuals do not seek the limelight or regard themselves as more important than they are. 'Prudence' defends the individuals from the prolonged costs for temporary pleasure. It suggests that individuals be cautious about their selections, not catching unnecessary dangers, and involving in matters that might later be regretted. 'Self-regulation or self-control' narrates adapting feelings and actions, being systematic and regulating one's desires and emotions. Self-Regulation defends the person from surplus in wants and the addition and destabilization of certain feelings. (Peterson & Seligman, 2004).

In Competence-Based Management, temperance can be considered an ethical capability when exercised in organizations. The moral capability of temperance requires to contain the notions of ‘moderation,’ ‘balance’ or ‘mean’ among both ‘excess’ and ‘deficiency’ (Sanz & Fontrodona, 2019). Furthermore, one of three significant domains relating to temperance-virtue ethics linked wisdom and temperance to each other. Moreover, as a moral virtue, temperance needs a logical principle or the feature of applied wisdom (Sternberg & Stemler, 2004). Also, Crossan et al. (2013) mentioned that temperance and wisdom could function in synergy for making ethical decisions in the context of value-based orientation. Thus, based on this literature, we form our first hypothesis, which states:

H1: Wisdom is positively associated with temperance.

Temperance and Mindfulness

The mindfulness concept is believed to be originated from the old Buddhist tradition, and various evidence of mentioning mindfulness in Buddhist texts can be seen way before the emergence of western sciences (Baer, 2011; Shapiro et al., 2006). Nowadays, mindfulness has emerged as an essential psychological intervention (Walach et al., 2006). Most of the Modern work on mindfulness construct is based upon Langer’s mindfulness Theory (Langer, 1989). As per this theory, mindfulness allows transformation in individuals and organizations by either (a) increasing mindfulness or by (b) decreasing mindlessness (Langer, 1989). In their study, Langer & Moldoveanu (2000) proposed that mindfulness can be increased by the direct method of implementing new procedures and programs that may arouse awareness of multiple perspectives. The indirect way is to reduce mindlessness. It can be implemented by eliminating those aspects in the existing programs and procedures that unintentionally promote mindlessness.

Creswell (2017) found two notable characters emerged most common in most mindfulness definitions. First, mindfulness acquires attention and understanding of the individual in its present moment experience. The present moment’s experience can be of many types, such as five senses, emotions, mental pictures, and talks in mind. Second, many contemporary definitions of mindfulness reflect that adopting an open attitude and accepting one’s experience is essential. This accepting and free attitude includes reacting to experiences with an orientation that is separate, curious and nonreactive. Several studies have been done regarding implementing mindfulness. One such work was done by Hales & Chakravorty (2016), where three activities were suggested to operationalize mindfulness- a) the habit of regular meditation, b) a will on at workers’ end to unravel complications using context-specific resolutions objectively, and c) time to expressively connect with others relating to the current issue.

As discussed in the earlier section, self-regulation is a necessary character strength for having the virtue of temperance. Also, self-regulation is the core thought of mindfulness as every self-regulation strategy is grounded with feedback loops that could be improved with attention (Niemic et al., 2012). Furthermore, studies in recent years have found a direct association between temperance and mindfulness (Duan & Ho, 2018; Small & Lew, 2021). Thus, we also enquire to check this relation with our second hypothesis that states:

H2: Temperance is positively associated with mindfulness.

Wisdom & Mindfulness

Also, Earlier studies have discovered that wisdom is associated with positive socio-cognitive outcomes (Baltes & Smith, 2008; Dambrun & Ricard, 2011; Glück et al., 2013; Grossmann et al., 2013; Kramer, 2000; Staudinger & Glück, 2011), which also affects mindfulness (Kabat-Zinn, 2000) (Garland et al., 2015). The direct association between the two constructs has also been found in the works of Brienza et al. (2018), Luchs & Mick (2018) and Rooney et al. (2019) and. Thus, we formulate our third hypothesis stating that:

H3: Wisdom is positively associated with mindfulness.

Mediating Role of Temperance among Wisdom and Mindfulness

As emphasized in the study background, the need for the hour is to form a socially sustainable environment. It is also identified in the theoretical foundation that mindfulness can be the key to attaining social sustainability. Thus, the organization's focus should be to make its workforce mindful. Also, the core part of the model proposed in the study is that wisdom would boost mindfulness.

Also, wisdom is associated with temperance (Sanz & Fontrodona, 2019), and temperance is associated with mindfulness (Duan & Ho, 2018). Moreover, recent a study has signified that both temperance and wisdom boost mindfulness (Small & Lew, 2021). Thus, we proposed a mediating model that emphasizes temperance's role in associating wisdom and mindfulness, which is tested with our fourth and last hypothesis in this study, stating:

H4: Temperance mediates the positive association between wisdom and mindfulness.

Method

A non-experimental field survey with a cross-sectional research design is used in this study to examine the relationship between mindfulness and wisdom with temperance's mediation role. The data was collected from various subjects simultaneously. A self-reported survey questionnaire to collect data with the help of google forms was used in this study, and all the participants were assured of the anonymity of their identities. At the initial stage, they were informed about the study's objectives, and the use of their response would be limited to statistical purposes only.

A sample size of 232 employees from various Indian organisations, both public and private sector, in manufacturing and service industries was included in this study. The demographic profiles of 232 respondents include 59.5% (138) males and 40.5% (94) females. Most respondents were of age 21 to 35 years (65.9%, 153), then 36 to 50 years (24.1%, 56), and a few of more than 50 years of age (9.9%, 23), with no respondent of age group less than 21 years. 52.1% (121) of respondents were married, 47% (109) were unmarried, and 0.9% (2) had another marital status. Among the respondents, 32.3% (75) were at the junior level, 44.8% (104) were at the middle level, and 22.8% (53) were at senior-level job positions. 29.3% (68) of all respondents had a salary of more than 10 lakh Rs. p.a., 30.6% (71) ranged from 5 to 10 lakh Rs. p.a. and 40.1% (93) of respondents had less than 5 lakh Rs per annum salary. Also, the majority of 54.3% (126) of respondents were postgraduate, 25.9% (60) were PhD holders, 18.5% (43) were graduates, and 1.3% (3) only were diploma holders; besides that, 60.8% (141) had less than ten years of work experience, 25% (58) had 10-20 years of experience, and 14.2% (33) had more than 20 years of experience. Also, 65.1% (151) of respondents worked in private organisations, whereas 34.9% (81) worked in public organisations. R-studio 1.4 (RStudio, 2020) and SPSS 27.0 (IBM Corp., 2020) software, along with Hayes PROCESS macro (Hayes, 2018), were used to examine the data in the present study.

Measures

Wisdom was measured through a subscale of the Character Strength Rating Form (CSRF) scale (Harzer & Ruch, 2014). Temperance was also measured with a sub-scale of the same CSRF scale (Harzer & Ruch, 2014). A subscale of the State Self-Compassion Scale - Long-form (SSCS-L) (Neff et al., 2021) was used for measuring mindfulness. All three constructs were measured using a 7-point Likert Scale. The description of items, Cronbach's alpha and factor loadings are mentioned in Table 1. Internal consistency reliability (using Cronbach's alpha), which reflects that the items planned to measure one construct produce similar results when measured for all three measures, was found to be satisfactory (thumb rule of being above 0.7). Also, most factor loadings were above the ideal threshold limit of 0.7,

as Hair et al. (2010) suggested, and the few below 0.7 were within the acceptable limit of 0.5. Furthermore, the convergent and discriminant validity were also found to be adequate.

Table 1. Item Description, Internal Reliability and Factor Loadings

Wisdom		$\alpha = 0.82$
W1	I have creativity (originality, ingenuity).	0.667
W2	I have Curiosity (interest, novelty-seeking, and openness to experience).	0.755
W3	I have Judgment & Open-Mindedness (critical thinking, rational and logical choices).	0.706
W4	I have a love of Learning (Inquisitive, desire to hold on to and deepen acquired information).	0.801
W5	I have Perspective (Holistic Attitude)	0.760
Mindfulness		$\alpha = 0.73$
M1	I am keeping my emotions in a balanced perspective.	0.755
M2	I am taking a balanced view of this painful situation.	0.778
M3	I am keeping things in perspective.	0.702
Temperance		$\alpha = 0.77$
T1	I have Forgiveness and Mercy	0.691
T2	I have Modesty and Humility (accurate self-assessment, recognition of limitations, and forgetting of the self)	0.657
T3	I have Prudence (careful, cautious, goal-directed planning)	0.722
T4	I have Self-Regulation (self-control)	0.779

Data Analysis

Demographic Variables were numerically coded for analysis, such as in gender category males were coded as 0 and females were coded as 1. In marital status, 0 was coded for married, 1 for unmarried and for others, 2 was coded. Organization type public and private was coded 0 and 1, respectively. Other categories like age group, job position, education, annual salary and job experience were coded orderly. Anderson & Gerbing (1988) recommended the two-step procedure to analyze the factor models. First, the measurement model was tested to check if the indicator items represented constructs accurately. After accepting the measurement model, the structural model would be tested. The model was tested to get the fit indexes [CFI (Comparative Fit Index), GFI (Goodness of Fit Index), RMSEA (Root Mean Square Error of Approximation), SRMR (Standardized Root Means Squared Residual)] and various other reliability and validity parameters. At the end of the analysis, the model was plotted to represent all the relative terms. After getting model fit the imputed score were calculated using average score of the items and were tested using Hayes PROCESS macro.

Results

The model was tested for CFA, as reflected in figure 1, and it resulted in a good fitted model ($\chi^2 [51] = 75.817, p < 0.05 (0.014); RMSEA = 0.046; CFI = 0.995; SRMR = 0.049; goodness- of-fit index$

[GFI] = .993) (Hooper et al., 2008). Table 2 presents the constructs' and demographics variables' mean, standard deviations and correlation along with Average variance extracted for all three constructs. the Average Variance Extracted (AVE) for all three constructs, wisdom, mindfulness, and temperance, was more than 0.5, as given in Table 2. The squares of the correlation between wisdom, mindfulness and temperance in the three-factor model are also given in Table 2 above diagonal. It was found to be not greater than AVEs of the individual constructs (wisdom, mindfulness, and temperance). It proposes that all constructs have higher extracted internal variance than variance shared among them, which reflect that discriminant validity is adequate, as recommended by Fornell & Larcker (1981). The imputed average score of the items of each construct was used in the Hayes PROCESS macro along with 5000 bootstraps (Schermelel-Engel et al., 2003) of the existing sample. All the hypotheses were supported (refer to tables 3 and 4) as zero was not included within the lower and upper limits of the 95% confidence interval (MacKinnon et al., 2004). Figure 2 represents the partial mediation effect among the constructs calculated using the Hayes PROCESS macro (Hayes, 2013, 2018).

Table 2 Descriptive Statistics and Correlations

	α	CR	M	SD	1	2	3	4	5	6	7	8	9	10	11
1 Gender	-	-	0.41	0.49	-	-	-	-	-	-	-	-	-	-	-
2 Age	-	-	1.44	0.69	-0.149*	-	-	-	-	-	-	-	-	-	-
3 Marital Status	-	-	0.49	0.52	0.055	-0.459**	-	-	-	-	-	-	-	-	-
4 Job Position	-	-	0.91	0.74	-0.108	0.629**	-0.490**	-	-	-	-	-	-	-	-
5 Education	-	-	2.05	0.70	0.232**	0.020	-0.170**	0.059	-	-	-	-	-	-	-
6 Salary	-	-	0.89	0.83	-0.169*	0.516**	-0.493**	0.507**	0.091	-	-	-	-	-	-
7 Organization Status	-	-	0.65	0.48	-0.022	0.076	-0.027	0.090	-0.015	-0.030	-	-	-	-	-
8 Total Work Experience	-	-	0.53	0.73	-0.135*	0.819**	-0.530**	0.679**	0.026	0.603**	0.066	-	-	-	-
9 Wisdom	0.82	0.86	5.79	0.90	-0.026	0.149*	-0.113	0.079	0.076	0.229**	0.125	0.163*	0.547	0.168	0.428
10 Mindfulness	0.73	0.79	5.26	1.09	-0.086	0.178**	-0.068	0.115	-0.040	0.037	0.193**	0.122	0.410**	0.556	0.172
11 Temperance	0.77	0.81	5.54	0.98	0.008	0.209**	-0.167*	0.231**	0.040	0.205**	0.105	0.218**	0.654**	0.415**	0.509

Note. α = Cronbach alpha reliability; CR = Composite reliability of the measurement model; M=Mean; S=Standard Deviation. N=232. The average variance extracted (AVE) for each construct (Nos. 9, 10 & 11) is provided in bold along the diagonal. Values below the diagonal are inner construct correlations; values above the diagonal (i.e., AVE) are squares of correlations. * p< 0.05 (2-tailed). ** p< 0.01 (2-tailed).

Discussion

Through literature review, it is discovered that in the past, research has been done around all three constructs, i.e., wisdom, temperance, mindfulness, and the role of mindfulness in attaining social sustainability. The present study proves with empirical evidence that wisdom leads to mindfulness and highlights the mediating role of temperance in it. Also, the study theoretically emphasises mindfulness connectivity to social sustainability. As hypothesised, wisdom has been identified as the antecedent of temperance and temperance as the antecedent of mindfulness. Also, the positive association between wisdom and mindfulness has been proven evidently.

The first important finding of the study was to establish the overall positive relationship between wisdom and mindfulness. After controlling for demographic variables, wisdom was positively associated with mindfulness. Even after including the controlled variables as confounding variables, the overall positive association remained significant. The results had both the direct effect of wisdom on mindfulness (with and without temperance as mediator) and an indirect effect of wisdom on mindfulness through temperance. Previous studies by Rooney et al. (2019) and Luchs & Mick (2018) support this finding of the positive association between wisdom and mindfulness. Thus, the study formulates a concept that wise individuals or people who possess wisdom tend to develop mindfulness in their lives. Such individuals with wisdom found themselves more present in the current situation.

The study verifies the positive association between wisdom and temperance so that being wise makes one more self-restrained and moderation in action that is to be temperance. It is consistent with the analysis done by Sanz & Fontrodona (2019). Thus, the present study empirically justifies the concept

that individuals who uphold a wiser and rational approach show a sense of self-restraint, self-control, and moderation in their actions, irrespective of leisure opportunities or situations they face.

The study significantly proves the positive association of temperance to mindfulness. Thus, those who have a self-restraint approach in their lives tend to be aware of their present situations, as their tendency becomes to control themselves from getting deviated to other feelings. This finding is supported by a past study done by Duan & Ho (2018). Thus, the current research lays evidence for the concept that the people who have a virtue of wisdom or are wise tend to possess more self-control over themselves, and those who emphasize self-restraint and moderation in their action, i.e. having temperance, tend to have a mindful approach.

As established in the earlier findings of the study, wisdom has an overall positive association with mindfulness. Another result reflected that wisdom is positively related to temperance, and temperance is positively correlated with mindfulness. When checked for the indirect and direct effect of wisdom on mindfulness, it was found that wisdom has an insignificant direct impact than a significant total effect over mindfulness in the three-factor model. Thus, it proves that temperance mediates the positive association between wisdom and mindfulness if included in the model, signifying that temperance is an effective mediator underlying the positive relationship between wisdom and mindfulness. Thus, the study proves that the virtue of wisdom may directly influence people's mindful approach or indirectly affect mindfulness by boasting their tendency to have temperance.

The result reflected that no significant change in the association when considering confounding variables in the relationship between the three constructs. Thus, the relationship between wisdom and mindfulness through temperance is free from employees' demographic characteristics: age, gender, marital status, job position, education, salary, organization status, and total work experience. Miao et al.'s (2018) study aligned with the current study results as gender does not affect intelligence and mindfulness. Also, part of the results align with the previous results as age was a significant variable among intelligence and mindfulness as age was found to be correlated with all the three constructs (refer Table 2).

As found in the literature review and taken as a foundation in the theoretical framework, mindfulness was the key to achieving social sustainability. To attain social sustainability is very much crucial for individuals to be mindful. Taking into account, the model tested in the current study. Wisdom becomes a prerequisite for any community or organization to have social sustainability. Making the broad model so that wisdom would lead to mindfulness through the mediating factor temperance and the mindful employees in the organizations would help make socially sustainable organizations.

Table 3 Bootstrapped Hypothesis summary

Hypothesis	Estimate		95% CI Bootstrapped	
	B	SE	Lower	Upper
H1. Wisdom → Temperance				
Total effect	0.705	0.064	0.572	0.819
H2. Temperance → Mindfulness				
Total effect	0.449	0.086	0.269	0.605
H3. Wisdom → Mindfulness				
Total effect	0.497	0.089	0.308	0.655
H4. Wisdom → Temperance → Mindfulness				
Total effect	0.497	0.075	0.350	0.645
Direct effect	0.312	0.096	0.122	0.502
Indirect effect	0.185	0.073	0.052	0.337

B= unstandardized regression coefficient, SE=structural error

Table 4 Mediation Coefficients for Hypothesis 4

(Dependent Variable→)	Temperance		Mindfulness	
	B	SE	B	SE
Constant	1.307**	0.379	1.797**	0.514
Wisdom	0.705***	0.056	0.312**	0.096
Temperance	-	-	0.263**	0.089
Gender	0.096	0.103	-0.159	0.136
Age	0.038	0.127	0.306	0.168
Marital Status	-0.053	0.116	-0.030	0.154
Job Position	0.256**	0.093	0.039	0.125
Education	-0.045	0.072	-0.068	0.095
Income	-0.053	0.078	-0.190	0.103
Organisation type	0.010	0.103	0.270*	0.135
Job Experience	-0.028	0.130	-0.118	0.172
R	0.682		0.512	
R Square	0.465		0.256	
F-test	21.463***		7.599***	

*p<0.05, **p < 0.01, ***p< 0.001, B= unstandardised path coefficients SE= Structural Error

The study's first objective was to investigate the relationship between wisdom, mindfulness, and temperance, which are fulfilled and presented in Tables 3 and 4 and Figures 1 and 2. All the relations

were found to be positively associated with the constructs. The second objective was to examine whether temperance mediates wisdom and mindfulness. This objective is fulfilled, and temperance was a significant mediator between wisdom and mindfulness. The same is mentioned in Figure 2 and Table 5. The last objective was to test whether other controlled variables influence wisdom, mindfulness, and temperance relationships. The same has been accomplished, and no significant confounding variable was found among the three constructs' relationships.

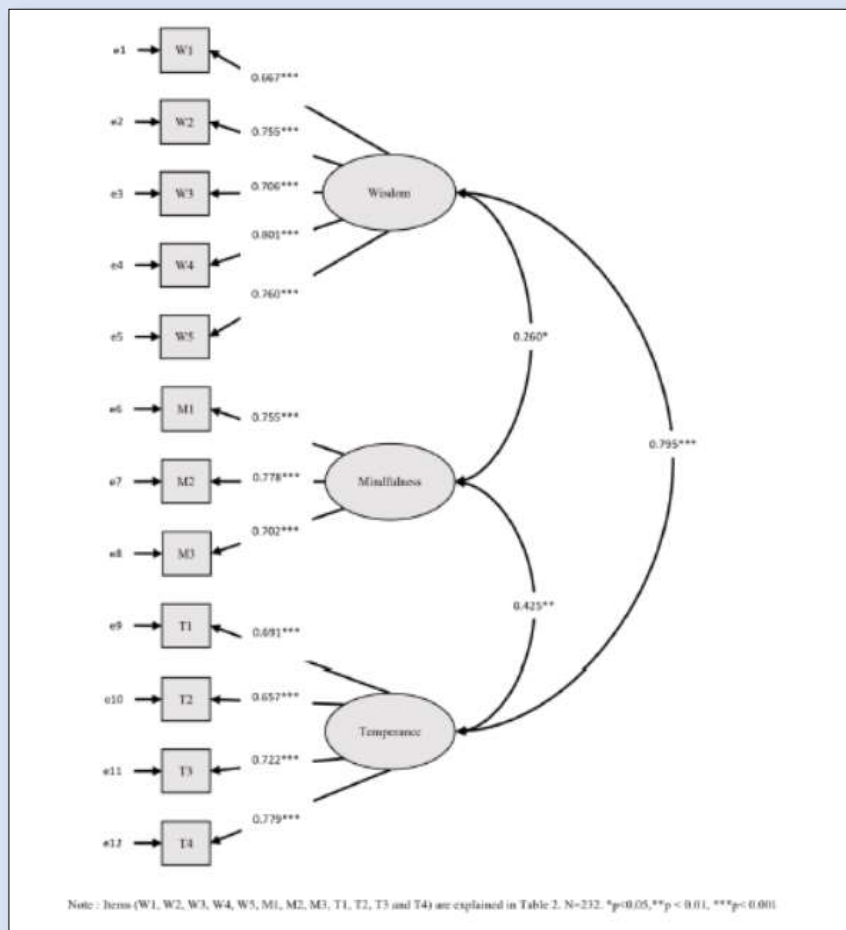


Figure 1: Measurement Model of Wisdom, Mindfulness and Temperance

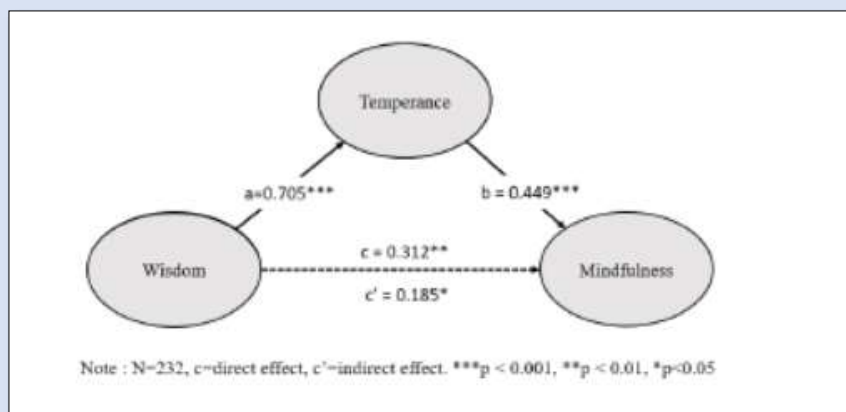


Figure 2 Mediation among Wisdom and Mindfulness through Temperance

Conclusion

To conclude, it may be said that the current study is a meaningful and significant attempt to develop the existing literature with precise testing and empirical support to establish new relationships between existing constructs, i.e., the effect of wisdom on mindfulness through the mediation of temperance. The study's findings indicate that wise and self-regulating or mediation action traits' interaction among the employees is essential for achieving a sense of mindfulness. The significant findings of the study demonstrated the features of the sample. Thus, in Indian organizations, wisdom and temperance exist, which ultimately results in mindfulness that is important for attaining social sustainability among organizations that attempt to develop a socially sustainable workforce. The present study's findings were significant, thus contributing to a theoretical and practical perspective of implications.

Theoretical Implications

This study contributes to the present literature on the variable's wisdom, temperance, and mindfulness. The study identifies the antecedents and consequences of temperance by studying it as a mediator among the other two variables, i.e., wisdom and mindfulness. Moreover, the relationship of mindfulness to the other constructs, temperance, wisdom, and social sustainability, can lay the foundation for developing new frameworks in human resource development, organisation behaviour, and sustainable development. Also, the study contributes to the framework created by Sanz & Fontrodona (2019) by exploring the role of individual's character strengths in this framework and thus also opens up the Pandora box of different individual related constructs to be studied in this framework. This study's last yet most crucial theoretical contribution is toward the Balance Theory of Wisdom (Sternberg, 1998). We based the idea of balance for wisdom on building quality of self-control and having things in perspective, which is novel to literature to the best of our knowledge.

Industrial Implications

Organisations can use the findings to promote the wisdom trait in their workplace and motivate employees to increase their knowledge. The organisation can include wisdom as an identification trait when selecting key employees. Also, wise individuals should be chosen for higher positions to promote organisations' socially sustainable growth. Organisations should encourage employees to possess temperance (self-resistance and self-control) to develop a sustainable working environment.

Societal Implications

The findings of the studies can also be implied in the community context; the governments and community leaders can promote wisdom among individuals while selecting the leaders for the society, bureaucrats, and other key position holders. Wiser individuals should be chosen as the leader to encourage socially sustainable growth in society. Also, individuals should be encouraged to possess temperance (self-resistance and self-control) to develop a socially sustainable society.

Limitations and Direction for Future Research

Despite contributions to the existing literature, the research has limitations and directions for future research in this area.

1. The study included a sample size of 146 employees, although it was sufficient as suggested by Hair et al. (2010) considering the number of variables involved in the structural model. Though future studies can be conducted with a higher sample size to ensure higher significance
2. The present study was designed for a cross-sectional study. Upcoming studies can examine the results by experimental design.

The study has taken samples only from Indian organizations, limiting the study's generalisability to other countries. Future research can be conducted across different countries and cultures to validate the generalizability of the findings. Moreover, to generalize the conclusions from the organizational

context, further studies can include a sample from the general public rather than considering only the employee's perspective

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Application of Artificial Intelligence in Social Entrepreneurship

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Abstract

The study presented here emphasises the importance of entrepreneurial activities based on artificial intelligence how it positively impacts social and economic advancements worldwide. The youth today are eager to become entrepreneurs based on the latest technical knowledge and skills in Artificial Intelligence and Internet of Things. Digital entrepreneurship ventures aiming at developing sustainable cities, innovations to attain goals and enhance the economic status are of interest. The network diagrams presented in the study imply that currently the OECD countries are in the forefront in applying artificial intelligence for social entrepreneurship.

Keywords: artificial intelligence; innovation; OECD countries; social entrepreneurship; sustainable development; VOSviewer.

1.0 Introduction

Individuals all over the world show their desire to put the best foot forward in entrepreneurship. The well-studied ideas for an entrepreneurial venture, confidence, knowledge observed is remarkable and encouraging. Del-Aguila-Arcenales et al., (2022) reported research and analysis over the Global Entrepreneurship Monitor reports which brings to light the developments in global entrepreneurship in different countries and its alignment with the sustainable development goals. Additionally, the Global Competitiveness Report reveals the competitiveness of the entrepreneurial project. The research was an essential information for governments to understand the effect of encouraging and supporting entrepreneurship ventures. Ufua et al., (2022) reported a study conducted on entrepreneurs in Nigeria which focussed on the lean principles and also SMEs after the pandemic. The study puts forth a model for the lean SME and practices in entrepreneurship with the understanding of the effects of the pandemic on socio-economic conditions post-pandemic.

One of the fastest developing sectors in entrepreneurial projects is based on the application of artificial intelligence in various sectors. In a study carried out by Upadhyay, Upadhyay & Dwivedi (2021), the researchers report the acceptance of AI and the intention of entrepreneurs affected the progress in the sector of digital entrepreneurship. Yang, C., Lin, C., & Fan, X. (2022) discussed about harnessing the potential of students of China for entrepreneurship in the artificial intelligence sector. The research reveals that a large number of the student fraternity has interest in entrepreneurial ventures with ideas to implement. The student survey emphasis that the students are no longer thinking of taking up jobs conventionally but follow the path for setting up their own business. The urge for this among students is appreciably high. Li (2022) studied the intention of learners to take up entrepreneurship. The results showed that although a considerable percentage of students have studied Innovation and Entrepreneurship Education, their likelihood of executing the entrepreneurial venture is dominated by various factors including psychological factors. The level of enthusiasm to carry out entrepreneurship is related to the passion of an individual, success in the venture and betterment.

Williamson, Battisti & Pollack (2022) created an AI algorithm to detect the passion in the entrepreneur regarding the venture that is taken up. Çitçi, U. S. (2022) mentioned that entrepreneurship supports social welfare especially when artificial intelligence is intervened with the entrepreneurial venture. A recent research in China reported that an entrepreneurship with a good blend of big data and artificial intelligence is likely to gain better opportunities (Kang & Zeng 2022). Zhang & Fu (2021) stated that

the advent of artificial intelligence has fastened the development on the social as well as economical front. The research involves a method to analyse challenges faced by new start-ups based on computers and provide guidance.

In developing countries, the development of entrepreneurial ventures based on artificial intelligence is governed by factors such as knowledge, skill, training in AI algorithm, government policy, the availability of data and entrepreneurship technology (Kshetri 2020). Thereby, the ventures based on AI are resolving challenges on the social and economic fronts.

In developed countries and OECD countries, success of entrepreneurial work depends on the well-thought, structured logical implementation. Countries like Russia show better readiness in implementing modern digital technology in entrepreneurship programmes and artificial intelligence and are estimated to be more successful and sustainable. (Safargaliev et al., 2019). Chalmers, MacKenzie & Carter (2021) examined how the artificial intelligence affect and enhance the new entrepreneurial activity at a small scale. The researchers also related the implications from the social and economic perspective.

Core subjects like Sciences and Engineering impart knowledge along with core competency to develop products and services to cater the demands of this competitive world (Mercedes, Carmen & Patier 2021). These aforementioned key subjects also offer the latest technology for Internet of Things, advances in internet services and artificial intelligence. The research disclosed that according to a report by OECD, a lot of innovations, start-up activities and jobs can be created based on STEM which in turn will increase the GDP of Europe considerably. The research reported that there is a remarkable increase in the count of entrepreneurial activities taken up by women.

2.0 Literature Review

Social Entrepreneurship has been an emerging area in management since last couple of decades. It has roots in the idea that entrepreneurship is not just limited to the business but can also help do well for society. Literature focuses on what makes social entrepreneurship, entrepreneurship, and social in nature. Similarly, recent concept is Artificial Intelligence (AI) which is having profound impact on all aspects of technology, management and social entrepreneurship. This paper aims at studying the information available at the intersection of social entrepreneurship and artificial intelligence.

One of the most fascinating aspect of the literature review for this paper is to see how AI has shaped the study of social entrepreneurship. As entrepreneurship is a cognitive process, AI has helped discover elements of cognition and mental models of entrepreneurship (Graham & Bonner 2022). AI's ability to study entrepreneurship traits has led to some of the most advanced studies in the area where facial aspects are used to examine traits (Gong et al., 2020). The AI strength is used to identify the intention of starting e-entrepreneurship based on social media data (Abdelfattah et al., 2022). AI and Machine Learning (ML) are used in studying neuroscience of entrepreneurs and doing social media mining (Liu 2021 and Saura 2022). Literature from recent years also focus on changes in entrepreneurship keeping in mind COVID 19 pandemic and its impact. (Meurer et al., 2022). AI is significantly used in several ventures as online usage of goods and services increase significantly.

Emerging business applications like Digitech, Fintech, Agritech and Edutech have been prominently focussed in recent years. Some (or often all) of these concepts focus on social inclusion and how underserved "bottom of the pyramid" can be included into the main stream (Pralhad 2012). There is a strong literature in the domain especially focusing on social value creation (Arslan et al., 2021). Evidence is clear this these applications are helping hard to reach communities including women and in under developed world (Kedir & Kouame 2022). Literature is increasingly talking on the impact of

technology, innovative thinking, entrepreneurship, and changes on the social domain using digital economies (Si et al., 2022, Ilić et al., 2022, Inshakova 2020). There is increasing focus on emerging areas of the tourism, education.

Going beyond the application of the application of AI in social entrepreneurship, as application of both the terminologies become more applied, there is growing discussion on theorizing AI in the perspective of entrepreneurship (Upadhyay et al., 2021). First used in around 2015 the term Frugal innovation has received attention focussing on resource constraint environment (Radjou et al., 2015 and Hossain 2022).

3.0 Research methodology

This research presents the network analysis of the use of artificial intelligence in entrepreneurship. The Scopus database was engaged for obtaining the articles using social entrepreneurship, in article title, abstract, keyword, for searching documents. The search resulted in 15,362 documents. We further searched within the results using the artificial intelligence to obtain a search result of 459 document results. We applied only two filters to extract the articles. The filter for the time period was from 2001 to 2022. The articles within these years were included in the research. The next filter was applied to language “English” to obtain a search result of 454 documents. The total articles downloaded from Scopus in csv format were 454. These were downloaded and missing entries and duplicate entries were removed. Finally, there were 447 articles that were considered for the further study. The articles were extracted on 24 August, 2022. The tool VOSViewer was employed to generate network diagrams. The source data was the aforementioned Scopus database csv file. The data analysis section brings to light the network diagrams and their implications.

4.0 Data Analysis

Table 1: Count of the Number of documents published between years 2001-2022

Year	Number of documents	Year	Number of documents
2022	97	2012	10
2021	111	2011	7
2020	77	2010	6
2019	40	2009	4
2018	33	2008	2
2017	24	2007	3
2016	18	2006	1
2015	6	2002	1
2014	7	2001	1
2013	6		
		Total	454

The VOSviewer network diagram in Figure 1 shows the co-authorship of authors. There were 1,229 authors of the data extracted from Scopus on applying two filters stated above. The minimum of document and citation of an author were fixed at 1. On obtaining the network diagram, the strongest link strength and number of documents were observed to be for author Jarke M. The strongest link strength among the selection was 15 and there were 4 documents seen. The second in the observation was author Lakemeyer G. The total link strength noted herein was 12 and documents were 3.

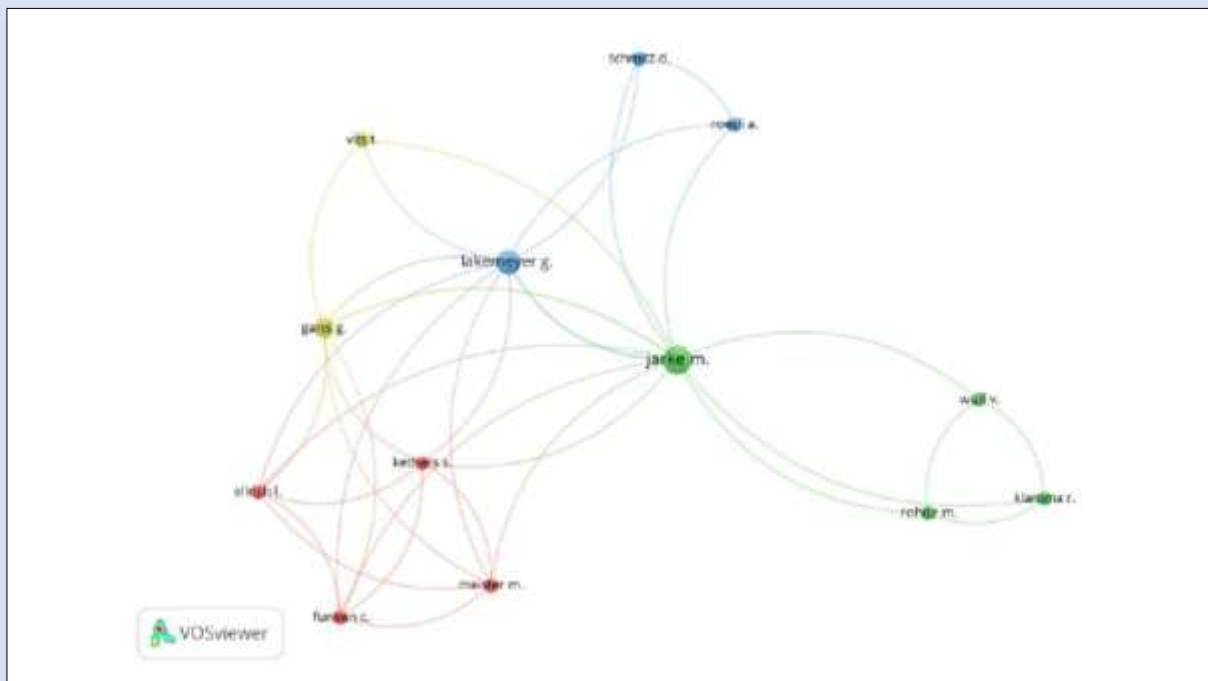


Figure 1: Co-authorship of authors

The co-authorship of organisations was determined by Figure 2. The analysis reveals that there were 961 organisations in the sample dataset and the analysis was performed by setting number of documents to 1. Besides, the minimum citation was set at 1. The resultant diagram is seen in figure 2. There were 612 items in the network and the largest data set of connected items consists of 8 items. The resultant diagram shows the connected set of 8 organizations.

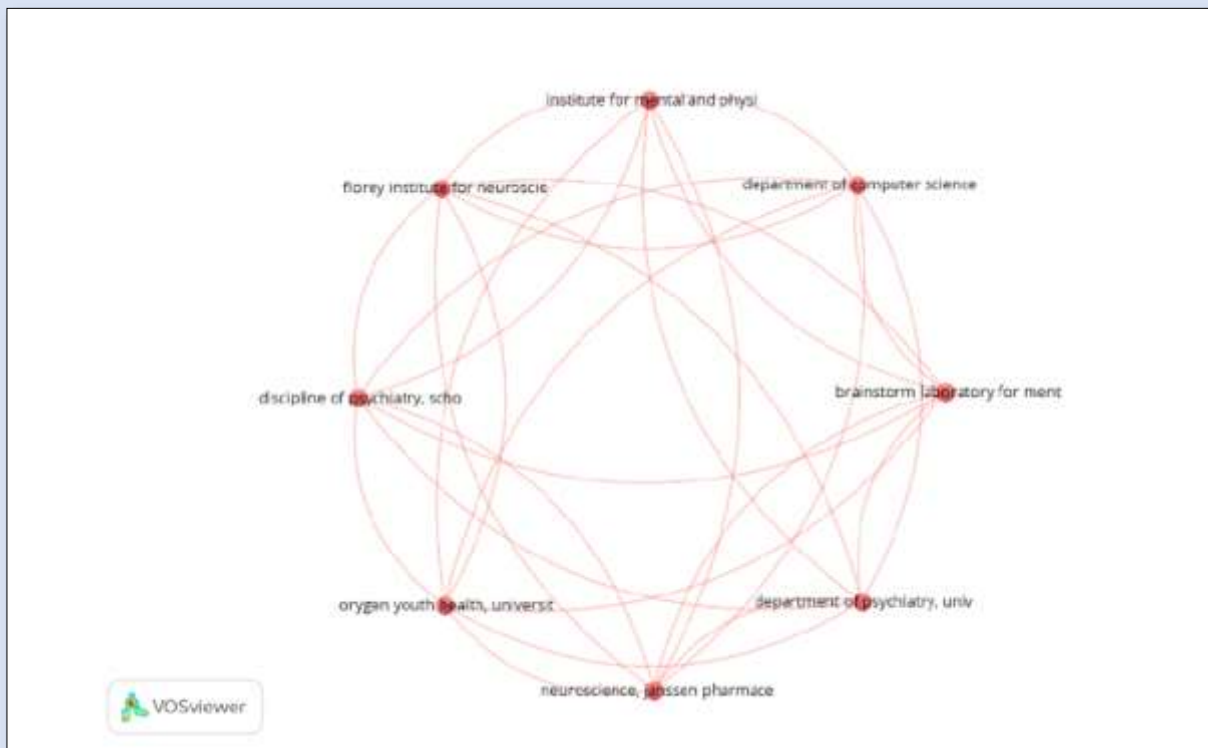


Figure 2: Co-authorship of organisations

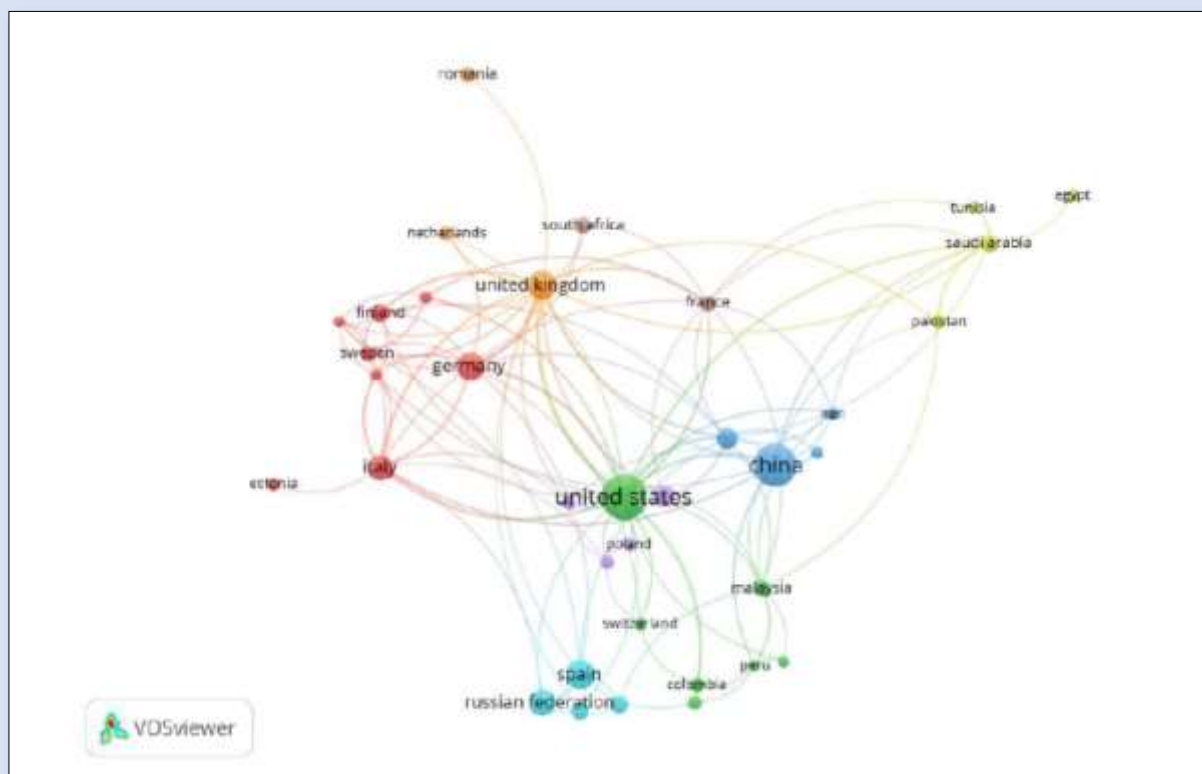


Figure 3: Co-authorship of countries

A network analysis diagram relating the of co-authorship where the unit of analysis is country is realised in figure 3. Authors from 75 countries are reflected in the sample data. Figure 3 was the resultant on setting the minimum number of documents to 5. The number of minimum citations were fixed at 1. The diagram exhibits that OECD countries captured the highest link strength. The countries USA and UK were recorded at the highest. The total link strength of USA was 50 with number of documents 76. UK followed with total link strength of 44 and number of documents were noted to be 33. Italy was the next to be in place.

A total of 2802 was found to be the number of keywords retrieved from the data recorded in the sample set. Further, the setting up of the occurrence of keywords was kept at a minimum number of 5. The results in displayed 96 keywords for the search. The keyword “entrepreneurship” recorded highest link strength with 303 and was succeeded by “artificial intelligence” as 202. The occurrence of keywords “entrepreneurship” was 122 and “artificial intelligence” was 57. Researchers were found to use other keywords such as entrepreneur, and innovation among others. The co-occurrence of all key words is shown in the network diagram in Figure 4.

Figure 5 shows a network diagram of co-occurrence of author keywords. There were in all 1443 keywords for the sample data under consideration. When 5 was fixed as the minimum number of occurrence of keywords, 36 keywords were seen as the results. The word entrepreneurship displayed the highest link strength which was 95.

The network diagram in Figure 6 shows the Co-occurrence of index keywords. There were 1730 keywords in the sample set. The analysis was conducted keeping 5 as the minimum number of occurrence of keywords. The net result obtained was found to be 60 keywords. The word artificial intelligence bagged the highest link strength of 149. The second highest was observed at 138 for the word entrepreneurship.

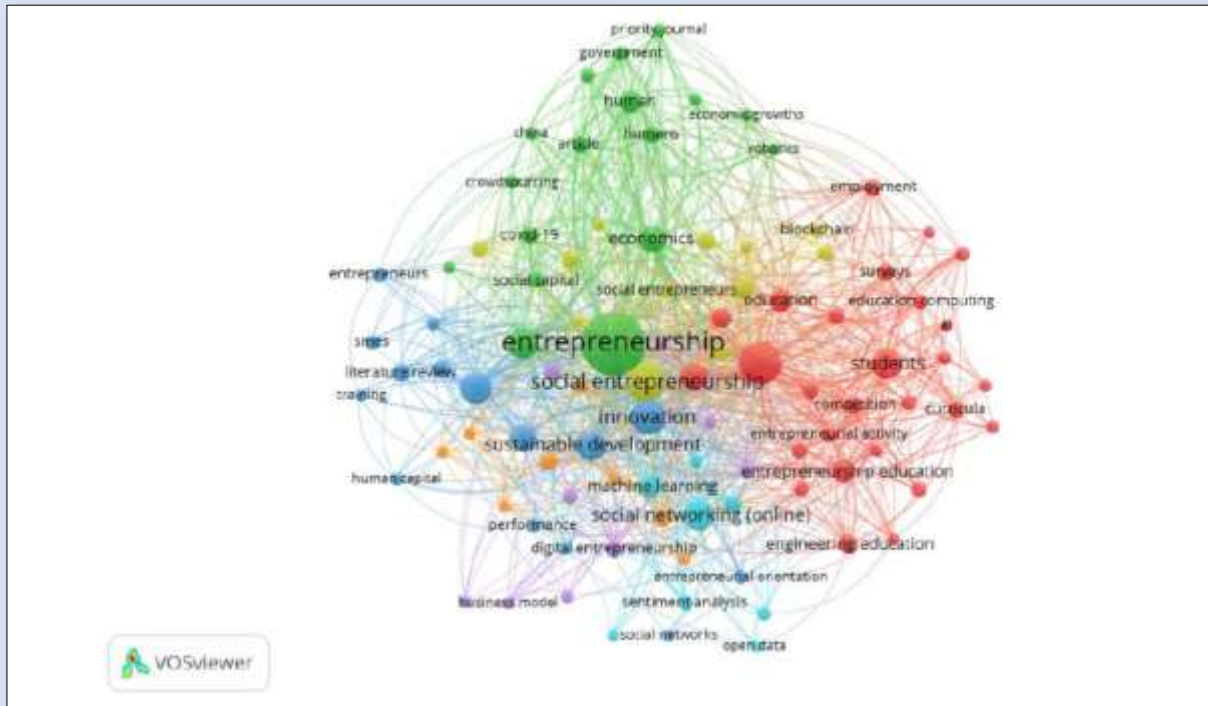


Figure 4: Co-occurrence of all keywords

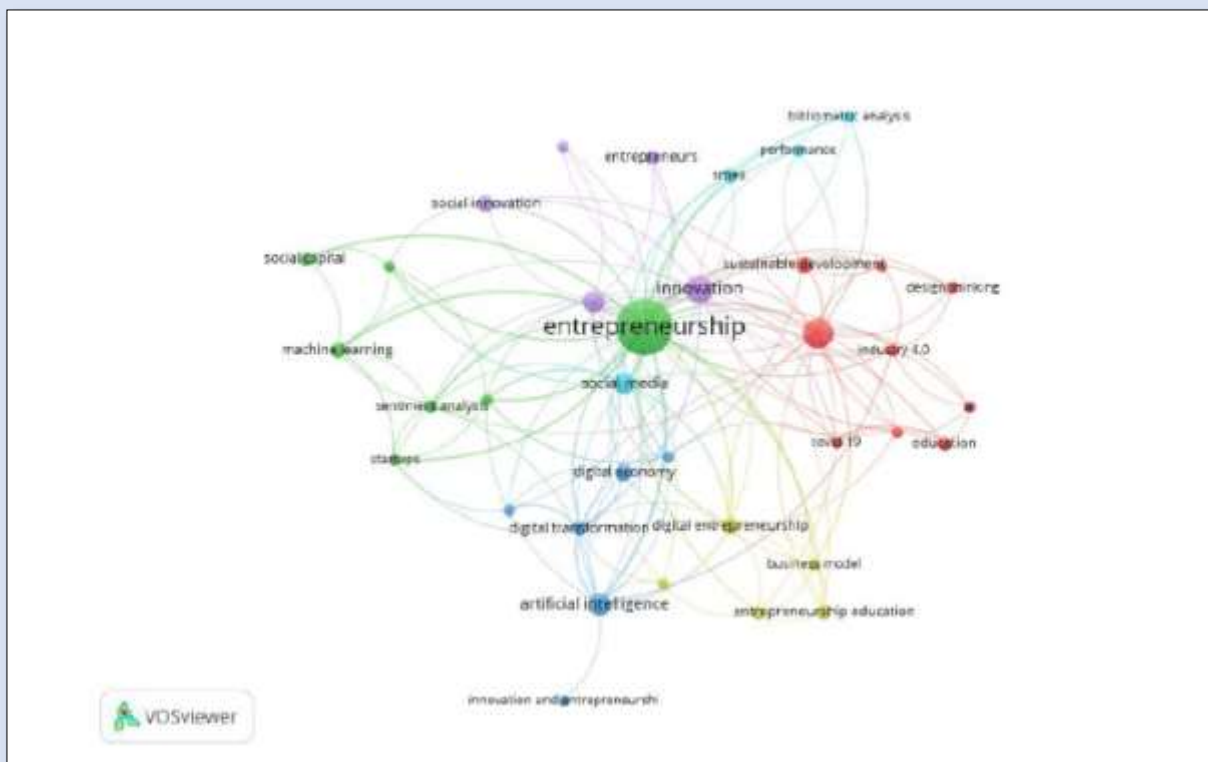


Figure 5: Co-occurrence of author keywords

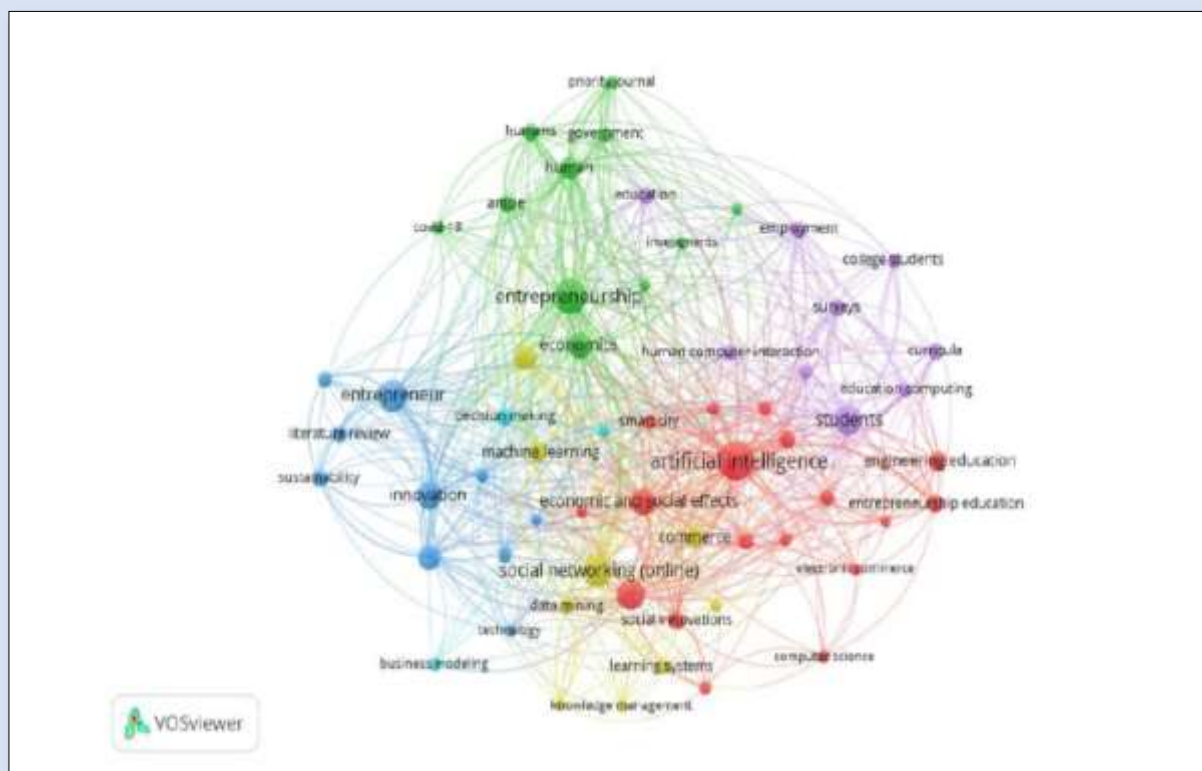


Figure 6: Co-occurrence of index keywords

5.0 Research gaps and future directions

The implementation of artificial intelligence for social entrepreneurship needs to be further explored in developed or OCED countries. This can be further applied to achieve the sustainable development goals of creating more sustainable cities and advancement of developing countries. Another area for research is the increasing application of artificial intelligence in various sectors including farming and innovative technical ventures based on the core subjects that can add to the economy.

The researchers suggest that encouragement could be given to talented women entrepreneurs, innovative projects and ideas. The start-up ventures that are aligned to meet sustainable development goals could be supported by the government policies in countries across the globe.

The success of entrepreneurship depends on the training and skill development of the investor and employees. Hence, imparting training for advanced technology could increase the prospects for successful start-ups.

6.0 Conclusions

Based on the review, researchers estimate that the next decade will witness a growing number of entrepreneurial activities by young talented students and women in both OECD and developing counties. This is reflected in the network diagrams presented in this study. The entrepreneurship ventures are estimated to be based on artificial intelligence and Internet of Things for advances in varied sectors. The outcome of such activities will lead to positive impact on the social and economic status of developing countries, which could be more towards attaining sustainable development. Blending of Artificial Intelligence and Social Entrepreneurship will result in ventures which can change lives across the world and solve social problems currently faced.

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Study on Emotional Stability – Review and Future Direction

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Abstract

Due to the constantly changing environment, organisations have emerged in challenging situations. In addition to the employees' unproductive behaviour, anxiety, tension, and uneasiness are continually rising. Numerous researches have shown the importance of emotional stability, yet they are still in its infancy as a personality attribute. A comprehensive examination of how emotional stability influences numerous workplace characteristics is currently lacking. The current study aims to research emotional stability from highly regarded ABDC (Australian Business Dean Council) approved publications. This study is aimed to focus on the trend of the literature on emotional stability. A descriptive analysis of the study highlights the weightage portion of the emotional stability in the shortlisted articles, with are tabled year and journal-wise. This research can be considered a vital factor for enhancing individual, group, and organisational workplace behaviour in coping with stressful situations in a dynamic environment. Furthermore, we classified publications into six clusters using bibliometric analysis in the VOSviewer software, showing the authors' collaborations among the countries. Moreover, the relationship between emotional stability and performance has been the subject of numerous researches. A comprehensive methodology for synthesising findings should be developed due to the sheer number of existing research and the inconsistent nature of some findings. As a result, this study aims to synthesise results from previous investigations into the relationship between emotional stability and individual performance using meta-analysis.

Keywords: Emotional Stability; Emotionally Stable; Literature Review; Meta-Analysis; Performance.

1.0 Introduction

Modern industrial organisations continuously strive to be at the competitive edge to keep themselves sustained in this fast-moving scenario. The dynamic environment has created much havoc, and discrepancies have arisen in the regular organisational work due to stressful situations.

Emotional stability becomes crucial, primarily focused on enabling employees to cope with stressful situations that progress in the affective domain to help meet organisational goals. Emotional stability refers to the individual propensity to be calm, cool, and relaxed (Apers et al., 2019); being assured, secure, and steady seems to be reflected in emotional stability (Du et al., 2018). In this study, we will analyse the role of emotional stability in individual, group, and organisational contexts. Emotional stability plays a critical role in organisational effectiveness; how emotionally stable a person determines how well they can handle stress (Quach et al., 2020). During a dynamic environment, people that score highly on this scale are stable, at ease, and skilled problem-solvers (Quach et al., 2020).

Emotionally stable people are more likely to respond positively to unfavourable criticism, control stressful situations, and peacefully settle disputes (Cheung & Chow, 2011). In addition, it indicates that emotional stability is a powerful predictor of job success involving significant interpersonal connection, mainly when the interaction entails supporting and nurturing others (Goldsmith, 2016). These people are more likely to exhibit better organisational commitment and self-efficacy (David et al., 2019; Guay et al., 2016).

Individuals with high levels of emotional stability should appreciate those who help maintain a steady and generally upbeat mood (Quach et al., 2020). While emotionally unstable people may view complex job settings as frightening and uncomfortable, emotionally stable people may consider the same scenario as challenging and be able to stay calm and considerate (Weiss & Zacher, 2022).

The role of emotional stability on individual performance has become the buzzword among researchers; today, it is observed as not only required to improve performance but also to help cultivate the effectiveness of teams and for organisations to attain competitive advantage (Park et al., 2021).

This study focuses on the different literary works in various management journals, the construction sector, the service sector, the hospitality management sector, journals in the core Human resource management sector, organisational Behaviour journals, vocational behaviour journals, economic behaviour journals and organisational psychology domains. This study examines papers from diverse literature types to determine how emotional stability affects workplace outcomes. This study also outlines the paper's limitations and the potential for future research.

1.1 Research Questions

This study has the following research questions:

1.1.1 What are the trends and co-authorship among the countries on emotional stability literature in various influential journals?

1.1.2 Highlighting literature on emotional stability at the individual level, group level & organisational level.

1.1.3. How is emotional stability given significant emphasis in those selected papers to gain momentum and help employees & managers, which may help them to bounce back and improve their performance in various situations?

2.0 Literature Review

An individual's ability to emotionally adapt to their surroundings is defined as emotional stability, one of the "Big Five" personality traits (Barrick & Mount, 1991; Ghorpade et al., 2007; Mount & Barrick, 1998). Emotional stability is the opposite of neuroticism, which is characterised as a propensity toward unfavourable moods, including worry, despair, and insecurity (Ren et al., 2015). People who exhibit emotional stability can readily control their impulses and lessen feelings of helplessness and social anxiety (Judge & Erez, 2007; Zhou et al., 2014). People's perceptions of their emotional states may impact how they act, think, and use coping mechanisms when facing obstacles. People who lack emotional stability manage their environment poorly and resort to coping mechanisms like avoidance and distractions because they believe their talents are restricted (e.g., deny, self-criticism). People with excellent emotional stability may have the stamina and tenacity to handle challenges. When faced with challenging conditions, having emotional stability may help people make the most of their unique strengths. Employees with higher levels of emotional stability feel more proactive, self-assured, and vigorous, which helps them use their strengths to participate in more activity at work and effectively manage their psychological resources to mitigate the effects of stressors (i.e., hindrance time pressure) (P. Chang, 2021). A person's inclination to be emotionally stable under different circumstances and to display composed, serene and self-satisfied behaviour is known as emotional stability (Park et al., 2021). The ability to effectively deal with unfavourable feelings, including stress, worry, discontent, irritation, and anger, is referred to as emotional stability (Alessandri et al., 2018).

2.1 Role of Emotional Stability at the Individual Level

People with emotional stability are more innovative and change-oriented (Runst & Thomä, 2022), more effective in law enforcement (Wilmot & Ones, 2021), and more effort was made after pleasant emotional experiences for job seekers who had lower emotional stability, and less effort was made after negative emotional experiences (Pavani et al., 2021).

Being calm, secure, unconcerned, and less prone to stress and worry are all characteristics of emotional stability. The term “neuroticism” refers to the opposite end of this spectrum and describes a person’s propensity to feel stressed, concerned, anxious, and even sad (Mahlamäki et al., 2019; Mount & Barrick, 1998; Zimmerman et al., 2010). High levels of emotional stability also reported lower emotions, such as fear of missing out (FoMO) (Al-busaidi et al., 2022).

Strongly emotionally stable individuals are frequently emotionless and satisfied with the status quo (Mahlamäki et al., 2019); low emotional stability often reacts to life events more strongly. Their emotions may influence whether those events change their risk preferences (Kettlewell, 2019).

Emotionally stable people may exhibit more mobility-oriented behaviour, resulting in higher earnings. Lower emotional stability also results in less visibility within organisations since anxiety or other adverse effects may result in less career advancement (Apers et al., 2019). People were being taught to cope with severe stressors and traumatic events, and those with emotional stability ought to find it simpler to adjust to such circumstances (Beehr et al., 2015).

The capacity of expatriates to withstand stress and cope with their move to a new environment depends critically on their emotional stability. Emotionally stable people are less susceptible to the detrimental effects of homesickness; emotionally stable people can deal with homesickness better and use the tools at work to execute their jobs more efficiently (Du et al., 2018).

Moreover, gratitude was positively correlated with emotional stability (Quach et al., 2020). When they do so, emotionally stable persons are more likely to believe that the benefits they obtain from their exchange partner encourage interpersonal and exchange efforts, including overcoming common hurdles in commercial trade (Quach et al., 2020). Good negotiators are emotionally stable individuals (Cheung & Chow, 2011). Being nervous, depressed, furious, insecure, and going through mood swings and changes are all examples of emotional instability; they tend to be less focused on serving customers, that emotional instability lowers job satisfaction (Auh et al., 2011). Cable & Judge (2003) describe emotionally stable use of logic and rational persuasion when trying to influence others; neurotics were less likely to hold logical views in several respects. Furthermore, Inspiration appeal strategies, which call for an emotional disposition and disruption of the status quo rather than calmness and composure, should be adversely correlated with emotional stability scores.

The impact of emotional stability on initial emotional stability success and ongoing emotional stability performance is also possible. Emotionally unstable environmental conditions often tend to make people anxious, and any challenges encountered while learning new skills can significantly increase stress (Alessandri et al., 2018). And poor performance in an early stage of emotional stability is likely to cause one to question the suitability of one’s skills and may put one in the uncomfortable position of having to cope with more negative feedback in later stages. However, higher degrees of emotional stability should enable one to deal with such situations more effectively (Herold et al., 2002).

Zimmerman (2008) highlighted employees with low emotional stability may want to leave the company but mistrust their capacity to obtain new employment or feel uneasy about putting themselves forth for review on the job market, which may make them less likely to do so.

Emotional stability is the capacity to adjust to various conditions and manage stress and anxiety. Being emotionally stable is being composed, even-tempered, and less inclined to become agitated or rattled

(Strauss et al., 2001). The most challenging aspect of evaluating is emotional stability during the selection process. Since emotional stability is essentially an inward-looking psychological attribute, it is more difficult for onlookers to assess because it is less obvious (Barrick et al., 2000).

People with higher levels of emotional stability may respond to criticism more favourably, be less inclined to take it personally, and have more significant emotional reserves to draw lessons from challenging circumstances. Individuals with poor emotional stability and less positive feedback results in the slowest developing leadership efficacy curve; strong emotional stability and more positive feedback results in the fastest-rising effectiveness curve (Quigley, 2013). Weiss & Zacher (2022) emphasise that emotionally stable people are more active & receive more vocal appreciation because they are better able to focus on positive responses and keep their composure when faced with negative ones, so they feel more engaged in the job. Emotional stability will be a reliable predictor of all job performance criteria; yet, less emotionally stable people often perform worse in all occupations analysed since their characteristics tend to hinder rather than help them complete tasks at work (Barrick & Mount, 1991). Innovative people who are emotionally stable are more likely to see the value in knowledge reuse and start doing it. Because these innovators can quickly identify the reasons why existing knowledge is unavailable and evaluate alternative options from a positive perspective, which may arouse a perception of the viability of knowledge reuse, they are also able to broadly search for examples of successful knowledge reuse to boost motivation and thus encourage the start of knowledge reuse (Zhao et al., 2021). Innovation and emotional stability are favourably correlated (Runst & Thomä, 2022).

2.2 Role of Emotional Stability at the Group Level

Research indicates that higher overall team levels of emotional stability are associated with better levels of team cooperation and prosocial behaviour. Additionally, there is a connection between emotional stability and team flexibility, with groups with more emotionally stable individuals demonstrating greater adaptability; what managers should consider when choosing teams to strengthen their ability to adapt is emotional stability (DeRue et al., 2008). Emotional stability predicts successful performance in tasks requiring teamwork (Mount & Barrick, 1998; Weaven et al., 2009). Furthermore, Weaven et al. (2009) suggested emotional stability predicts successful performance in tasks requiring teamwork.

When choosing teams, one of these variables that managers should consider is emotional stability. Most applicants find interviews to be stressful experiences. Because people who score highly on this trait are generally better at managing stress, they may be more likely to utilise impression management techniques during interviews because they have more resources at their disposal (Van Iddekinge et al., 2007). Still, same time interviewers find difficulty in determining the emotional stability of the candidate (Barrick et al., 2000).

The emotional stability of innovators may also boost efficacy and decrease the complexity of knowledge reuse, regulating the association between knowledge reuse implementation and New Product Development performance in a positive way (Zhao et al., 2021). Taggar et al. (1999) recommended that it is challenging for the team to work together when a leader lacks emotional stability since they exhibit less prosocial conduct than their peers and set a nasty affective tone.

2.3 Role of Emotional Stability at the Organizational Level

Emotionally stable business owners exude positivity and tranquilly, and employees are more likely to support new changes in the workplace (Runst & Thomä, 2022). The impact of daily bad mood on service sabotage is lessened in emotionally stable employees because they are less likely to be distracted by a bad mood and are better able to manage impulsive intents when they are in a bad mood at work (Chi et al., 2015). Emotionally stable expatriates are more likely to successfully manage the upheaval frequently associated with an abroad assignment and successfully carry out their duties and

interact with citizens of the host country (Ren et al., 2015). Emotionally unstable people are likely to impair effective decision-making and decrease one's persistence in the face of challenges and threats because running a business requires the ability to respond to novel and unexpected difficulties in highly uncertain contexts. Emotionally stable is a sign of success (Quach et al., 2020). Due to their lower emotional stability and increased sensitivity to stressful work situations, the negative impacts were more prominent (Ren et al., 2015). Employees with emotional instability may view management's efforts to spread a positive work environment as a burden because they may see the pressure to comply with management's initiatives as an effort to add to their workload. And portray a positive service climate may be painted in a negative light; Such uncertainty will make it difficult to appreciate and embrace a favourable opinion of the service climate (Auh et al., 2011).

Weaven et al. (2009) stated emotional stability combined with support and emotional stability would reduce risk exposure and increase the likelihood that the company will survive. People with less emotional stability are more likely to evaluate a technology's risks than its possible benefits. They are more likely to regard threats to their privacy as severe than those with more emotional stability (Junglas et al., 2008). Ciavarella et al. (2004) stated high emotional stability might help people sustain relationships, which should help entrepreneurs succeed in the long run by fostering ties with clients, staff, and resource suppliers. Brown et al. (2002) emphasise desire to help consumers and meet their needs may fluctuate due to emotional instability. The inconsistency of emotion may be linked to the diminished ability and motivation to provide excellent customer service. Caligiuri (2000) stated that emotional stability is inversely correlated with whether expatriates choose to end their assignments. Furthermore, many studies have been done on the connection between emotional stability and performance (Park et al., 2021). Due to the vast amount of existing research and the inconsistent nature of some of the findings, a robust technique for synthesising data should be devised. As a result, the objective of this study is to synthesise, via the use of meta-analysis, findings from earlier investigations into the relationship between emotional stability and performance.

3.0 Research Methodology

The research approach used to accomplish the various goals of this work is described in more detail below.

3.1 Objectives

- I This paper aims to study the trends of emotional stability literature in various influential journals,
- II To understand the year-wise, journal-wise distribution and co-authorship among the countries in the literature on emotional stability.
- III To analyse the beneficial effects of emotional stability detailed in the literature at the individual level, group level & organisational level, which helps conclude that emotional stability can support the employees to cope with all the stressful situations of a dynamic environment through emotional stability.

3.2 Research Design

The present study utilises the search strategy where papers on "emotional stability" and "emotionally stable" were searched from influential journals. A few steps were involved in the search and finalisation of the literature. The data was retrieved from the already published papers.

3.3 Search Strategy

A computerised literature search was directed using the search term. The literature was searched from the Scopus database. The initial result for (emotional stability & emotionally stable) was 8,233. Scopus's search displayed 407 works of literature related to Emotional stability in Business Management and Accounting.

3.4 Selection Criteria

The title, abstract, and keywords fields were used to extract the articles relevant to this review. A search string was developed to select the journal articles in the English language from the Business Management and Accounting subject area. Also, the research articles published in peer review journals have been included in the study. In final search was limited to published articles resulted in 347. Further, this study considered the research papers from the ABDC-listed journals of the A & A* category, that is, 165 articles.

3.5 Selection of Papers for Inclusion

The papers were then selected by going through the abstract, and the papers that focused on emotional stability in business management were included. Figure 1 displays 156 articles included in the study to understand the trend and distribution of the article from the best journals year-wise and analyse the co-authorship among the countries.

3.6 PRISMA Framework

To shed light on the criteria used to perform the reviews, the current study analyses systematic reviews in the tourism sector by taking into account the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) items. PRISMA is a process for systematic reviews that includes a 27-item checklist and a four-phase flow diagram (see Fig. 1) and was created in the medical profession by a group of 29 academics to improve the accuracy and transparency of literature reviews. PRISMA was chosen over other existing protocols because of its acknowledged comprehensiveness, widespread application outside medicine in several disciplines, and potential to improve review consistency (Pahlevan-Sharif et al., 2019).

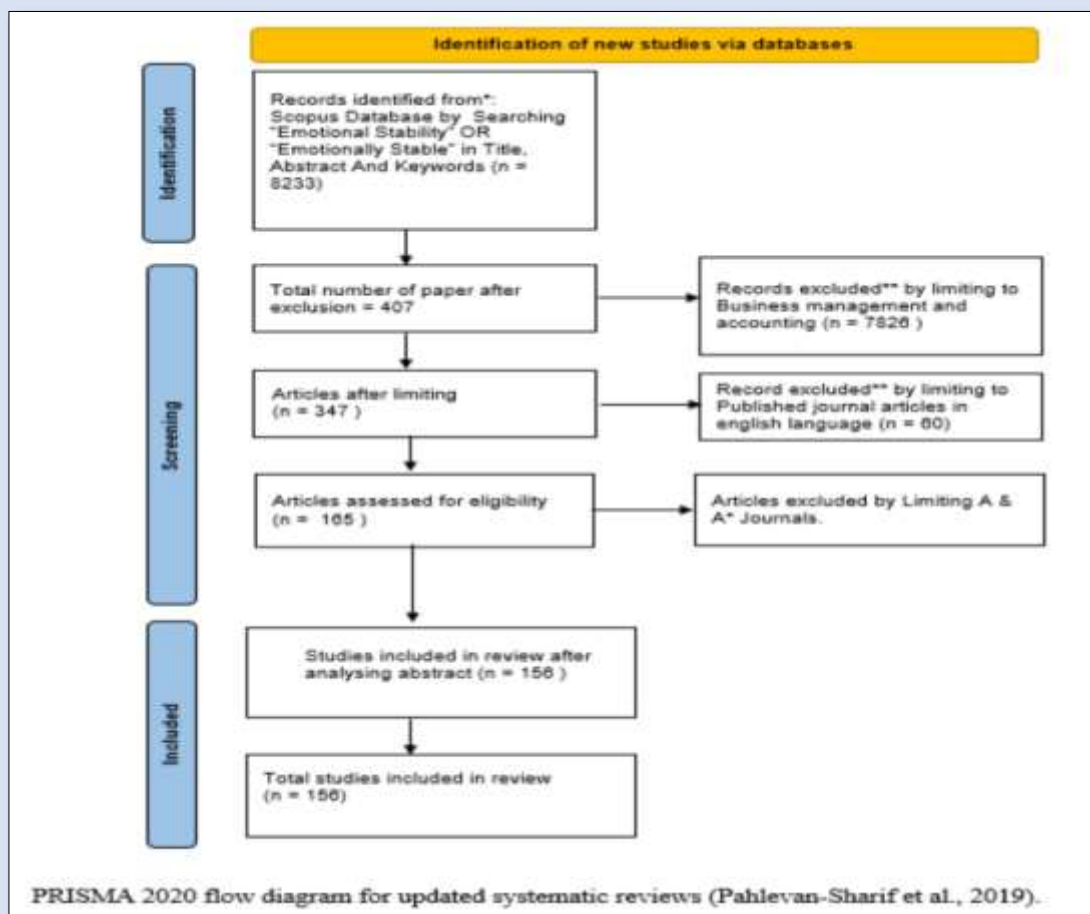


Figure 1. PRISMA Framework

4.0 Descriptive Analysis

The sorted 156 papers were reviewed for further study, and their journal-wise, year-wise distribution and co-authorship collaborations are given in graphical representation with further elaboration.

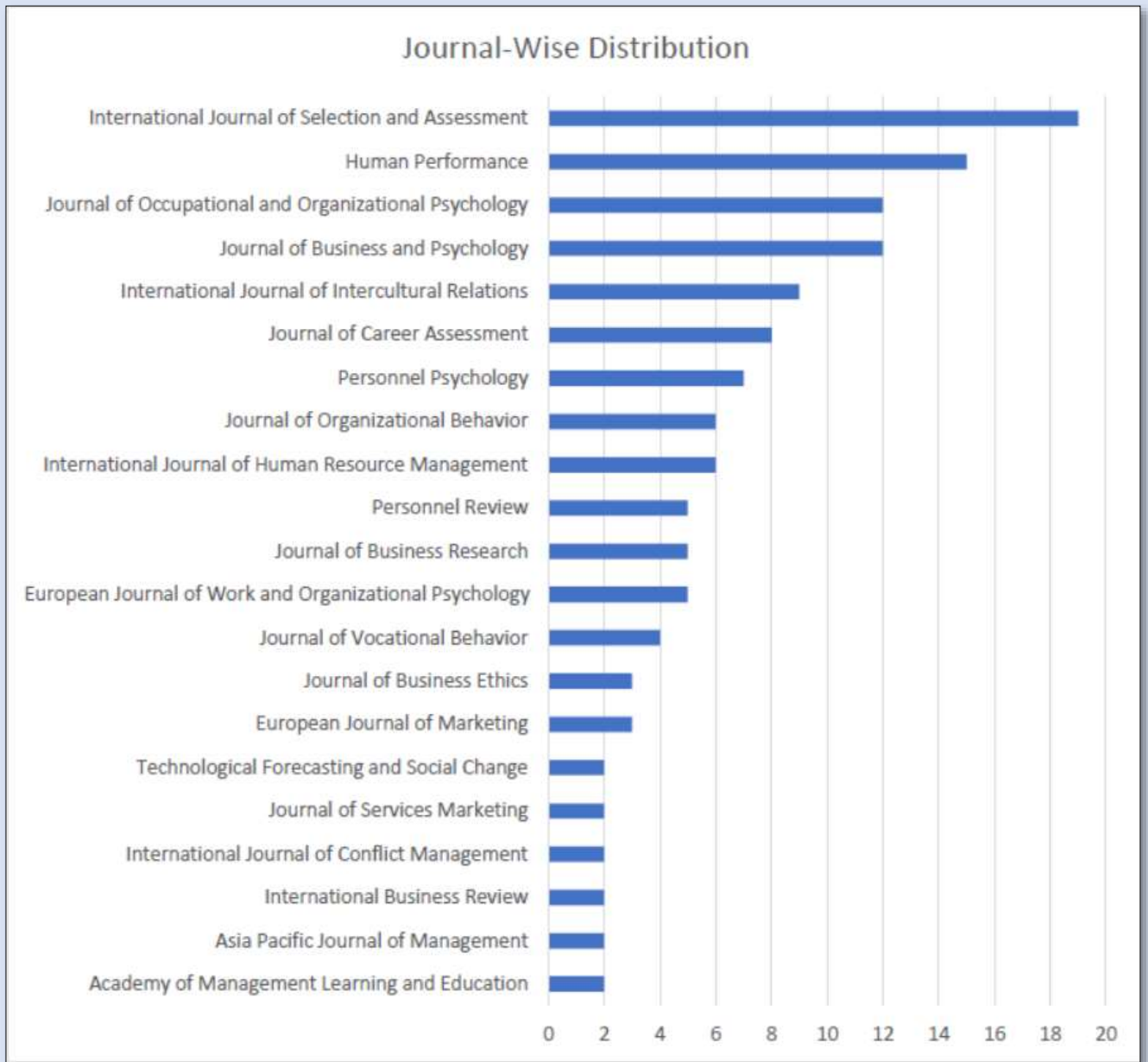


Figure 2. Journal-wise Distribution of Paper

4.1 Journal-Wise Distribution of the Papers

The literature selected was then analysed with MS Excel to aid in understanding the papers’ distribution according to the selected journals. Figure 2. displays the distribution of articles in various journals. The bar plot shows the number of documents in each highly influential journal. The visualisation displays that the International Journal of Selection and Assessment has published the maximum number of papers, 19. While six journals have published two articles each, and two journals have published three each.

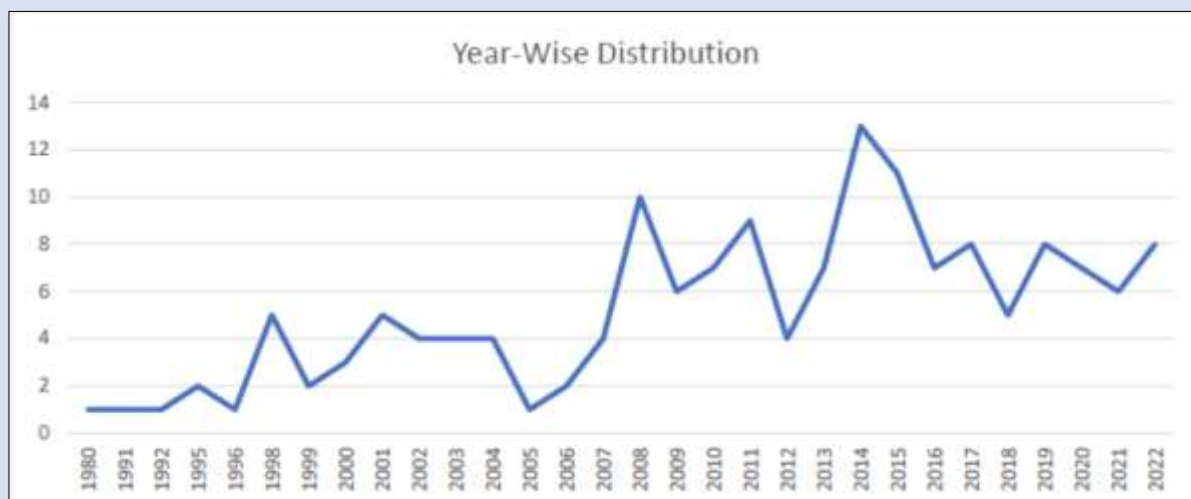


Figure 3. Year Wise Distribution of the literature

4.2 Year-Wise Distribution of the literature

In figure 3. the study displays the trend and the year-wise distribution of papers in the management journals. It is shown that the maximum number of papers were published in 2014, with 13 papers, while the year in which the lowest publications occurred was 1980,1991,1992,1996 and 2005. While describing articles' publications from 1980-2022, the trend is rising from 1 publication in 1980 to 13 publications in 2014 and 8 in 2022 till August. The year 2005 and 2018 has shown some downfall in the number of publications, but there may be a prolonged growth in consecutive years. The upward trend in the publication exhibited in the considered year shows that work is happening in emotional stability for publication in reputed journals. But more research is required in this area.

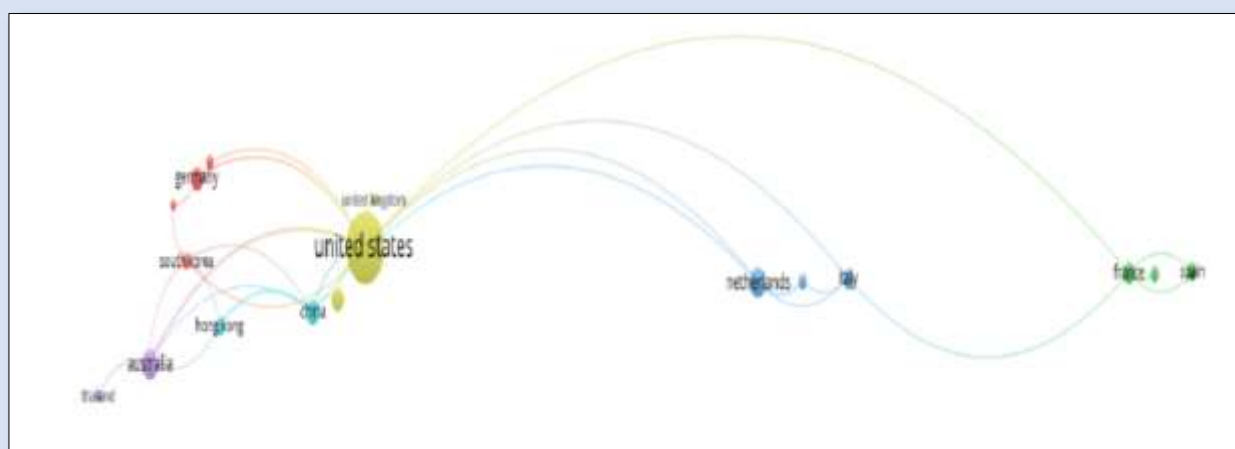


Figure 4. Co-authorship among countries

4.3 Co-authorship among countries

In this article, collaboration in research is referred to as co-authorship. Therefore, it is presumed that co-authorship makes collaboration obvious and that the co-authors are actual collaborators. In order to underline that we are focusing on the types of collaborations that are evident in the form of co-authorship, which is measurably using bibliometric techniques in bibliographic databases, this paper employs the idea of formal research cooperation (Henriksen, 2016).

Based on the data retrieved, the global research network for emotional stability was composed of 21 countries, reflecting the moderate international collaborative research efforts on emotional stability in highly reputed journals. According to their degree of centrality, the top three most central countries

were the United States, Australia, and China, as represented (Fig. 4). During the evaluated period, these countries collaborated with 19, 10 and 11 partner countries, respectively. Degree centrality is a proxy for collaboration and not always a measure of the volume of publications. For example, China had a more centrality in the network but was behind Australia in the number of publications. The United States was the country that collaborated most with Australia & Netherlands, as indicated (Fig. 4).

5.0 Meta-Analysis on the Relationship Between Emotional Stability and Individual Performance

Management research's main focus was building the most effective workforces (Koopmans et al., 2014). Expanding is the use of personality to forecast levels of job performance, fit between a person and a job, and fit between a person and a culture. This is mainly because the five-factor model has been used. Popular literature frequently extols the virtues of people who "think outside the box," "easily adapt to change," and "creatively tackle complex problems" in the contemporary corporate environment. Expectedly, emotional stability and individual performance are widely investigated, but contradictory results; therefore, their combined knowledge needs to be critically examined and discussed to reach more general conclusions using the meta-analytical technique.

Individual Performance (IP) is described as scalable actions, workforce outputs, and behaviours that help the firm achieve its objectives. IP was evaluated primarily based on either objective productivity metrics (like output and quantified actions) or arbitrary judgments (such the quantity and quality of work as determined by peers or supervisors). Although IP is multidimensional, task and contextual performance aspects might encompass the entirety of its domain. Technical performance is directly tied to task performance, whereas contextual performance is related to behaviours that help the technical fundamentals fulfil their essential role (Mahmoud et al., 2020). By implementing innovative initiatives and effectively utilising their "people assets" to achieve innovative performance, organisations must create sustainable competitive advantages to succeed as an organisation (P. Chang, 2021). Task performance represents actions that are officially acknowledged as part of the job, support the technological foundation of the organisation, and have a direct bearing on the achievement of organisational goals. Traditional, individually focused selection processes have emphasised this (Morgeson & Reider, 2005).

5.1 Positive relationship between Emotional Stability and Individual performance

People opt to avoid certain situations and spend more time with others compatible with their personalities, which suggests that higher performance levels are inconsistent with sustaining an anxious and worrying condition. Job performance is adversely correlated with neuroticism (Mahlamäki et al., 2019). Evidence suggests that those with higher degrees of emotional stability tend to have greater confidence in their capacity to complete tasks and perform well. Since the availability of resources, such as time, should be anticipated to favourably contribute to the impact of perceptions of capacity on performance, task completion time should improve this link (Tabak et al., 2009). Emotional stability was also a valid predictor of supervisor job performance ratings (Barrick & Mount, 1996; Perry et al., 2011).

Emotionally stable people employ effective conflict-resolution techniques. Emotionally stable people are adjusted (i.e., free from hatred, despair, and anxiety). Positive self and other views are more common in emotionally stable people. Their propensity for having high self-esteem may play a significant role in their inability to see task difficulty as relationship conflict that undermines performance (Bradley et al., 2012).

Emotional stability has been found to relate positively to job performance (Berry et al., 2007; Downes et al., 2010; Judge & Erez, 2007; Mount & Barrick, 1998; Sawyerr & Wang, 2009; Stajkovic et al.,

2018; Weiss & Zacher, 2022). The induction of affective states conducive to job performance is how emotion control is conceptually connected to job performance (Greenidge et al., 2014).

People who scored highly on emotional stability exhibited greater customer service and service-oriented conduct. Academic performance was repeatedly demonstrated to correlate favourably with emotional stability (Mount & Barrick, 1998).

Mount & Barrick (1998) highlighted that mainly when the relationship entails supporting and nurturing others, emotional stability is a powerful predictor of job performance that involves significant interpersonal engagement.

Employees with emotional stability are more task-focused and make better use of the resources that are made available to them. They may also be more motivated and able to take advantage of improved assistance from their business (Du et al., 2018; Sears, 2021).

Sawyerr & Wang (2009) found that emotionally stable people are calm, steady, tolerant of stress, and secure. Emotional stability has the most significant influence on both performance indicators if we only look at how the personality variables primarily affect intent to leave and absenteeism. Call centre employees positively correlate emotional stability and service performance (Sawyerr & Wang, 2009). Emotional stability is the capacity to keep one's composure and function well under pressure when faced with acculturative stress (van Woerkom & de Reuver, 2009).

Emotional stability is a universal adaptation mechanism that helps people deal with stress in their surroundings. Given that residing in and working in an uncertain and foreign environment is frequently associated with stress. It has been suggested that emotional stability is a crucial personality trait for expatriates to develop to integrate into their new environment. Physical withdrawal by an expatriate may show up as a terminated assignment. Poor job performance may be caused by mental retreat (such as depression or poor concentration (Caligiuri, 2000).

5.2 Negative relationship between Emotional Stability and Individual performance

Emotions are necessary for the trait of wanting success and the drive to perform well. This holds for key account managers as well as many other professions. People with low emotional stability tend to express their feelings more and may be more suited to the key account manager function, especially when interpersonal communications are crucial. People with high emotional stability tend to be emotionless and content with the status quo. This provides another argument against the notion that emotional stability and performance orientation are mutually exclusive. In other words, the desire to be perceived as a high-performing key account manager is, at least in part, influenced by a propensity to display emotion (Mahlamäki et al., 2019).

5.3 Neutral relationship between Emotional stability and Individual performance

The emotionality level of individuals who participated with those who did not has not shown any significant difference in task performance (Fiori, 2015). Performance initially gets better when emotion levels rise because it allows people to focus on important task cues and ignore unimportant ones, but only to a certain extent. Beyond that, further increases in emotion might be harmful since the obsessive concentration on precision makes it possible to miss important indications (Le et al., 2010).

Mixed study findings are typical in social and behavioural studies (Hong et al., 2017). Researchers use meta-analysis to identify a shared truth among conceptually related studies. Given that some studies don't have enough power to provide statistically significant results, meta-analysis is a crucial and effective approach (Geyskens et al., 2009; King & He, 2006). Compared to the conclusions offered in any preliminary study, meta-analysis assists researchers in drawing more precise conclusions by

merging results from multiple independent studies on the same relationship into a single estimate (Geyskens et al., 2009).

H1. Emotional stability is positively related to Individual performance.

5.4 Research Methodology

The research approach used to accomplish the various goals of this work is described in more detail below.

Objectives

The purpose of this study is to synthesise information from previous investigations into the relationship between emotional stability and individual performance using meta-analysis, which will assist in resolving divergent results about the impact of emotional stability on performance by addressing the research question: Investigating the relationship between emotional stability and individual performance.

5.4.1 Research Design

The present study utilises the search strategy where papers on “emotional stability” and “Performance” were searched from influential journals. A few steps were involved in the search and finalisation of the literature. The data was retrieved from the already published papers.

5.4.2 Search Strategy

A computerised literature search was directed using the search term. The literature was searched from the Scopus database. The initial result for (emotional stability AND performance) was 960. Scopus’s search displayed 475 works of literature related to Emotional stability in Business Management & Accounting, Psychology and Social Science.

5.4.3 Selection Criteria

The title, abstract, and keywords fields were used to extract the articles relevant to this meta-analysis. A search string was developed to select the journal articles in the English language from the Business Management & Accounting, Psychology and Social Science. In final search was limited to published articles, resulting in 425. Further, this study was limited to ABDC-listed journals, that is, 150 articles. One hundred twenty-two papers had to be eliminated since the publications also needed to include the necessary statistical information for meta-analysis (sample size and Pearson correlation). Based on the listed criteria, a total of 28 articles were left. Finally, the meta-analysis included 28 articles (30 observations) considered to have a correlation value between emotional stability and individual performance. PRISMA Framework (see Fig. 5).

5.4.4 Selection of Papers for Inclusion

The papers were then selected by going through the abstract. The papers with correlation values between emotional stability and at least one type of individual-level performance in their content were included. Individual performance in the form of academic performance (Grade Point Average), task performance, Expatriate job performance, Employee Performance, Service Recovery Performance, Contextual performance, employee innovation performance, job performance, etc., are included.

5.4.5 Meta-Analysis

Given the dramatic increase in the number of studies on the relationship between emotional stability and individual performance research, it is critical to examine and discuss their combined knowledge to draw more general conclusions than those offered by any one primary study (Geyskens et al., 2009). In place of a qualitative and descriptive literature study (Glass, 1976), meta-analysis offers the chance to analyse and statistically combine prior research findings (C. C. Chang & Huang, 2020; Jeyaraj, 2020). PRISMA, or preferred reporting items for systematic reviews and meta-analyses, was developed for meta-analysis (Aggarwal & Singh, 2021; Gonçalves et al., 2015), and Meta essential 1.5 was used to analyse its results. The data, figures, and tables were created using the user-friendly programme for meta-analysis known as Meta-Essentials 1.5. (Suurmond et al., 2017). Meta-analysis is the systematic process of merging quantitative data from numerous empirical studies to examine how one independent

variable or determinant affects a certain result or dependent variable (Higgins, 2009). Meta-analysis is becoming a more popular tool for assessing hypotheses in the social sciences (Humphrey et al., 2007).

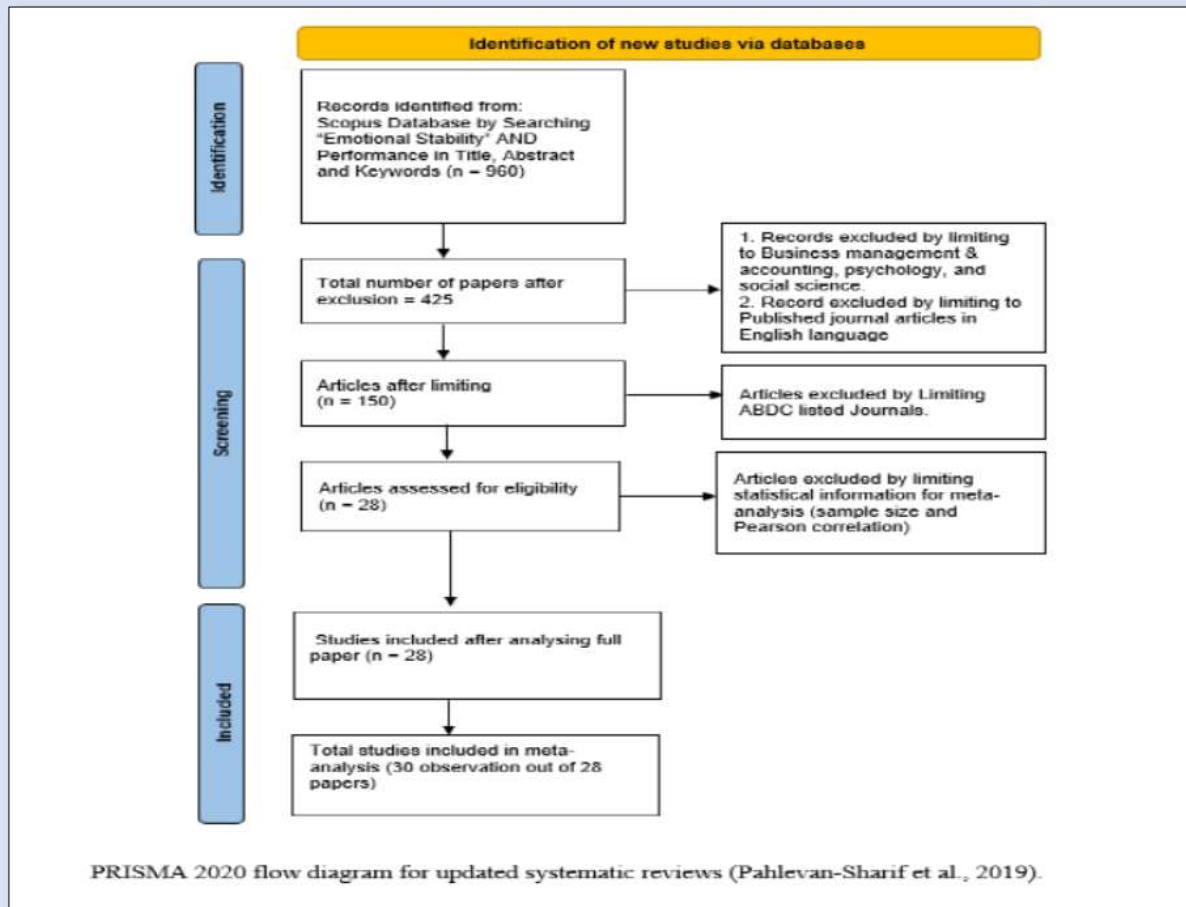


Figure 5. PRISMA Framework

5.5 Results of Meta-analysis

To test the hypothesis, 30 observations from 28 included independent research (7594 samples) were analysed. H1 is accepted. Emotional Stability was positively correlated with Individual performance ($r = 0.12$; $p < 0.000$) can be seen in Table 1. The 95% confidence interval ranged from 0.06 to 0.17. The random-effects variance component was 0.02. Based on work by Cohen (1992), the strength of the effect size was between medium and small, given it was 0.30 and 0.10, thus supporting H1. Therefore, higher levels of emotional stability are generally associated with higher levels of individual performance (Barrick & Mount, 1996).

We performed two publication bias analyses: trim-and-fill analysis and the Rosenthal Failsafe test. Duval and Tweedie (2000) trim and-fill analysis indicates that no studies needed to be trimmed; thus, the mean effect size ($r = 0.12$) is not required to be adjusted. Second, the Fail-safe N value was 1088, much higher than the required, acceptable level ($5k + 10$). Thus, there was no publication bias in this calculation of effect size. The publication bias was examined with the Fail-safe N value.

The Q statistic (166.98) and I2 (82.63%) is significant ($p < 0.000$) for high heterogeneity, suggesting that the emotional stability– individual performance relationship is likely to be affected by other factors. This meta-analysis may guide future studies to identify subgroups and moderators to find the reason for high heterogeneity.

Table 1: Meta-Analysis Model

Model	Random effects model
Confidence level	95%
Presentation	
Sort By	Entry Number
Order	Ascending
Combined Effect Size	
Correlation	0.12
Confidence interval LL	0.06
Confidence interval UL	0.17
Prediction interval LL	-0.17
Prediction interval UL	0.38
Z- value	4.22
One-tailed p-value	0.000
Two-tailed p-value	0.000
Number of included subjects	7594
Number of included studies	30

Heterogeneity	
Q	166.98
PQ	0.000
I ²	82.63%
T ² (z)	0.02
T (z)	0.14

6.0 Discussion

The severe recession in 2008 was well-known. Even bigger economies were suffering, and companies had started retrenching employees (Gregg & Wadsworth, 2010). The recession created an environment of trouble, fear, anxiety, and nervousness among the employees. It may be the sudden hike in publications on emotional stability (Nelson & Katzenstein, 2014).

It is noted that the deadliest outbreak of Ebola, a deadly fever, started in West Africa in 2014; had created fear, panic, tension, and uneasiness among people (Yang & Chu, 2018). The deadly conflict or wartime situation was begun between Israel-Hamas and the fight between Russia-Ukraine for Crimea. It creates fear, anxiety & panic among people (Shesterinina, 2019). The above could be why more research was conducted in 2014 and 2015 on emotional stability.

The years 2020 & 2021 were well known for the biggest outbreak of Coronavirus (Covid-19). Countries started putting lockdowns & all economic activities were hindered, creating uncertainty and stressful situations around the world (Shaheen et al., 2022). Due to the economic downturn and the coronavirus (COVID-19) spread, many inconsistencies have emerged in routine organisational activity. Various companies began working on mentoring programs & provide counselling to employees so they could cope with stress and uncertainty. Now companies realise how emotional stability is essential in today's environment. It could attract the attention of various scholars and researchers on emotional stability. Covid-19 could be the reason for the upward trend in emotional stability.

As we can see, there is no research on emotional stability with authorship collaborations within Asian countries & the Asian countries and western countries. So, more research is required with authorship collaborations, so the world community can be benefited from studying cross-cultural emotional stability.

In studied literature, emotional stability and individual performance showed a somewhat mixed relationship. To identify the relationship between emotional stability and individual performance more precisely, we conducted a meta-analysis. So, the current study provides a synthesis of findings from prior research on the relationship between emotional stability and performance in individuals using the meta-analytical method and answers the research question regarding this relationship. It is commonly acknowledged that emotional stability plays a very important function. Because the efficient performance of the work roles in a dynamic environment requires emotional stability (Weiss & Zacher, 2022). We uncovered evidence to indicate the critical importance of emotional stability in influencing individual performance using meta-analytic methods. Additionally, there is a modest correlation between individual performance and emotional stability. Emotional stability can enhance employee performance (Oriarewo et al., 2018).

7.0 Conclusion

This review article shows a rising tendency in the literature's publication in ABDC-rated A and A* category journals. Similarly, more and more publications should be made in highly regarded journals to influence subsequent studies. The results are broken down by year and show an upward trend from 1980 to 2022. The demands, significance, and beneficial effects of emotionally stable people are also discussed in studies on emotional stability published in many management publications.

On the other hand, in meta-analytical uses, ABDC listed journals (A*, A, B & C) and found a modest positive relationship (0.12) between emotional study and individual performance. So, managers should rely on and execute more effective emotional stability components to help people and the organisation bounce back in this dynamic environment.

8.0 Implications

More and more emotional stability people are required in various positions to deal with stressful conditions at work. Literature on the significance of emotional stability discusses its effects on workers and organisations. HR professionals are critical in raising the organisation's emotional stability to boost job performance, ensure a healthy workplace environment, and deliver services to clients with the utmost care and precision. Moreover, more and more emotional stability interventions are required to deal with stressful conditions at work. Literature and meta-analytic study highlighted the significance of emotional stability and discussed its effects on workers and organisations. Companies should be steadfast in preserving a culture that cultivates the good emotional stability of their employees. As a result, the company can sustain its employees' achievement of a certain task. Techniques for emotional stability can be used to improve employee performance (Oriarewo et al., 2018). So, companies need to

hire or select more emotionally stable people. HR professionals play a critical role in raising the organisation's emotional stability intervention to boost job performance, ensure a healthy workplace environment, and deliver services to clients with the utmost care and precision.

9.0 Limitation and Future Research

This study was done within a four-decade time frame (1980-2022). As a result, more research on the same subject using more literary sources can be done. Additional research might concentrate on various aspects of emotional stability. The current study focuses on a single domain: Business Management and Accounting. Still, it can also be understood by focusing on numerous domains, which could help employees cope with stressful situations and improve their performance in high-pressure situations.

Our research findings of meta-analysis may serve as a guide for future studies to identify subgroups and moderators that could condition the performance effect of emotional stability. The current meta-analytic study focuses on one database (Scopus) and three domains: Business Management & Accounting, Psychology and Social Science. Still, future studies on the relationship between emotional stability and individual performance by focusing on more databases and domains could help to get a full picture of the performance effect of Emotional stability.

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Improvement in Production Efficiency using Six Sigma Methodologies

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Abstract

The production efficiency of the industrial system is of major economic interest in the business concern. The sources of ineffectiveness and the main difficulties lie in the choice of the actions of production especially when the machines play an important role in the process of production. In Gates India Private Limited, there is a significant wastage of wire which is used as reinforcement for hydraulic hoses. This wastage produces an adverse effect on the production efficiency of spiral line and thereby incurring losses to the industry. In the proposed work, definition of problem, root cause investigation and correlation analysis has been carried out for finding the reasons behind the problem and their affects. The results reveal that with the implementation of Six Sigma methodology, the efficiency of production significantly increases to 97.75% as compared to 92.74% before implementation. Hence, the suggested method's results in cost saving and subsequently help in improving overall economy of the industry.

Keywords: Improvement; Production Efficiency; Six Sigma; DEMAIC; Lean Manufacturing

1.0 Introduction

Six Sigma is a disciplined process which enables that the organization gives nearly perfect product and services. Six Sigma is beneficial to reduce the wastage and improve the quality of product (Citybabu and Yamini, 2022; Raman and Basavaraj, 2019). The figure of six sigma arrived statistically gives the current average maturity of most business enterprises. It is a term (Greek) used in statistics to represent standard deviation from mean value, it is indicator of the degree of variation in a set of a process. Sigma measures how far a given process deviates from perfection (Adeodu *et al.* 2021). Higher sigma value capability, better performance in results. According to the six sigma the possibility of defects is 3.4 per millions (Cheng and Chang, 2012). Combining business process management (BPM) strategies with sigma six is most powerful way to improve performance (Pamfilie, 2012). So as six sigma helps to reduce defects and reduce wastage, increases the profit of organization. The name six sigma because of the fact that variation that exists plus or minus six standard deviations of the process output. The major benefits of Six Sigma are to improve process flow, reduce total defects, improve production rate, reduce wastage and help to maintain quality. DMADV refers to a data-driven quality strategy for designing products and processes. This methodology is used to create new product designs or process designs in such a way that it results in a more predictable, mature and defect free performance (Black and Revere, 2006). In the study, DMAIC methodology is used to reduce the wastage reduction of fluorescent powder, save the cost of wastage of extra powder and to increase the efficiency. DMAIC methodology is a quality tool which focus on change management style (Cheng and Chang, 2012). When a process requires complete re-designing of the product to get the desired improvement then a DMAIC project may turn into a DFSS project. Nakhai and Neves (2009) provided a fresh look into six sigma application to services by combining a thorough analysis of the service quality model with the in-depth understanding of six sigma statistical concepts. The most immediate practical implication of this study is the call for the redesign of the curricula of six sigma black belts training programs. Dumitrescu (2011) mainly focused on achieving the best quality, reduce scrap and defect, the lowest cost, getting the shortest lead-time, stressing on waste eradication by implementing Lean Six Sigma approach on an organization. The five-phase DMAIC methodology is applied for improving energy efficiency in distillation unit of a naphtha reforming plant (Falcón, 2011). Jonnya and Christyanti (2012) carried out the research in Indonesia, where PT BBI among many other suppliers supplied asbestos for roofing to many housing constructors. The sigma level was at 4.91 Sigma with defects per

million (DPMO) level at 200 units before this research. When the team implemented six sigma methodologies, they figure out that the main issue is side flat due to speeding up the curing time without simultaneously increasing its temperature. The team suggested that the company should beef up its temperature up to 350°C by DOE (Design of Experiments) for reducing the curing time from 5 hours to 4 hours. The result of this approach improved sigma level to 5.02 sigma and DPMO level at 180. Saghaei (2012) studied the industrial production of electronic sets with the help of Enhanced Rolled Throughput Yield (ERTY) approach. Apak *et al.* (2012) implemented the six-sigma methodology in a Hydrogen power plant and the study aimed to aware people about the advance efficient development in the hydrogen economy infrastructure and the six-sigma methodology and its contribution to energy efficiency. The extensive review of literature reveals that most of the work regarding Six Sigma has been focused on automobile, electronics and automation industries. Only a limited amount of research has been reported in open literature dealing with the textile industries, hospitals and civil services. The present research work was carried out at Gates India Private Limited, Village Lalru, District Sahibzada Ajit Singh Nagar, Punjab, India to minimize the wastage of wire which subsequently results in increasing the production efficiency of the plant using six sigma methodology.

2.0 Research Methodology

The wastage of wire scrap in the manufacturing of Hose at Gates India Private Limited, Village Lalru, District Sahibzada Ajit Singh Nagar, Punjab, India is proposed to be reduced using DMAIC Methodology of Six Sigma by following the underlying five steps which are depicted in Fig.1 as given below:

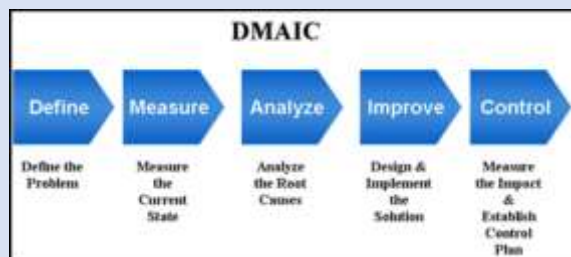


Figure 1: Phases of DMAIC Methodology

3.0 Hose Construction

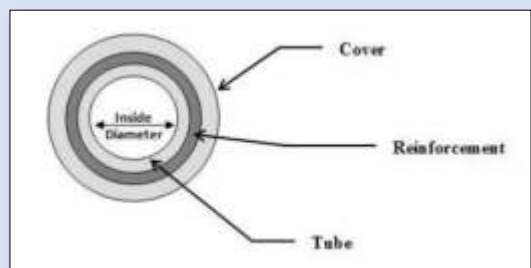


Figure 2: Hose Construction (Front view of hose)

3.1 Tube

It is an innermost element of the hose, made of a compound having thermal and chemical compatibility with the medium to be conveyed. It is formed by inserting rubber on pole/mandrel from extruder (Fig. 2).

3.2 Reinforcement

It enables hose to withstand the pressure build up in the hose by flowing medium. It also enables hose to absorb external forces *viz.* Elongation, compression etc. (Fig. 2).

3.3 Cover

Outermost element of hose made of a compound gives protection to hose reinforcement from ozone, abrasion, heat, oil and from other external parameters (Fig. 2).

4.0 Spiral Area Processes

The understanding of respective areas (Fig. 3) corresponding to spiral processes is very important before applying six sigma methodologies for efficiency improvement.

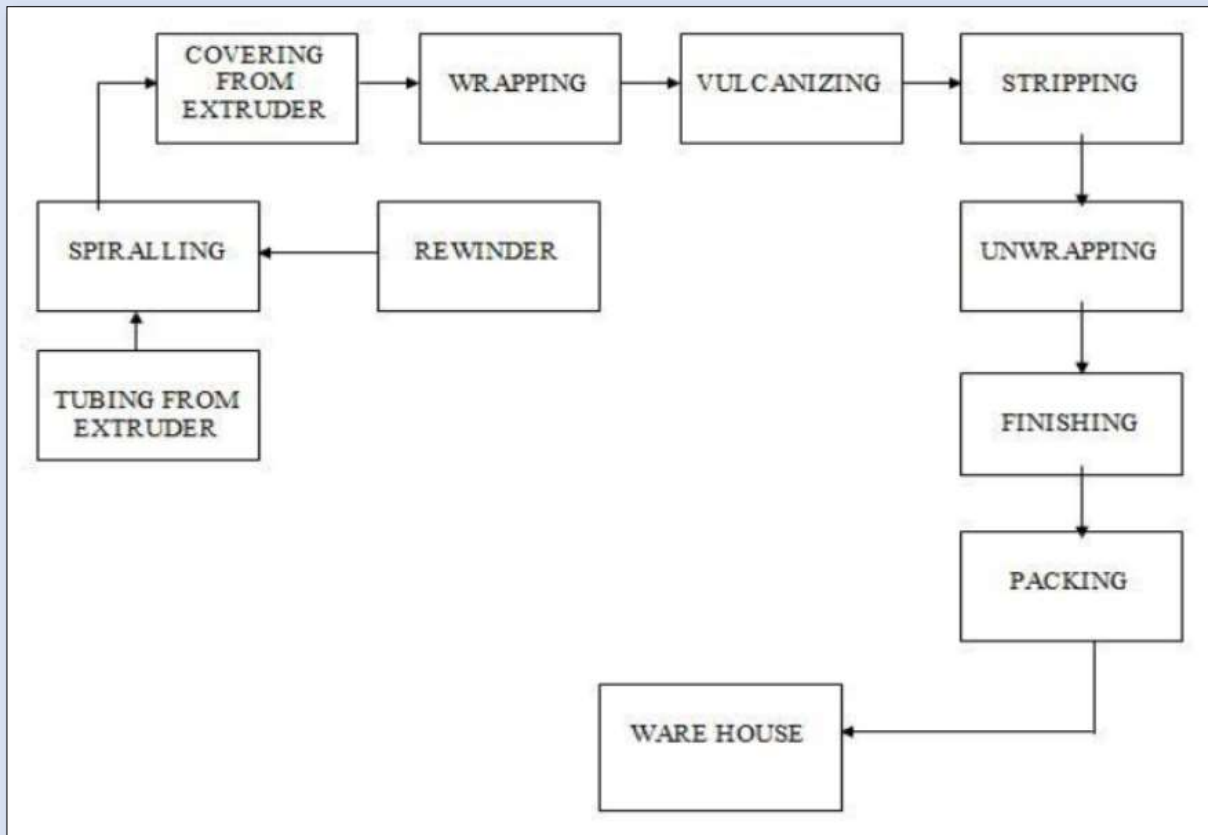


Figure 3: Spiral Pilot Area Process Flow

5.0 Primary Metric Improvement

Table 1 shows that production efficiency of spiral line has beefed up in week 26. This is consequences of the solution of the problem. Target of Production Efficiency was 99% but it is gained 97.75%. Reduction of wire from mother spool is the most efficient solutions which increases production efficiency. Reduction in setup, end reduction in wire broken and implementation of skilled operator are also helping in saving and consequently increase in production efficiency.

5.1 Effect on Production Efficiency (Bar Diagram)

Bar graph (Refer Fig. 4) is used for more complex comparisons of data with stacked bar charts. These bars are color-coded to represent a particular grouping. The height of the bars shows the value of efficiency in percentage. The group of red coloured bars shows the efficiency before implementation and blue coloured bars shows the improved efficiency after implementation. Vertical bars are showing comparisons among two categories of efficiency before and after improvement. Bar chart clearly shows the gradually improvement of efficiency starting from 23th week. In the 25th week, efficiency reaches 98.1 %.

Table 1: Production Efficiency

	WEEK	Production Efficiency
BEFORE	3	92.2
	4	93.2
	5	93.6
	6	93.2
	7	91.5
AFTER	23	97.4
	24	97.6
	25	98.1
	26	97.9



Figure 4: Before and After Bar Chart

5.2 Effect on Production Efficiency (I Chart)

Table 2: Data of I chart before implementation

Weeks	UCL	X	Efficiency (%)	LCL
3	95.0	92.74	92.2	90.2
4	95.0	92.74	93.2	90.2
5	95.0	92.74	93.6	90.2
6	95.0	92.74	93.2	90.2

7	95.0	92.74	91.5	90.2
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Table 3: Data of I chart after implementation

Weeks	UCL	X	Efficiency (%)	LCL
23	99.0	97.75	97.4	95.8
24	99.0	97.75	97.6	95.8
25	99.0	97.75	98.1	95.8
26	99.0	97.75	97.9	95.8

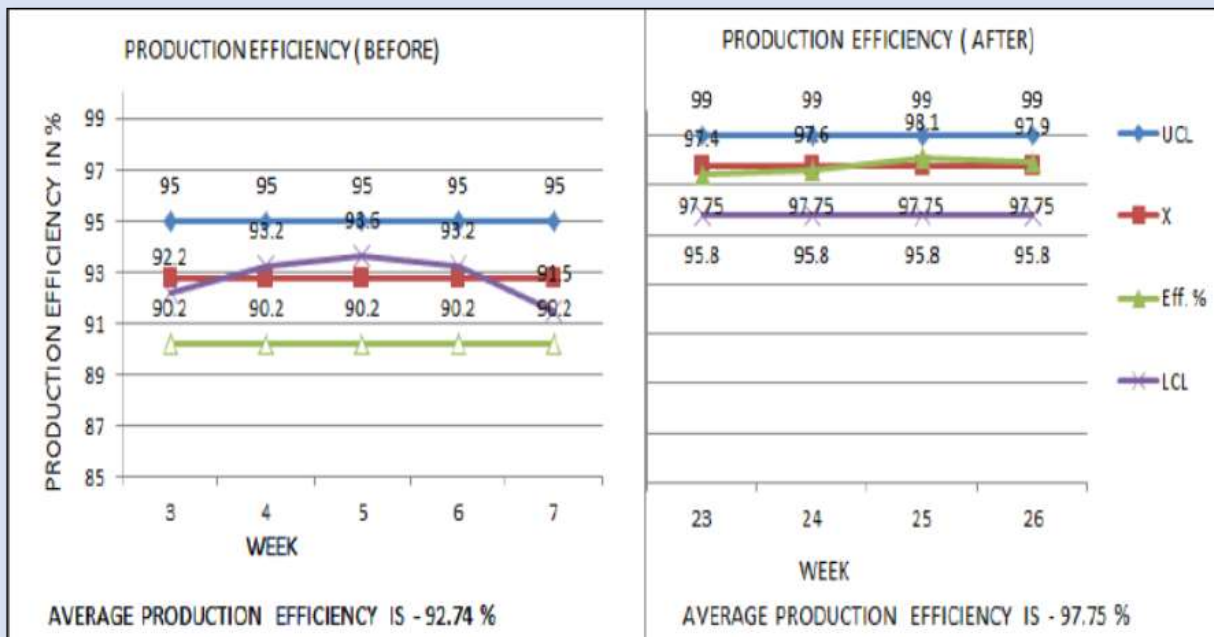


Figure 5: Before and After X Chart

Fig. 5 shows individual observations and moving ranges over time for variables data. The UCL show the upper control limit that was 95.0 % for before improvement process and 99.0 % upper control limit is fixed after improvement process. The LCL shows lower control limit was 90.2 % for before improvement process and it is fixed for improvement process 95.8 percent. X show average efficiency as 92.74% before improvement process and after improvement its average efficiency improved to 97.75%. The target to improve efficiency is about 98% and total average efficiency against target achieved is 97.55%.

5.3 Improvement in Production Efficiency on Spiral Line (Total savings per year)

Table 4: Cost saving

NAME OF PROJECT: IMPROVEMENT IN PRODUCTION EFFICIENCY ON SPIRAL LINE		
Month of Start of Project: "JAN"16; Month of Completion of Project: "July"16		
Calculations		Saving
Saving on mother spool wire reduction project	---	2,08,664
Initial production in meter	5400	---
Final production in meter	5465	---
Improvement in production in meter	65	---
Average profit per meter of hose	125	---
Total saving in production after improvement per day	65X125=8125	---
Total saving in production after improvement per month (working days)	8,12,5X30=243750	---
Total saving in production after improvement per year	2,43,750X12=2925000	2,92,5000
Total saving in a complete project	---	3,13,3664

5.4 Saving Calculations

The saving calculation of Spiral line (refer Table 4) is carried out on the basis of reduction of wire from the mother spool and increase in the production of line. The increased production is multiplied with the margin of hose. Savings from the mother spool wire reduction project is 2,08,664/- rupees. A whopping 80-meter wire is reduced from every spool and total 3840-meter wire is reduced in the whole setup. The weight of this 3840-meter wire is 5.796 kg and average price of 1 kg wire is 100 rupees, resulting in a total saving of Rs 575/- per setup. Subsequently, total saving of Rs 2,08,664/- per year. Saving on increase in production on line is Rs 2,92,5000/- converted into small unit. Daily 65-meter production increase on spiral line average margin of hose is Rs 125 and a total of Rs 2,92,5000/- in a year. With this, the production efficiency is also increase 92.74% to 97.75%.

5.5 Effect of Individual Experience and Line Leading

On Spiral line, wire routing is very critical operation. Many times, trainee operators are committing mistakes in routing operation. Now company gives promotion to three trained operators as a lead operator for each shift. Now lead operator is taking lead on spiral machine and they are responsible for every activity on spiral machine. He is checking the routing of all deck of machine before start the machine. These 3 operators are in each shift respectively. Same is used on Rewinder machine for solving taper rewinding and other rewinding related issues.

6.0 Conclusions

The following conclusions are drawn from the study:

1. High production rate can be achieved using Six Sigma methodology
2. The production efficiency is also increase 92.74% to 97.75%.
3. The role of experience of every individual, organizational and working together as a team plays a vital role for the improvement in wastage reduction. Implementation of skilled operators reduces the wire scrap by about 50%.
4. Approximately the production is increased by 65 meters and the scrap is significantly reduced by eliminating setup end problem and wire broken issue.

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Technology Adoption, Upper Echelons and the Corporate Social Responsibility Function

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Abstract

The paper aims to address the impact of upper echelon characteristics of the managers in adopting technology to handle operations in the Corporate Social Responsibility (CSR) department of a public sector company in India. Participatory Action Research (PAR) methodology has been followed in the CSR department of the company to identify the problems in technology adoption and improve the productivity of the employees. The findings show that the upper echelon characteristics of the managers play an essential role in enhancing the technical infrastructure and skills of the team members. The management's outlook on investments in non-revenue generating departments like CSR affects the process handling efficiency of the employees. The paper has implications for academia, businesses and policymakers as it discusses the selective adoption of technology in organizations.

1.0 Introduction

Based on the learnings from a study of the Corporate Social Responsibility (CSR) department of a large public sector mining company in India, this paper proposes to provide analytical insights into the low rate of new technology adoption in departments that have come to be set up within leading enterprises to comply with government regulation. The CSR department is mandated by government regulation and, hence, not part of the company's core value chain. The introduction of mandatory CSR in the Companies Act, 2013 has introduced a new dimension to social investment in the country and has led to profound changes in the corporate strategic management related to society, compliance, and socially responsible projects. The law can be considered an attempt to bridge the disconnect between the business and the society in which they function (Porter & Kramer, 2006). With stringent policies laid down by the government on the requirements and outputs from CSR, the company studied is found facing issues in handling the detailed documents of activities performed by third-party actors as part of CSR. Literature has several studies which mention technological adoption at an organizational level. There is a substantial lack of studies that evaluate corporate and managerial interests in information technology investments in departments that are not revenue-generating. The paper tends to bridge such a gap and uses the participatory action research (PAR) technique to discuss the management team's efficiency in handling information.

The paper aims to understand and identify the upper echelon traits of managers which motivate them to adopt information technology (IT) and information system (IS) based practices in their departments. The findings of the paper are based on the activities of a technology consultant team constituted to design and develop an Information Management System in the CSR department of the company. The organization inducted the consultants as part of an IT project to create a software-based solution for the CSR department to perform seamless data collection, entry, and transfer. The team aimed to design and create a software platform through which the CSR team could manage the details about the incoming tenders for CSR funds and their fund disbursements. The researcher was a part of a two-member team assigned to design and evaluate possibilities of technology adoption in the CSR department. The project was to be executed in two phases of one month each. The study involved investigating the IT capacity and practices in the CSR department and an analysis of how an alternative, more efficient system could be implemented. The process involved constant dialogue between the employees in the CSR department and the IT implementation team. The

researcher carried out a thematic investigation along with the IT implementation team and the CSR department.

2.0 Methodology

The paper undertakes a subjectivist approach to understand the phenomena and patterns underlying the technology adaption process in a novice department within an established organization. Coined by Kurt Lewin in the 1930s and 1940s, action research is a term that has its roots in the qualitative research area (Adelman, 1993). The researcher adopted the PAR framework proposed by Freire (1970) and engaged in dialogue with the organization's CSR team after getting acquainted with the processes and hierarchy in the department. There were informal exchanges across one year when the participants exchanged ideas on streamlining the departmental processes. The participants were encouraged to reflect and critically analyse the situation to introduce changes in the team to improve efficiency. There were evident changes in the performance after a change in the senior management of the team while the participants identified the problems and worked towards streamlining the department processes. Management literature considers CSR as a supporting activity that the corporates undertake to boost their sales and market performance (Yoo & Lee, 2018). This perspective considers CSR to be a secondary or tertiary activity that does not have to be regarded with prominence in the natural course of business. The paper adopts a technology adoption perspective using the Technology Acceptance Model (TAM) (Venkatesh & Davis, 1996) and Theory of Planned Behaviour (TPB) (Ajzen, 1991) with emphasis on the upper echelon theory (Hambrick & Mason, 1984) for analysing the management of the CSR department.

3.0 Findings

The participant observation technique helped the researcher gain information and knowledge about the behavioural aspects (MacDonald, 2012) of different officials who occupy the same post at different points of time. The attitude and behavioural characteristics of the managers are determinants of technology adoption in business, with satisfaction derived from the usage and experience derived from a system (Liao et al., 2009). The paper gains importance due to the evidence provided by the upper echelon theory on the adoption of technology into business operations. It was evident that a change in the general manager responsible for the CSR department led to an increase in the proactiveness of the employees. Manager characteristics and willingness to contribute to the team's success motivated the employees to increase their productivity. The paper finds that if the manager is not involved in the departmental decision-making process, the lack of expectation on incentives due to increased productivity in the department as the managers realize that the hierarchical organization tends to induce innovation adoption in the highest productivity jobs first and then move downwards with increasing incentive costs (Dearden et al., 1990). This implies that secondary tasks in the value chain, like CSR, will receive lesser emphasis on technology adoption. Bowen (1989) mentions the inefficient use of technology and the lack of growth in productivity due to the incompetence of the management in utilizing technology. The paper shows that the department comprising middle and top-level managers are unable to extract the capabilities from the technology due to the lack of technical expertise in the CSR department. The board or the top-level management of the company does not appear to have considered providing training and exposure to new technologies to their middle-level managers, especially in the CSR department. There is a differential and selective adoption of technology in the various departments in the organization. There is a lack of proactive procurement of technical infrastructure in the CSR department as the activities lead to economic outflow from the organization, leading to an impact in the bottom line. Personal benefits and extrinsic incentives to decision-makers impact the adoption of technology, especially in the secondary activities of the value chain of companies. The paper argues that departments, which do not aid in profiteering and the bottom-line in the short run, established in compliance with government regulations, tend to become laggards in the

case of technology adoption. This can be attributed to factors like the absence of incentives to the management, practical isolation from the departments in the value chain and an ambivalent identity of CSR as a strategic function of the company. Corporate profits will be affected by any non-revenue generating activity, and the learnings from the paper have implications for the academia, businesses and policymakers on the importance that a non-revenue department has in the structure of an organization, an essential aspect in studying whether and to what extent corporates support mandatory spending on goodwill.

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Why is the blue-line resistant to adopting modern innovations?

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Abstract

This paper aims to examine the role of personal dispositions in technology adoption among police officers, investigate the impact of technology use on job performance, and then discuss how individual personality is of critical importance when managing organizational efficiency. Theoretical contributions augment the extant literature and open new avenues for future research; practical implications help practitioners and policy-makers optimize resource allocation, enhance officers' job performance, create a safer living environment for citizens, and ensure a positive, sustainable change in society.

Keywords: Personality; Training; Police; CCTNS; Job Performance

1.0 Introduction

The advent of information and communication technologies (ICTs) has dramatically changed the landscape of standard operating procedures across organizations. Due to the proven significance and utility of modern technological advancements, government and private organizations have adopted various ICTs based on their operational needs (Lakhwani et al., 2020; Tanner & Meyer, 2015). Following the digital advancements across the world, the government of India (GoI) introduced the Crime and Criminal Tracking Networks and Systems (CCTNS) project in 2009 with a total approved outlay of INR 2000 Crore with an aim to digitize policing by creating a central data repository of all cases across India. Despite the enormous amount of resources invested, individual adoption and use of ICTs remain significant barriers to harnessing the potential of ICTs (Salinas et al., 2017). However, the literature analyzing ICT adoption in Police is scant (Egnoto et al., 2017; Young & Ready, 2016).

Previous research has underlined the significance of various individual attributes that play a crucial role in the adoption of ICTs (Mendonca, 2016; Sullivan & Benson, 2012). The extant literature strongly supports that individual personality effortlessly meshes with the fabric of human life, everyday situations, and problems (Donvito et al., 2020; Milas & Mlačić, 2007; Tauni et al., 2020). Personality refers to the sum of ways in which an individual reacts and interacts with the external environment and people around them (McCrae & Costa, 1987). An individual with a specific disposition exhibits a unique pattern of adoption when interacting with ICTs (Ratchford & Ratchford, 2021; Stachl et al., 2017). For instance, conscientious people are more likely to use work-related or productivity-based ICTs, while extroverts prefer people interaction-based ICTs (Vaid & Harari, 2021). Therefore, in this technological age, it is of the utmost importance to explore the interaction pattern between personality and ICT adoption and understand how ICT use impacts job performance.

This paper aims to unfold the mystery of the low CCTNS adoption rate among police officers despite investing enormous resources. The primary objective of this paper is to examine the role of individual personality in technology adoption among police officers in the light of the Big-Five personality trait model (BFM). Further, this paper discusses how the congruence between individual dispositions and ICT attributes can boost the job performance of police officers. For this purpose, we use partial least square-based structural equation modelling to analyse the data collected from police officers. The result of data analysis suggests that all Big Five traits (except Openness) significantly influence CCTNS adoption, and CCTNS use enhances the job performance of police officers. The insights of this research are critical for policy-makers, governments, and police officers to enhance the efficiency of police

through optimum utilization of resources, finding apt person-job fit, and assigning duties accordingly. The implications of this paper, if carefully considered, can help create a safer living environment for citizens and make a positive, sustainable change in our society.

2.0 Theoretical Framework

Proposed by McCrae & Costa (1987), the Big Five model is the most widely used and well-validated taxonomy of personality traits that consists of five dimensions: Extroversion, Agreeableness, Openness, Conscientiousness, and Neuroticism. Unlike other personality taxonomies that classify people into two extreme classes, individuals can fall across the spectrum for each dimension under BFM. These Big Five dimensions are proven to explain a large amount of variance in personality, thus the name "Big" (Oliver & Srivastava, 1999). Researchers have a collective consensus that these five super-ordinate constructs can delineate the territory of personality (Digman, 1990). This theoretical approach has been identified as the Five-Factor Model (FFM), and the dimensions are often referred to as the Big Five. The FFM is considered the most comprehensive, parsimonious, and useful taxonomy in personality research (McCrae & Costa, 1987). Many studies in the extant literature have adopted FFM to understand the adoption of various ICTs (Ramírez-Correa et al., 2019; Rosen & Kluemper, 2008). Extant literature observes that employees who embrace ICTs perform better than those who don't (Lakhwani et al., 2020). Therefore, it would be judicious to examine the relationship of Personality – ICT use – Job performance in the context of a law enforcement setting.

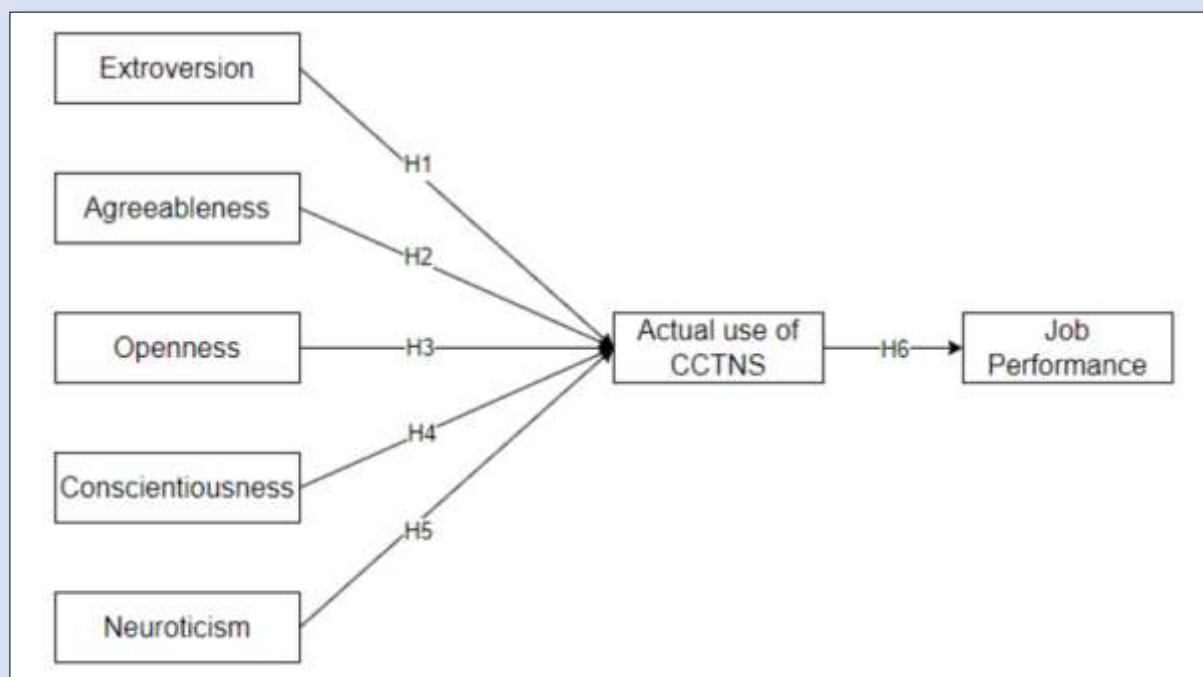


Fig.1. Conceptual framework

3.0 Methods

The data was collected from police stations, police lines, and police training centers in rural and urban localities in Rajasthan, India. The sample for this study consists of 247 in-service police officers ranging from constable to superintendent of Police. This paper employs structural equation modelling using the SmartPLS 3.0 software to perform the data analysis.

4.0 Major Findings

The results demonstrate the significance of Big-Five traits in predicting ICT use. Specifically, this study found that all Big-Five traits (except Openness) significantly affect how people use CCTNS. In order of their empirical relevance, Neuroticism had the most significant impact on CCTNS use, followed by Conscientiousness, Agreeableness, Extraversion, and Neuroticism. Secondly, police officers' usage of CCTNS significantly influences their job performance. The results of this study offer several contributions to the extant body of knowledge and practical implications for government, police officers, policy-makers, and ICT service providers.

5.0 Conclusion

This study is a part of pioneering research that attempts to explain the impact of personality on ICT use and job performance in the context of law enforcement agencies. This research advances the literature by implementing the proposed research framework to a specialized population, i.e., the Police department, an extremely steep, structured, and disciplined organization. This study conjures up a unique viewpoint on technology adoption and job performance owing to the distinctive organizational attributes by selecting Police as the target population. Further, the present study offers a wide range of practical implications for practitioners and policy-makers that would promote the digitization of policing, optimize resource allocation, and thus facilitate positive, sustainable changes.

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Delineating Personal Resources in the context of Human Resource Flexibility

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Abstract

This study aims to integrate the extant literature on personal resources within the JD-R framework, investigate the concept of personal resources as well as the underlying assumptions and analyse the ways in which personal resources may assist organisations in the development of adaptive behaviour and human resource flexibility. This paper is based on the review of secondary literature. This paper contributes toward developing an understanding of the role personal resources play in supporting human resource flexibility in organizations.

Keywords: Personal Resources; Human Resource Flexibility; Adaptive Behaviour; Job Demands Resources Model

1.0 Introduction

Despite the fact that modern workplaces are becoming increasingly dynamic due to technological advancement/s and sociocultural shifts, the pandemic left many organizations unprepared. It ushered unexpected adjustments and modifications in both the professional and personal realms and the idea of a ‘workplace’ got abruptly reimagined. While the meaning and situation of a ‘workplace’ got disrupted, the viewpoint that people who can engage positively with the unfavourable personal, organizational and social situations to show better job outcomes has become more relevant. Studies have established that competencies which facilitate one’s positive engagement with unfavourable situations, such as emotional intelligence, self-efficacy, and psychological capital, among others, have a higher impact on career results and personal achievement (Seal et al., 2006; Emmerling and Boyatzis, 2012; Grover et al., 2018). As a result, interpersonal and intrapersonal abilities that contribute to resilience are now considered as important as academic and technical or hard skills (Schaufeli, 2017; Kimura et al., 2019). Considering this background, this paper studies personal resources – its underlying assumptions, tenets, nature and implications towards positive adaptive behaviour in the context of human resource flexibility.

The objective of this paper is to integrate extant studies on personal resources and synthesize their findings in order to delineate the nature and bearing of personal resource towards individual’s ability to comprehend, control and adjust to the environment (at the workplace). The findings of this study can be then utilized to design conceptual framework/s intended towards examining the relationship between different personal resources and their impact on flexible behaviour of employees. The scope of this paper is limited to secondary analysis, it will consider all the papers published on personal resources till date, together with the contextually relevant papers on human resource flexibility in organizations. The next section will briefly introduce the extant literature on personal resource and human resource flexibility, followed by methodology, findings and conclusion.

2.0 Literature Review

Personal resource is referred to as positive self-evaluations, and they contribute to resilience by giving an individual with an understanding of their capacity to manage and act successfully in their environment (Xanthopoulou et al., 2007; Huang et al., 2016). “The higher an individual’s personal resources, the more positive the person’s self-regard and the more goal self-concordance is expected

to be experienced” (Judge and Bono,2001). The Job Demands Resources (JD-R) model is the theoretical premise upon which the concept of personal resource has been developed (Xanthopoulou et.al.,2007). Job Demands Resources Model implies that all job characteristics may be classified into two categories: job demands and job resources (Demerouti and Bakker, 2011). The job demands resources model posits two interaction effects between job demands and job resources: job resources buffer the negative impact of job demands, and job resources can be drawn upon by individuals to cope with high job demands (Huang et al., 2016; Grover et al.,2017). This translates to job demands negatively influencing employee wellbeing (the impairment process) and job resources positively enhancing positive work engagement (the motivating process). Personal Resources according to Xanthopoulou et al. (2007) moderate the relationship between job demands and exhaustion, positively affecting psychological wellbeing. They also moderate the relationship between job resources and work engagement, positively affecting engagement.

Three of the well-established personal resources are self-efficacy, optimism, self-esteem (Xanthopoulou et al.,2007). Building on the premise furnished by Xanthopoulou et al. (2007), psychological capital (Grover et al.,2017) and emotional intelligence (Mérida-López et al.,2018) have also been integrated as personal resource under the overarching JD-R framework.

Flexibility of human resources on the other hand, often referred to as HR flexibility, has become one of the most significant aspects of contemporary organizations. HR flexibility focuses on adapting employee characteristics (such as knowledge, abilities, and behaviours among others) to shifting conditions in the surrounding environment. Recent studies have investigated its nature, the components, and the possible contribution that it could make to firm performance (Wright and Snell 1998; Eldridge and Nisar 2006). It has been determined that there are three types of HR flexibility: employee skill flexibility, employee behaviour flexibility, and HR practise flexibility (Wright and Snell 1998). Empirical studies have suggested that the flexibility of human resources has been shown to have a significant and beneficial association with financial success (Bhattacharya et al., 2005).

3.0 Methodology

This paper utilizes descriptive research design based on review of secondary literature. The primary charter of personal resource has been synthesized utilizing the propositions from Xanthopoulou et al. (2007), Bakker and Demerouti (2007) and Tremblay and Messervey (2011). It has been then augmented based on the propositions of Grover et al. (2017) and Mérida-López et al. (2018).

4.0 Findings and Conclusion

This paper extends the extant literature on personal resource and draws three roles that personal resources play at the workplace. (i) Personal resources facilitate an individual's interpretation of the current situation at work with both forward and backward linkages. (ii) Personal resources enhance one's engagement or reaction based on the comprehended situation and (iii) It assists in substantiating/leveraging on other resources, such as a job resource/environmental situation. All towards the attainment of positive outcomes (Xanthopoulou et al.,2007; Huang et al., 2016; Grover et.al., 2017; Mérida-López et.al.,2018). Reading this proposition along with the propositions of Wright and Snell (1998) and Ngo and Loi (2008) in the context of employee flexible behaviour and Karman (2019) in the context of competencies, establishes the relevance of personal resources towards human resource flexibility. Thus, it calls for an empirical investigation. The managerial implication of this study indicates that organizations have to make a concerted effort for enhancing the personal resources of employees to foster adaptive behaviour and organizations cultivate human resource flexibility. By way of emphasizing on training and development programmes aimed at enhancement of personal

resource, potentially contributing towards developing adaptive behaviour and constructive change management.

Being a study based on secondary literature, this study has its limitations. The way forward/s of this study can be development of conceptual models depicting the relationship between one or more personal resource and either of the dimension/s of human resource flexibility i.e., employee behaviour flexibility, employee skill flexibility, flexible hr practices among others.

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Assessing the impact of government policies on the strategy for the persistence of digital platform firms: A study of select consumer durable platform firms in India

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Abstract

The significance of the economic activities in the digital space in emerging markets like India has grown substantially. The dynamic and evolving nature of such markets calls for attention to platforms' survival strategies under various events to build agility for persistence. There are limited studies however available in the digital platform knowledge base focusing on the empirical assessment of the impact of the announcement of government policies causing chaos and uncertainty in emerging markets on the factors determining the strategic change in strategies for the persistence of digital platforms. Hence, to bridge this void in the literature, this paper attempts to identify the strategic change employed by the firms during the announcement and execution of government policies in India and also the impacted variables leading to the adoption of these strategies. The study findings are useful for managers to work on the parameters that help to accommodate the uncertainties and understand the means to cope better with any kind of shock in the future that could have an adverse impact on their persistence and growth.

Keywords: Persistence; Digital platform firms; Firm Strategy; Government policy

1.0 Introduction

The popularity of digital platforms has grown over the past few years. Microsoft, Amazon, Apple, Google, and Facebook are the five technology giant with the highest market value. Chinese digital behemoths like Alibaba, Tencent, Baidu, and Xiaomi, as well as numerous US based internet companies like Netflix, eBay, Uber, Salesforce, and Airbnb, closely follow these firms. Because of the digital platforms they offer, the majority of these businesses— Apple and Microsoft being adolescents—have had exceptionally rapid growth. Platforms that match supply and demand for transactions are the most prevalent types (e.g., Amazon, Alibaba, Airbnb, Uber, and Baidu). The Microsoft software platform and the App stores from Google and Apple are two further examples of technological platforms that offer a technical foundation on which others can develop. These digital platforms have fundamentally altered how we work, conduct business, interact with one another, study, move, produce, etc. These platforms are available in all industries, from education (such as Coursera, EdX, Udacity, and FutureLearn) to smart homes (e.g., Amazon Alexa, Apple Homekit, Google Assistant, Philips Hue, and Samsung SmartThings).

Powerful platforms have given digital natives from Instagram to Amazon global reach and towering market capitalizations. While that's no secret, these platforms raise difficult questions for CEOs of incumbent companies pushing ahead with their own digital transformations: Should they emulate the frontrunners, join forces with them, or not play at all? Not playing may seem risky in a world where "platforms beat products." Yet building your own platform, in a majority of markets where global platforms are already thriving, may be akin to arm wrestling with a bulldozer. Industry forces like the ever-evolving technology, changing consumer demands/expectations, entry of new firms, and changing strategy of incumbent firms among others impact the digital firms' revenue, global footprint, and their very presence in the market. The dynamic and evolving nature of the market calls for attention to platforms' survival strategies building agility for persistence. According to Collins dictionary (Collins,

n.d) persistence literally means “something that continues to exist or happen for a long time”. Firm persistence and perseverance have been examined, discussed, and defined by researchers from a variety of disciplinary angles over the years. Yet there are a handful of studies focusing on the persistence of firms in the digital platform markets until quite recently by McIntyre, Srinivasan, and Chintakananda (2021, p.2) wherein they defined persistence as “*its continued presence as a viable means for interaction and transaction among the majority of current or potential users*”.

For the past ten years, managers and academic researchers have been deeply interested in the question of how digital platforms can cope effectively with unpredictable environments (Wright, Venkatesan, Albanese, and Wellman, 2016; Kuchinke and Vidal, 2016). Scholars from the field of strategic management have focused only on the impact of strategic initiatives of platform providers such as their entry timing choices (Schilling, 2002), pricing (Rochet and Tirole, 2003, 2006), and the technical quality of the platform (McIntyre, 2011) on the success and persistence of the platform often leading to winner-take-all dominance by a leading firm. The government and its policies are meant to establish order, guide firms, and enhance the competitiveness of the market although its impact on businesses is never certain. For instance, the proposed e-commerce policy change in India was formulated to strengthen protection for consumers and small retailers. New rules limit flash sales, bar misleading advertisements, and mandate a complaints system, among other proposals. The proposed policy has caused a stirrup and a challenge for foreign firms like Amazon forcing them to review their entire business structure. Since a changing policy environment has the potential to create a state of chaos and uncertainty hence, it becomes essential to draw focus on identifying the factors impacted due to the various policy implementations and the strategic change a digital firm adopts for persistence. There are limited studies available in the digital platform knowledge base focusing on the assessment of the impact of an unpredictable event like the announcement of government policies in emerging markets on the factors determining the strategic change for the persistence of digital platforms. To bridge this void in the literature and to better grasp how incumbents and digital native companies design their strategies to harness the power of platforms against the disruptions that have upended industries, we study six large firms operating in the consumer durable industry in India. This study attempts to identify the strategic change employed by these incumbent firms during the announcement and execution of government policies in India- Digital India and Make in India, and also the variables leading to the adoption of these strategies for empirical analysis over the study period of 10 years with the impact year being 2016 (Make in India was launched in 2014 and Digital India was launched in July 2015). The analysis indicates that platforms are spreading in many digital markets and that, in general, a successful platform played by incumbent companies can yield significant performance gains.

To pursue the task, the entire paper is organized into 7 sections including the present introductory one. Section 2 provides information about the two policies- Make in India and Digital India, and the chosen industry- consumer durables. Section 3 provides the literature review for the present study. Section 4 explains the methodology adopted to pursue the study. Section 5 presents the results from the analysed data. Section 6 and 7 cover the discussion and conclusion of the study respectively.

2.0 Background of Government policies and industry

2.1 Make in India

The "Make in India" campaign was launched in 2014 to promote investment, encourage innovation, improve skill development, safeguard intellectual property, and create world-class manufacturing infrastructure. Under the Make in India initiative, several initiatives aimed at making business in India simpler have also been introduced. New IT-driven applications and tracking processes are taking place of paperwork and bureaucracy. The outdated and impeding frameworks of the past have been quickly removed and replaced with an open and user-friendly structure. This promotes investment, encourages

innovation, builds skills, safeguards intellectual property (IP), and creates world-class manufacturing facilities. The extraordinary opening of crucial industries, including consumer electronics, defence, and medical technologies, to far larger levels of foreign direct investment is the most apparent sign of success of this initiative (PMINDIA, n.d).

2.2 Digital India

The Government of India's flagship initiative, Digital India, aims to convert India into a knowledge-based society and economy. The three main vision areas at the heart of the Digital India program are digital infrastructure as a core utility to every citizen, government and services on demand, and digital empowerment of citizens. The focus is on high-speed internet as a fundamental utility under the development of "digital infrastructure as a core utility to every citizen" to support the online delivery of diverse services. It is intended to create the necessary infrastructure for financial inclusion, digital identity, and easy access to common service centres. The ultimate goal of the "government and services on demand" vision is to make all services available to the common man in their community through outlets for common service delivery and to guarantee the effectiveness, transparency, and dependability of such services at reasonable prices to meet the basic needs of the Indian citizen. Last but not least, the Digital India programme, which aims to "digitally empower citizens," makes a commitment to transforming India into a society where everyone has access to digital resources, tools, and platforms. This emphasises the importance of widespread digital literacy and the accessibility of digital tools and services in Indian languages.

2.3 Consumer Durables Industry in India

The significance of India's economic activities in the digital space has grown substantially. The Indian B2C e-commerce market which was valued at USD 38.5 billion in 2017 is estimated to rise to USD 120 billion in 2026 ("India's e-commerce market size", 2022), majorly credited to government policies aimed at boosting business, the on-going increase in disposable income and technological innovation in India. This in turn is fuelling fierce competition among the various consumer durable brands that are available across the country. According to a report from Counterpoint's Make in India service, shipments of "Made-in-India" smartphones increased 7% year-on-year (YoY) in the first quarter of 2022 to reach over 48 million units, while over 190 million smartphones made in India were shipped worldwide in 2021. In FY22, mobile phone exports from India are estimated to increase 75% YoY to reach US\$ 5.5 billion. The Department for Promotion of Industry and Internal Trade under the Ministry of Commerce and Industry of India estimates that India exported \$11.1 billion worth of electronic products during April 2020 to March 2021 (FY21) and till May 2022 electronic items worth US\$1.34 billion have been exported (Department of Commerce, 2022). All of this has been made possible by the rise in business investment in starting up new manufacturing facilities and raising production in India.

3.0 Literature Review

Digital technology advancements are extending the boundaries of businesses. The next market disruptors are digital platform companies, which use a "platform" to generate value by facilitating transactions between two or more interdependent parties. The variety and quantity of platforms in the economy have increased recently, changing the corporate landscape and drawing regulators' attention and government engagement. Governments must create clear and coherent regulations to support digital economic activities in order to adapt to the new market actors and business models. This is crucial for emerging nations that have not yet completely benefited from the economic growth and job creation brought on by the digital revolution (Chen, 2019).

The defining feature of current government policies for the industries is their prime focus on innovation, technological development, and upgrading in the digital field. Industrial and innovation

policies have never been more intertwined than before. The industrial policy broadly refers to any government decision, regulation, or law that encourages the on-going operation or development of a particular industry. After all, economic development and sustained growth are simply the results of continuous industrial and technological upgrading, a process that requires public-private collaboration. As Curtis (2016, p 10) puts it, *“the current debate and proposals on updated forms of industrial policy are less about market interventionism and more on technological innovation, productivity gaps, R&D, entrepreneurship, vertical specialization and agglomeration economies”*.

Curtis (2016) notes that globalization and digital technologies have had a profound impact on the global innovation landscapes. At the same time, innovation has become a crucial aspect of the development process, as policymakers in both high- and low-income countries increasingly see the development and adoption of advanced technologies, know-how, and new business methods as key to stimulating productivity, competitiveness, employment, and growth. On the other hand, Edler et al. (2016, p 3) define innovation policies as: “public intervention to support the generation and diffusion of innovation, whereby an innovation is a new product, service, process or business model that is to be put to use, commercially or noncommercially”. It is important to note that over time, a distinction has been made in the literature on industrial innovation policy between narrowly defined, “vertical” industrial policies, meant to support, using public policy tools, production in a particular sector or firm, as well as the technologies and tasks to build up that sector; and the wider concept of “horizontal” industrial policies or strategies, which improve the business, cost, legal and infrastructural environment in which economic actors operate across sectors.

Making the most of the digital economy is an overriding concern of countries at all levels of development. This means, more than just adapting industrial and investment policies, the government-wide response to cross-sectoral, economy-wide challenges should include digital strategies like developing the right digital infrastructure, boosting research and science, upgrading skills, and adopting retraining policies, promoting e-government services and cyber security, establishing a clear framework for data use, transfer and protection, and, in some countries, promoting the growth of national companies in digital services. Many countries see the potential of the digital economy for generating economic growth. Digitally distributed or enabled services, such as (e-) banking and media, offer new opportunities for both domestic producers and consumers, and complement or replace less efficient physical distribution services. Micro, small, and medium enterprises (MSMEs) are also at the heart of the digital economy. Despite the high market shares of global platforms, many applications are locally produced and destined for local markets. The digital economy can reduce the need for intermediaries in certain activities and could encourage entrepreneurship by reducing the amount of start-up capital required (World Trade Organisation, 2020).

Apart from being a facilitator for the development and growth of digital platforms, the government faces considerable challenges in identifying digital platform firms that may become monopolies. Two common ways in which digital platform firms maintain a market dominant position (monopoly)—aggressive acquisition of promising start-ups and copying rivals’ product features—may impede innovation in the overall economy (Treasury, 2019). For instance, from 2015 to 2017, Tencent, the parent company of China’s super-app WeChat, acquired 100 firms a year on average. A significant number of the acquisitions were buyouts of start-ups with technology or business models that could potentially threaten Tencent. On the other hand, Facebook is squashing Snapchat, a multimedia messaging app, by copying Snapchat’s feature of letting users exchange pictures and videos that will disappear after they are viewed.

What is more worrisome is that digital platform firms are moving beyond possessing market power within a sector to penetrating various sectors across economic and social life. For example, not only is Amazon an online retailer, but it also publishes books, manufactures hardware, and has now even entered the grocery store business with its purchase of Whole Foods. Another example can be the Alibaba Group which started from Taobao.com Marketplace, which now dominates the mobile payment market with its product Alipay, and it has a significant stake in the 8 online entertainment sectors through acquiring Youku.com. Whether these behemoths pose a threat to the public interest is an urgent issue that governments have to tackle. Governments are increasingly becoming proactive and are beginning to act. Advocacy to break up digital platform firms' monopolies has drawn attention. Malaysia and the Philippines have been scrutinizing the Uber-Grab acquisition based on antitrust concerns. Meanwhile, after Google was caught taking advantage of its search service to favour its own shopping platform, some observers in Europe suggested that Google separates its search engine business from its other businesses. Although the European Union has yet to adopt a position on Google's split, yet the technology giant has since been involved in several antitrust investigations by the European Commission that have resulted in over US\$6 billion in fines. U.S. Senator Elizabeth Warren has also called for decoupling Amazon's cloud division from its e-commerce division to eliminate the danger of data about third parties gathered from the cloud service being used to influence Amazon's e-commerce arm (Chen, 2019).

In a nutshell, the existing knowledge base is inconclusive about the effects of government policies that could be favourable, increasing market competition and profitability, or detrimental, causing some businesses to leave the market or move into other similar industries and the types of firms' strategic responses by the digital platform firms. The present study fills this void and attempts to assess the impact of government policies on the strategic response of incumbent digital platform firms for persistence.

4.0 Methodology

The study is exploratory in nature, where we attempt to assess the impact of Digital India and Make-in-India Government policies on the incumbent consumer durable firms who also operate through platforms. We gathered the strategic initiatives post-2015 scenario for six large consumer durable firms operating in India (Whirlpool India, Oppo Mobile Stores Pvt. Ltd., Samsung India Electronics Pvt. Ltd., Voltas Ltd., Syska LED Lights Pvt. Ltd. And Siemens Ltd.). These companies were chosen at random to include practically every durable consumer product like a smartphone, refrigerators, air-conditioners, and other complementary products. The source of the information is company media reports, government reports, news channels' coverage, and consulting reports. The clippings covering these changes are transcribed and analysed manually by two independent researchers. The first-order categories on strategic changes/renewal are captured, which are further clustered into second order categories, and the aggregate dimensions are culled out by grouping these categories further. A total of 13 first-order categories, 5 second-order categories, and 2 aggregate dimensions are captured after combining the independent researchers' categories. This open design research approach is found to be most suitable considering the heterogeneous understanding of the phenomena and the practical context. Thus, an inductive approach to inquiry is the most appropriate to answer our research question, which corresponds to the why and how question requirements as defined by Yin (2014).

5.0 Data Analysis and Results

The first step of our analysis revealed two strategic responses: 1) digitalization of business processes, and 2) growth strategy. The data structure analysis in various categories is presented in Figure 1.

5.1 Digitalization of business process

The digitalization of corporate operations emerged as the first strategic response from our analysis. According to Bekoe et al. (2016) and Kumar et al. (2013), digitalization helps firms create new value and generate new revenue streams and often "goes hand in hand with establishing a digital technology strategy" (Parida et al. 2015: 41). These trends are depicted in the recent literature on digital technology (Rachinger et al. 2019). According to Senyo et al. (2020a) and Vendrell-Herrero et al. (2017), digitalization both drives and facilitates successful revenue mobilization. It also makes new types of innovation and business models possible in the industry (Sjödin et al. 2016; Darley 2003). For instance, the current state of digitalization allows businesses like Samsung to transition from product-centric models to digital service-oriented solutions with greater potential for value creation (Ardolino et al. 2018). With Samsung's Samsung Data Systems SDS, which offers specialized end-to-end services based on experience in various industries, Samsung has successfully completed its digital transformation. These services range from assessing the level of digital transformation of companies to developing core systems like ERP/SCM/CRM and ensuring stable system operations. By offering clients in a variety of industries, including electricity/electronics, machinery/parts, EPC/construction, chemicals/energy, retail/service, etc., comprehensive services ranging from consulting to system construction and operations, Samsung SDS leads the digital transformation and boosts customer competitiveness. In particular, based on the distinctive DT framework/methodology, the company supports quick digital transformation tailored to clients by creating precise DT level diagnoses and mid- to long-term master plans and utilizing the SDS DT engine (digital core technologies, such as AI, blockchain, cloud, security, etc.) and various global solution business experiences (Samsung SDS, n.d.).

The Digital India initiative has compelled businesses to make digital investments in order to modernize their essential business processes, which has sped up turnaround time and increased decision-making agility. Whirlpool India has transformed important business processes and improved efficiency using IT. Whirlpool uses its IT partners to power all other operations that support the "core", which is always being developed and nurtured. They have made investments in technologies that assist e-commerce, collaboration, and sales analytics. Local IT teams use their worldwide portfolio of technological solutions and IT security, adapting it to create solutions that provide the best value to the local business, transforming the global IT portfolio into something that is really "Glocal." Whirlpool switched to Google for their communication platform in the previous year. A truly collaborative workplace has been made possible by Google's capabilities, bringing teams together across time zones and locations to create an outstanding winning workplace (Kartik, M., n.d.).

Organizations already have some kind of relationship with suppliers, distributors, and customers. As a result of technological advancements that enable executives to experience what is happening on the ground in real time, the phrase "an ear to the ground" should now be substituted by "a touch or click to the ground." Technological advancements due to Digital India made businesses realize that decisions are always "smarter" and "faster" when business analytics are built on top of this framework. With cloud hosting solutions, flexibility—the cure all that businesses have been searching for many years—is now a reality. It begins by liberating expensive real estate space and infrastructure, which are replaced with technology led, effective, need-based solutions, enabling businesses to expand up and then scale down, depending on the circumstance. For instance, after the announcement of the Digital India project, Siemens Ltd. released its "Xcelerator" platform in India. The business was convinced that, with the platform's introduction, it could help customers in India accelerate their journeys toward innovation and digital transformation. The platform aimed to hasten digital transformation and value creation for clients of all sizes in business, construction, grids, and transportation. In order to simplify

interactions and transactions between clients, partners, and developers, it also featured a developing marketplace. “With this platform, the company has taken everything that a customer needs onto one platform”, said Sunil Mathur, Managing Director and Chief Executive Officer, Siemens Limited. He added. “SMEs in India will be the greatest beneficiaries of this platform as it can help them to scale up, upgrade and adopt new designs and components much faster to stay competitive.” (Press Trust of India, 2022 September 13).

It is obvious that digital is where the majority of people are given the size of the transition to the internet due to the Digital India initiative as a preferred channel in India. Hence, instead of using third-party vendors or online retailers, several businesses have built their own websites where customers may make purchases. To better serve its online customers, Voltas Limited, the top-ranked AC brand in India and a product of Tata's, opened a special online web store. With this new endeavour, the business hopes to give its online consumers a seamless shopping experience from the convenience of their own homes. Commenting on the launch, Mr. Pradeep Bakshi, MD & CEO, Voltas Limited said “As one of the leading brands in the Consumer Durable industry, we aim to constantly work towards exceeding the expectations of our customers. The current situation has increased consumer preference for online shopping, and with the launch of our new web lounge, we aim to reach out to our customers 24X7, and be available to them at all times, from the comfort of their homes.” (Express Computer, 2021 August 25).

A similar mechanism aimed at satisfying the constantly changing needs of customers and providing them with simplicity and convenience while moving the business toward digital was the “Go Green Go Digital” initiative announced by OPPO India. In line with the government's Digital India plan, OPPO started issuing digital invoices to its clients at all of its service locations in the nation via WhatsApp Broadcast. When a customer first visited an OPPO service centre for repairs or purchase, a work order or invoice containing the customer's information and the device's problem was shared with them. However, since the launch of the "Go Green Go Digital" initiative, customers now receive the same work order and invoice via WhatsApp. Customers can choose to receive the same information by SMS or email if they do not use a messaging app. The numerous notification channels guarantee that everyone may easily access the work order (Exchange4media, 2020 August 24).

5.2 Growth Strategy

The second strategic response was of growth aimed at increasing the scale and scope of the business leading to increased market presence global value chain (GVC). The existing studies have also identified product up gradation and sophistication as a critical tactic for capturing higher value addition. This is done by expanding a company's technological capabilities in a nation that makes it easy to manufacture goods there. According to certain studies, it would be beneficial to combine the bottom-up approach to technological capabilities with the top-down method to GVC upgrading (Pietrobelli, and Rabellotti, 2011). Businesses that invested in R&D, codified knowledge, design, and cutting-edge information and communications technology (ICT) solutions by aligning themselves with the Make in India and Digital India policy see increases in profit and growth (Chiarvesio, Di Maria, and Micelli, 2010). For instance, Chinese tech company Oppo came forth in planning methods to support the government's 'Make in India' initiative by providing support to entrepreneurs and delivering India-centric technologies in order to capitalise on the "amazing" prospects presented by the untapped millennial population in the Indian market. OPPO produced 100 million smartphones domestically and offered top-tier tech products that cater to the changing needs of Indian consumers. OPPO is also refocusing its attention on next-generation innovations like 5G and the Internet of Things (IoT) to fuel its next phase of growth in India, where the technology landscape is changing quickly as a result of the

Digital India policy (which has improved online infrastructure and increased internet accessibility among citizens). OPPO India Vice President (Product & Marketing) Sumit Walia said, "There are half a billion users still on feature phone that will potentially upgrade to smartphones, and that coupled with 4G penetration, availability of affordable devices and cheap data along with a strong ecosystem will continue to help the industry grow". Walia further said that, "Oppo would like to pace up growth with a continued focus on 'Make in India' and we expect to manufacture 100 million units by the end of next year" (Press Trust of India, 2019 December 22).

Through the use of digital platforms, including business-to-business (B2B) and business-to consumer (B2C) e-commerce, digital technologies lower the costs of exchange and trade. Companies can now more readily and affordably get inputs online (Banga, K., 2021) SYSKA Group, an Indian company that specializes in lighting solutions with its LED Lights made investments of about 170 crores in India by the year 2018. Since its founding in 2012, the SYSKA group has expanded into many categories, including Syska LED, Syska Personal Care, and Syska Irons, and it has only continued to expand by integrating digital technology through its digital platform, ultimately ruling these industries. The company's product line includes everything from mobile accessories to LEDs to personal care items. Aiming to help the government's Make in India drive, SYSKA has established over three manufacturing facilities for its lighting products in the nation. *"We have constantly tried to envisage and prioritize our investments in India with the aim to generate employment opportunities in the country making us the only Indian company in consumer electronics to invest heavily here. We are poised for phenomenal growth and are gearing up for a better India and a better tomorrow at SYSKA,"* said Director SYSKA Group, Rajesh Uttamchandani (Asian News International, 2018 March 18).

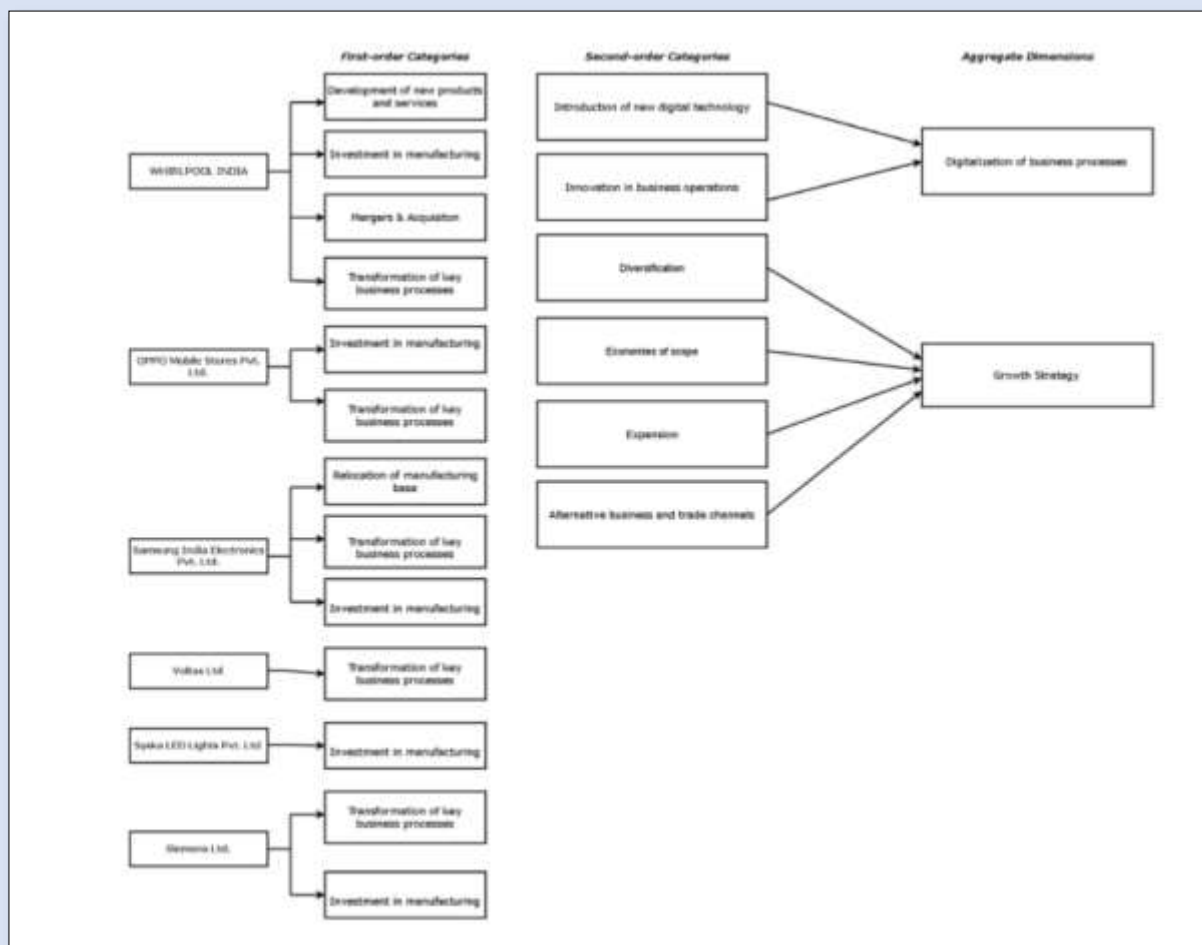


Figure 1: Data Structure Analysis Categories of Strategic Responses

Recent developments involving China's assertive political and commercial strategies have made the world's economies cautious of the nation, leading them to search for alternative business and trade channels. Considering the change in the world economic and political dynamics, India's government refocused on domestic manufacturing as its Make in India project has acquired more popularity, perhaps advancing India's goal of becoming Asia's next superpower. For instance, Samsung signed a contract that guarantees the relocation of its manufacturing facility for mobile and IT displays from China to India. Because of the decision made by the international smartphone makers to invest in India, the local value addition in mobile phones is expected to increase from 15-20% to 35-40%, enhancing the nation's standing as a manufacturing powerhouse. Given that these projects are now spread across six Indian states, including Uttar Pradesh, Maharashtra, and the four southern states of Andhra Pradesh, Telangana, Tamil Nadu, and Karnataka, where Foxconn and Wistron factories are located (India Global Business, 2020 December 15).

Mergers and acquisitions (M&A) turned out to be another powerful growth strategy for leveraging foreign companies' superior technical expertise, bigger financial resources, and in-depth knowledge of local markets, as well as Indian manufacturers' extensive networks of clients and suppliers. M&A allowed firms to follow the Indian government's initiatives and support local manufacturing while adopting and maintaining the world's best practices in manufacturing and trade. For instance, according to documents submitted to the Bombay Stock Exchange and the National Stock Exchange of India, the board of Whirlpool of India Ltd. accepted a proposal to buy a 49% share in Elica PB India Pvt Ltd., a subsidiary of Italian home appliance manufacturer Elica SpA. According to Whirlpool India, by utilizing Elica's strengths in consumer insights, design, and manufacturing, the company hopes to increase distribution and diversify its product offering. The cash share purchase, which was completed in the second part of 2018, cost about 1.62 billion rupees. The Whirlpool Corp. business and Elica PB established a joint venture as part of the agreement, in which the latter produces and sells cooking and built-in appliances in India under the Whirlpool brand (Dalugdug, A. M., 2018 June 2).

6.0 Discussion

Numerous business areas inside an organization and many stakeholders experience transformation as a result of shifting governmental legislation, including product development, marketing, human resources, IT, management, and strategy (Kwon and Park, 2017). In order to ensure their business growth and persistence through the creation of competitive advantage, previous studies suggest that the majority of firms adopt digital transformation to improve processes and increase productivity (Ghobakhloo and Ching, 2019), customize products (Porter and Heppelmann, 2015), increase efficiency in production processes (Gigova and Valeva and Nikolova-Alexieva, 2019), or exchange customer data for servitization (Peillon and Dubruc, 2019). As a result, businesses must prioritize areas when developing a strategy response while taking the nature and characteristics of the industry into consideration, our study showed that while some businesses selected a growth strategy, others adopted a digitalization plan.

“Build your capability to respond. Do this quickly, in terms of the right processes and systems so that when the next shock comes around and a new area of uncertainty comes up, you’re ready. Or if it is a prolonged period of uncertainty then you have the systems and processes in place to allow you to respond to that period.” - Ian Howells, Honda Europe

Our study identified multiple strategic responses implemented by the selected consumer durable firms to tackle the changing policy environment, improve their competitive position and ensure their viability in the market. For instance, the ability to innovate, especially having a dominant design (Christensen, Suárez and Utterback, 1998), developing an aggressive production strategy to increase sales to benefit

from economies of scale (Smart and Vertinsky, 1984), adjusting pricing and payment models to increase market share (International Finance Corporation, 2021), leveraging digital technologies to adapt and innovate, trying out novel business models, developing new business processes and practices, and redefining models for collaboration and teamwork (International Finance Corporation, 2021) among others.

Our study reveals that all government policies need not be regulating or curbing the existence of digital platforms, instead they can play a promotional role as well. Also, the government promoted different digital tools suitable for specific products/services and specific purposes to help business transform their businesses. Secondly, to enhance digital platform offerings, the government promoted mobile/digital payment. Digital payment systems have an important role in digital business ecosystems, but require a minimum number of merchants and a minimum number of customers. Integrated e-commerce and payment systems provide convenience to customers, enhancing transaction intention. In addition to this, the government promoted safety regulations by establishing digital transaction regulations and enforcing digital payment security standards and certification. Finally, the government provided firms the opportunity to build a collaborative ecosystem that helps businesses build their network and collaborate with other parties. Collaboration systems help businesses to build a network with other parties and create collaborative innovation. By participating in collaboration, businesses overcome limited resources, a lack of human resources, and a lack of knowledge. There are four collaboration models that service businesses used: knowledge sharing, resource-sharing, marketing innovation, and product/service innovation models. By establishing collaboration with partners, firms increased their performance and achieved growth. enforcing digital payment security standards and certification. Finally, the government provided firms the opportunity to build a collaborative ecosystem that helps businesses build their network and collaborate with other parties. Collaboration systems help businesses to build a network with other parties and create collaborative innovation. By participating in collaboration, businesses overcome limited resources, a lack of human resources, and a lack of knowledge. There are four collaboration models that service businesses used: knowledge sharing, resource-sharing, marketing innovation, and product/service innovation models. By establishing collaboration with partners, firms increased their performance and achieved growth.

7.0 Conclusion

In recent decades, digital platform firms around the world are facing challenges due to the changing political environment. These government policies are changing both firm operations and firm models. Many researchers have stressed the importance of adapting to the changing environment to stay relevant and persist in the market or else become out-dated or even non-existent.

To cope with these changes, digital platform firms need to develop and implement appropriate strategic responses. Digital India and Make in India policies were launched by the Indian government to make use of the development in technological innovation to increase visibility while becoming self-reliant (production in India). Both of these policies have turned out to be major triumphs in the contribution of the nation's economy. Digital platform firms are taking advantage of the newly developed digital ecosystems due to the before-mentioned policies, focusing product development efforts on brand-new digital offerings, and innovating the business model. Both policies enabled the creation of new marketplaces, the sharing of data, and the benefits of network effects at a scale that was impossible just a few years ago by these digital platform firms.

There has hardly been any digital platform firm that remained unaffected by these policies which called for strategic responses from incumbent firms to remain relevant in a changing environment. This study explored the phenomenon of changing policy environment and the development of digital business strategy in the context of incumbent firms, in this case, consumer durable firms. We addressed the

following research questions: 1) How are the incumbent consumer durable platform firms disrupted by Digital India and Make in India policy? and 2) How do they respond strategically to these policies? The results showed that there were overall two broad categories of strategic response: 1) digitalisation of business processes, and 2) expansion/growth strategy leading to economies of scale ensuring a successful and strong presence in the market. As the new decade begins, it is obvious that these digital platform firms have a long way to go before utilizing technology and government campaigns to their fullest capacity to solve the most difficult problems, most importantly their persistence. Present study considered only two policies in a short span of time, we urge future researchers to assess the impact of multiple government policies implemented over a longer span of time. Secondly, future research can do a similar study on small and medium enterprises who face many more challenges in comparison to incumbent firms. The study findings are useful for managers to work on the parameters that help to accommodate the uncertainties and understand the means to cope better with any kind of shock in the future that could have an adverse impact on their persistence and growth.

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Readiness for change and Work-exploration Career Competency: The Mediating Role of Networking: A Study on Indian Manufacturing and I.T. Service enterprises

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Abstract

The present research investigates the impact of readiness for change in enhancing the work-exploration career competency through mediating role of networking competency. Authors performed systematic literature review to formulate hypothesis and proposed comprehensive framework of work-exploration career competencies interventions. Through the purposive sampling technique, data from 401 employees were collected through an online survey questionnaire from the manufacturing and I.T Service industries in India. Structural equation modelling and regression analysis indicated that readiness for change positively impacts networking and work-exploration career competencies. Furthermore, the association between readiness for change and work-exploration career competencies is partially mediated by networking competency. The results argue that enhancing the flexibility and readiness for change among employees would be an influential factor in developing the career competencies of employees. Furthermore, implications and future research avenues have also been discussed.

Keywords: Readiness for Change; Career competencies; Networking; Work-exploration; Flexibility

1.0 Introduction

Career development was largely thought to be accomplished by developing work and career competencies and obtaining experience in a given position. Arnold & Cohen (2008) indicated that there has been substantial growth in the prevalence of dynamic career paths, wherein employees advance their careers by moving horizontally across different organizations. This kind of career paths, in which individuals are taking personal responsibility for their own career development is gaining traction and relevance in the employment market (Vuori et al., 2012).

Furthermore, continuous disruption, pandemic, and uncertainty causing employees to lose their jobs, changing career patterns, flexible contracts, and changing demands and skills. Therefore, to secure and sustain a job in contemporary times, individuals constantly require career competencies that may assist them in managing their career (Heijde & Van Der Heijden, 2006).

Akkermans and colleagues (2013) defined career competencies as “knowledge, skills, abilities central to career development, which can be influenced and developed by the individual” (p.249). Authors suggested a framework comprised of three career competencies namely, reflective career competencies, communicative career competencies, and behavioural career competencies. Work exploration one of the behavioural career competencies helps an individual to explore and access the labour market for a job and career-related opportunities (Ball, 1997). Kanfer et al (2001) defined work exploration as the “outcome of a dynamic, recursive self-regulated process, often, the process of finding a job is long and arduous and requires effort and commitment from the job seekers”.

One of the antecedents that helps an individual to shape one’s career and develop a work exploration career competency is by being ready and proactively acting. Readiness for change refers to the mindset impacted by the change process, context, content, and individual involved in change; which represents the degree to which individuals are inclined to agree, accept and implement particular plans aimed at changing the existing situations (Holt et al., 2007). Additionally, Armenakis & Bedeian (1999)

emphasize on challenges pertaining to a macro-level ecosystem perspective in terms of change content, context, procedure, and criteria. Past scholars and researchers however, emphasize on micro-level factors of change because they believe that employees are sensitive to change failure or showed an inability to fulfil the stated change targets (Choi, 2011; Greenhalgh et al., 2004). The primary goal is to comprehend the individuals' behaviour as Porras and Robertson (1992; p.724) stated: "change in the individual organizational member's behaviour is at the core of organizational change".

Furthermore, proactive behaviour such as networking has been found to play a pivotal in obtaining valuable information and resources which would an individual securing job in the labour market. Blau (1993) asserted that individuals who have strong networking skills may have a wider scope and larger outreach within their social networks, and thus be better exposed to work and career-related opportunities. The present study asserted that employees have the prime responsibility for developing and managing their career (King, 2003). Based on Career Construction Theory (Savickas, 2002) authors investigate the influence of readiness for change in building behavioural competencies. According to career construction theory, career development is seen as an action-intervention process in which individual take proactive actions to develop a career and shape their lives. Career construction theory emphasis that individual actively employ career competencies to fulfil the demands imposed by dynamic work ecosystem and to manage contextual constraints and take advantage of available opportunities.

Based on the above arguments, the present research is sincere effort to investigate the association between readiness for change, and work-exploration career competencies, which has not been empirically tested before. Based on career construction theory, we further explored the above relationship by evaluating the possible mediating impact of networking competency. There is a need to disentangle their relationship empirically.

2.0 Theoretical framework and hypothesis development

2.1. Career Construction Theory

According to notion of career construction theory (Savickas, 2002), individuals' career growth is driven by individual readiness for change, flexibility, and adaptability. Furthermore, individual capacity to adapt to the dynamic workplace ecosystem resulted in enhanced adaptability and they are able to devise plan for the future and pursue their career aims (Savickas & Porfeli, 2012). Employees' readiness for change is considered as a vital skill for navigating the obstacles given by the contemporary times of Twenty-first century workplace context (Fugate & Kinicki, 2008). The characteristic of adaptability is also significant in the "protean career" environment (Hall, 2004), which emphasises identity resources and includes the trait of readiness for change with self-awareness. Authors views association between individual readiness for change and career competencies such as networking and work-exploration, with adaptability reflected as an important behaviour essential for an individual's readiness for change at work (Business Council of Australia, 2016) and for their personal and professional development (Hirschi & Valero, 2015).

2.2. Literature search and retrieval process

Scopus database has been used in October 2022 to retrieve the meta-data for the current study. "Scopus is one of the most comprehensive databases that houses the bibliometric metadata of research publications" (Emich et al., 2020). We used a string of relevant search terms ("Readiness for Change") OR ("Change Readiness") OR ("Work-Readiness") AND ("Work Exploration") OR ("Job Search") OR ("Find a Job") in the abstract, title and keywords sections. Following that, subject areas such as biochemistry, chemical, mathematics, agriculture, energy, and earth, were eliminated and the pertinent subject field such as business, management, and accounting were chosen, and this search yielded 325 documents. Additionally, we excluded notes, erratum, conference papers, and conference reviews and

left with 245 research documents. Following that, we only included research documents which were finally published in English language only, and we ended up with a dataset of 204 research documents. Figure 1 depicts the data retrieval procedure in a phase manner (Bamel et al., 2020).

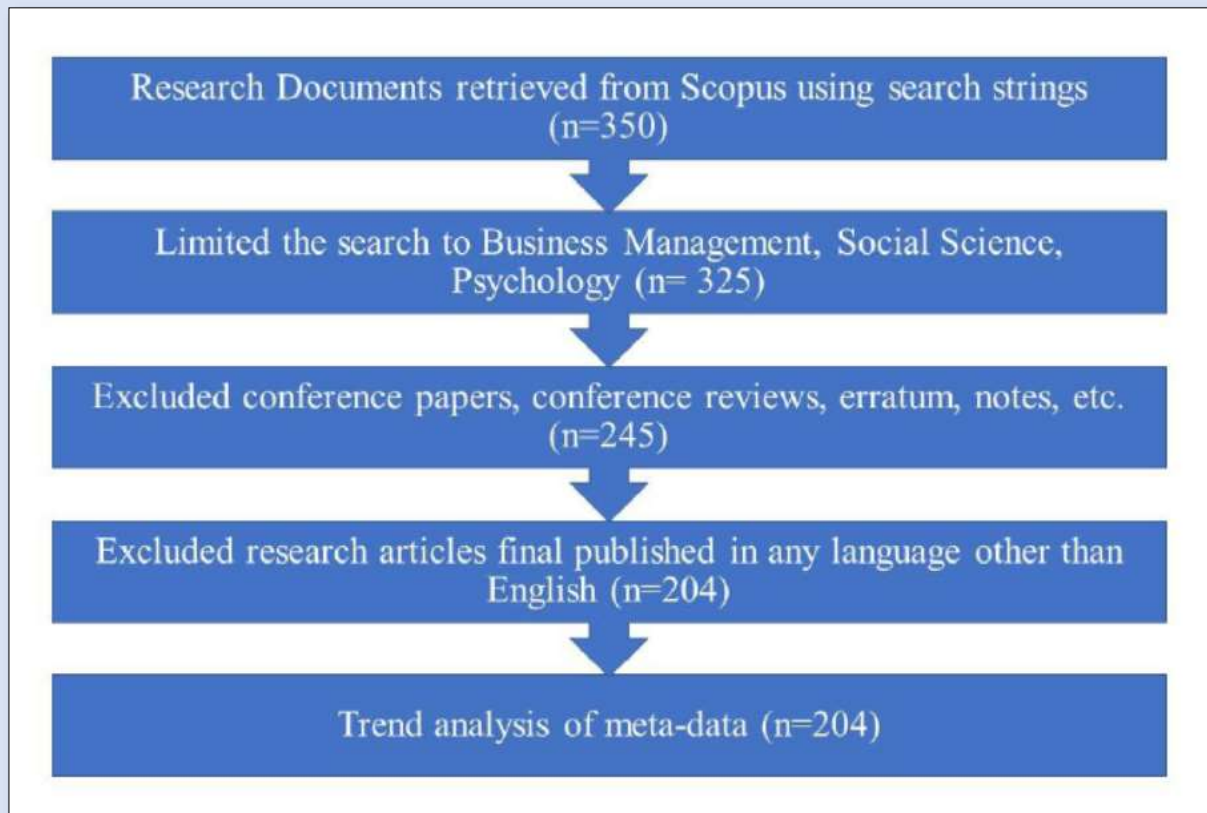


Figure 1: Literature Retrieval Process

Thereafter, we used a string of relevant search terms (“Networking”) OR (“Network”) OR (“Building Relationship”) AND (“Work Exploration”) OR (“Job Search”) OR (“Find a Job”) in the abstract, title and keywords sections. Following that, subject areas such as biochemistry, chemical, mathematics, agriculture, energy, and earth, were eliminated and the pertinent subject field such as business, management, and accounting were chosen, and this search yielded 435 documents. Additionally, we excluded notes, erratum, conference papers, and conference reviews and left with 410 research documents. Following that, we only included research documents which were finally published in English language only, and we ended up with a dataset of 400 research documents. Figure 2 depicts the data retrieval procedure in a phase manner (Bamel et al., 2020).

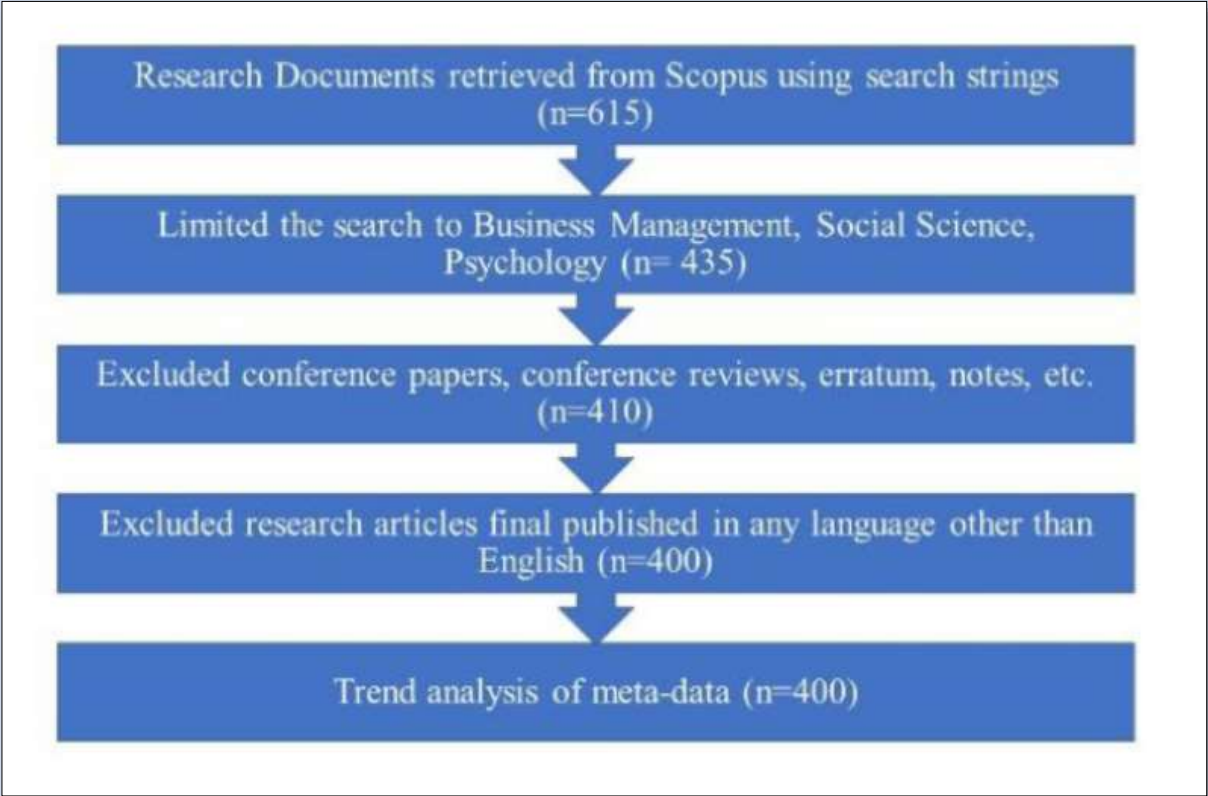


Figure 2: Literature Retrieval Process

2.3. Readiness for Change and Work-Exploration

2.3.1. Trend Analysis

For analytical purposes, the extracted articles were presented year-wise distribution; total 204 articles from 1982-2022 were extracted from different sources on Readiness for Change and Work-exploration to review the trend. Figure: 3 showed Year wise distribution of number of articles published from 1982 to 2022.

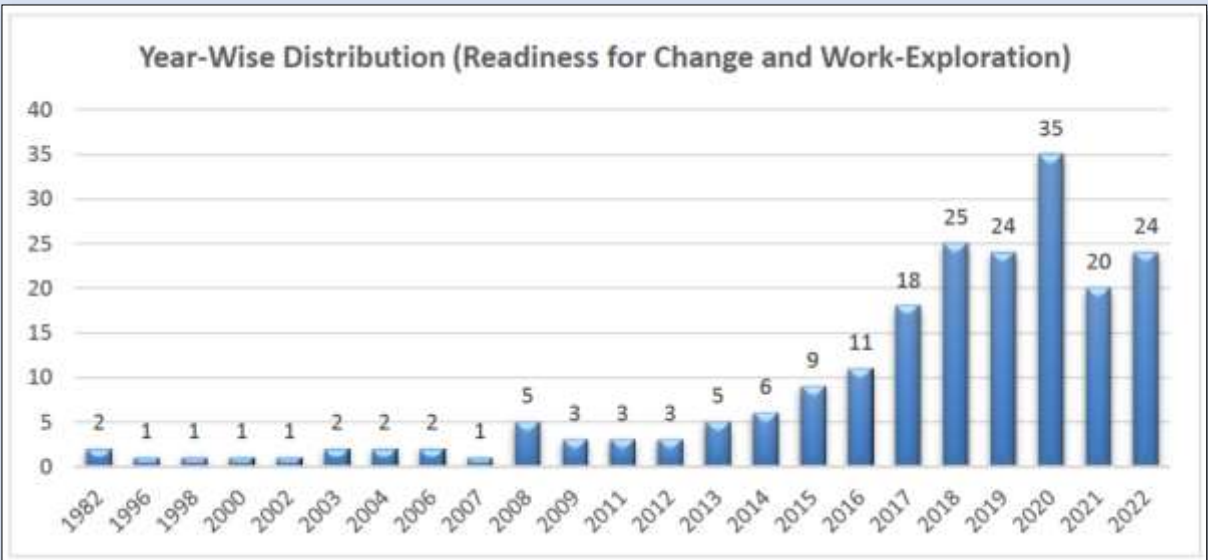


Figure 3: Year-wise distribution of Published Research Article (Readiness for change and Work-Exploration)

People who are ready for change at work are thought to have a better chance of doing well on the job, getting a promotion, and moving up in their careers (Casner-Lotto & Barrington, 2006). Researchers have found that people who are ready for change and have the right skills are better prepared for a smooth transition to work after graduation and long-term career success (Finn, 2017; Jackson, 2016). Explicitly, individuals who see themselves as ready and highly flexible are more equipped to adapt and adjust to changes happened in employment market and engage actively in job search (Heijde & Van Der Heijden, 2006). Employees who are ready for change are more likely to be assertive and confident in their talent, skills and abilities to do well in their new work position. They are also likely to be optimistic about their chances of getting a new job, find employment opportunities, find ways to reach their reemployment goals, and bounce back from setbacks. Because they are flexible and open to change, they are seen as highly employable and are more likely to look for work again after a setback in their careers.

A desirable mental state, such as being ready for change, will have a significant influence on the way individuals see their employability and their capacity to look for job prospects. We anticipate that a positive state of mind, such as being ready for change will positively influence individuals' behavioural career competencies such as work exploration. Therefore, we hypothesize that;

H1: Readiness for change will be positively related to work exploration.

2.4. Networking and Work-Exploration

2.4.1. Trend Analysis

For analytical purposes, the extracted articles were presented year-wise distribution; total 400 articles from 1989-2022 were extracted from different sources on Networking and Work-exploration to review the trend. Figure: 4 showed Year wise distribution of number of articles published from 1982 to 2022.

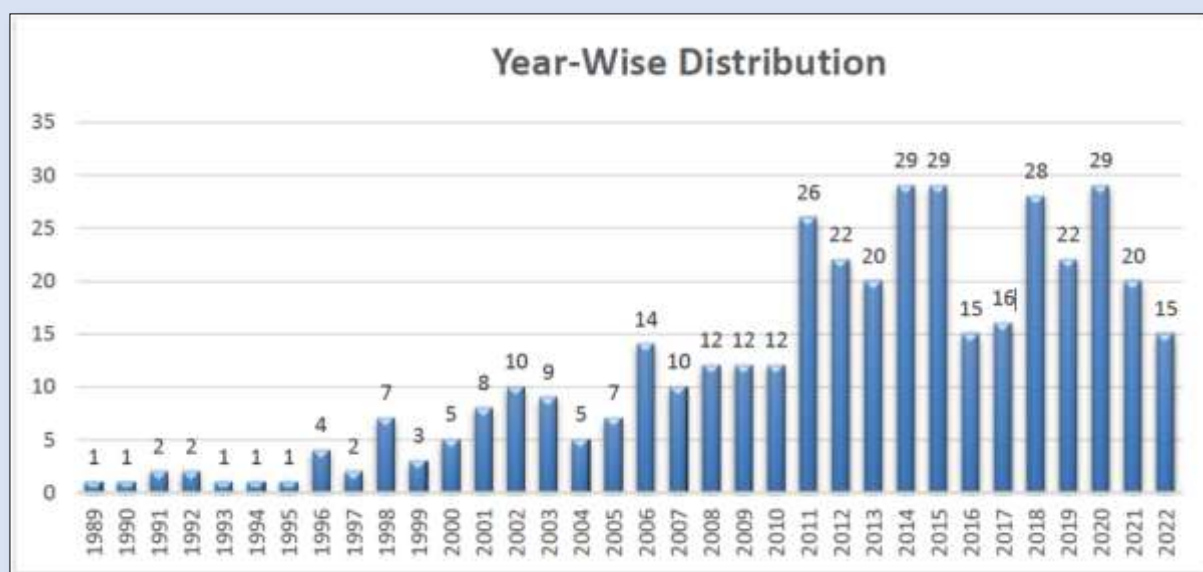


Figure 4: Year-wise distribution of Published Research Article (Networking and Work- Exploration)

Proactively and intentional use of personal networks by an individual to obtain a job is known as networking in the perspective of social network theory. Networking behaviour is commonly outlined as “individuals' attempt to develop and maintain relationships with others who have the potential to assist them in their work or career” (Forret & Dougherty, 2001, p.284). In the view of work exploration perspective, networking is termed as “individual actions directed towards contacting friends, acquaintances, and other people to whom the job seeker has been referred for the main purpose of

getting information, leads, or advice on getting a job” (Wanberg et al., 2000, p.492). Furthermore, Beatty (1992) noted that the “networking process is bit like cell division. In cell division, each parent cell divides into two cells. These cells then also divide into two more (a total of four cells). Each of the resultant four cells then divides into two (total eight cells), and so on, as this process continues to explode at a rapid rate. It is also like the familiar chain letter, where each person copies the letter and gives it to five friends, who copy it and give it to five more friends, etc. The outcome is a geometric progression where the number of contacts increases at an ever-increasing rate” (p.168).

When it comes to performing a job search, a social network theory stance argues that social networks develop norms for group behaviour, including increased job-search activities (Auslander & Litwin, 1991). By building new contacts and relationships, social networks may give information, knowledge, and opportunities related to re-employment. According to findings of (Domínguez & Watkins, 2003), an individual's network is essential surviving protean and boundaryless career environment. In particular, job seeker with a higher degree of social capital may possess valuable social resources that may be used to attain goals, such as exploring and finding jobs in the labour market (Burt, 2000). As a consequence, those individuals who have strong networking competency may have a wider scope and larger outreach within their social networks (Bhattarai, 2022), and thus better exposed to job and work-related opportunities (Blau, 1993). Researchers and practitioners have found in their studies, that informal approaches of searching job and work exploration, for instance networking may enact a crucial role in securing employment even amongst college graduates (Allen & Keaveny, 1980; Swaroff et al., 1985) and in job markets where opportunities aren't generally publicized in the media (Meyer & Shadle, 1994). In addition to that (Granovetter, 1995; Van Latham & Leddy, 1987), studies reported that individuals hired via employee recommendations and networking are likely to have a more pleasant attitude towards job and work, remain longer with the company (Taylor, 1994), and regularly perform better (Breugh & Mann, 1984) than those hired through other means. Based on the above past research findings, the following hypothesis was proposed;

H2: Networking competency will be positively related to work exploration.

2.5 Readiness for Change, Networking and Work-Exploration

Employee readiness for change is explained as the degree to which an individual is cognitively, psychologically, or physically prepared to engage in personal development activities (Hanpachern et al., 1998) or as the degree to which an individual believes in the benefits from a planned change endeavour (Jones et al., 2005). It entails an assessment of one's own capacity for change, the need of the change, and the advantages accruing from its effective implementation (Stevens, 2013).

Change self-efficacy, or workers' confidence in their ability to implement the proposed change, and personal valence, or employees' confidence that the change would benefit them personally, are two independent individual aspects. According to past pertinent studies, employee readiness for change may have a positive impact on social relationships (Hanpachern et al., 1998), better communication, and information diffusion (Wanberg et al., 2000), actively involved and participate change initiatives (Jundt et al., 2015), and innovation (Rogers, 2003).

From the perspective of the matching theory, an individual's readiness for change depends on whether or not the skills they have match the skills needed by the labour market. If a person's skills don't match what employers are looking for, they may experience what Mason et al. (2009) call "labour market failure." This is when a person can't use their knowledge in the workplace well enough to be considered ready for the job. Past studies have asserted that individuals who are having readiness ability are more likely to have requisite competencies and are better prepared for a seamless transition into work-exploration and long-term career success

(Clark, H & LeFebvre, 2013; Jackson, 2016). Furthermore, several studies indicated the readiness ability as a required ability to enhance the employability (Casner-Lotto & Barrington, 2006; Lowden et al., 2011). Therefore, we hypothesize that;

H3: Readiness for change will be positively related to networking.

Networking behaviour may help individual developing their workplace competences and skills and offer them with resources including knowledge, guidance, and instrumental and psychological support (Stanton-Salazar, 2011). Furthermore, building relationships through networking is found to be positively associated with job outcomes, such as a higher chance of full-time employment (McDonald et al., 2007) and securing a first job (Kramarz & Skans, 2014). Past influential studies have recognized networking as an important antecedent of work-exploration (Blau, 1994; Wanberg et al., 2000). (Van Hoyer et al., 2009) asserted that networking is one of the important factors and positively related to finding job in the labour market.

Despite the importance of readiness for change and networking competency with regard to work-exploration career competency and future employment concerns, less discussion is available in the published literature, especially in the context of Indian Manufacturing and I.T service industry. The main objective of the present research is to examine the mediating role of networking between readiness for change, and work-exploration among full-time working employees in India. The present study contributes significantly to the existing literature on the career competencies and fills the research gap. Therefore, we hypothesize that;

H4: Networking will mediate the relationship between readiness for change and work exploration.

2.6 Proposed Hypothesized Model

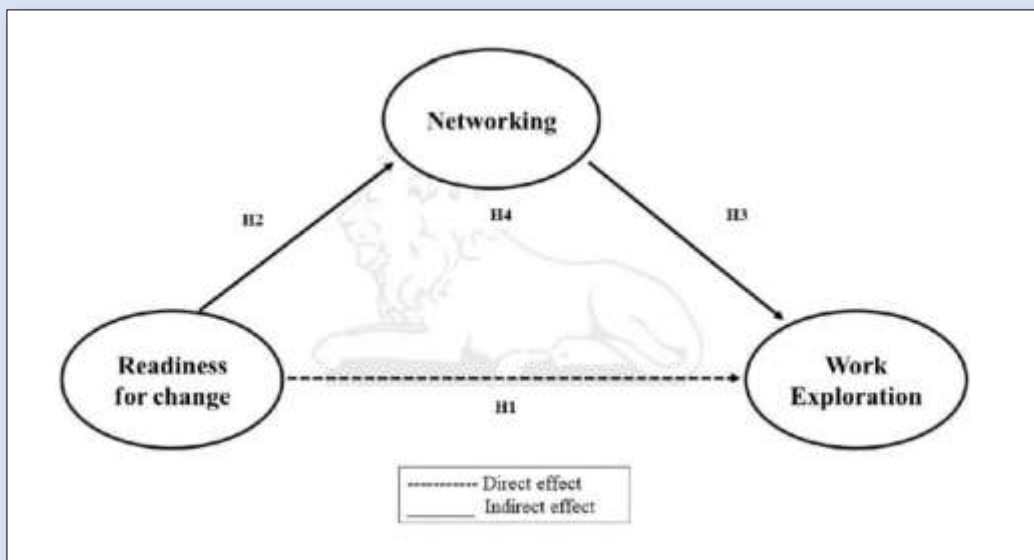


Figure 6: Proposed Hypothesized Model

2.7 Proposed Comprehensive Framework of Systematic Literature Review.

We construct a comprehensive framework to summarize our detailed systematic literature review as recently suggested by (Mukherjee & Dhar, 2022). This proposed framework is comprised of four stages (See Figure 5). In the first stage, authors identified research design largely used in the literature of work-exploration career competencies. Followed by interventions used by the research studies so far. Furthermore, in the second stage author also identified antecedents to work exploration career competencies. Subsequently, the authors identified the outcomes of building work-exploration career

competencies presented in the third stage of the comprehensive framework. At last, in the fourth stage of the framework, authors identified mediators and moderators’ researchers and scholars identified in the process of developing career competencies.

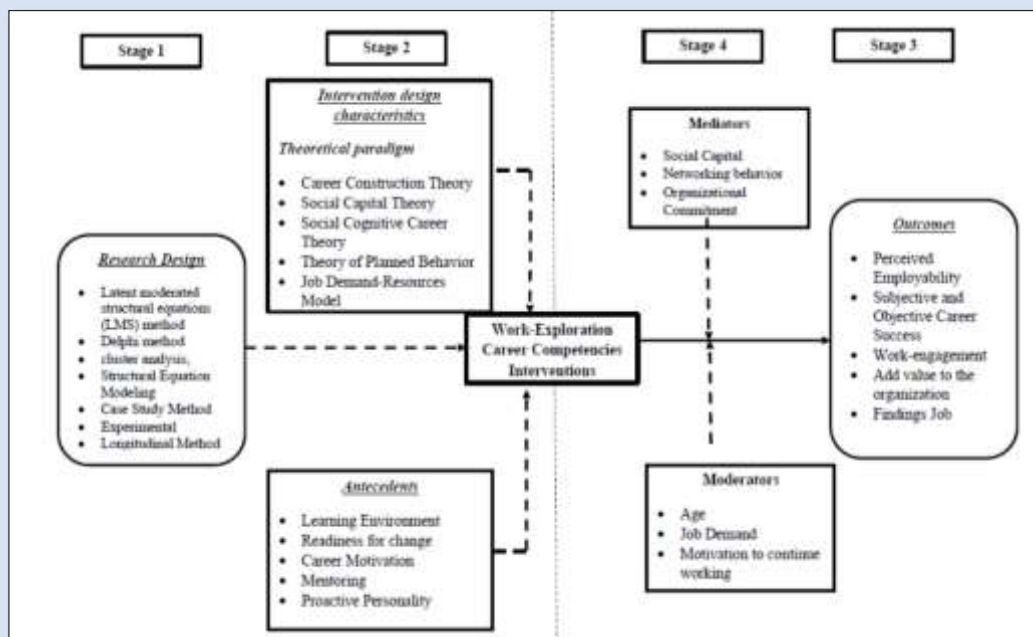


Figure 5: Proposed Comprehensive Framework of Systematic Literature Review

Table 1: Literature Review

Author(s)	Variables Under Study	Objective(s) of the Study	Collection of Data and Analysis	Sample size and Population	Findings of the Study	Journal
(Mowbray & Hall, 2020)	Network Contact, Job Search Networking	The aim of this research article is to explore the impact of networking amongst 16–24 years old active job seekers.	Interviews, Focus Group, Survey Questionnaire, Sequential and Mixed Method approach	Interviews (n=7) Focus: Group Interview (N=6) And Survey Questionnaire (N=558)	The results demonstrate that networking relationships provide young people with a variety of information throughout the job search process, and that networking often is linked to successful outcomes. This is particularly true when communicating with family members, friends, and coworkers.	<i>Journal of Documentation</i>
(Caliendo et al., 2011)	Social Network, Job Search Method and Reservation wages	The study aims to investigate the impact of social networks on finding job or job search decision.	logistic and least squares regression analyses, and Sensitivity analysis	a sample of 7,953 unemployed individual registered between June 2007 to May 2008	This study finds that people with bigger networks switch from formal to informal search more often and utilize informal search channels more frequently. Additionally, there is evidence that the size of the network and reservation wages are positively correlated.	<i>International Journal of Manpower</i>
(Baumann & Uitz, 2021)	Networking, Career orientation, Friendship orientation, Impression management, knowing about the benefits, Feeling of sociability, Networking comfort.	This research investigates if individuals' levels of offline and online networking vary and whether various influencing variables predict different levels of networking.	One-Way ANOVA, Cluster analysis, Hierarchical Regression	A sample of 326 individuals who are working in organization and self-employed.	The findings suggest that professional social networking sites may aid individuals in their networking efforts by lowering the uncomfortable feelings connected to networking and so enhancing the social compensation effect.	<i>Cyber psychology: Journal of Psychosocial Research on Cyberspace</i>

		methods: including online social networking sites like LinkedIn.			ties, on the other hand, are typically ineffective in producing positive results and marginally negative in some circumstances.	
(Van der Heijden et al., 2020)	Networking, Employability, Task Performance	This study aims to examine how employability affects the impact of networking within the organization and task performance.	CFA, Regression, Multi-Group Mediation Testing.	A sample of 374 employees working in different organizations.	According to this research, the association between networking within the organization and task performance is fully mediated by employability. The mediation effect did not, however, differ between younger and older workers.	<i>Frontiers in Psychology</i>
(Boat et al., 2021)	Developmental relationships, Learning opportunities, Goal Support, Work-Readiness.	The aim of this research is to comprehend how social capital development influenced the work readiness of individuals.	CFA, Structural Equation Modeling	A sample of 274 youth participated in the study.	Results indicated that the correlation between adolescents' developmental relationships and advancement in job readiness was mediated by learning opportunities.	<i>Children and Youth Services Review</i>
(Juhdi, Nurita, Juhdi, 2020)	Change Readiness, Work Performance, Development Program	The aim of this research was to examine how change readiness mediated the association between management development initiatives and job performance.	Survey Questionnaire, Correlation, and Hierarchical Regression analysis.	A sample 399 employees participated in the study.	The findings demonstrated that change readiness was the only important predictor of job performance and that it somewhat mediated the relationship between management development initiatives and work effectiveness. The results give clarification in the domain of talent management, particularly with regard to succession planning, and corroborate the adult learning theory.	<i>International Journal of Human Potential Management</i>
(Çalışkan & Ozkoç, 2020)	Characteristics of Change, Job Insecurity, and Employability	This research aims to investigate how traits of change and work insecurity are related, as well as the moderating influence of employability in these interactions.	Survey Questionnaire, Structural Equation Modeling	A sample of 361 permanent employees.	The findings of this study indicate that the perception of employability moderates the association between the characteristics of organizational change and job security.	<i>International Journal of Contemporary Hospitality Management</i>
(Adegbite & Adeosun, 2021)	Employee Readiness, Employability, & Skills Set.	Using the 10 essential skill sets for employability in the Fourth Industrial Revolution recommended by the World Economic Forum, the article seeks	Survey Questionnaire, T-test	A sample of 200 employees working in different organizations.	The study indicates that, with the exception of service orientation and people management abilities, the workers in the sampled organization had little fourth industrial revolution skill sets.	<i>Global Journal of Social Sciences Studies</i>
		to determine if individuals are prepared for their next position.				
(Faadilah, 2019)	Learning Goal Orientation, Adaptability, and Self-perceived employability	This research examines how learning goal orientation and self-perceived employability interact with career adaptability as a mediator.	Survey Questionnaire, correlation, and Regression results	A sample of 69 college students.	Findings of this study show that career adaptability plays a full mediating role in the effect of learning goal orientation on self-perceived employability.	<i>Russian Journal of Agricultural and Socio-Economic Sciences</i>
(Baluku et al., 2021)	Readiness, Psychological Capital, Career Engagement, Perceived Employability	This research investigates the impact of psychological resources, namely psychological capital, and the processes by which it affects individuals' readiness while transition and significantly predicts their career success.	Survey Questionnaire, Regression (Hayes Process; Model 6)	A sample of 516 final year students.	The findings show that psychological capital has a significant positive direct influence on perceived employability, readiness while transition to work, and career satisfaction.	<i>International Journal of Applied Positive Psychology</i>

3.0 Methods

3.1. Sample.

Authors employed purposive sampling technique to collect data through an online survey questionnaire from full-time working employees in manufacturing, and I.T. service enterprises. The questionnaire survey form link was sent to 650 employees through email. A total of 401 participants responded to the questionnaire, which represents a response rate of 61.69 percent. Among total respondents, 262 were males and 139 were female participants. Out of 401, 302 participants were working full-time in private organizations and rest 99 respondents were working in public organizations. Among total participants 24.68 percent were at higher level position, 51.87 percent were at middle-level position and rest 23.45 percent were at junior level position. According to the criteria stated by (Hair et al., 2010), the final sample size 401 considered into analysis is adequate for the research, as the sample should be at 5-to-10 times the number of observations into the investigation., which has been take into consideration in the present study.

3.2. Measures used

3.2.1. Readiness for change

Readiness for change, a construct of 4-item instrument was used to measure the individual readiness for change. It was originally developed and validated by Robitschek et al. (2012). A sample item for readiness for change is "I know when it's time to change specific things about myself". Responses were collected on seven-point Likert Scale ("strongly disagree" =1, "strongly agree" =7) and high scores

signify higher individual readiness for change. The internal reliability of this construct was 0.88 for this study.

3.2.2. *Networking*

Networking variable was evaluated with a scale comprising four items developed by Akkermans et al. (2013). A sample item for networking competency is “I know a lot of people outside my work who can help me with my career,” “I am able to approach the right persons to help me with my career” and “I know how to ask for advice from people in my network”. The Likert scale with seven-point response scale was taken under this study (“strongly disagree” =1, “strongly agree” =7) and high scores indicate that higher networking competency. The internal consistency (alpha coefficients) was 0.90 for Indian samples, respectively.

3.2.3. *Work-exploration*

Work Exploration, a sub-scale (a three-item instrument) validated by Akkermans et al. (2013), was used to evaluate work exploration “knowing how competency”. A sample item for work exploration is “I know how to search for development in my area of work” and “I am able to explore my possibilities on the labour market”. The Likert scale with a seven-point response scale was taken under this study (“strongly disagree” =1, “strongly agree” =7), and high scores indicate higher work exploration. The internal consistency (alpha coefficients) for reflective learning was 0.83 for current research.

3.2.4. *Control variables*

Gender, education, age, organization status, and work experience were added as control variables to assess the relationships between readiness for change, networking and work-exploration career competencies. As prior studies have indicated that such age and work experience are negatively associated with readiness for change (Wiersema & Bantel, 1992) and with networking behaviour (Forret & Dougherty, 2004).

3.3. **Common Method Bias (CMB)**

To test common method bias, firstly we loaded all the factor into one factor and followed by Harman’s single factor test. (Podsakoff et al., 2003). The goodness of fit measures of single factor showed a poor fit ($\chi^2 /df = 16.17$, CFI = 0.69; RMSEA = 0.19; SRMR = 0.11; TLI = 0.59). Afterwards, we applied unrotated factor analysis, Harman’s single factor testing and used extracted method Principal axis factoring in SPSS version 27.0. The maximum variance explained by one factor was 38.69%, which is lower than the suggested criterion of 50% (Podsakoff et al., 2003). Therefore, we could infer that there was not an issue of common method bias in our study.

3.4. **Analysis and Results**

3.4.1. *Analytical Strategy*

Initially, in the statistical analysis, confirmatory factor analysis was performed to test the model fit, using R studio software. There are various fit indices such as chi-square, RMSEA, GFI, CFI, TLI, and IFI to assess how well a model fit. Following that, the hypothesized model was tested by using structural equation modelling (SEM). The standardized path coefficients and fit statistics were calculated and reported. In order to test the mediation effect, we used Hayes Process (Model 4), using SPSS version 24.0. Furthermore, bootstrapping (with 5000 iterations) procedure was also followed, as it is often regarded as the most robust indirect effect testing technique (Williams & MacKinnon, 2008).

4. **Results**

4.1. Descriptive statistics

Table 2, demonstrated the descriptive statistics, such as inter-item correlation, mean, standard deviation, Heterotrait-Monotrait Ratio (HTMT) and average variance extracted. Inter-item correlation

revealed that there is a significant correlation between readiness for change and work exploration ($r = 0.561$; $p < 0.01$), readiness for change and networking ($r = 0.400$; $p < 0.01$), and networking and work exploration ($r = 0.646$; $p < 0.01$). All three study variables' mean and standard deviation are ranged between 5.54 to 5.75 and 0.90 to 1.10, respectively. Table 2 also exhibited values of average variance extracted bold diagonally ranged from 0.64 to 0.69. These values are above the criterion values 0.50 (Fornell & Larcker, 1981) to prove the convergent validity. Furthermore, these values are also higher than a square of inter-item correlations of the studied variables (Hair et al., 2010). Also, we tested HTMT test to prove the discriminant validity, Table 2 showed the all three HTMT values presented above the bold diagonal values are above 0.90 suggested by (Henseler et al., 2015), consequently, prove the discriminant validity for the study.

Table 2 Descriptive Statistics

S.no.	Factors	Mean	S.D.	Correlations									
				1	2	3	4	5	6	7	8	9	
1	Age	0.24	0.466	---									
2	Education	1.75	0.701	.088	---								
3	Job position	1.02	0.694	.202**	0.27	---							
4	Experience	0.31	0.538	.787**	-.015	-.169**	---						
5	Organization status	0.25	0.432	.140**	-.064	.223*	.234**	---					
6	Income	1.60	1.416	.407**	.009	-.159**	.472**	.277**	---				
7	Readiness for change	5.75	.90	.032	-0.16	-0.99*	.099*	-.053	.037	0.643	0.404	0.587	
8	Networking	5.54	1.10	-.014	-.122*	-.205**	.074	-.004	.055	.400**	0.680	0.660	
9	Work-exploration	5.71	.95	0.004	.035	-.150**	.017	-.061	.003	.561**	.646**	0.669	

Note: M=Mean; S=Standard Deviation. N=401. The average variance extracted of each construct (No. 7, 8, 9) is represent in bold. Values above the bold values are HTMT values; Values below the diagonal represent inter-construct correlations.
* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

4.2. Measurement Model

Table 3 and Figure 7 represented the measurement model built on three constructs i.e., readiness for change, networking and work exploration. Table 2 presented the standardized factor loading of each item, t-value, composite reliability, and alpha coefficients. The alpha values for all three variables are ranged between 0.81 to 0.86. The cut-off measures for the Cronbach alpha is 0.70 (Hussain et al., 2019). The factor loadings for all the 11 items are ranged between 0.61 to 0.90. Similarly, the CR (composite reliability) ranged between 0.86 to 0.92 and it is above the value of 0.60 (Bagozzi & Yi, 1988).

Table 3 and Figure 7 are shown in the next page.

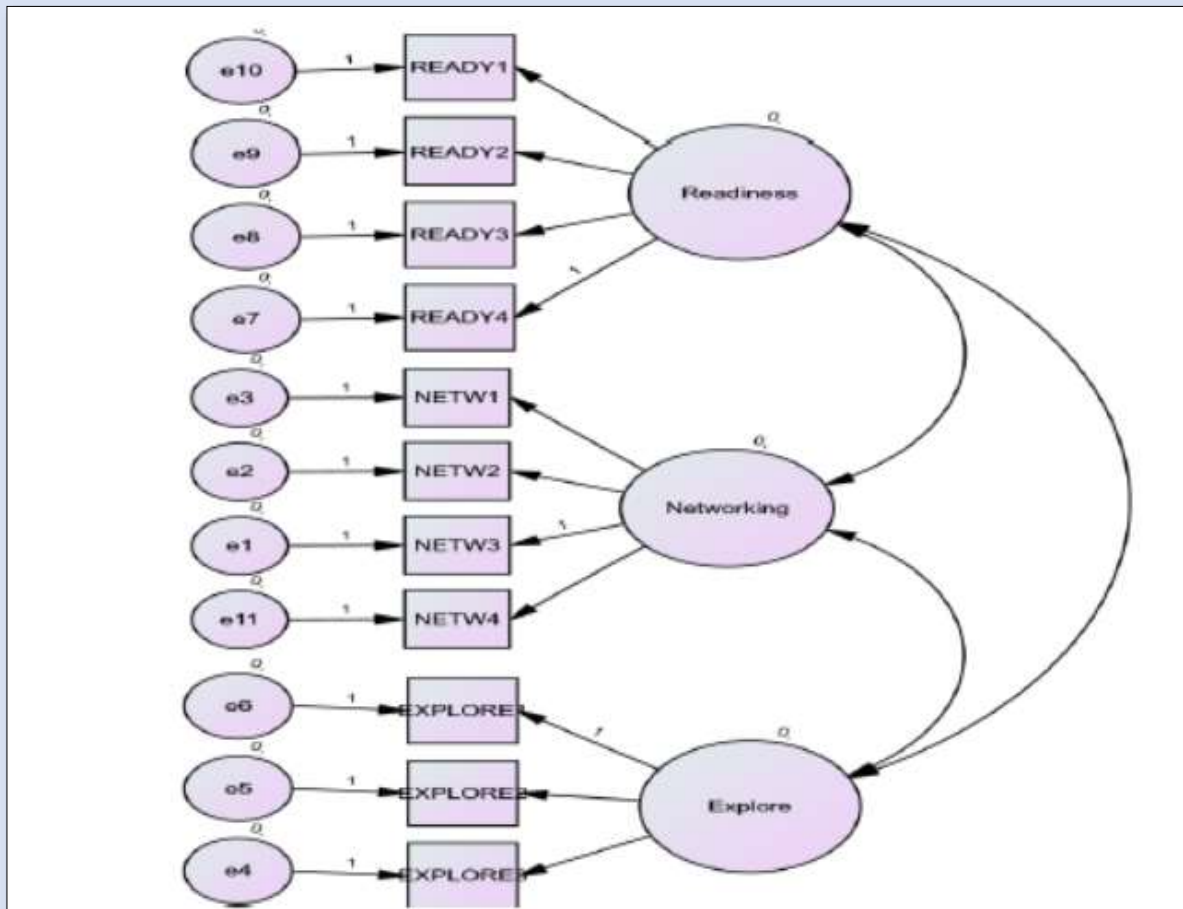


Figure 7: Measurement Model

Table 3: Measurement model results

Variables	Number of items	Alpha coefficient	Code of items	Factor Loadings	Standard Error	t-value	Composite Reliability
Readiness for change	4	0.85	READY1	0.61			0.88
			READY2	0.90	0.076	18.580 (***)	
			READY3	0.90	0.076	19.509	
			READY4	0.83	0.068	20.092	
Networking	4	0.86	NETW1	0.82			0.90
			NETW2	0.84	0.029	34.735 (***)	
			NETW3	0.78	0.033	29.109 (***)	
			NETW4	0.85	0.036	28.801 (***)	
Work Exploration	3	0.81	EXPLO1	0.83			0.86
			EXPLO2	0.88	0.042	25.635 (***)	
			EXPLO3	0.73	0.0396	22.831 (***)	

Note: Significance: *** $p < 0.001$ (2-tailed).

4.3. Confirmatory Factor analysis

A model fit was measured and analysed using confirmatory factor analysis using SPSS AMOS version 27. Before performing mediation analysis, CFA (Confirmatory factor analysis) is commonly employed to assess the model fit. The proposed framework comprising three latent factors readiness for change, networking, and work exploration fulfilled the criteria of fit model (χ^2 [39] =91.97, $\chi^2/df=2.35$, p-value<0.01, CFI=0.974, GFI=0.972, RMSEA=0.05, SRMR=0.03, TLI=0.964) (table 4) recommended by (Hooper et al., 2008). Following to that, the baseline measurement model was compared with the alternative two models (two-factor and one-factor) in order to assess construct independence (discriminant validity). Firstly, the two-factor model, readiness for change and networking combined into one single factor, and lastly, in the one-factor framework, all variables are loaded into a single factor. As demonstrated by Table 5, model fit indices clearly show that the baseline measurement model of our study variables is a better fit compared to alternative models (two-factor and one-factor model).

Table 4: Baseline Model Fit indices

Model Fit Measures	Value	Cut-off criteria	Remarks
χ^2 /df	2.35	<3	Satisfied the criteria
SRMR	0.03	< 0.08	Satisfied the criteria
RMSEA	0.05	< 0.06	Satisfied the criteria
IFI	0.974	> 0.95	Satisfied the criteria
TLI	0.964	> 0.95	Satisfied the criteria
CFI	0.974	> 0.95	Satisfied the criteria

Note: SRMR: standardized Root mean square residual; RMSEA: Root mean square error of approximation; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index; IFI: Incremental Fit Measures.

Table 5: Confirmatory Factor Analysis Results

Models	CMIN	Degree of freedom	χ^2 /df	CFI	IFI	TLI	RMSEA	SRMR	GFI
Proposed/Baseline model	91.97	39	2.35	0.97	0.97	0.96	0.05	0.03	0.998
2-Factor model (READY+NETW)	570.13	41	13.90	0.74	0.74	0.65	0.17	0.09	0.848
1-factor model	679.20	42	16.17	0.69	0.69	0.59	0.19	0.11	0.810

Note: χ^2 : Chi-square; df: Degree of freedom; NETW: Networking; SELFP: Self-Profiling; Significance: **p<0.01 (2-tailed).

4.4 Structural model paths and meditation tests

We employed (Hayes, 2013) PROCESS macro model-4 to analyse the model assumptions. This method not only gives the parameter estimates for specific structural routes, even the ranges of the confidence interval to analyse the vitality of indirect effects (i.e., mediation). Bootstrapping with 5,000 random resample with 95% confidence intervals was performed for testing the mediation hypotheses. These confidence intervals were applied to test indirect effects for simple mediation hypotheses.

4.5 Hypothesis testing

Table 6 indicates, the path coefficients, standard error, value of z-statistics and 95% confidence interval. Table 6 clearly showed that readiness for change is positively related to work exploration ($\beta=0.264$; $t=6.044$; $p<0.01$), thus proving the hypothesis 1. Readiness for change is positively related to networking ($\beta = 0.521$; $t = 11.686$; $p<0.01$) supported the hypotheses 2. The association between networking and work exploration also showed significant results ($\beta=0.411$; $t=8.244$; $p<0.01$) hence proved hypotheses 3.

Table 6: Beta (β) coefficient for H1-H3

Hypothesis	Path	Beta (β)	Standard Error	t-value	95% C.I.	Significance
H1	Readiness for Change \rightarrow Work-Exploration	0.347	0.043	7.943	[0.261, 0.432]	<0.001**
H2	Readiness for Change \rightarrow Networking	0.416	0.057	7.190	[0.302, 0.529]	<0.001**
H3	Networking \rightarrow Work exploration	0.379	0.035	10.653	[0.309, 0.449]	<0.001**

Figure 2 represented the outcome of mediating association between variables for hypothesis 4. Networking mediates the relationship between readiness for change and work exploration (hypothesis 4). Path values (standardized coefficient) from readiness for change to networking ($\beta = 0.594$; $p < 0.01$), and from networking to work exploration ($\beta = 0.457$; $p < 0.01$) are significant. Furthermore, the path values from networking to work exploration ($\beta = 0.335$; $p < 0.01$) were also significant. These results supported the partial mediation results and proved hypothesis 4. In addition to that, we also measured the indirect impact to check the mediation hypothesis (Preacher & Hayes, 2008), checked the bootstrapping effect at a 95% confidence interval “with 5,000 samples, and computed the lower and upper limits and z values”. Table 6, showed the bootstrapping results, which demonstrate the significant indirect effects of self-profiling on networking-work exploration relationship [Hypothesis Fourth=0.271, (0.1394, 0.4256) at 95 % CI].

Table 7: Bootstrapping findings

					95% Confidence Interval	
Path	Indirect effect	Standard Error	Value of Z	Sign.	LLCI	ULCI
READY \rightarrow NETW \rightarrow EXPLORE	.150	.0274	7.930	<0.01**	.097	.207

Note: Ready: Readiness for Change; NETW: Networking; EXPLORE: Work Exploration; ULCI: Upper limit confidence interval; LLCI: Lower Limit Confidence Interval.

50 Discussion

The result we found supported all the hypotheses. The present study explored the mechanism that underpins the relationship between readiness for change and work exploration by analyzing the mediating role of networking. Data collected from full-time working professionals indicated that readiness for change was positively related to work exploration. Furthermore, networking was partially mediated the relationship between readiness for change and work exploration. In order to investigate the role of readiness for change and networking on work exploration, we first employed confirmatory factor analysis to assess the convergent validity of our studied variables measures. Also, to determine if the correlations in the suggested model are supported by the research's empirical data, we also examined certain pathway coefficients.

Drawing on the findings of the present study, we can infer that readiness for change influences networking ability positively and significantly in the manufacturing and I.T. service industries in India. This denotes that the higher the individual readiness for change; the higher the individual ability to build networks and connections within and outside the organization. Past influential studies have been found readiness for change as a dominant factor and positively associated with individual factors such as enhancing personal efficiency (McNabb & Sepic, 1995); effective communication (Wanberg &

Banas, 2000), Career Success (Zacher, 2014) and social relationship (Hanpachern et al., 1998). Moreover, readiness for change has also been positively associated with organizational outcomes such as organization performance and efficiency (K. Katsaros et al., 2014; Matthysen & Harris, 2018).

Furthermore, we also found that positive association between individual readiness for change and work exploration career competency. This demonstrates that the higher the individual readiness for change; the higher the individual ability to explore career and learning opportunities in the labor market. Past studies corroborate the findings of the present study and demonstrated that adaptability and readiness has been positively associated with job search self-efficacy (Guan et al., 2013), and firmly pursuing goals (Tolentino et al., 2013). Readiness for change encompasses the “mental strategies” to deal with the transition phase such as changing workplace, job, and uncertainty phase (Savickas, 2002). The findings of the present study suggest that enhancing the readiness ability of the employee would facilitate and stimulate various job search approaches. Results showed that readiness for change is a strong predictor of work exploration and makes employees mentally ready to employ different work exploration interventions. Employees having readiness ability would be more curious and confident to explore and find various job and career opportunities in the employment market.

The current study contributes to the body of knowledge on career competencies in general, and specifically to the literature on improving the behavioural career competencies of employees. Enhancing career competencies, as recommended by (AlKhomeiri et al., 2020; Fleisher et al., 2014) and in practise, has a major influence on employee productivity and performance. The current research demonstrates the influence of readiness for change, and networking behaviour, on individuals' work-exploration career competences, which drive individual career success. The findings of the current research extend the career construction theory by empirically examining the mediating role of networking competency in the relationship between readiness for change and work-exploration. The findings showed that readiness for change is significantly associated with work exploration through networking competency. Findings asserted that individuals who are proactively acting, adaptable and ready for the change are more likely to be actively involved in networking and building connection. We can infer that a positive state of mind such as readiness for change will have a salubrious impact on how individuals perceive their employability and impact their ability to explore opportunities in the labour market. Consequently, they are having access to valuable resources and information which would help individual to find better job and career opportunities in the labour market. Our findings supported the previous research findings (Forret, 2014; Van Hoyer et al., 2009), demonstrating that individuals' network competency may enhance the significant possibilities of getting better employment and career enhancement opportunities in the labour market. Networking has become indispensable social skills for recent university graduates and job aspirants to remain stable and survive in the market (Villar et al., 2000).

Additionally, the positive association between networking and work exploration suggests that a professional who are socially better connected have better chances for their career development and career enhancements. This shows that professionals who are better equipped with skills of presenting themselves are more exposed to work-related opportunities. The positive link between networking and work-exploration shows that employees proactively engaged in networking behaviour such as maintaining contacts, internal visibility and engaging in professional activities can help and build the career control of the employees. The current study findings are consistent with the findings of (Eby et al., 2003), they discovered that people who have a large network within an organisation are more likely to see themselves as well-positioned for progress within the firm and highly employable outside of it.

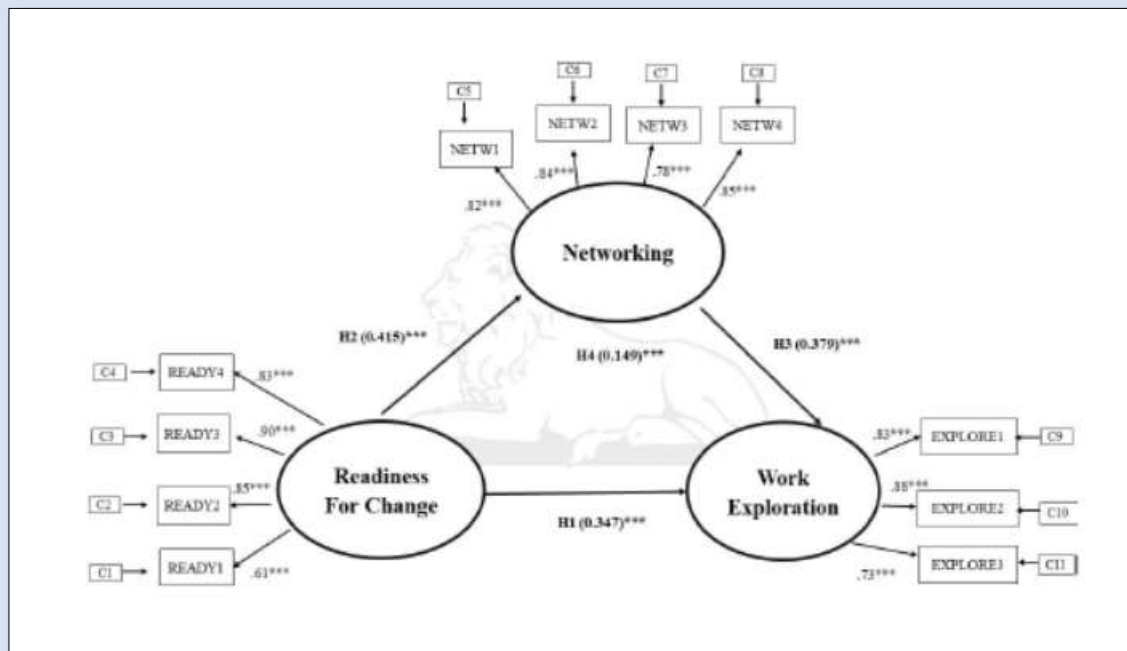


Figure 8: Structural Model Results

5.1. Practical Implications

The study provides practical implications for working professional, managers and career development practitioners. The findings asserted that individual readiness for change and proactive behaviour such as networking competency is vital skills in developing and unlocking human potential and knowledge in order to develop behavioural career competencies. Our findings revealed that people and working professionals would benefit from maintaining relationships and networks in order to improve their employment and labour market chances. Individuals should be more proactive and access the environment on a regular basis when it comes to work exploration career competencies. Individuals should also match their networking activities to their job objectives. In this vein, career self-management training (Raabe et al., 2007) should emphasize the value of networking and may incorporate networking training components (De Janasz & Forret, 2008).

Readiness for change necessitates both competencies and willingness to adapt and change. An organisation with people who are psychologically enthused about an upcoming changes and advancement but are ill-equipped to implement it is no more prepared than one with people who are indifferent but well-equipped. Thus, we suggest that managers and practitioners must emphasize providing training and interventions that enhance the both competencies and willingness of the employees.

6.0 Limitation and Future Directions

Though the current study has theoretical and practical significance relating to the role of readiness for change and networking competency in work exploration, it has some limitations. In the present study, the cross-sectional research design was used, resulting in difficulty explaining the causal relationship among studied variables. Also, the limitation of common method bias might also be present because of single source data. Though we have tested Harman's single factor testing (Podsakoff et al., 2003) and found no issue of common method bias, there might be a chance of common rater effect present in the study due to the factor as participants want to remain consistent while responding or they have systematic bias in their responses. In future studies, a longitudinal research design will be suggested to

examine the cause-and-effect relationship among variables and overcome the common method bias limitation. Secondly, the current study comprises a sample of full-time working professionals only. The sample population was from the manufacturing and IT service industry. It is hard to generalize the findings of the present study to populations from different cultures, industries, and backgrounds. Future studies can be replicated in other sectors and in a different culture to enhance generalizability.

7. Conclusion

The present study examines the impact of individual readiness for change on behavior career competency, i.e., work exploration of the employees. Drawing on career construction theory, the mediating role of networking between individual readiness for change and work exploration was explored and tested. This research enhances our understanding and knowledge of how readiness for change enhanced the proactiveness and actively involved in building networks and relationships with potential people who can assist them in their work and career would help an individual get information, leads, or a better job in the labour market. Furthermore, if an individual enhances the networking competencies, chances of make use of the career and work-related opportunities may increase significantly for an individual.

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Technology flexibility through the lens of innovation systems

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Abstract

Innovation systems exhibit numerous interrelations between the functional components of a business organisation. The influence of diverse aspects of business functions adds complexity to the structure of innovation systems. Even though innovation systems encompass multiple aspects of business operations, the role of technology is significant in an organisational setup since it directly impacts innovation performance. Through the lens of innovation systems, the study attempts to comprehend and conceptualise the nebulous concept of technology flexibility. In addition, the study explores the potential relationship between technology flexibility and innovation. The objectives of the study are fulfilled with the support of literature and a systemic review. With the review process, the study uncovered the dimensions of technology flexibility within the innovation systems. The multidimensional perspective on technology flexibility identified prominent research areas in this domain. Since there is a lack of frameworks and conceptual structures for comprehending technology flexibility, this review-based study can be taken further for empirical studies. Overall, this study demonstrates a contextual relationship between technology flexibility and innovation for enhanced business performance.

Keywords: Technology flexibility; Innovation systems; Innovation management; Strategic innovation; Systemic review

1. Introduction

Innovation is a process of generating new ideas and putting them into use in an organisation. The system of innovation involves different stakeholders within the organisation working together to create new products, services, or processes (Talke & Hultink, 2010). Innovation is vital for organisations to remain competitive in today's business environment (Schulze et al., 2015). With the rapid pace of change, organisations must constantly evolve to meet customer needs and stay ahead of their competitors. Innovation can be roughly categorised as either incremental or radical. In an organisation emphasising innovation, incremental innovation is viewed as minor enhancements to existing products, services, or processes (Menguc et al., 2014). In contrast, the process that leads to the development of entirely new products, services, or processes, which suggests the disruptive character of innovation, is generally referred to as radical (McDermott & O'Connor, 2002).

As competition dynamics evolve, organisations must foster innovation at all levels to be successful (Gupta et al., 2007). In an organisation setup, the workforce should be encouraged to generate new ideas and provided with the required resources to implement those ideas (Arena et al., 2017). One of the primary prerequisites of innovation is the risk-taking ability (Dinesh & Sushil, 2022). Thus, innovation requires taking risks, and it is a fact that not all ideas will be successful. Considering an ideal innovation ecosystem, innovation-focused organisations foster an environment where employees are comfortable taking risks and where failure is viewed as an opportunity to learn and develop (Tan, 2001). The role of innovation in an organisation is to create value. It helps organisations to remain competitive, grow and improve, and meet their customers' ever-changing needs (Shepherd & Ahmed, 2000).

Innovation systems in a technology-focused organisation are concerned with the processes and resources needed to produce new ideas and transform them into innovative products or services

(Cooper, 2013). It consists of the people, the knowledge, and the infrastructure that foster and sustain innovation. The technological ecosystem is a crucial component of the innovation system (Thomson et al., 2022). A technological foundation provides tools and processes that allow innovation and creates new products (Cooper, 2000). While the technological basis is in place to achieve and adopt innovations, it is challenging to implement strategic innovations since external variables make the technology environment dynamic and unstable (Kodama, 2017). In recent years, technological breakthroughs have reached generational proportions. These technological advancements continuously alter the industrial and corporate dynamics landscape (Coad et al., 2019). It has recently been recognised that firms must adhere to the most recent trends and innovations to maintain a competitive edge. Therefore, organisations must be able to rapidly adapt their strategic innovation system to market developments to succeed (Means & Faulkner, 2000). This involves rapidly altering the system in response to new possibilities or threats. This capability is highly dependent on the adaptability of the employed technology (Dolata, 2009).

The topic of technology flexibility has been studied in a variety of circumstances, but for diverse reasons (Han et al., 2017, Nelson & Ghods, 1998, Sethi et al., 2007). In other instances, the focus has been on determining the conditions under which businesses or sectors can successfully embrace new technologies (Oberoi et al., 2007). In other instances, the focus has been on determining how businesses and industries can maintain competitiveness in the face of technological change (Sharma & Jain, 2010). Additionally, in other instances, the emphasis has been on comprehending how new technologies are adopted and how diffusion occurs inside enterprises or between industries (Sethi et al., 2007).

This study will take a holistic view of innovation systems in order to comprehend how technology flexibility may be used to enhance innovation performance and organisational agility. This study aims to comprehend how various elements of technology flexibility are incorporated into innovation systems. In addition, the paper will investigate the enablers and restrictions of the innovation system's integrated system. This study aims to provide a detailed review of the notion of technology flexibility and investigate this concept's organisational potential. The primary purpose of this research is to comprehend technology flexibility through the lens of innovation systems. The article is structured into six sections with the objectives as the central focus. Following this introduction, the second section discusses the theoretical foundations of technological adaptability. Thus, the topic is examined regarding the literature on innovation systems. With the systemic research on technology flexibility, the fourth section establishes a systems-view of technology flexibility integrated inside innovation systems. The fifth section analyses and discusses the synthesised model derived using the systems thinking methodology. The paper concludes with a discussion of significant findings and a proposal for further research on technology flexibility and strategic innovation.

2. Theoretical Background of Technology Flexibility

The concept of technology flexibility has its origins in operations management and eventually obtained a specific niche focusing on technology management (Slack, 2005). In the early stages of conceptualisation, the concepts of technology flexibility and agile manufacturing were congruent (Gunasekaran et al., 2019, Kumar et al., 2022). This was a novel approach to manufacturing that emphasised the necessity for firms to adjust production processes to rapidly changing market conditions (Han et al., 2017).

Later, agile manufacturing was applied to more business domains, such as product development, supply chain management, and customer service (Gunasekaran, 1999, Kettunen, 2009, Leite & Braz, 2016). The phrase "technology flexibility" was coined to describe a firm's capacity to adjust its technology to fluctuating market conditions. The concept is seen as a crucial success factor for organisational performance in the current uncertain business climate (Han et al., 2017). From a market-orientation standpoint, the capacity to rapidly adapt technology to changing market needs or customer expectations

is viewed as a competitive advantage for businesses (Singh & Sushil, 2004). In general, the degree of market competition and environmental conditions, such as the availability of complementary technologies, contribute to technological adaptability (Nelson & Ghods, 1998).

In addition to market-related issues, various other factors contribute to the flexibility of technology. These include organisational variables, such as the firm's structure and amount of decentralisation (Mikalef et al., 2021); technical elements, such as the modularity of the technology (Nelson & Ghods, 1998); and organisational factors, such as the firm's ability to learn from past transgressions (Bhardwaj & Momaya, 2006). In the framework of profit-maximising and competition-based theories, it has been determined that technology flexibility is crucial to a company's competitiveness (Nelson & Ghods, 1998). There are numerous approaches for businesses to acquire technological flexibility. For instance, firms can engage in research and development (R&D) to create new technologies that can rapidly adapt to changing market requirements (Luca et al., 2010). In addition, businesses can develop modular production processes that quickly substitute various components in response to fluctuating customer demands (Becker et al., 2019).

With the expansion of technology flexibility research, the concept has been a highly contested topic in technology management. There is no consensus on a single definition of the concept of technology flexibility, which has been characterised in numerous ways. The various perspectives on technological adaptability can be broadly categorised as either dynamic or organisational.

2.1. Dynamic View

In the current economic environment, organisations' investment decisions in technological domains must consider the flexibility of technologies. Most studies focusing on the dynamic perspective of technology flexibility involve information and communication technology (ICT) (Awwad et al., 2022, Jayalakshmi & Pramod, 2015, Ramaraj, 2010). Concerning the dynamic view of the flexibility of information technology, Han et al. (2017) offered a framework for comprehending how organisations might generate value through the usage of ICT. The dynamic perspective on technology flexibility emphasises that businesses must continuously adapt their ICT usage to fluctuating market conditions (Apulu et al., 2011). In contrast to the static view of technology flexibility, which focuses on the ability of businesses to make one-time changes to their ICT systems, this perspective emphasises the ability of organisations to make ongoing modifications to their ICT systems (Egyedi & Verwater-Lukszo, 2005).

The dynamic perspective on technology flexibility has significant consequences for firms. First, firms must invest in adaptable ICT to react quickly to changing market conditions (Tang et al., 2020). Second, firms must swiftly and efficiently modify their ICT usage to meet client requirements (Hempell & Zwick, 2008). Lastly, firms must continuously analyse their use of ICT and adjust as necessary to ensure the most effective and efficient use possible (Tallon, 2008).

In the agency theory framework, technological flexibility is described as an organisation's capacity to swiftly alter its technology base in response to changes in the external environment (Cheon et al., 1995). In manufacturing organisations, for instance, technology flexibility has been proven to correlate positively with the capacity to respond to client wants and requests (Slack, 2005). In addition, technological adaptability benefits a firm's capacity to adapt to a changing competitive environment (Newman et al., 1993). According to the agency theory of technology flexibility, it helps organisations to respond promptly to changes in their environment, a vital necessity for success in today's fast-paced business world (Bahli & Rivard, 2003).

2.2. Organisational View

Within the organisational setting, flexibility has been characterised in many ways. [Celuch et al. \(2007\)](#) operationalised technology flexibility as the capacity to implement technical changes without incurring substantial expenditures or experiencing significant adverse effects on organisational performance. Flexibility has also been used to describe an organisation's capacity to adjust quickly to external environment changes ([Verdu-Jover et al., 2005](#)).

In the literature, there is no consensus over what constitutes technology flexibility. The organisational perspective on technology flexibility is prevalent in the literature. This perspective sees technology flexibility as a driver of organisational agility and argues that organisations must be able to adapt their technology usage to changing business situations ([Tallon & Pinsonneault, 2011](#)). This viewpoint is predicated on the idea that technology is a tool that can be used to achieve organisational goals and that organisations must be able to adapt their technology usage in response to changes in the business environment ([Wagner et al., 2014](#)).

However, a corpus of literature takes a more sceptical stance on the flexibility of technology. This literature argues that technological flexibility can lead to organisational rigidity and that organisations must be cautious not to grow overly dependent on technology ([Tienari & Tainio, 1999](#)). This perspective is predicated on the paradox that technology is not a neutral instrument but rather something that influences and restricts organisations' operations ([Soltwisch, 2015](#)).

Multiple factors contribute to the technology flexibility of an organisation. One is the firm's organisational structure. Flexibility, in the context of contingency theory, refers to the adaptability of an organisation's structure and activities to changes in the external environment ([Fredericks, 2005](#)). A centralised organisation is less flexible than a decentralised organisation because decisions are made and implemented more slowly ([Garg & Deshmukh, 2009](#)). The degree of standardisation inside the organisation is another aspect. A high level of standardisation facilitates technological evolution by requiring the replacement of fewer components ([Liker et al., 1999](#)). Lastly, organisational culture can also affect technology flexibility. A culture that is adaptable and open to experimentation is more likely to be able to adjust its technologies quickly ([McDermott & Stock, 1999](#)).

In the context of resource-based theory, the ability of firms to create rents from their resources is heterogeneous, and these rents are a function of the firm's incumbency, experience, and organisational capacities ([Fredericks, 2005](#)). According to the resource-based theory, firms must continuously deploy their resources to preserve a competitive edge ([Peteraf, 1993](#)). In this view, technology flexibility is a crucial benefit for firms across all industries. For example, technological flexibility has been an essential advantage in the pharmaceutical industry in creating novel drugs ([Khilji et al., 2006](#)). In developing new production and assembly methods for the automotive industry, firms have mainly depended on technology flexibility ([Gerwin, 1987](#)).

3.0 Existence of Technology Flexibility in the Innovation Systems

Innovation systems are a valuable lens for analysing technology flexibility. Innovation systems typically result in innovation performance via technology advancements or new product development ([Cooper, 2000](#)). In a similar vein, technology flexibility is a component of innovation systems that boosts innovation performance. Flexibility in technology enhances innovation processes, reduces expenses, and increases customer satisfaction ([Puriwat & Hoonsopon, 2021](#)).

In the context of manufacturing systems, knowledge management, and organisational learning, the technology flexibility of innovation systems has been investigated (Mishra et al., 2014). A literature analysis finds a dearth of frameworks and causal models for comprehending the concept of technology flexibility. In addition, empirical information on the relationship between technological flexibility and innovation performance is lacking in the literature. In addition, the role of technology flexibility as a moderator in the relationship between innovation systems and innovation performance is understudied.

Studying technology flexibility through the lens of innovation systems is advantageous for a number of reasons. First, innovation systems are intricate, and understanding the multiple actors and interactions inside them is necessary to study technological flexibility. Second, innovation systems are continuously evolving, and the study of technology flexibility necessitates knowledge of these alterations. Third, innovation systems are frequently context-dependent, and evaluating technological adaptability necessitates a grasp of the operating context of a given system. Lastly, innovation systems are frequently the source of new technologies, and knowing how new technologies are developed and dispersed within these systems is necessary to study technological flexibility.

There are various perspectives on technology flexibility. The concept can be treated from a technical standpoint, which examines the adaptability of technology to changing situations or requirements (Slack, 2005). Alternately, it can be approached from an organisational standpoint, which examines an organisation's ability to adapt its technology to new conditions or requirements (Lei et al., 1996).

In many industries, technology flexibility is a crucial success factor for companies. In the semiconductor industry, for instance, organisations that can rapidly adapt their technology in response to shifts in market demand have proven more successful than those that cannot. In the pharmaceutical industry, firms that can rapidly adapt their technology to generate new goods have been more successful.

Numerous variables contribute to the adaptability of technology. One is the availability of a skilled labour force. Organisations with employees with the necessary skills and knowledge for rapid technological adaptation are more flexible than those without (Fink & Neumann, 2009). Another element is the presence of a culture that embraces change. Organisations with a culture that values innovation and embraces change are more flexible than those without such a culture (Bock et al., 2012). Lastly, the firm's organisational structure also plays an impact. Organisations that facilitate rapid and straightforward adaptation to new technology are more adaptable than those that do not (Bock et al., 2012).

There are a variety of probable theories for why technological flexibility is connected with innovation and business performance in terms of its effect on innovation performance. First, technology flexibility enables businesses to react quickly to new possibilities and challenges (Nelson & Ghods, 1998). This can be especially crucial in businesses undergoing rapid change or during times of economic uncertainty.

Secondly, technological flexibility can improve the efficiency and efficacy of technology use. If a firm can swiftly adapt its technology to meet new client expectations, it can avoid the expensive process of re-engineering its whole technology infrastructure (Malhotra et al., 1996). Thirdly, technology flexibility enables businesses to enter new markets and develop new business models (Kandemir & Acur, 2012). For instance, a company that can quickly adapt its technology to match the requirements of a new market can acquire a considerable competitive edge.

This study intends to investigate the benefits and limitations of technology flexibility for developing new products. Flexibility in technology has been identified as a critical success element for companies

engaged in new product development. A careful balance between exploration and exploitation activities is required to achieve technological flexibility. Exploration is required to generate new ideas and identify new technologies, whereas exploitation is required to develop and market new goods.

Despite the benefits of technology flexibility, certain obstacles must be overcome. Initially, technological flexibility might increase complexity and misunderstanding inside an organisation. Second, technology flexibility may necessitate substantial investments of time and resources. If not handled effectively, technology flexibility might result in inferior consequences.

Despite the obstacles, technology flexibility can be a vital asset for businesses involved in new product development. Technology flexibility can enable businesses to respond rapidly to market or technological shifts, enhance learning and knowledge transfer, and mitigate risk.

4.0 Technology Flexibility in the Model of Strategic Innovation: A Systems View

Flexibility in technology is a significant innovation facilitator. It enables organisations to rapidly accept and adapt new technologies in order to achieve their strategic goals. Additionally, technological flexibility helps produce and disseminate new information and concepts within an organisation (Lucas Jr & Olson, 1994). The strategic innovation model highlights the significance of organisational learning (Dinesh & Sushil, 2019, Sushil & Dinesh, 2022). Flexibility in technology facilitates organisational learning by enabling organisations to experiment with new technologies and learn from their experiences (Nelson & Ghods, 1998). Additionally, the strategic innovation model acknowledges the significance of organisational culture in fostering innovation (Dinesh & Sushil, 2019). Technology flexibility can contribute to developing an innovative culture by enabling organisations to experiment with new technologies and rapidly embrace feasible innovations.

Using a systems-thinking approach, this study aims to conceptualise technology flexibility in light of its evolving paradigm. Assuming that the notion of technology flexibility is the ability to rapidly adjust to changing situations, the systems thinking technique is suitable for conceptualising technology flexibility. In addition, the methodology considers the interdependencies between system components. It also considers the system as a whole, not its component pieces. This also entails understanding the system's internal feedback loops. The literature is consulted in order to establish causal links between various parts of technology flexibility and innovation systems. The model of strategic innovation in an organisation is primarily focused on new product creation (Dinesh & Sushil, 2021). The strategic innovation framework comprises business functional areas such as innovative operations, marketing, and sales (Sushil & Dinesh, 2022). The model also emphasises innovation through R&D, strategic networking, and team learning, in addition to advancements in common functional areas. The integrated strategic innovation model intends to achieve a competitive advantage via product and technological innovation.

As technological innovation is a crucial driver of product innovation, flexibility in technology management is critical for organisational agility. Companies can generate new products or enhance old ones by inventing new and improved technology. Technology innovation can also help businesses decrease expenses and increase efficiency. Other strategic innovation elements are equally responsible for product innovation and company performance in addition to technology. The interaction of several factors converges on product innovation in terms of the creation of new goods and services.

This study derives a portion of its causal model from the paradigm of strategic innovation (Sushil & Dinesh, 2022). The causal loop model of technology flexibility in the domain of strategic innovation is shown in Figure 1. The multiple system variables, including factors related to strategic innovation and

technology flexibility, are part of the integrated model. The interplay of system elements converges at the factor of product innovation which reflects the process of new product or service development.

The market competition fuels the dynamism of the model. The competition is mainly because of the strategic use of technology by the competitors. Competitors pose a threat to the survival of firms by continuously raising the benchmark of customer satisfaction. The rising customer demand is mainly because of the availability of competing products with substituting power. Thus, there exists a gap in regard to demand fulfilment. However, the model exhibits two ways to reduce the gap to gain a competitive advantage. First is through the development of indigenous technology development. The second is through the early adaption of emerging technologies. Both systemic processes exhibit dynamic balancing loops.

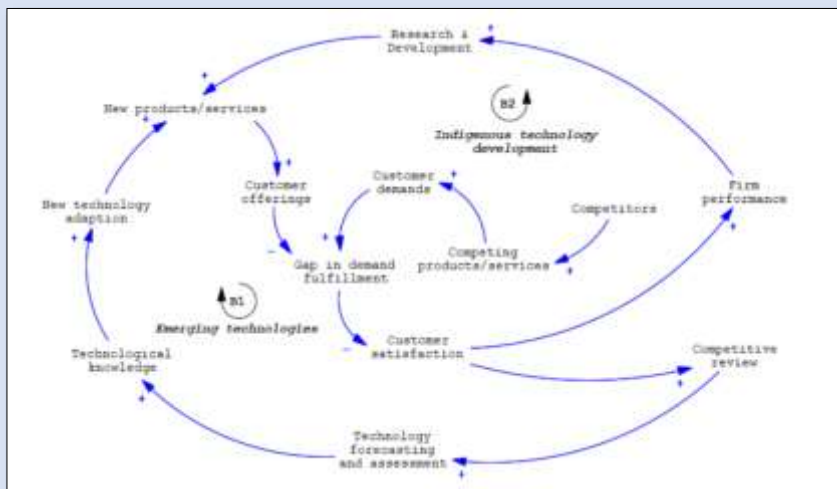


Figure 1. A systems-view of technology flexibility in the context of strategic innovation

The loop of indigenous technology development primarily focuses on new product development via concentrated efforts of R&D. the R&D activities are proportionally related to the firm performance. Thus, the loop is effective when the firm produces superior products or services that satisfy customer needs by offering greater value.

The balancing loop concerning emerging technologies takes a different path from the information on customer satisfaction. Customer satisfaction predicts and provides a competitive review with reference to competing products or services. Based on the competitive review, appropriate measures and actions are taken for technology forecasting and assessment. With necessary technological assessment, significant lessons and takeaways are taken to enrich technological knowledge. The knowledge gathered is disseminated within the organisation for new technology adaption. Here, new technologies refer to emerging technologies like artificial intelligence (AI), machine learning (ML), and blockchain technologies. The new technologies emerging from the external environment are adapted with the knowledge gained from appropriate technological review and assessment. While adapting emerging technologies for new product development, time plays a crucial role. The process of embracing emerging technologies for new product development should take less time than the competitors.

5.0 Discussion

This paper presents a comprehensive examination of technological adaptability in the context of innovation management. In volatile situations, technological flexibility in innovation systems is recognised as a crucial aspect of survival and competitiveness. A concentrated literature study revealed

that a technology flexibility mechanism is responsible for both technological and product innovation within the context of strategic innovation. While assessing the existence of a cohesive innovation system within an organisation, it was determined that the objective of an innovation system is to maintain innovation performance.

Concerning the ambiguity and complexity of technology flexibility, the study recommended a systems perspective to comprehend the deep relationships between organisational and innovation aspects. Observable feedback loops and chain effects are detected in a causal model that synthesises diverse perspectives on the concept of technology flexibility. The model study makes multiple observations regarding technology, strategic, and organisational change management. Based on the initial model observation, the underlying mechanism of technology flexibility serves as a support system for organisational change, hence facilitating innovation processes within the organisation. With the critical remark, the model demonstrates technology flexibility as a competitiveness-enhancing element. Both results show that technological flexibility is the foundation for technological innovation within an organisation. Additionally, an explicit influence exists on innovation performance through new products or services.

Multiple management implications emerge from the study, focusing on innovation performance by adopting technological flexibility. The model and evidence from the literature indicate that technology flexibility is essential for responding rapidly to growing or fluctuating customer demands. The organisation's leaders can decide about indigenous technology development or innovation from emerging technologies. In an ideal situation, the organisation must incorporate both technical innovation processes. While promoting emerging technology for innovation, it is essential to manage time effectively. With the early adoption of innovative technology, the firm expands the likelihood of achieving a first-mover advantage. In the case of indigenous technology development, the organisation should rapidly build product prototypes or beta versions of services to test innovative technological solutions for particular customer needs. With each successful development of technology-based products, the organisation must scale rapidly to meet customer demand.

The model suggests a research agenda for exploring linear correlations between innovation and organisational factors, despite the study providing a dynamic systems-view of technology flexibility. Two simplified research frameworks are taken from Figure 1 for future research, particularly empirical studies.

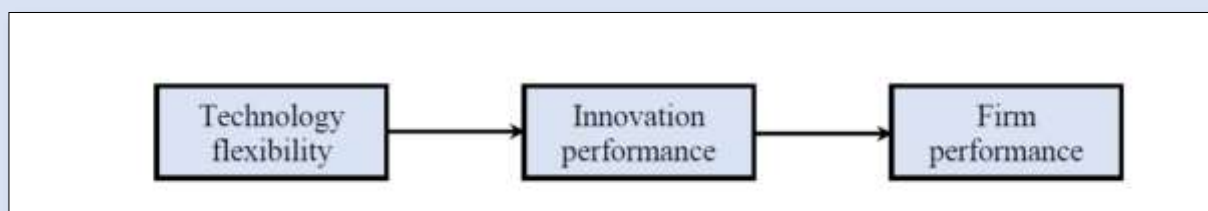


Figure 2. Cascading effect of technology flexibility in an organisational setup

Figure 2 depicts a linear model of the association between technology flexibility and innovation and firm performance. In other words, the model emphasises the chain effect or cascading effect of technology flexibility in an organisational structure, where innovation performance mediates the relationship between technology flexibility and firm performance.

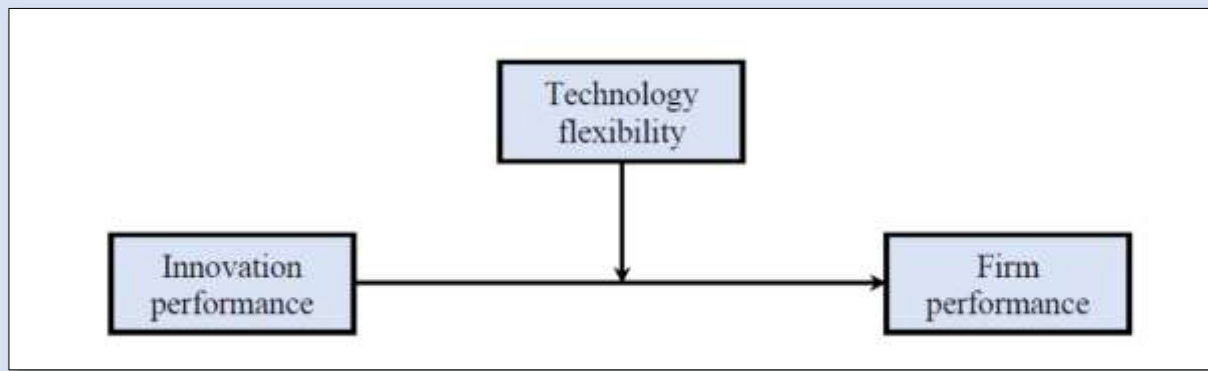


Figure 3. Moderating effect of technology flexibility in an organisational setup

Figure 3 depicts technology flexibility as a moderating variable on the relationship between innovation and firm performance, as technology flexibility is also seen as an underlying mechanism for innovation performance. The argument is that technological flexibility strengthens the relationship between innovation and firm performance.

6. Concluding Remarks

The purpose of the study was to clarify the concept of technology flexibility within the innovation management framework. The paper gives a systems-based perspective of technology flexibility, outlining two primary avenues for developing technical competence. The paper describes the function of technological flexibility in developing technological competence. The capability is developed internally with the aid of R&D, which focuses on creating distinctive value through developing indigenous technologies. Rapidly evolving technologies are the external factor that influences technological flexibility. The research emphasises the significance of rapid adaptation of emerging technologies for first-mover advantage. In addition to the results from the causal model of technology flexibility, the study presents two simplified research agendas for future researchers. In conclusion, it is believed that the study's findings contribute to understanding the function of technology flexibility in innovation systems and have significant implications for managers and policymaking at the firm level.

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Does Adaptability enhance ability to handle stress? The role of Gender and Age

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Abstract

The current uncertainty in the work environment is a major source of stress and anxiety among employees. To address this concern, we checked the association between ability to adapt to different situations and stress tolerance among 202 executives working in Indian organizations using a nationally representative data. Based on stress and coping theory, we found a positive association between adaptability to situations and stress tolerance. We also checked for existence of individual differences in this relationship by evaluating the moderating effect of gender and age. A significant moderating effect of age over this linkage is detected. Finally, implications for theory and practice are discussed.

Keywords: Adaptability; Stress Tolerance; Moderation analysis; Stress and coping theory

“It is not the stress that kills us. It is effective adaptation to stress that allows us to live.”

- George Vaillant

1.0 Introduction

The uncertainties and disruptions in the last few years have increased the challenges in both personal and professional lives (Di Fabio & Kenny, 2019). Organizations as well as individuals are struggling to maintain their well-being amid these situations. The COVID-19 pandemic has exacerbated the existing conditions and is likely to contribute new stress-related disorders for many (Horesh & Brown, 2020). A recent study conducted over 10,000 Indians revealed that 74% of Indians are suffering from symptoms of stress and 88% reported anxiety (Awasthi, 2020). Amid such situations, the ability to effectively deal with challenging and stressful situations is of utmost importance. Though there are numerous studies that explore the consequences of stress tolerance (Baird et al., 2016; Beck et al., 2014; Juarascio et al., 2016), the studies exploring the psychological predictors of the same remain few. The current study aims to explore the role of an individual's ability to adapt to situations as a potential predictor of stress tolerance. Also, the influence of demographic factors, particularly age and gender, over the association of adaptability and stress tolerance is explored through moderation analysis.

Different sections of this article are organized as follows. A review of the existing studies related to stress tolerance and adaptability led towards the formation of a theoretical model. Subsequently, the methodology, analysis and results are explained. Finally, the discussion section describes the implications for the domains of theory and practice, limitations of the study and conclusion.

2.0 Theoretical Framework

The present study is grounded in the transactional theory of stress and coping given by Lazarus (1966). The theory suggests that every individual is constantly appraising the external stimulus from environment. This appraisal of a same situation may vary among individuals based on a number of situational and personal factors (Krohne, 2002). This appraisal further induces several emotions and feelings. If the stimulus is perceived as challenging or threatening, then feelings of stress initiates coping mechanism that attempts to encounter the stressor by adjusting the person-environment relationship. The resulting situation will be again appraised as favourable and unfavourable. The theory argues that stress could be defined as exposure to those certain unfavourable stimuli whose effect

exceeds the coping capacity of the individual (Biggs et al., 2017). Based on these elements of transactional theory of stress and coping, the current study explores the positive influence of an individual's ability to adapt on her stress tolerance capacity. Addressing the important role of personal factors, this study also explores the role of gender and age over any possible association between adaptability and stress tolerance.

3.0 Literature review and Hypothesis Development

3.1 Adaptability to Situations

Adaptability is defined as an individual's ability to adjust to changing circumstances through cognitive, emotional, and behavioural alterations in behaviour (Martin et al., 2012). Accepting hurdles and problems while maintaining a steady pursuit of predefined goals in the face of all unpredictability with flexibility and resilience has been described as adaptability (Datu et al., 2017). The adaptability construct has been framed as a more particular construct, career adaptability, in the context of the workplace, with a focus on the balance that an individual attempts to strike between the personal and professional worlds (Goodman, 1994). Several studies have looked into the concept of professional flexibility and found it to be linked to a number of favourable outcomes, including improved coping, a more balanced response to adversity, and decreased vulnerability to stress and anxiety (Johnston, 2018).

3.2 Stress Tolerance

An individual's stress tolerance refers to their perceived ability to deal with stress and anxiety caused by uncertain, ambiguous, and variable situations, information, or tasks. A person with greater mental resilience is more likely to persevere through difficult times. This proclivity for dealing with difficulties is frequently coupled by a willingness to accept risks, and it derives from a drive to achieve one's objectives (Birenbaum et al., 2019). Stress tolerance has also been linked to positive job engagement and inventiveness, as well as negative burnout and tiredness (Kashdan et al., 2020).

3.3 Adaptability to Situations and Stress Tolerance

The basic tenet of transactional theory of stress and coping (Lazarus, 1966) argues that a constant appraisal of external stimuli generates emotions and any stimuli appraised as a stressor initiates coping strategies to address the stressor. The coping strategy resolves the situation by readjusting the person-environment relationship. Furthermore, this perspective emphasizes that stress is a response to stimuli, appraised as harmful or threatening and that exceeds the individual's capacity to cope. Further building on this, it seems that the more an individual is able to cope or handle the stressors and lesser are the chances of the individual being stressed. Also, several past studies have reported a negative association between different forms of adaptability and stress (Johnston, 2018; Orkibi, 2021). On similar lines, based on a recent study on university students, Stockinger et al. (2021) have reported that adaptability was found to be negatively related to anxiety and hopelessness. In context of workplace also, individuals with high adaptability may perceive more control over uncertainty at workplace and are more likely to be confident about overcoming obstacles and thus less likely to experience stress and anxiety (Fiori et al., 2015). Based on these arguments, we hypothesize that:

Hypothesis 1: Adaptability to situations will be positively related to stress tolerance (perceived ability to deal with stressful situations).

3.4 Moderating role of age and gender

The transactional theory of stress and coping also highlights the important role of appraisal process through which meaning is assigned to different external stimulus. These appraisals might vary based on the individual differences as well as environmental factors (Biggs et al., 2017). Individual differences may influence what is perceived as stressful and how people will cope with it (Ployhart &

Bliese, 2015) since an experience that is objectively same for two individuals might vary in quality, intensity, and duration for those two persons (Krohne, 2002). These arguments show that difference in personality as well as demographic characteristics could have a bearing over the cognitive appraisal of the external experiences and therefore could produce varying effects. Particularly, in case of stress and anxiety, past studies have reported a significant effect of gender and age over stress symptoms and perceived recovery (Kimhi et al., 2009). Another study conducted over school teachers in Hong Kong revealed that younger, unmarried and less experienced teachers were more likely to experience burnout (Lau et al., 2005). Therefore, based on these arguments, we hypothesize that:

Hypothesis 2: Gender will moderate the positive association between adaptability to situations and stress tolerance.

Hypothesis 3: Age will moderate the positive association between adaptability to situations and stress tolerance.

4.0 Methods

4.1 Procedure and Respondents

Executives working at junior, middle and senior positions in various manufacturing and service sector organizations were the respondents for this study. A cross-sectional survey-based research design was adopted and data were collected through convenience sampling. Initially, 500 survey forms were distributed through e-mail among executives having at least one year of work experience. All the recipients were assured about the anonymity of their identity and confidentiality of their responses. With a response rate of 40.4%, two hundred and two usable responses were received from the respondents. This sample size meets the minimum requirement of 200 sample items to maintain normality, as suggested by Hair et al. (2010). Also, an a priori power analysis (Soper, 2021) revealed that $n = 100$ is the recommended sample size to conduct a SEM analysis over the hypothesized model (given effect size is 0.50, statistical power is 0.95, significance level is 0.05, with two latent variables and 10 observed variables). The current sample size, $n = 202$ is therefore sufficient.

Respondents consisted of 65.35% of males and 34.65% of females. A significant portion of participants (77.23%) were between 26 and 35 years old, 16.34% were between 36 and 50 years old, and 6.44% were 51 years and above. Regarding participants' educational qualifications, 47.52% of the participants have a graduate degree, 38.61% were postgraduates, 8.91% had doctoral degrees, and 4.95% were diploma holders (See Table 1).

4.2 Measures

4.2.1 Stress Tolerance

Stress tolerance is a person's perceived ability to tolerate and handle confusing situations and conceptualized as a component of workplace curiosity (Kashdan et al., 2020). A four-item scale was borrowed from the workplace curiosity scale to assess respondents' stress tolerance. The responses were tallied on a seven-point Likert scale, with one indicating 'Strongly Disagree' and seven indicating 'Strongly Agree'. Sample item includes, 'The possibility of being distressed has no impact on my motivation to work on new projects'. Internal consistency was 0.77 (Cronbach's coefficient). (See Table 3)

Table 1: Socio Demographic Characteristics of Participants

Characteristics	N	%
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<i>Gender</i>			
	Men	132	65.35
	Women	70	34.65
	Total	202	100
<i>Age, range</i>			
	26-35 years	156	77.23
	36-50 years	33	16.34
	51 years and above	13	6.43
	Total	202	100
<i>Education Level</i>			
	Diploma	10	4.95
	Graduate	96	47.52
	Post Graduate	78	38.61
	PhD	18	8.92
	Total	202	100
<i>Job Position</i>			
	Junior Level	61	30.19
	Middle Level	99	49.01
	Senior Level	42	20.79
	Total	202	100
<i>Work Experience</i>			
	Up to 10 years	94	47
	11-20 years	65	32.5
	More than 20 years	43	21.5
	Total	202	100
<i>Organization Status</i>			
	Public	45	22.27
	Private	147	72.77
	Other	10	4.95
	Total	202	100

Table 2: Descriptive Statistics

		Mean	S.D.	CR	1	2	3	4	5	6	7
1	Gender	---	---	---	---						
2	Age	---	---	---	0.06	---					
3	Education	---	---	---	-.214**	0.09	---				
4	Job position	---	---	---	-0.08	-.369**	0.00	---			
5	Work Experience	---	---	---	.148*	.844**	0.01	-.372**	---		
6	Adaptability to Situations	0	.540	.80	0.06	0.00	-0.10	-0.11	0.03	.710	
7	Stress Tolerance	0	.835	.75	0.06	0.07	-0.12	-0.07	0.09	.565**	.708

Note: M=Mean; S.D.=Standard Deviation; N=202. **p < 0.01, *p < 0.05. The square root of average variance extracted (AVE) of each construct (No. 6, 7) is represented in bold along the diagonal; Values below the diagonal represent inter-construct correlations.

4.2.2 Adaptability to Situations

Adaptability to settings was measured using a subscale from Datu et al.'s (2017) Triarchic Model of Grit Scale. Because it was created in an eastern collectivist setting, this scale was more suited for this investigation. The scale has four items with a seven-point Likert scale response format, with 1 indicating 'strong disagreement' and 7 indicating 'strong agreement.' The sample items include, 'I am able to cope with adverse life circumstances' and 'Changes in life encourage me to work harder'. The scale had an internal consistency of 0.81 (Cronbach's alpha coefficient). (See Table 3)

Table 3: Coding of Age for analysis

Age	Coded as	Dummy 1 (W1)	Dummy 2 (W2)
21-35 years	0	0	0
36 – 50 years	1	1	0
51 years and above	2	0	1

5.0 Data Analysis and Results

The descriptive statistics, including mean, standard deviation, inter-item correlation, square of correlation among variables, and average variance extracted, are provided in Table 2. The results clearly indicate a high correlation between adaptability and stress tolerance ($r = .565$; $p < 0.01$). The standard deviations for adaptability and stress tolerance were 0.54 and 0.83 respectively (See Table 2).

5.1 Measurement Model

Confirmatory factor analysis (CFA) was conducted to check the data measured by various instruments. A two-factor model demonstrated a decent fit ($Cmin/df = 0.97$, RMSEA (Root mean square error of approximation) = 0.04, CFI (Comparative fit index) = 0.982, IFI (Incremental fit index) = 0.99, SRMR (Standardized Root mean square residual) = 0.022) (See Table 5). Convergent and discriminant validity was established by calculating composite reliability (CR) and average variance extracted (AVE). Satisfactory convergent validity is established through a CR score of more than 0.7 (Fornell & Larcker, 1981; Malhotra & Dash, 2011). Both study variables are adequately distinct from each other since the of inter-factor correlation among them is not greater than the square root of corresponding AVE, thus suggesting discriminant validity (Fornell & Larcker, 1981).

Table 4: Measurement Model Results

Variable	No. of items	α (Alpha coefficient)	Items	Factor Loadings	SE	CR
Stress Tolerance	3	0.77	ST1	0.70 (**)		0.75
			ST2	0.75 (**)	.136	
			ST3	0.67 (**)	.134	
Adaptability to Situations	4	0.81	ADAP1	0.60 (**)	.119	0.80
			ADAP2	0.63 (**)		
			ADAP3	0.82 (**)	.198	
			ADAP4	0.77 (**)	.180	

Note: α = Cronbach alpha CR = Composite reliability of the measurement model; SE: Standard Error; Significance: ** $p < 0.001$ (2-tailed)

Figure 1: The Hypothesized Model

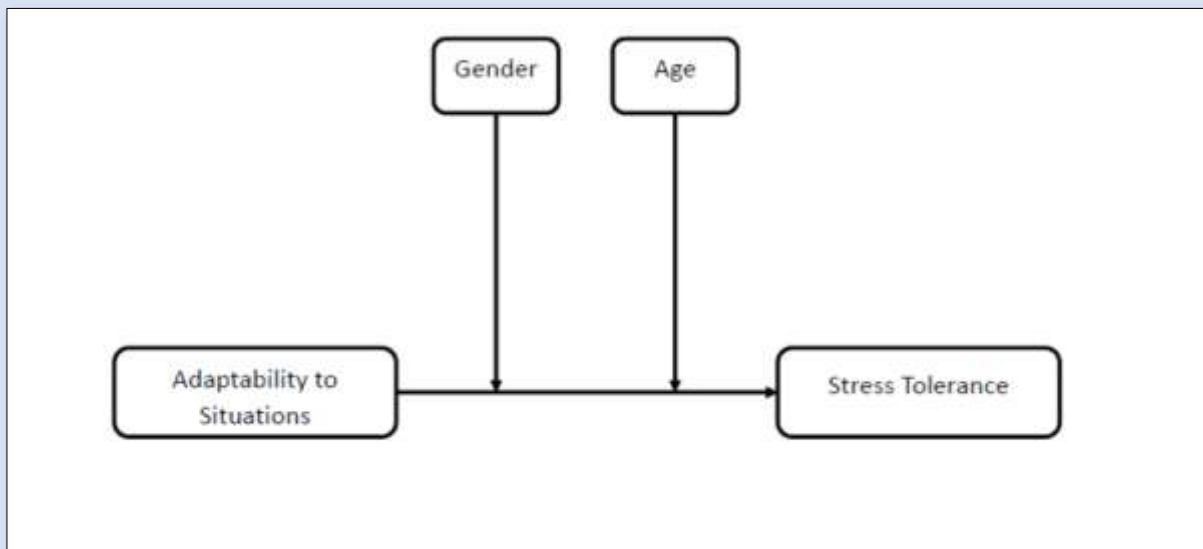
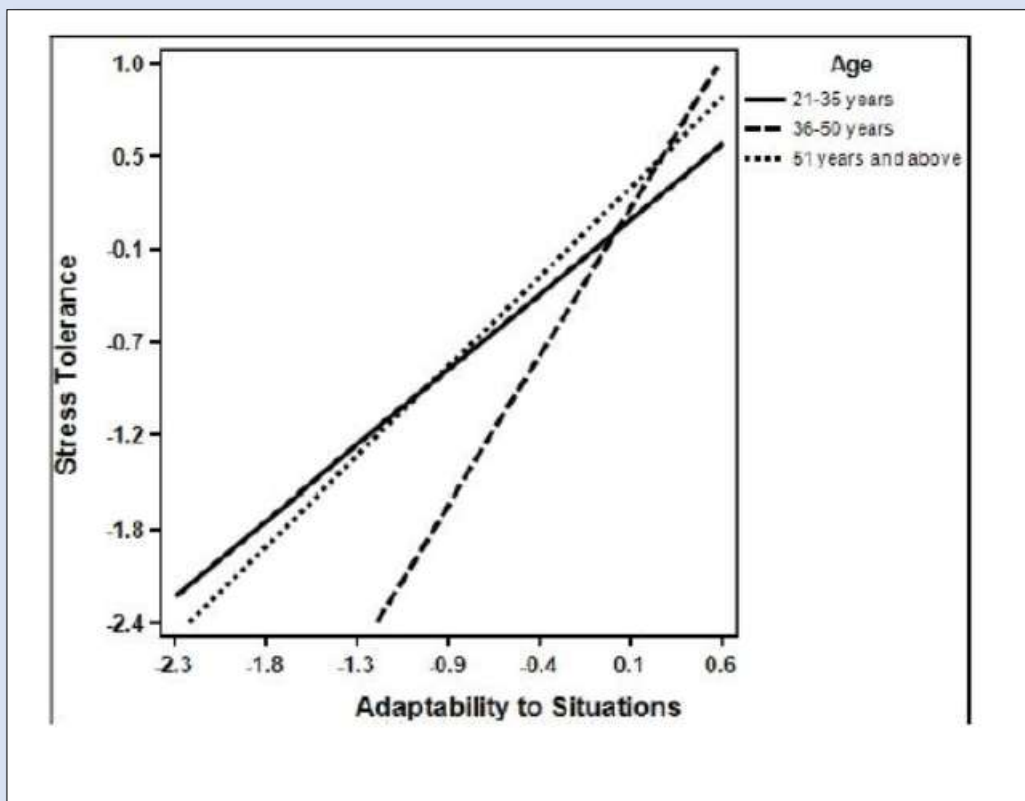


Figure 2: The moderating effect of age on the relationship of Adaptability to Situations and Stress Tolerance



5.2 Common Method Biasness

The possibility of common method biasness might be there since this study uses cross sectional data collected through self-reported measures. In line with the suggestions of Podsakoff et al. (2003), anonymity and confidentiality of responses were ensured. Also, the survey instrument was designed so that different sections were clearly labelled and variables were defined properly in accordance to the

suggestions of Brannick et al. (2010) to further reduce the chances of method variance. Furthermore, Harman's single factor test (Harman, 1976) indicates that variables fail to converge on a common single factor, and 46% of total variance could be explained by first factor, which is less than half of the total variance. Therefore, based on these findings, it could be considered that common method biasness was not a threat in the current model.

Table 5: Model Fit Measures

Model Fit Indices	Value	Cut-off criteria	Remarks
χ^2/df	0.97	< 3	Yes
SRMR (standardized Root mean square residual)	0.022	< 0.08	Yes
RMSEA (Root mean square error of approximation)	0.04	< 0.06	Yes
(IFI) Incremental Fit Measures	0.99	> 0.95	Yes
(TLI) Tucker-Lewis Index	0.982	> 0.95	Yes
(CFI) Comparative Fit Index	0.982	> 0.95	Yes

5.3 Moderation Analysis

To test the proposed model, the current study used PROCESS macro (Hayes, 2012), Model 2 in SPSS software. Through 5000 bootstrapped resamples, we checked the association between predictor (adaptability to situations) and criterion variable (stress tolerance) and the moderating effect of age and gender over this relationship.

The results in Table 6 represent the moderation effect of age over the relationship of adaptability and stress tolerance. Also, the Table depicts the bootstrapped results. Adaptability to situations was found to be positively related to stress tolerance ($\beta = .97$; $p < 0.001$), thus providing evidence for Hypothesis 1. Although, neither of age and gender was significantly associated with stress tolerance, the interaction of age and adaptability was found to have a significant positive on stress tolerance ($\beta = 0.92$; $p < 0.01$). These findings lend support to Hypothesis 2. No significant effect of interaction of gender and adaptability was detected over stress tolerance indicating that hypothesis 3 was not supported. To illustrate this pattern, Figure 2 represents the moderating effect of age over the positive relationship between adaptability to situations and stress tolerance.

6.0 Discussion

The present study examined the moderating effect of demographic variables, particularly age and gender, over the relationship between adaptability to situations and stress tolerance. Specifically, we wanted to explore the extent to which individual differences in terms of age and gender could influence the association between adaptability and stress tolerance. The results demonstrated that in an Indian context, an ability to effectively adjust to changing situations predisposes an individual towards better coping against stressful situations. The results also showed a moderating effect of age over this association which is in line with the stress and coping theory that suggests that individual differences may influence the ‘appraisal process’ of external situations resulting in different levels of stress and coping tendencies.

Table 6: Moderation analysis of Age and Gender on relationship between adaptability to situations and stress tolerance

Model Summary R ² = .4707, f = 24.64	Stress Tolerance (T): 95% CI					
	β	SE	t	p	LL	UL
Constant	-0.041	0.077	-0.539	0.591	-0.193	0.110
Adaptability to Situations (X)	0.970	0.132	7.374	0.000	0.711	1.229
Gender	0.016	0.092	0.169	0.866	-0.166	0.197
Interaction 1 (Gen*X)	-0.054	0.166	-0.325	0.746	-0.380	0.273
W1	-0.041	0.136	-0.306	0.760	-0.309	0.226
W2	0.171	0.187	0.914	0.362	-0.198	0.540
Interaction 2 (X*W1)	0.922	0.336	2.746	0.007	0.260	1.585
Interaction 3 (X*W2)	0.169	0.241	0.701	0.484	-0.307	0.645
Model Summary	R	R²	F	df	df	p
	0.6860	0.4707	24.641	7	194	0.000
Bootstrapped Results	Coeff	BootMean	BootSE	LLCI	ULCI	
Constant	-0.041	-0.042	0.076	-0.197	0.103	
Adaptability to Situations (X)	0.970	0.991	0.181	0.679	1.376	
Gender	0.016	0.012	0.094	-0.170	0.197	
Interaction 1 (Gen*X)	-0.054	-0.063	0.202	-0.477	0.328	
W1	-0.041	-0.042	0.122	-0.282	0.197	
W2	0.171	0.185	0.132	-0.064	0.431	
Interaction 2 (X*W1)	0.922	0.914	0.264	0.387	1.426	
Interaction 3 (X*W2)	0.169	0.115	0.237	-0.382	0.492	

7.0 Theoretical and Practical Implications

The study has multiple implications for the domain of theory and practice. Our study contributes to the literature in three different ways. First, it extends the growing body of literature that explores the association of adaptability and stress (Chen et al., 2019; Ocampo et al., 2018; Orkibi, 2021). Second, our study tests the person-situation premise (Heller et al., 2004), suggesting that individual personality do matters in the times of crisis. Finally, we contribute to the existing literature on psychological predictors of stress tolerance (Rettie & Daniels, 2021; Schutte & Malouff, 2020). The study works upon the data from Indian working professionals and uncovers the role of adaptability as a potential predictor of stress tolerance. Such a finding is extremely useful for Indian organizations given 70% of working Indians reported feelings of stress once during the work week (Sheth, 2020). A better knowledge about the predictors of stress tolerance could assist practitioners in developing training modules aimed at improving adaptability among employees to enhance their tolerance against stress and burnout. The moderating effect of age over the linkage between adaptability and stress tolerance could further help in recognizing the differences among employees so that the training efforts could be calibrated better. Also, the characteristics such as adaptability to situations are of utmost importance in the current pandemic-induced uncertainty.

8.0 Limitations of the study and Future directions

Although the findings of the study are in line with the theory, there are some limitations that can be addressed in future studies. The current study is based on a cross-sectional methodology; thus, any causal implications are constrained. Other designs, such as longitudinal studies and experimental methods, could be used in future studies to address this issue. Furthermore, adoption of self-reported measures to collect data could introduce method biasness. Although we have employed different statistical and procedural measures, its possibility cannot be ruled out entirely. The moderating variable, age has been measured as a categorical variable with three different categories. Future studies could measure the age as continuous variable to further analyse any possible conditional effects. Finally, we have collected data from working professionals from a developing economy, India. In future studies, scholars may also consider to undertake cross-cultural data from multiple countries.

9.0 Conclusion

The current study looked into the role of adaptability to situations as a possible predictor of ability to handle stressful situations. The influence of gender and age of respondents on this relationship has also been investigated. The findings show that adaptability has a favourable impact on a person's ability to tolerate stress. This positive association was found to be moderated by an individual's age. With age, the positive relationship between adaptability and stress tolerance first enhances and then dampens with strongest effects for the age group ranging from thirty-six to fifty years. The study uses both procedural and statistical techniques to control for common method bias, and no substantial bias was found. The research contributes to a better understanding of how the ability to adapt to change can boost tolerance against stressful situations.

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Best in some ways but not others: Paradox of stagnant institutional competitiveness despite competitive individuals

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Abstract

Indian Institute of Technology Bombay (IITB in short) is one of the oldest premier technical public educational institutions in India. It is regularly featured in many national and international rankings. However, despite being home to some of the brightest minds in the world and despite possessing very mature processes the institute seems to have stagnated massively on multiple fronts. In this exploratory study, we present the indicative findings of a preliminary research project conducted to collect and compile evidence to better understand the said paradox. In so doing, we add to the extant theory of competitiveness by factually verifying a paradoxical edge case wherein possessing world-class assets and best-in-class processes does not translate to improved institutional competitiveness.

Keywords: Institutional competitiveness; paradox; organizational flexibility; start-up competitiveness

1.0 Introduction

Indian Institute of Technology Bombay (IITB in short) is one of the oldest premier technical public educational institutions in India. Recognized worldwide as a leader in education and research in engineering, sciences, management, design, and other fields, IITB attracts the best students from the country and abroad. Declared to be an institution of national importance by the government of India, it is regularly featured in many national and international rankings (Prasad et al., 2019)—including NIRF¹ India Rankings, QS World University Rankings², and ARWU Rankings³.

However, despite being home to some of the brightest minds in the country and despite possessing mature processes, the institute seems to be underperforming massively on several fronts—be it entrepreneurship or research, and teaching or outreach (Momaya et al., 2017). Extant studies have identified both systemic (e.g., institute-levels gaps in strategic flexibility, Momaya et al., 2017) and individualistic (e.g., academic demotivation, Prasad et al., 2019; inadequate focus on health and fitness, Tale et al., 2020) reasons for the same. However, most studies have glossed over the paradoxical stagnation of institutional competitiveness despite the presence of world-class assets (i.e., bright students) and mature processes. This is the research gap we seek to address in this exploratory study. Herein, we present the indicative findings of a preliminary research conducted to collect and compile evidence to better understand the aforementioned paradox. We limit the scope of our analysis to the specific context of entrepreneurial and business leadership stagnation wherein we try to factually understand the seemingly diminishing contribution of students and alumni of IITB towards founding and scaling up sustainable enterprises. In doing so, we take a practice-oriented (and not a research-focused) approach to better delineate the phenomenon of premature stagnation of institutions wherein

¹ The National Institutional Ranking Framework (NIRF in short) is a framework adopted by the Ministry of Education (Government of India) to rank institutes of higher education in India.

² QS World University Rankings is a ranking of universities, all across the globe that is published by Quacquarelli Symonds, a British company that specializes in the analysis of higher education institutions.

³ The Academic Ranking of World Universities (ARWU in short), also known as ‘Shanghai Ranking’ or ‘ARWU-Shanghai Ranking’ is an annual publication of world university rankings published by Shanghai Ranking Consultancy.

some organizations seem to underperform despite the presence of superior resources and matured processes.

2.0 Literature Review

Keeping in mind the practice-oriented nature of this study, “a purposive literature review with a defined scope was undertaken” (p. 1402, Tale et al., 2020). Here, we lay out the findings of a select few of them.

Competitiveness is a ‘multi-layered’ concept that can be studied at many levels (Adhikari & Momaya, 2021)—be it at the country, the industry, or the firm/institutional level. Owing to its ‘multi-defined’ and ‘multi-measured’ nature, the construct of competitiveness is very hard to operationalize (Chaudhuri & Ray, 1997). However, the novel competitiveness assets processes-performance (C-APP) framework (Momaya, 2001) provides a relatively simple but comprehensive structure that can be used to understand the drivers of competitiveness performance across levels. According to this framework, any organization is a combination of input (assets), throughput (process), and output (performance) sub-systems and improving the input and/or the throughput sub-systems help organizations improve their performance. However, the paradoxical inability of IITB to catch up to its international peers despite possessing world-class assets and mature processes (Momaya, 2014) marks an interesting departure from this prescription and presents an interesting opportunity for theory extension.

To understand the aforementioned dilemma better, we first referred to a study that looked into institute-level factors such as low strategic flexibility (Momaya et al., 2017). While helpful, the study only considered two internal actors, ‘top management’ and ‘faculty’. To understand the possible reasons from the point-of-view of students (another important stakeholder for any educational institution), we referred to a study that tried to understand the reasons behind the academic demotivation of students of premier educational institutions (Prasad et al., 2019). We could get a lot of insights on the student-level (i.e., individual) causes that might lead to poor institution-level competitiveness performance from this study. However, the studies we referred to did not consider leadership success and sustainability as a proxy of institutional competitiveness.

To summarize, we discovered that not many studies have tried to address institutional stagnation of educational institutions such as IITB by considering the success and sustainability of start-ups founded or led by students and alumni of such institutions.

3.0 Research Methodology

Our study is qualitative in nature. It used archival data from multiple sources to triangulate the inferences drawn from our secondary data analysis (Momaya et al., 2017). We undertook a quick benchmarking (QBM) exercise wherein we compared IITB with a select few institutions of national importance in India and a few other carefully selected premier educational institutions from across the world. We employed the QS World Rankings and NIRF India overall rankings for this exercise. Though not as exhaustive as a detailed benchmarking exercise (e.g., Bhattacharya et al., 2020) it helped us get a glimpse of the issues facing IITB. We also benchmarked the entrepreneurial and business leadership success of IITB against the previously selected institutions of national importance. This was done by analysing the contribution of IITB (in terms of the number of founders or leaders who were alumni of IITB) for a carefully sampled group of top 100 firms⁴ that were founded in the last 25 years. Data required for this exercise was collected from CMIE ProwessIQ and Refinitiv Eikon. We also relied on a few popular websites⁵ to collect a preliminary sample of inspirational leaders.

⁴ Top 100 firms by revenue

⁵ Examples include: Global Leadership Today

4.0 Indicative Findings

In this section, we lay out the early-stage indicative findings of our initial QBM exercise.

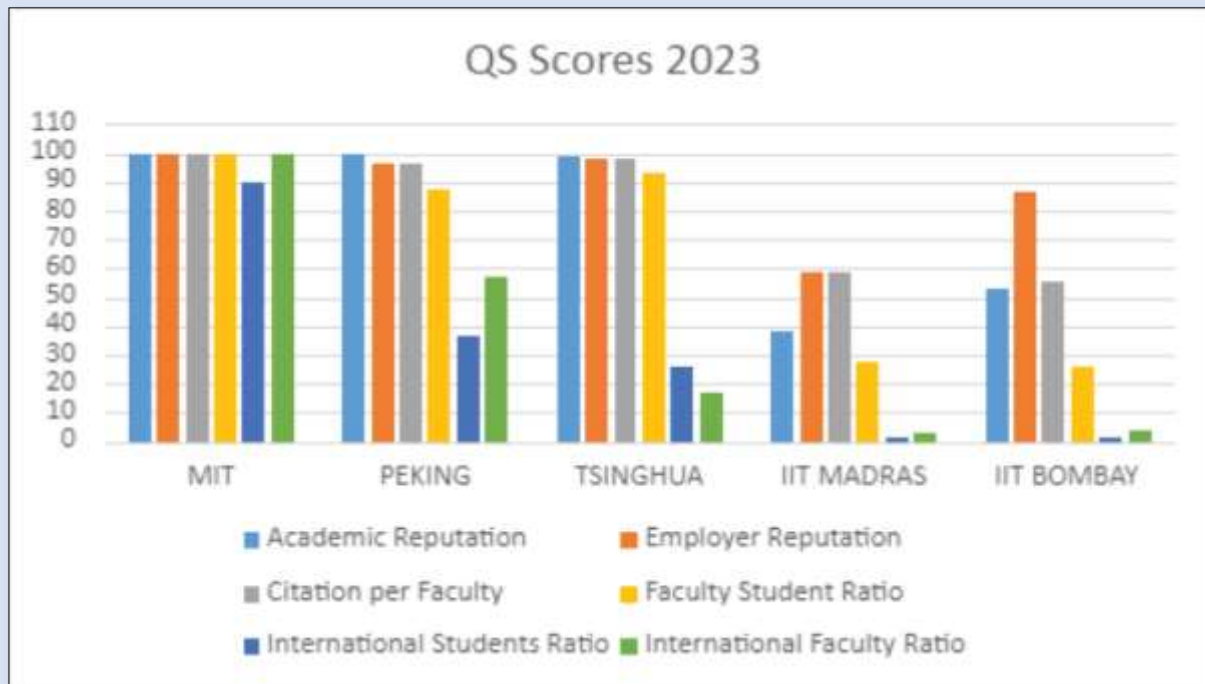


Figure 1: QS Scores of IITB and its peers along the six facets

4.1 Descriptive findings: Rankings

IITB fares considerably lower than its international peers in terms of its ‘International Student Ratio’ and ‘International Faculty Ratio’. While ‘Employer Reputation’ is good, work needs to be done on the ‘Academic Reputation’, as there is a gap visible in the kind of alumni that IITB has and the corresponding reputation it holds.

IITB had maintained its top rank in NIRF for several years, but recently IIT Madras and IISc Bangalore have surpassed it after rigorously improving their research outputs. The peer perception has also increased for these two. While IIT Bombay is still ranked third, IIT Delhi is progressing fast and might overtake IITB in the coming years if IITB does not improve on its outputs in the given criteria.

4.2 Descriptive findings: Entrepreneurial/leadership success

An exploratory analysis of some inspirational global leaders (as per GLT) revealed that very few leaders of Indian origin made it to the list. Even among a filtered sample of 10 such Indian leaders, only two belonged to IITB (see *Table 1*). This seems inadequate, especially for an institution of national importance. Similar trends are visible even in new-age firms and start-ups as can be inferred from *Table 2*.

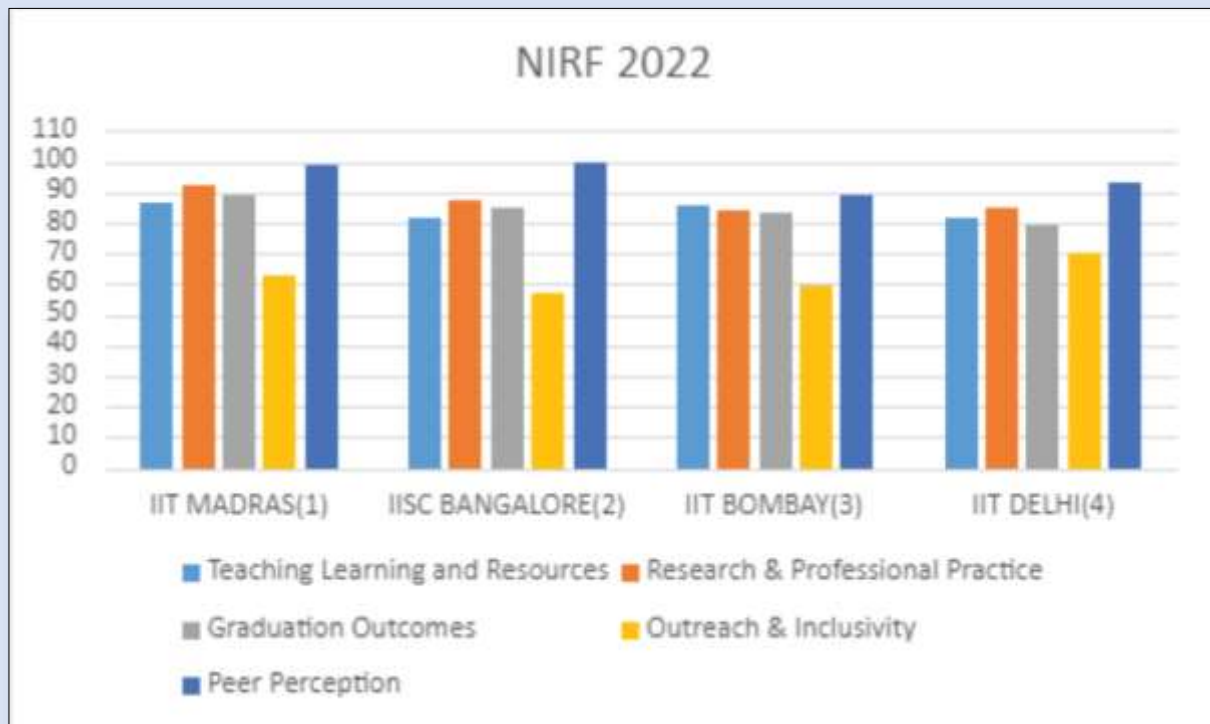


Figure 2: NIRF scores for select few institutions of national importance

Table 1: Inspirational Leaders of Indian Origin and their alma mater (as per GLT)

Name	Company	College/University
Mukesh Ambani	Reliance	University of Mumbai
Satya Nadella	Microsoft	MIT, Manipal
Sundar Pichai	Google	IIT Kharagpur
Reshma Saujani	Girls Who Code	Harvard University
Leena Nair	Chanel	Xavier (XLRI), Jharkand
Parag Aggarwal	Twitter	IIT Bombay
Lakshmi Mittal	Aperam	University of Calcutta
Deepinder Goyal	Zomato	IIT Delhi
Vandana Luthra	VLCC	Delhi University
Nandan Nilekani	Infosys, Aadhar	IIT Bombay

Table 2: Alma mater of a select few founders and leaders of new-age firms and start-ups

Company	Name	Education
CRED	Kunal Shah	Wilson College
Vernacular.ai	Sourabh Gupta, Akshay Deshraj, Prateek Gupta and Manoj Sarda	IIT Roorkee
PharmEasy	Siddharth Shah	IIM Ahmedabad
Digit Insurance	Kamesh Goyal	St Stephen's College
Meesho	Vidit Atreya, Sanjeev Barnwal	IIT Delhi
Groww	Lalit Keshre	IIT Bombay
Nykaa	Falguni Nayar	IIM-A, Sydenham College
Udaan	Vaibhav Gupta	IIT Delhi
Dream11	Harsh Jain	Pennsylvania University
Swiggy	Sriharsha Majety, Nandan Reddy, Rahul Jaimini	Bits Pilani

5.0 Concluding Remarks

Facts collected in our exploratory study shed some light on the institutional stagnation of IITB. Addressing the paradoxical gap of stagnant institutional competitiveness despite the presence of world-class assets and processes would not only help us solve a practical problem facing institutions of national importance but also take us a little closer to resolving a theoretical tension. Identifying the root cause behind premature institutional competitiveness performance would help institutions such as IITB in catching up with their internationally competitive peers (Momaya, 2014; Sharma & Jain, 2014) and would be a meaningful first step toward thinking differently (Momaya, 2020) about sustainability of entrepreneurial ventures originating from or being led by the students and/or alumni of such institutions. Moreover, uncovering why some organizations with superior assets and the best-in-class processes continue to underperform vis-à-vis their peers can augment the utility of the already exhaustively-tested C-APP framework.

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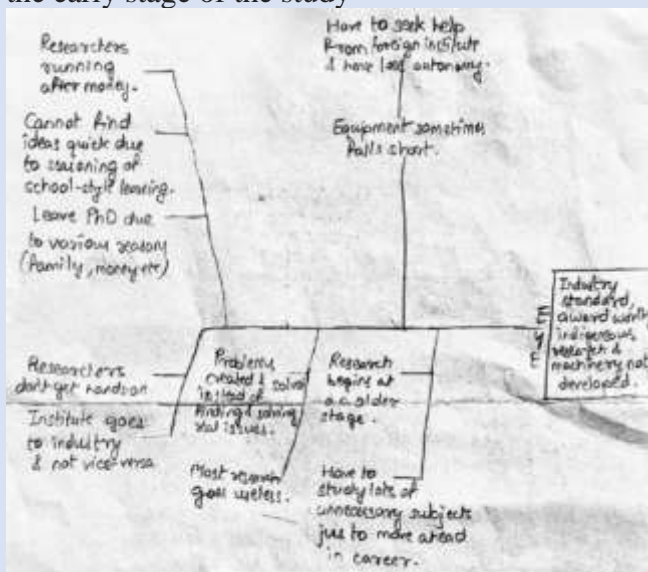
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Appendices

Appendix A1: An iteration of Root Cause Diagram (RCD) of the problem structuring exercise done in the early stage of the study



Appendix A2: Rough-cut ideas and inferences drawn from preliminary research

<p>Possible conclusions about its performance</p> <p>Does really well in India, but falls weak competing internationally.</p> <ul style="list-style-type: none"> •International students and faculty are very low compared to international peers. •Number of faculty per student is also low compared to international peers. •Number of citations per faculty is not satisfactory (research output not world class) <p>PROBABLE OPPORTUNITIES TO JUMP IN PERFORMANCE</p> <ul style="list-style-type: none"> •Substantially increasing the exchange programs and international student admissions. •Recruiting faculty that are not of Indian origin, and have done all their education abroad. •Bajaj innovation centre started for technology, SINE started for stamps, similarly need a new forum (institute or independent) for amping up the Humanities courses, to nurture Leaders and not Managers. <p>EYE: LESS ADEQUATE LEVEL OF INDIGENEOUS R AND D. PRODUCT DEVELOPMENT. (NO NOBELS YET)</p>

Study and Analysis of Wastage Reduction of Wire in hose manufacturing using DMAIC Methodology of Six Sigma

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Abstract

The waste reduction is a matter of significant concern in a Hose manufacturing facility. In Gates India Private Limited, Wastage of wire is only in Rewinder and Spiraller machine. DMAIC Methodology is used to reduce the wastage of wire scrap in hose manufacturing. To find the reasons behind the wastage of wire, data is collected in several ways: Visual inspection of process, time study, Information from staff, line members, production reports. Root cause analysis is performed which helps to determine the exact reasons behind the problem. Well defined implementation plan is prepared for clear communication. The performance of line was monitored on a continuous basis for improvement. Six Sigma DMAIC methodology quality techniques can be successfully used to achieve high production rate, reduce losses and help to reduce wastage. The results reveal that the role of experience of every individual and working together as a team plays a vital role for the improvement in wastage reduction. Implementation of skilled operators reduces the wire scrap about 50%. Further, the study concluded that Setup end problem is solved on spiral machine by replacing the wire counter meter on rewinder machine. The wire broken problem is explained and resolved to some extent by reducing taper rewinding, taper routing, cross routing, regular checking the pack tension and regular preventive maintenance of bobbin pack.

Keywords: Improvement; Production Efficiency; Six Sigma; DMAIC; Lean Manufacturing

1.0 Introduction

Six Sigma is a highly disciplined process which prepares organizations to deliver nearly best services and products (John and Areshankar, 2018; Gandhi et al., 2019). Six Sigma is a process that enables companies to increase profits dramatically by streamlining operations, improving quality, and eradicating defects or mistakes in everything a company does, from raw materials to finish goods (Adeodu et al. 2021). A Six Sigma process generates a defect probability of 3.4 parts per million (PPM) (Cheng and Chang, 2012). Swink and Brian (2012) evaluated the operational impacts of six sigma program adoptions by comparing the financial data of 200 six sigma adopting firms and employ various matching procedures using different combinations of pre-adoption return on assets (ROA), industry, and size as matching criteria. The study revealed that six sigma adoptions have a positive impact on ROA. Shafera and Moellerb (2012) analysed the impacts of six sigma adoption on corporate performance by studying the performance of 84 six sigma firms over a period of ten years and found out that six sigma never impacts corporate performance negatively. Pamfilie et al. (2012) exhibited that individual and organizational performance in organizations can be increased by using well trained leader who focusses on continuous improvement through Lean Six Sigma in driving employee synergy. Easton and Rosenzweig (2012) studied the role of individual experience, team leader experience, organizational experience, and experience working together as a team (team familiarity) in the context of improvement teams and the study revealed that the experience of team leader have a very strong link with the success of project. Jirasukprasert et al. (2014) used the Six Sigma's problem-solving methodology, DMAIC to improve quality in a rubber gloves manufacturing organization by reducing the product defects. The outcome of the study showed that the number of leaking gloves was reduced

by 50% which was very helpful for organization in reducing its defects per million opportunities (DPMO) from 195,095 to 83,750. The organization also improved its sigma level from 2.4 to 2.9. DMAIC is a quality tool which focusses on change management style (Cheng and Chang 2012). Teli et al. (2012) used six sigma tools in automobile industry to reduce the cost of quality. Antunes and Sousa (2013) concluded that for reducing non-added value activities and improving intrinsic processes in the organization's supply chain, Lean logistics and continuous improvement methodologies, such as Six Sigma, are key subjects. Dyah and Surendro (2013) showed Six Sigma could be used for reducing information variance in healthcare sector. Krogstie and Martinsena (2013) analysed the relationship between an industrial case on improvements and an academic model (CLTE) for cross-collaborative engineering on variation and tolerances. Tenera and Pinto (2014) proposed a Lean Six Sigma (LSS) project management improvement model with the support of the DMAIC cycle and a set of statistical tools in a Portuguese telecommunication company. Youssouf et al. (2014) focused on using the lean Six Sigma, the optimization of maintenance for industrial systems. Mili (2014) developed a novel approach that is based on a combined ANP and DEMATEL technique to help container terminals determine critical Six Sigma transportation plans.

The present research work was carried out at Gates India Private limited, Village Lalru, District Sahibzada Ajit Singh Nagar, Punjab, India to minimize the wire scrap used in Hose manufacturing and hence resulting in the cost saving. Wire scrap affects the production efficiency of the plant. This small wastage produces large effect because when we multiply the cost of wastage per setup to No. of setups produced in a year then it becomes very large. Hence appropriate amount of wastage should be reduced by using six sigma methodology. Six Sigma helps to reduce wastage by implementing step by step approach known as DMAIC methodology.

2.0 Methodology

DMAIC Methodology is used to reduce the wastage of wire scrap in hose manufacturing. DMAIC technique is used to find out the causes of wastage, analysis and improvement. DMAIC is abbreviated as Define, Measure, Analyse, Improve and Control. Every task is performed according to the DMAIC technique. The Problem Definition is the wastage of wire. This phase defines the process using various types of charts, graphs and tables e.g., flowcharts, bar charts and spaghetti diagrams. We gathered the information on the nature and extent of the issues identified. To find the reasons behind the wastage of wire, data is collected in several ways: Visual inspection of process, time study, information from staff, line members, production reports. Constructing measurement plan provide affective reasons behind wastage. On-line study of spiral line and rewinder line is conducted. Subsequently, the analysis of the problem statement is performed. Its focus is to identify the root causes for the problem. Root cause analysis helps to determine the exact reasons behind the problem. For the sake of improvement, before implementation of the plan, the activities involved were shared with the team members. Well defined plan was prepared for clear communication and the team presented the case to the management and got the green signal for the implementation. The performance of line was monitored on a continuous basis for the improvement. The primary objective of control phase is to ensure that the gains obtained during improvement phase are maintained long after the project has ended.

3.0 Problem Definition

The definition of the problem is Wire scrap wastage. Pareto improves the efficiency of the Production by reducing wire scrap wastage of hose at Gates India Ltd using six sigma methodologies. The organization would like to reduce the wire scrap and achieve 99% performance level on future project durations.

3.1 Scope of the Project

In Gates India Private Limited, there are a total of four production departments. Mill room is producing rubber for making hose and other three departments is producing hoses as per customer requirements. Out of four departments, spiral area produces more scrap (refer Figure: 1), therefore the scope of improvement is more in spiral area.

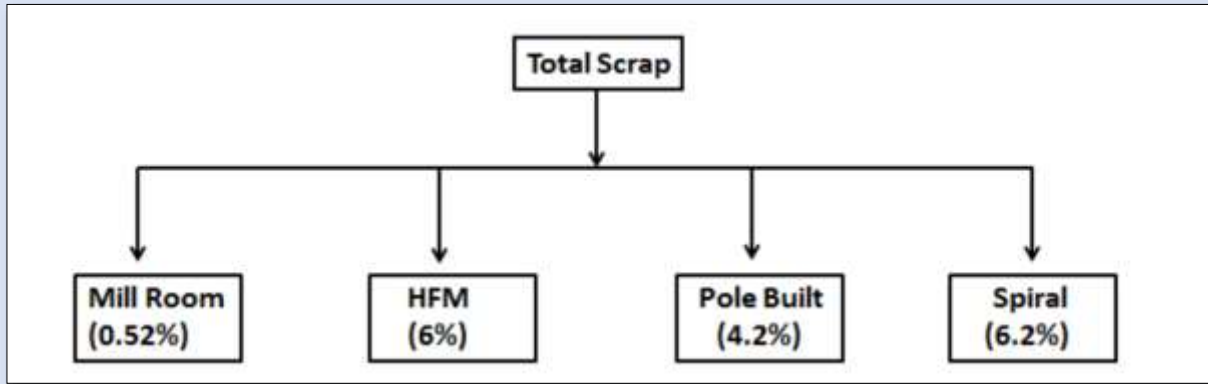


Figure 1: Department wise Distribution of the total scrap produced

3.2 Spiral Scrap

In Spiral Department, wire scrap is highest as compared to other raw material (Fig. 2), therefore the scope of improvement is more in the area of wire scrap.

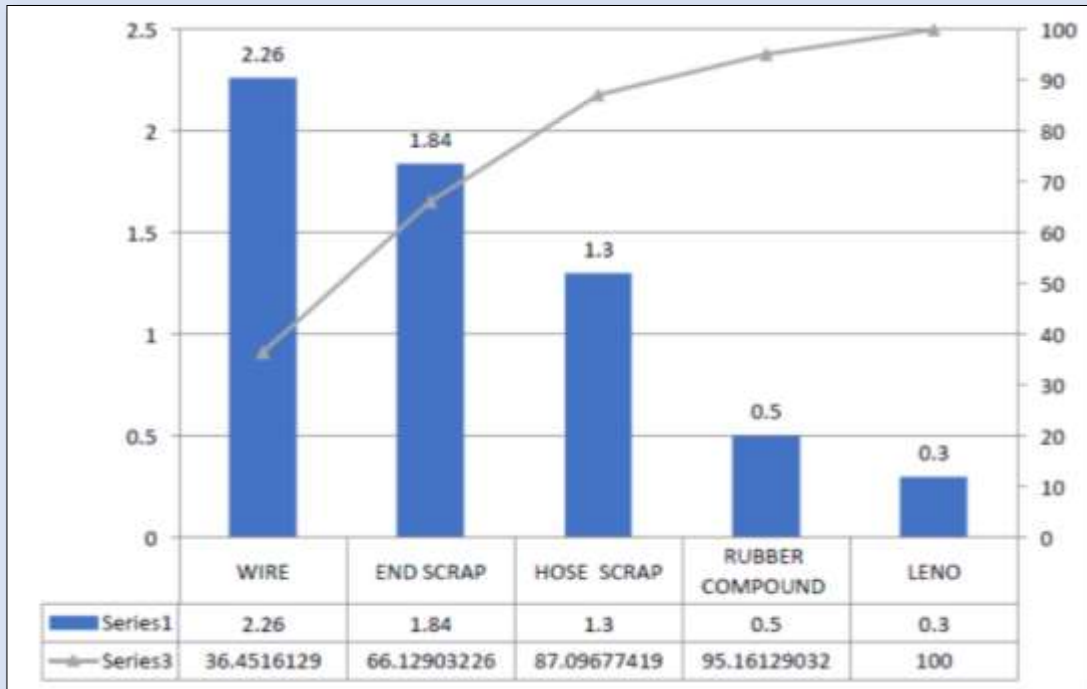
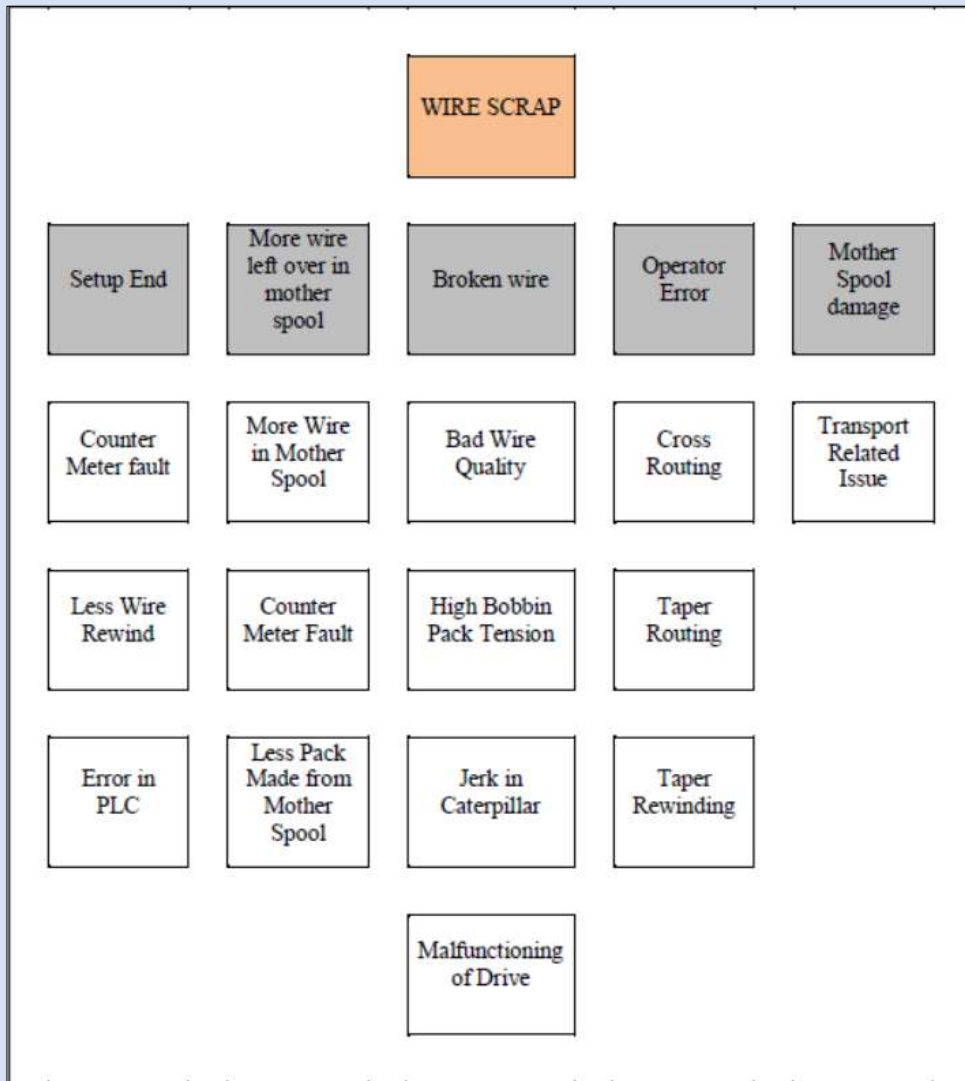


Figure 2: Pareto chart of line rejection

3.3 Wastage

The production efficiency is affected by the wastage of the wire. The wire is highly expensive because of its brass coating. Wastage of wire is only on Rewinder and Spiraller Machine. The basic reason for the above said wastage are more wire left over in mother spool, setup ends, taper rewinding, wire broken, operator error, taper routing and cross routing as depicted in Table 1.

Table 1: Wastage of wire



3.4 Project Plan

Table 2: Project Plan

PHASE	KEY ACTIVITIES	TIMING (Week)
D	Define and trials of experiment	Week 03 to 04
M	Measuring and mapping of process	Week 05 to 09
A	Cause and effect analysis	Week 10 to 18
I	Final implementation of actions	Week 19 to 22
C	Control and holding the gains	Week 23 to 26

3.5 Project Charter

Table 3: Project Charter

<p><u>BUSINESS CASE</u></p> <ul style="list-style-type: none"> In line with MLF Mission and Objectives, we have to provide sustainable competitive advantage for profitable growth of hose business through <p>a) Lean & agile Organization</p> <p>b) Continuous & breakthrough improvements in Manufacturing</p>	<p><u>OPPORTUNITY STATEMENT</u></p> <ul style="list-style-type: none"> Efficiency can be improved by increasing Production efficiency and reducing scrap. Presently, Production efficiency of spiral line is 92.74%.and scrap rate is 6.5%
<p><u>GOAL STATEMENT</u></p> <ul style="list-style-type: none"> Primary Metric: <p>To increase the Production Efficiency of spiral line from 92.74 % to 98.2 % check by July 2016</p>	<p><u>PROJECT SCOPE</u></p> <ul style="list-style-type: none"> Within the scope: <p>Reduce the setup end losses, reduce the wire left over from mother spool and reduce the broken wire issue with kaizen and daily monitoring.</p>

3.6 Process Mapping

It provides full information regarding process from converting the raw material to the finished product. Various processes are clearly defined through process mapping (Fig. 3). Key elements included in process mapping are input and output.

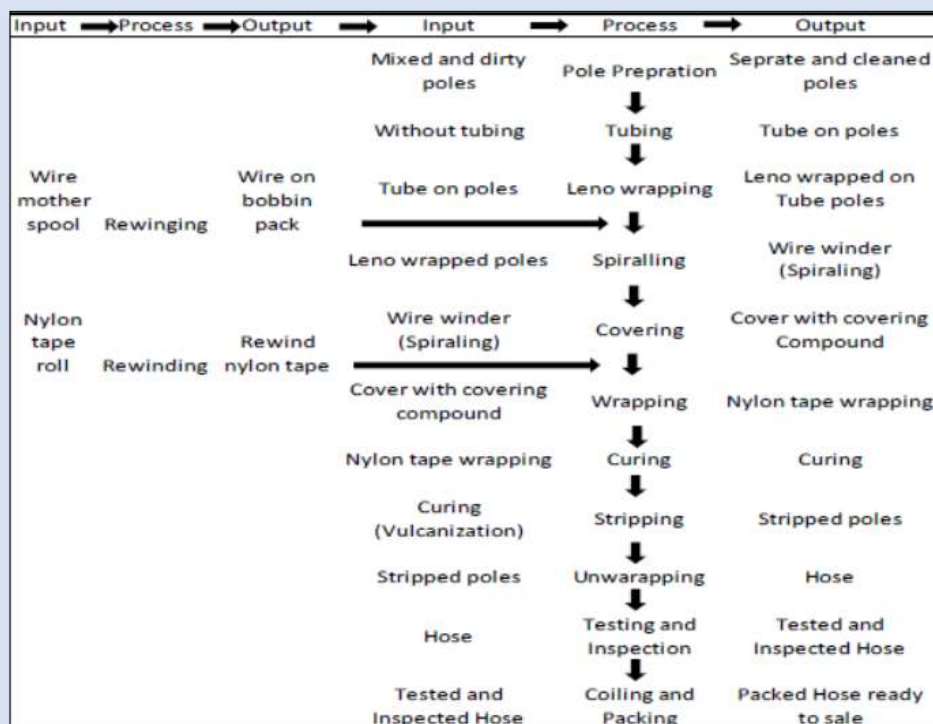


Figure 3: Process Mapping

3.7 Measure

The process is defined by different types of charts e.g., flowcharts and spaghetti diagrams. To find the reasons behind the high wire scrap, data is collected in several ways as:

- Data collection from daily and monthly reports
- Visual inspection of Rewinder and Spiraller machine
- Data from line members and staff
- Developing measurement plan provide affective reasons behind wastage
- On-line study of hose manufacturing production line

Table 4: Prioritization of Sigma Impact

Root Cause	Solution	Sigma Impact 2	Time Impact 2	Cost-Benefit impact 3	Total	Rank
More left over in mother spool	Communicate with supplier and reduce the quantity of wire from mother spool	$8*2=16$	$6*2 = 12$	$7*3 =21$	49	1
Manual Operator	Give training and one point lesson and lead operator will check routing of other operators	$6*2=12$	$6*2 = 12$	$5*3 =15$	39	4
Broken wire	Start bobbin pack tension checking and preventive maintenance of every bobbin pack after 500 setups	$6*2=12$	$5*2 = 10$	$8*3 =24$	46	3
Counter meter not give accurate value	Calibration of counter meter	$8*2=16$	$5*2=10$	$7*3=21$	47	2

3.8 Analyse

The problem statement is analysed statistically. Its main objective is to identify the problem’s root cause. Root cause analysis helps to determine the exact reasons behind the problem.

3.8.1 Root Cause Analysis

It helps to examine the highest level of a problem by a systematic process to identify the root cause. This approach is used to identify the underlying reasons of why an incident happened so that the identification and implementation of the most effective solutions can be done.

It is also called the cause-and-effect diagram or “Ishikawa Diagram”. It is a visualization tool used to identify the root causes of a problem by categorizing the potential causes as depicted in Figure 4. It can be used for:

- Planning and forecasting
- Troubleshooting
- Exploiting Improvement Opportunities

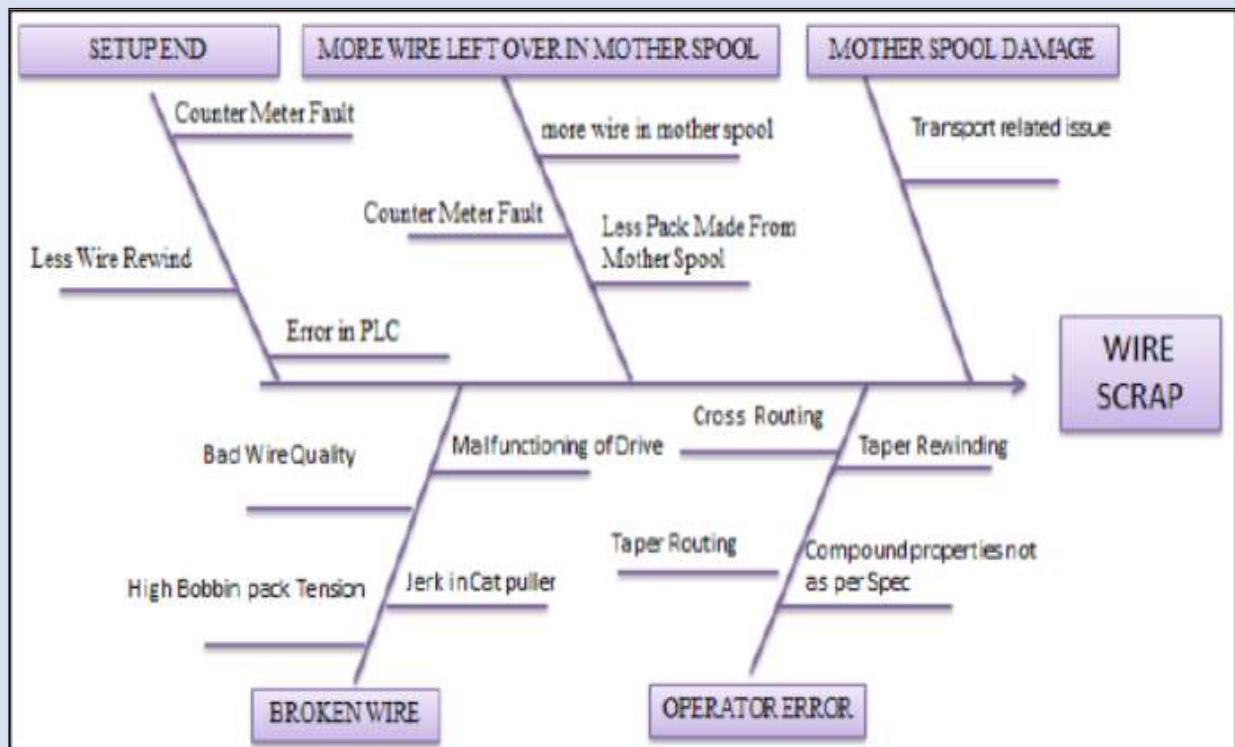


Figure 4: Fish-Bone diagram of wastage of wire

3.9 Outcomes of Six Sigma Techniques

- Reduce the wire from mother spool on supplier end
- Calibration of counter meter
- Improvement in Rewinder
- Start checking bobbin pack tension
- Start Preventative Maintenance of every bobbin pack
- Training and one-point lesson to operator

4.0 Improve

Implementation activities were shared by the team member before implementation. For clear communication, well defined plan was introduced. For getting the green signal of implementation of the new process, the team presented the case scenario to the stakeholders after the new process was designed and tested through trails. On job training was given to the line operators and the line was under monitoring to fine tune the process. Quality control team proved that there were no concerns related to quality of product.

4.1 Reduced the Wire from Mother Spool

Reduce the mother spool wire left over in the existing set ups by optimizing the wire quantity in mother spools. Table 5 and 6 shows that wire reduction calculation from mother spools

- Initial quantity of wire in mother spool = 21200 Meter
- Final quantity of wire in mother spool = 21120 Meter
- Saving the quantity of wire per mother spool = 80 Meter

Table 5: Wire Spool left over calculations (1)

Total Wire in Mother Spool						
Spiral Machine Deck	Rewinder Wire (meters)	Number of spool (meters)	Total Wire Rewind from Mother Spool (meters)	Total Mother Spool Wire (meters)	Wire Left Over (meters)	Wire Left Over After Project (meters)
Deck 1	2470	8	19760	21200	1440	1360
Deck 2	2545	8	20360	21200	840	760
Deck 3	2637	8	21096	21200	104	24
Deck 4	2770	7	19390	21200	1810	1730

Table 6: Wire Spool left over calculations (2)

Mother Spool Wire Left Over Project for 70- 6820 wire		
Number of spools used in set up	48	Spools
Left over wire in 1 mother spool for 1 st Deck	1440	Meters
Left over wire in 1 mother spool for 2 nd Deck	840	Meters
Left over wire in 1 mother spool for 3 rd Deck	100	Meters
Left over wire in 1 mother spool for 4 th Deck	1810	Meters
Wire reduced in each spool	80	Meters
Wire reduction in 48 spools	3840	Meters
Weight of one mother spool	32	Kg
Weight of empty spool	1.5	Kg
Mother spool wire quantity	21200	Meters
Mother spool wire quantity after improvement	21120	Meters
Mother spool weight	32	Kg
Weight of 1 meter wire	0.00151	Kg
Weight of 80 meters wire	0.1208	Kg
Weight of 3840-meter wire	5.7962	Kg
Cost of wire	100	Rs
Total cost saving in one set up	579.62	Kg
Average No. of setups in a month	30	Number
Average cost saving per month	17389	Rs
Average cost saving per year	208664	Rs

4.2 Calibration of Counter Meter

Counter meter is used on Rewinder machine for counting wire quantity in meter while rewind wire from mother spool to bobbin pack. Counter meter was not giving accurate reading because setup end issue increases on line but operator feed accurate value. Due to setup end, increase the wire scrap on spiral and Rewinder machine. Last bobbin pack is also not completed from mother spool due to more or less wire rewind on another spool. These types of issues increase the wire scrap on line and wastage of time also increases. Existing counter meter is changed with new counter meter because of the problem in the pulse and its failure in the test. Now install new counter meter on Rewinder machine for removing the setup end type problem.

4.3 Improvement in Rewinder

Taper rewinding issue is also increased on line due to taper rewinding chances of wire. In OMA Rewinder's there is an option to adjust the taper angle of the packs, but owing to difference in bobbin pack flanges width this auto adjustment system does not work efficiently. Manual Adjustment system is required to get accurate rewinding.

4.4 Start Checking Bobbin Pack Tension

Pack tension is checked on pack tensioner machine. Initially pack tension was checked on weekly basis. Wire broken issue is also reason behind the bad pack tension and this important point came to light in the brain storming session. Now every bobbin tension is checked before rewinding. Bobbin pack tension should between 1.1 kg -1.2kg.

4.5 Training and One Point Lesson to the Operator

Imparted intensive training to operators and one-point lesson pasted regarding every change. Instructions are given to operator and it is made mandatory that at least one lead operator should be in every shift. Further, lead operator will check the routing of other three operators before start up on spiral machine.

4.6 Start Preventive Maintenance of Every Bobbin Pack after 500 Setups

Initially bobbin pack was not planned for preventive maintenance. Only tension was checked if any bobbin tension is not up to the mark on tension machine, then the concerned operator sends that pack into pack repair area. Now every pack tension checked before rewinding and after 500 setups every pack sent to repaired area for preventive maintenance purpose.

5. Measure

The scrap reduction may be judged from the pictorial view as shown in Figs. 5 and 6. The bifurcation of various types of scraps is revealed in Fig. 7. Table 7 shows the calculations leading to total savings.



Figure 5: Scrap before project



Figure 6: Scrap after project

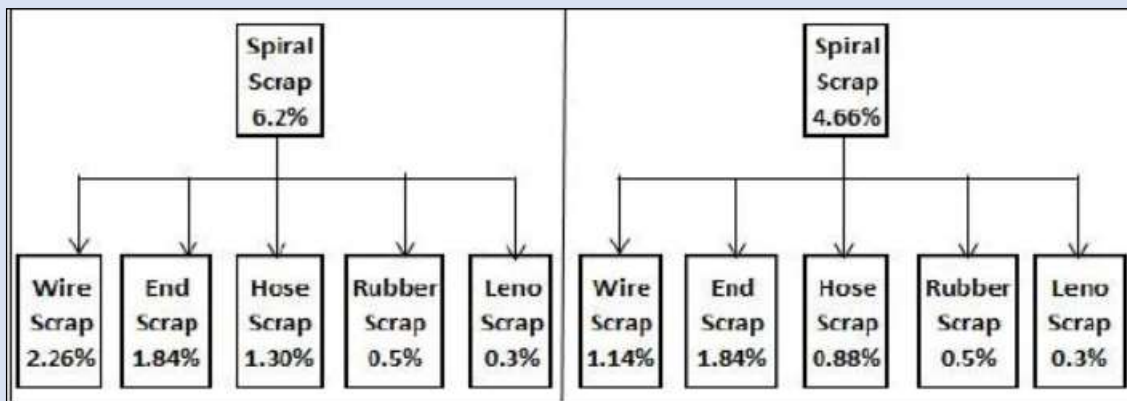


Figure 7: Before and After Scrap Rate

Table 7: Total savings

Total Savings		
Calculations		Saving
Saving on mother spool wire reduction project		2,08,664 Rs
Initial scrap after spiralling	114 kgs	
Final scrap after spiralling	61kgs	
Wire Saving in kgs	53 kgs / in 5 setups in a day (per setup average saving 10.6 kgs)	
Cost of wire	100 Rs	
Total saving	10.6X100=1060 Rs	
Total saving per month (Average setup 30 per month)	1060 X 30 =31800	
Total saving in production improvement per year	31800X12=381600	3,81,600 Rs
Total saving in a complete project		5,90,264 Rs

6. Control

Sustain the improvement long after project has ended, is the main objective of control phase. Moreover, a monitoring plan is required for reacting to upcoming problems.

7. Conclusions

The following conclusions are drawn from the study:

1. DMAIC methodology quality techniques can be successfully used to reduce wastage.
2. 80 meters of wire was reduced from each mother spool to decrease the quantity of left-over wire. A total of 3840 meters wire is saved in 48 spools.
3. Setup end problem is solved on spiral machine by replacing the wire counter meter on rewinder machine.
4. The wire broken problem is resolve to some extent by reducing taper rewinding, taper routing, cross routing, regular checking the pack tension and regular preventive maintenance of bobbin pack.

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The effect of Participative Management style on Employee Learning: The Mediating of Strategic Planning Processes

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Abstract

This paper integrates the organizational learning theory with resource-based theory to examine the effect of strategic planning processes on participative management and learning at work relationships using the mediation model. The hypotheses were checked on a sample of 480 employees employed in India's public and private sector organizations, using Structural equation modelling to test model fit. A mediation analysis using the Hayes PROCESS macro was conducted to assess the hypothesis. The finding of the study advocate that the participative management style is positively related to learning at work. Furthermore, strategic planning processes have mediated the association between participative management style and learning at work. Results asserted that managers and practitioners should emphasize participative management and empowerment in the organization rather than the typical hierarchical structure. The study's findings imply that adopting a participative management style can be placed in position by giving employees access to strategic planning procedures, which will boost learning at the workplace. The contemporary study is pioneering in examining the proposed model connecting participative management style, strategic planning processes, and learning at work.

Keywords: employee participation, learning, participation, participative leadership, participative management, strategic planning processes

1.0 Introduction

One of the major challenges managers face today is identifying and attracting talented employees (Thunnissen *et al.*, 2013). Organizations must develop proactive strategies to ensure adequate stock of organizational talent pools to produce results. (Mellahi and Collings, 2010; Schuler *et al.*, 2011). Participative management denotes the style of leadership by which subordinates are involved by the leader in problem-solving and decision-making (KAHAI *et al.*, 1997; Somech, 2006). The advance of both individuals and the organization has depended heavily on the formation of a learning environment at work. Recent years have observed a significant increase in workplace learning as full or partial compensation for training and vocationally oriented education. On the one side, the focus has moved from teaching and education to learning at the workplace and competency development. And on another side, the interest shifted towards learning at work based on work and workplace learning, including work-related learning happenings outside the place of work. Participative strategic planning processes are a consent-making approach that helps people come together to elucidate how they want their organization or people to progress over the upcoming years. According to a Harvard Business Review (HBR) study, Group or team members learn from their peers (55%) and ask their superiors or bosses. The study aims to find a relationship between participative management style and learning mediated by strategic planning processes, which has not been empirically tested in the Indian Context.

This paper seeks to respond to four primary research questions: Does participative management style enhance strategic planning processes? Do strategic planning processes promote learning in the organization? Does the participative management style lead to learning in the organization? Do strategic planning processes mediate the relationship between participative management style and learning? Data from 405 respondents have been collected to answer these questions.

Participative management is also concurrent with enhanced openings for personal learning and development through the work and with a greater probability that people share knowledge with their co-workers. As also shown in research (Inanc *et al.*, 2015), the direct involvement of employees significantly improves learning at the workplace concerning both informal learning and training. Empirical studies show the growing significance of the participative management style to organizational effectiveness in state government-owned, privately owned, and foreign-invested organizations. Increasing evidence supports this claim that participatory management fosters positive employee attitudes in the government sector (Huang *et al.*, 2006; Kim, 2002; Wright and Kim, 2004). According to organizational learning theory, interaction among individuals with different knowledge and experience helps the organization innovate and augment knowledge (Cohen and Ledford, 1994). To increase knowledge synergies, productivity, and performance, an organization involves its managers and staff in collective learning (Peteraf and Barney, 2003; Teece, 2014). Participative management offers a platform for the interaction of knowledge and learning collectively among employees and managers and helps an organization learn and grow. According to the resource-based theory (RBT), an organization is composed of many resources required to produce and exchange products and services (Barney, 2000). Organizations must utilize these resources to be competitive in the market and gain an edge over rivals (Peteraf and Barney, 2003; Tian and Zhai, 2019). For the sake of the study, we have integrated the RBT (Resource-based theory) with organizational learning theory to advance a theoretical framework of association between participative management style and performance and test the hypothesis on the data collected.

In the following way, the article is structured. The first theoretical background on participative management style, strategic planning processes and learning is framed to develop hypotheses followed by methodology, analyses and results. The study's discussion and theoretical and practical implications are outlined, followed by limitations, future actions, and a conclusion.

2. Theoretical Background and Hypothesis Development

Participative Management style and learning

The concept of participative management or employee involvement, or participative leadership, developed in the nineteenth century and has become the attention of researchers in topical decades (Cox *et al.*, 2006; Lam *et al.*, 2002; Salas-Vallina and Fernandez, 2017). Participative management, the leadership style, allows the supervisor to encourage their subordinate to share some extent of obligation in the workplace (Sauer, 2011; Somech, 2003). Participative management facilitates the involvement of subordinates in the managerial process by or through inspiration, support & influence, and resource provision. In this management style, consultation is preferred instead of direction (Amabile *et al.*, 2004), along with consensus focusing and exhibiting behaviours that permit followers to survive (Wageman, 2001). Research conducted on Chinese employees discloses that newer employees with brief tenure reply more progressively to participative management style by revealing a more level of commitment (Huang *et al.*, 2006) and that participative management significantly influences the work-related performance of a non-managerial employee by causing a greater level of trust (Huang *et al.*, 2010).

Learning is amalgamated within the day-to-day solving of different problems (Kaufman, 2001), and the motive and way of learning immensely stem from the objectives of work itself, naturally rising because of the challenges and demands of the work and interaction with people at the place of work. Study on workplace learning has markable emphasized the significance of learning through interaction and cooperation with co-workers and networks (Poell and Van der Krogt, 2010). Research on the learning of teams and leadership (Ortega *et al.*, 2013) has concluded that the leader's behaviour plays an essential role in change. In this direction, change is a thing that is not exclusively initiated by the

senior level of management but by leaders of all levels. Moreover, a leadership style oriented toward change seems to have a pivotal part in team members' learning (Ortega *et al.*, 2013). Scholars Human resource management has done notable work to find how and in which manner participative management helps to advance the performance and job satisfaction of the employee and produced unconvincing or even contradictory findings (Cox *et al.*, 2006; Miller and Monge, 1986; Salas-Vallina and Fernandez, 2017). In finding the effect of direct participation on learning, the author has focused on three key dimensions: informal learning, training receipt and quality of training (Inanc *et al.*, 2015).

Studies related to participation, e.g. (Easterby-Smith *et al.*, 2000; Sverke *et al.*, 2008), have shown participative management style is among the vital rationalizations of positive organizational change. Participative management has been seen as strengthening learning because it brings people different knowledge, experience and skill (Kitzmiller *et al.*, 2010).

Research confirms that direct participation and learning have significant positive relations (Inanc *et al.*, 2015). Different forms of participation of employees have distinct Effects on the specific type of learning. However, it is shown in research that the participation of the employee in decision-making and learning depends to some extent on the workplace setting technology level and the employee's skill level (Inanc *et al.*, 2015, Felstead *et al.*, 2010). Although, there are limited studies that have established positive relation between participative and learning (Inanc *et al.*, 2015; Valleala *et al.*, 2015). As per social exchange theory (Blau, 2017), we might suppose Participative management to engender learning at the workplace and thus, we hypothesize:

Hypothesis 1: Participative Management style is positively related to Learning at work.

Participative Management Style and strategic planning processes

With the help of these staff, employees in strategic planning processes may have a lucid comprehension of the strategic aims and may have short-term plans and their execution. Furthermore, employees can simplify what their roles are so that they can diminish role conflict and role ambiguity during strategic plan implementation. Temporary teams consist of different hierarchical levels of employees and top management in strategic planning (Ketokivi & Castañer, 2004). The strategic planning process converts the basic stuff of enterprises as it makes a platform to communicate for making decisions and allows more participation in planning (De Baerdemaeker & Bruggeman, 2015). Many researchers argue that strategic management is far away from the realities of management and is based upon theoretical principles (Berry, 1998).

Zandi, Sulaiman, Atiyat, & Naysary, (2013) Define strategic planning as a method of goal-setting, analysis of the situation, creating ideas to manage the situation well, and accomplishing goals. (Perez, 2015) claimed that strategic planning offers an outline that helps enterprises get a competitive advantage over others and improve performance. (Wooldridge & Floyd, 1990) claim that the conceptualization of strategy is not only the province of a higher level of management; it demands higher-level management and employees at different positions in the organization. Many studies claim that the organization's performance is enhanced by strategic planning processes (MILLER & CARDINAL, 1994). And also, organizational effectiveness shows positive relation with strategic planning (Tapinos, Dyson, & Meadows, 2005). The management role in strategic planning has been highlighted by many authors (e.g., (Fiegener, 2005)). Some studies have claimed a positive effect of participation of management in strategic planning, while some have not supported that management participation has an impact on strategic planning (Dyson & Foster, 1982), however strong support of theory claims that accomplishment of management outcome is enhanced by management participation (Bourgeois & Brodwin, 1984). Participation in management and strategic planning effectiveness has no significant relationship (Elbanna, 2008). In strategic planning, the involvement of middle

management leads to a better understanding of resultant goals and enhances coordination between middle and top-level management on strategic priorities (Wooldridge & Floyd, 1990). Hence for better organizational performance, the participation of management in strategic development is essential. Research shows that different forms of strategic planning in incentive, participation, control and assessment affect the performance of a business important manner (Dubihlela & Sandada, 2014).

A study conducted on business management claimed that employee participation positively affects the strategic planning process, which can lead to improved business performance (Dubihlela & Sandada, 2014). Many scholars claim that participative management in strategic planning is pivotal in successful strategy implementation (Barker & Frolick, 2003; Ketokivi & Castañer, 2004). Similarly, (Barker & Frolick, 2003) argue that for successful strategy implementation, employees need to be involved unconditionally. Thus,

Hypothesis 2: Participative Management style is positively related to strategic planning processes.

Strategic planning processes and learning

The strategic plan reflects the values and beliefs of not all stakeholders but their architects. It requires the participative environment to include the values and beliefs of all stakeholders. The primary drive of strategic planning is to foster change in an organization (Liedtka, 2000a, 2000b). the logic behind the rationale involves employees; there is a high chance they would accept strategic change (Elbanna, 2008; Fiegeney, 2005; Westley, 1990). Some scholars have recommended that participation in strategic planning would affect the triumph of strategic execution and enhance organizational performance (Collier *et al.*, 2004; Grundy and King, 1992; Miller *et al.*, 2004). Strategic planning could raise commitment to the implementation of strategy because it explains and clarify the strategy and vision of the organization (Liedtka, 2000a, 2000b), adopt an understanding of the strategy of the organization (Mantere and Vaara, 2008) and help the administration to consent about the strategy (Wooldridge and Floyd, 1990). Strategic planning shows the big picture about the situation of the market and organization, which could lead to improved decision results (Denison *et al.*, 2003). This can also help in the enhanced acceptance of decisions (Jehn, 1997) and consent (Markóczy, 2001), thus cumulative the change that employees of the organization would accept and implement the plan. Earlier research suggests that one of the significant keys to organizational success is to implement strategy well (Liedtka, 2000a, 2000b). however, (Hutzschenreuter and Kleindienst, 2006) claim there is less record of successful strategy implementation. Scholars claim that strategy implementation strategy is significant to performance (Wooldridge and Floyd, 1990). Some scholars have recommended that strategic planning would affect the accomplishment of strategy implementation and thus enhance an organization's performance (Collier *et al.*, 2004; Grundy and King, 1992; Miller *et al.*, 2004). Thus,

Hypothesis 3: strategic planning processes are positively related to learning

The Mediating Role of strategic planning processes

The participative management style has been widely taken as a strategy for the organization's development. The employees believe that the participative management style helps them, employees, to find out what are their duties and responsibility and it also helps them to enhance their current performance and the performance of the organization. There are substantial differences in the opportunities for learning at work of employees in respect of the type of work employees perform, employees' characteristics and the environment of an organization. Participative research (e.g. (Easterby-Smith *et al.*, 2000; Sverke *et al.*, 2008)) claims that participative management plays a significant role in victorious organizational change. Employee participation has been seen as increasing

opportunities for learning for employees since it brings people different kinds of knowledge, skill and experience together (Kitzmilller *et al.*, 2010). Thus,

Hypothesis 4: strategic planning processes mediate the relationship between Participative management style and learning at work.

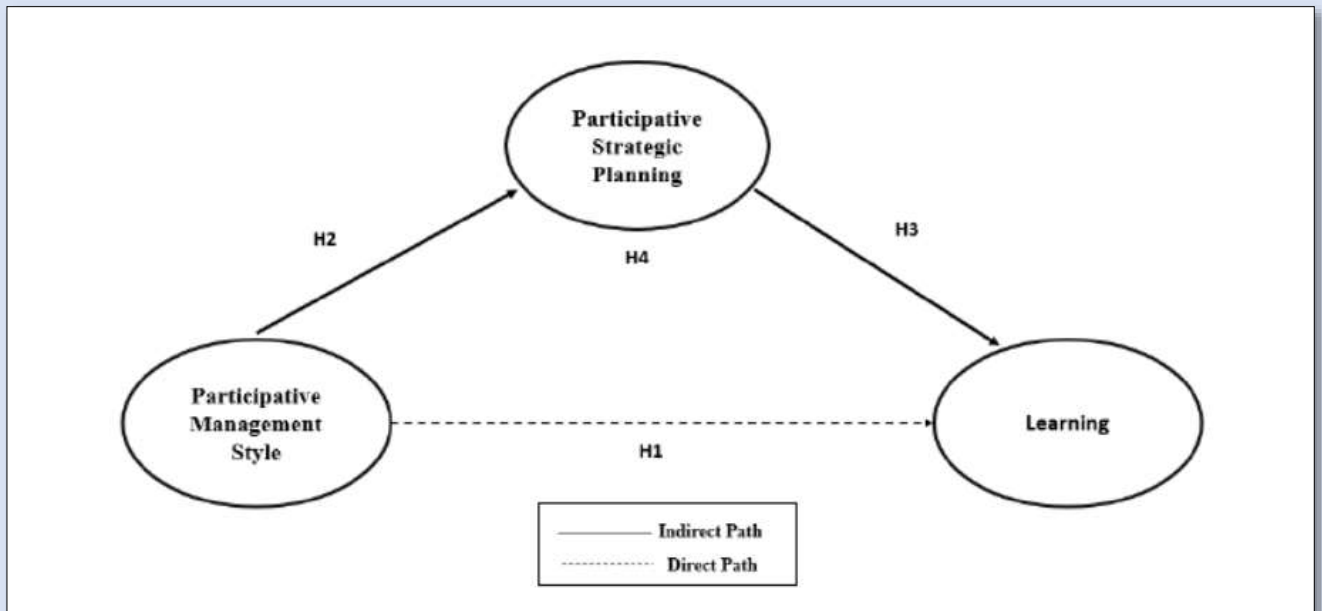


Figure 1: The Proposed Hypothesised Model

3.0 Method

3.1 Sample and Data

For the sake of the study, the data has been collected with the help of a questionnaire survey from the employees working in I.T., Service and Manufacturing organizations in India. Administration of the Survey is done online mode only. The seven-point Likert scale has been used ranging from 1 = "strongly disagree" to 7 = "strongly agree" for collecting employees' responses. About the purpose of the study, the respondents have been informed. Google form was used to distribute the questionnaire, and through email, the link to the form was provided to the respondents. The questionnaire survey form link was sent to 650 employees through email. The best appropriate alternative from each item on the scale was asked for by the respondents. The survey's mechanics were explained to respondents, who were also assured confidentiality and anonymity. A total of 405 responses have been received, and there was no missing response in the datasheet. As per the recommendations given by Hair Jr et al. (2010), the sample size should be at least five times to appropriately ten times the number of observations in the study that are to be taken into analysis. The sample size of 405 obtained, which represents a 62.30% response rate, is sufficient for the research. Among the respondents, 136 (33.06%) were females, and 269 (66.4%) were males. Regarding the age of the respondents category-wise, 379 (93.6%) were in the category of 21-35 years of age, and 25 (6.2%) were in the category of 36-50 years of age. Regarding respondents' organization status, 186 (45.9%) were working in a private organization, and 219 (54.1%) were working in a public organization. In terms of Job Position, 158 (39.0%) were at a junior level position, 187 (46.2%) were at a middle or intermediate level position, and 60 (14.8%) were at a senior level position.

3.2. Measures

The following measures were employed to collect data:

3.2.1. Manager's use of a Participative Management style

The Manager's use of a Participative Management style was Measured with a scale of four Items developed and validated by (Kim, 2002). Sample items are "since last two years, managers in my department have attempted to allow employees to improve our work process" and "Managers in my department have made an effort to increase employee involvement in decision making." The seven-point Likert used for this study ranges from (1 = "strongly disagree" to 7 = "strongly agree"). The (alpha coefficient) internal consistency for the Manager's use of the Participative management style was 0.89.

3.2.2. Strategic planning processes

Participative Strategic Planning Processes have been Measured with a scale of Three Items developed and validated by (Kim, 2002). A sample Item for Participative Strategic Planning Processes is "I feel that I had input in the development of my department's strategic planning process" And "I understand my role in accomplishing the goals in my department's strategic plan." The seven-point Likert used for this study ranges from (1 = "strongly disagree" to 7 = "strongly agree"). The (alpha coefficient) internal consistency for the strategic planning processes was 0.80.

3.2.3. Learning at Work

Learning a sub-scale (a fourteen-item scale) developed and validated by (Porath *et al.*, 2012) has been taken to measure learning. A sample item for learning is "I am experiencing considerable personal growth", "I enjoy seeing how my views have progressed", and "I have not grown much recently". The Likert scale with a seven-point response scale was taken in this study ("strongly disagree" =1, "strongly agree" =7), and higher scores indicated higher learning. This scale's (alpha coefficient) internal consistency was recorded at 0.93 for this study.

3.3. Analytical Approach

The CFA (confirmatory factor analysis) and SEM (structured equation modelling) were used to find this study's validity and reliability. Furthermore, hypotheses were tested through SEM (structural equation modelling), and a Sobel test was conducted for mediation analysis. Moreover, for non-normality, the Sator-Bentler test with 5000 Bootstrapping random samples was done to determine the mediation effect of strategic planning processes on participative management and learning at work. SPSS and R-studio software have been used to analyse data statically.

3.4 Analysis and Result

The data were analysed with confirmatory factor analysis (CFA). Latent factors were calculated and analysed to determine whether the study's model fit. A CFA at the dimension level was performed. The factors participative management style, strategic planning processes and learning at work model were good fitters for the data and values ($\chi^2 [98] = 262.699$, $\chi^2 /df = 2.68$; p-value > 0.001, Comparative fit index [CFI] = 0.997, Goodness of Fit Index[GFI]= 0.996, Root Mean Square Error of Approximation [RMSEA] = 0.06, Root Mean Square Residual [SRMR] = 0.048) as per recommendation given by (Hooper, Coughlan, & Mullen, 2008).The structural model and standardized path coefficients are shown in Figure 2. The figure 2 shows the standardized path coefficients and the indirect effect of strategic planning processes on participative management style and learning at work.

3.5 Descriptive statistics

The inter-correlation means and standard deviations (S.D.) of all the study variables for our sample are presented in Table 1. It has been clearly shown that; Participative management style was positively associated with learning at work ($r = 0.503$, and $p < 0.01$). This provides initial support for Hypothesis 1. As expected, the participative management style was positively associated with strategic planning processes ($r = 0.631$, and $p < 0.01$). Besides, a positive correlation between participative strategic planning processes (PSPP) and learning at work ($r = 0.511$, and $p < 0.01$) was also found. The AVE [Average variance extracted] is mentioned in bold format diagonally. The AVE [Average variance

extracted] for all the constructs was greater than 0.5, thus showing adequate Convergent Validity of the constructs (Fornell & Larcker, 1981). The value of the square of the correlation between the constructs was lower than the AVE [Average variance extracted] of the constructs, demonstrating the discriminant validity of the constructs and the fact that the factors under study have internal variance higher than the variances shared among them (Fornell & Larcker, 1981). Table 1 displays the AVE value, [C.R.] Composite Reliability, a square of inter-factor correlations and Inter-factor correlations. The composite reliability was calculated to find the internal consistency of the model. The internal consistency was greater than the threshold limit of 0.6 and ranged from 0.88 to 0.94 (Fornell & Larcker, 1981). The values shown in Table 1 confirm the Discriminant Validity and Convergent Validity of the variables under study. The item-wise description and their corresponding item loadings are displayed in Table 2. All the items have loadings ranging from 0.70 to 0.90, demonstrating good factor loading.

TABLE 1. Mean, Standard Deviation and Correlation of study variables

S.no.	Factors	Mean	S.D.	C.R.	Correlations									
					1	2	3	4	5	6	7	8	9	
1	Age	.07	.259	---	---									
2	Education	1.78	.657	---	.059	---								
3	Job position	.76	.693	---	.200*	-.027	---							
4	Experience	.08	.325	---	.732**	-.058	.214**	---						
5	Organization status	.54	.499	---	.008	-.104*	.172**	-.042	---					
6	Income	1.66	1.403	---	.151**	.177**	.197**	.112*	-	---				
									.129**					
7	Participative management	5.20	1.386	0.91	-.020	-.096	.124*	-.030	.121*	.061	0.712	0.38	0.29	
8	PSPP	5.49	1.110	0.84	.037	-	.199**	.071	.086	.090	.616**	0.643	0.28	
						.136**								
9	Learning	5.79	.983	0.94	.022	-.096	.163**	.002	.068	.007	.538**	.531**	0.663	

Note. M=Mean; S=Standard Deviation. N=405; CR = Composite reliability of the measurement model; and α = Cronbach alpha. The average variance extracted from each construct (No. 7, 8, 9) is represented in **bold** along the diagonal. Values above the diagonal (i.e., AVE) are squares of correlations; Values below the diagonal represent inter-construct correlations. * $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

3.6 Hypothesis testing

Structural equation modelling with the Sobel test was used to examine the mediating effects of strategic planning processes, participative management style, and learning at work in order to test the proposed model. As per the results of the model fit tests, the data and values were found to be suitable (Hooper et al., 2008).

The values for the path coefficients, standard error, and Z-statistics are shown in Table 3. From the SEM {Structural equation modelling} outcomes in Figure 2, participative management style was positively associated with learning at work ($\beta = 0.340$, $p < 0.01$), thus proving hypothesis 1. Participative management style was also positively related to strategic planning processes ($\beta = 0.615$, $p < 0.001$), thus supporting hypothesis 2. The association between strategic planning processes and learning at work showed significant results ($\beta = 0.321$, $p < 0.001$), thus, Hypothesis 3 was also supported. The indirect impact of strategic planning processes on the relationship between participative management style and learning at work was calculated by multiplying the Standardized path coefficients of the relevant relations. The bootstrapping method was used to evaluate the mediating effect of strategic planning processes on the relationship between participative management style and

learning at work with 5000 random bootstrap re-samples. The Indirect effect participative management style on learning at work via strategic planning processes (indirect effect =0.198, $p < 0.01$), with bias-corrected 95% CI (0.121, 0.283) was significant.

TABLE 2: Internal Reliability, Item Description and Factor Loadings

Items	Description	Loadings
Participative management style		$\alpha = 0.89$
Participative management style 1	Managers allow employees to improve the work process	0.805
Participative management style 2	I have seen a positive change in management style	0.864
Participative management style 3	Managers made an effort to improve communication	0.846
Participative management style 4	Managers made an effort to enhance employee involvement in decision making	0.859
Participative strategic planning processes		$\alpha = 0.80$
Participative strategic planning 1	I understand the strategic vision, mission and goal of my department	0.789
Participative strategic planning 2	I give input to the department	0.857
Participative strategic planning 3	My role is important to the organization	0.756
Learning		$\alpha = 0.90$
Learning 1	I am experiencing substantial personal growth	0.782
Learning 2	I am making growth in positive ways	0.870
Learning 3	I enjoy seeing how my views have progressed	0.825
Learning 4	I consistently learn more as time goes by	0.824
Learning 5	I am finding new options to develop	0.816
Learning 6	I am developing myself a lot	0.796
Learning 7	I find myself learning often	0.722
Learning 8	I see myself constantly improving	0.852
Learning 9	I think I am continuing to develop	0.834

4.0 Discussion

The current study examined the association between participative management style and learning and strategic planning processes mediating the relation. Based on survey data obtained from 405 respondents', it was found that the participative management style was related positively to learning and strategic planning processes mediating the relationship. Earlier research predominantly examined the effect of Participative management on the performance and job satisfaction of workers in the organization, failing to connect participative management to learning. Participative management is expected to engage employees and their managers and supervisors in contemporary learning, which can help increase the firm's productivity and profitability. By suggesting a link, formulating a hypothesis, and outlining the role of the mediator variable in the relationship between two important study variables, this study broadens the research domain for the variables under examination.

Table 1 consists of the construct's mean, {S.D.} standard deviations, correlation and demographic variables. And convergent validity and discriminant validity was found valid for latent construct. The internal consistency and loading of the items are displayed in table 2. The table provides a description of each item, and construct-related items have good loading. All the item loading is found to have significant factor loadings explaining that all the items are manifestation variables of their respective factors. The objective of the hypothesis was to comprehend how well the relationships between the constructs functioned. Data were used to test the hypotheses using structural equation modelling (SEM) and confirmatory factor analysis (CFA) with the Sobel test. Following this test, a Satorra-Bentler test with 5000 randomly selected bootstrap samples were conducted, and the results demonstrate a significant indirect relationship between participative management style and learning through strategic planning processes. These tests' results support the hypotheses and found a positive and significant relation between participative management style and learning. The relation between participative management style and learning was positive and significant ($\beta = 0.340$, $p < 0.001$). Thus, fulfilling hypothesis 1. Another goal of the research is to comprehend the relationship between strategic planning processes and learning. The result of data analysis expands the contribution to this objective, where the relationship between participative management style and strategic planning processes was positive and significant ($\beta = 0.615$, $p < 0.001$). Thus, the second hypothesis of the study was also fulfilled. Data analysis and results also show a significant and positive relationship between participative strategic planning processes and learning ($\beta = 0.322$, $p < 0.001$). Thus, this study also supports the third hypothesis, as mentioned in Table 3.

TABLE 3: Results of Mediation Sobel Test

Regression among variables	Paths	Estimate	Std. Err	z-value	Std. all
MusePM-PSPP	(a)	0.615	0.031	15.694***	0.756
PSPP-Learn	(b)	0.340	0.036	6.684***	0.455
MusePM-Learn (Direct Effect with a mediator)	(c)	0.321	0.045	6.326***	0.305
Indirect Effect	(ab)	0.198	0.041	3.880***	0.344
Total Effect	(c+ab)	0.382	0.029	12.824***	0.649

The total effect of constructs (c+ab) was significant ($\beta = 0.382, p < 0.001$), as shown in the table 3. The Sobel test was used for mediation analysis, and it revealed a significant indirect effect ($\beta = 0.198, p < 0.001$), achieving the study's fourth goal. Between the confidence interval of the lower limit and the confidence interval of the upper limit, no zero value was observed. There was a substantial indirect effect as a result. The structural model in figure 2 shows the relationship among the variables, which also displays the path of mediation of strategic planning processes between participative management style and learning. This research provides an association among the latent construct that affect the place of work significantly, having equal importance of each; participative management style, strategic planning processes and learning.

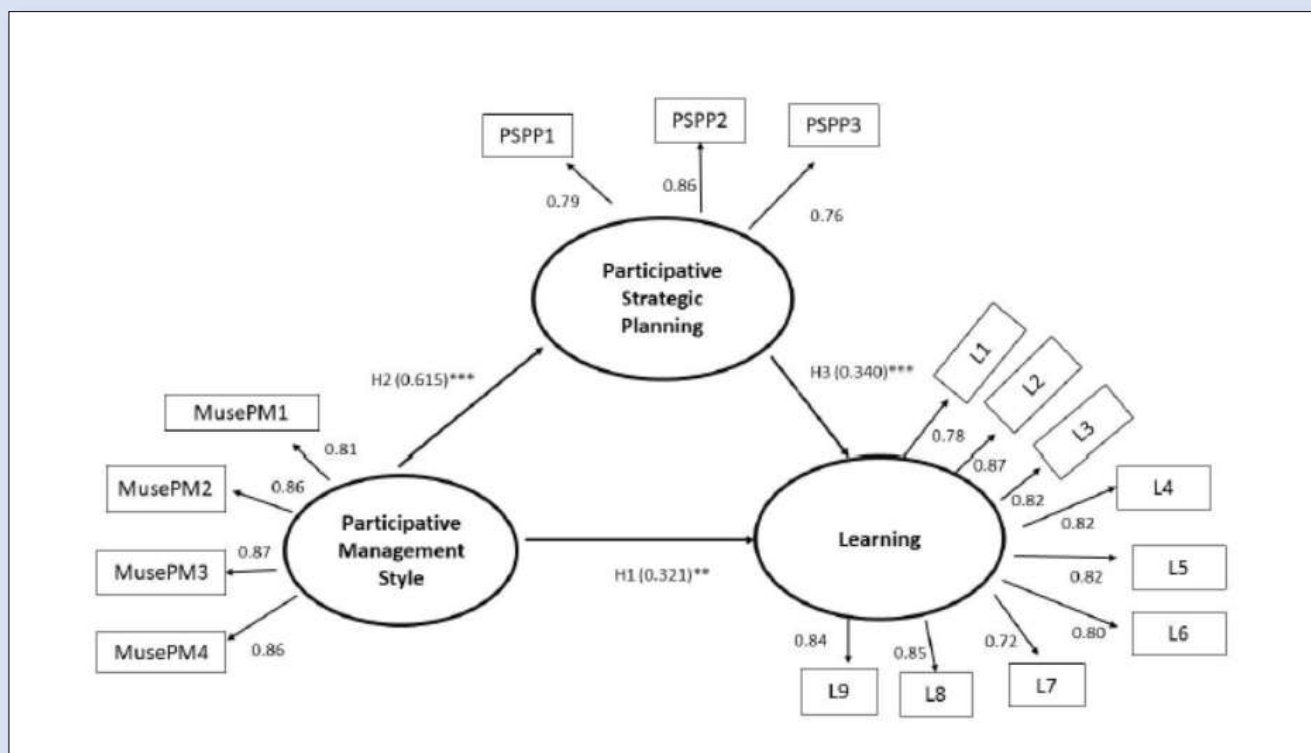


FIGURE 2. Structural equation model with standardized path coefficients

4.1 Theoretical Implication

Earlier research majorly investigated the participative management impact on the performance and job satisfaction of an individual employee and has not focused much on the organization's overall performance. This study combines RBT with organizational learning theory to create a framework that involves employees and managers in collective learning through participative leadership, hence enhancing employee and organizational learning. The framework suggests that whether or not it provides opportunities for managers, supervisors, and employees to be involved in collective learning at work determines whether participation is a failure or a success. This is a noteworthy contribution the study makes to the literature. Participative management offers employees their say in decision-making, whereas, in employee participation in decision-making, the decisions are wholly in the hands of employees. This paper supports participative management to enhance learning and performance, which is of the utmost requirement for organizational success and profitability by or through strategic planning. This contribution also adds value to the literature.

4.2. Managerial Implication

The findings of this research also have some implications for employees and managers. This study adds to the literature about participative management style and learning. An organization is composed of people with different backgrounds and knowledge. Interaction of the varied knowledge structure helps an organization with knowledge enhancement and innovation. It has become essential for organizations to bring employees and management people to a place for learning collectively and giving them a place and opportunity to unite their diverse knowledge and education to increase the profitability as well as productivity of the organization (Tian and Zhai, 2019).

Our finding provides an addition to employee learning in public and private organizations, which is affected by increasing the participative management style of managers based on survey data of 405 employees. Moreover, we confirm a positive relationship between participative management style and learning in private and public organizations in India. Results support the result that direct participation of the employee in decision-making notably increases learning at the place of work for both informal learning and training (Inanc *et al.*, 2015). As evidenced in this study, organizations need to adopt a participative management style that allows managers and employees to learn at work. University leaders can use a participative management style in preparing strategic and development plans and allow decisions to be centralized to reduce development plans. By such a mechanism, a sense of shared responsibility, along with commitment and cooperation among administrators and faculties, will be increased, and as a result, organizational learning could be facilitated.

5. Conclusion

Earlier studies have emphasized the role of participation in motivating workers, job satisfaction and performance of the worker and claimed that the more participation of workers and employees in decision-making, the better. The claims had not paid attention to the role of participative management style and strategic planning processes in involving managers and employees in learning at work. The effect of the participative management style on learning through the mediation of strategic planning processes was significant. The mediating effect of strategic planning processes shows a significant path, validating the indirect effect. Thus, this study strived to understand the relation and effects of participative management style and strategic planning processes on learning, with the mediating role of strategic planning processes in Indian public and private organization scenarios. In participative management, the decisions are collectively taken by management and workers, which in turn helps to increase productivity and performance. Organizations need to design a platform for participative management and involvement of employees in learning and influence the valuable knowledge and education of both employees as well as managers and superiors to increase the performance of an organization with the help of strategic planning processes. Moreover, the result provides evidence that if a participative management style is adopted and has strategic planning processes, it increases learning in the organization.

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‘Tough times call for flexible implementations’: Exploring the relationship between human resource flexibility, organizational resilience, and organizational performance

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Abstract

In recent years, the concept of *organizational resilience* has become the new buzzword amongst the corporate leaders and executives. The changes and disruptions in the business environment, such as the global pandemic of 2019, force organizations to keep operating under high levels of uncertainty. Management scholars necessitate organizational resilience as a greater source of thriving and renewal in times of adversities. However, the challenge lies in identifying the factors that contribute to such resilience. Previous literature has highlighted the positive role that individuals can play in anticipating and responding to a complex-and-dynamic business environment. In this regard, we emphasise on the need to build on the inherent flexibilities of an organization’s internal resources embedded in form of human resource (HR) flexibility to anticipate and respond to the complex and dynamic business environment and contribute to organizational resilience. Further, organizational resilience leads to greater organization performance. Thus, we propose a conceptual framework in form of an antecedent-consequence model of organizational resilience that explores the relationship between human resource (HR) flexibility, organizational resilience, and organization performance. Research hypotheses and future research agenda are also discussed.

Keywords: organizational resilience; internal flexibility; Human resource (HR) flexibility; organizational performance; strategic human resource management

1.0 Introduction

Rapid changes in the business environment, unexpected disruptions, unforeseen circumstances and situations, such as the COVID-19 pandemic, keeps organizations on edge these days. This constant pressure from one’s environment forces organizations to develop such capacities that not only support survival but also encourage thriving in light of these challenges. In recent times, these corporate dilemmas and discussions have taken a concrete form in recent years and brought to light the term *organizational resilience*. Organizations now recognize resilience as a necessary capacity against significant threats and as effective in adapting to disruptions and managing risks (Burnard et al., 2018). This sudden rise in organizational resilience amongst corporate leaders has also grabbed increased attention of the management scholars in uncovering the concept of resilience in organizations (Lengnick-Hall et al., 2011; Kantur & Iseri-Say, 2012; Boin & Van Eeten, 2013; Pal et al., 2014; Duchek, 2020).

In management studies, the term ‘resilience’ was initially associated with study at micro levels in organizations, i.e., at employee and team levels (Bardoel et al., 2014; Alliger et al., 2015; Tonkin et al., 2018; Cooke et al., 2019; Chapman et al., 2020; Hartwig et al., 2020). It is only recently that resilience has come to be recognized as a macro level construct at an organizational level (Raetze et al., 2021). It is defined as, “the maintenance of positive adjustment under challenging conditions such that the organization emerges from those conditions strengthened and more resourceful” (Vogus & Sutcliffe, 2007: 3418). Research recognizes resilience as an important factor of study that is needed to survive, adapt, thrive and make positive changes under threatening circumstances (Mallak, 1998; Horne & Orr, 1999; Lengnick-Hall et al., 2011; Kantur & Iseri-Say, 2012; Barasa et al., 2018; Vakilzadeh & Haase,

2020; Raetze et al., 2021). It is considered to be a continuous developmental process that an organization needs in order to bounce back from unprecedented events as well as to transform itself in order to achieve greater competitive advantage (Rodriguez et al., 2019).

The current management research has seen an advanced growth in the number of publications on organizational resilience (see reviews by Annarelli & Nonino, 2016; Linnenluecke, 2017; Hillmann & Guenther, 2020). The existing literature has previously thrown some light on the concept and nature of resilience, including its multi-disciplinary nature and its varying perspectives, as understood in management and organization studies (Bhamra et al., 2011; Hillmann & Guenther, 2021; Melian-Alzola et al., 2020). Management scholars describe resilience as a ‘desirable characteristic that is central to an organization’s strategy’ (Cruickshank, 2020; Lampel et al., 2014; Limnios et al., 2014). It is considered as a skill and “a capacity to be robust under conditions of enormous stress and change” (Coutu, 2002; Cooper et al., 2014). Initially studied as a concept in emergency and crisis situations only (Meyer, 1982; Weick, 1999), resilience has now started to gain importance as an important concept of study in an everyday organizational context necessary for increased organizational functioning (Linnenluecke, 2017; Stokes et al., 2019). However, the current literature still lags far behind in making some progress with respect to some of the key aspects, such as operationalization of resilience in an organization setting. Particularly, the current literature faces a bigger challenge of identifying the factors that contribute to resilience in organizations and how such capacities differentiate between resilient and non-resilient firms (Kantur & Iseri-Say, 2012; Duchek, 2020). Previous references in the literature have argued the importance of organization structures, processes, and functions to developing resilience in organizations (Hamel & Valikangas, 2003; Riolli & Savicki, 2003; Akgün & Keskin, 2013; Andersson et al., 2019).

With recent advancements of strategic management literature in contributing to research in organizational resilience, scholars have started to put greater emphasis on the role of strategic human resource management in developing organizational resilience (Bouaziz & Hachicha, 2018). The positive role of human resource management (HRM) systems in dynamic business environment has been highlighted previously in the literature. In order to survive in an unpredictable and a turbulent business environment, firms necessitate an increased focus on the flexibility inherent in their internal resources, to improve flexibility and firm performance (Ketkar & Sett, 2009; Nijssen & Paauwe, 2012; Hansen et al., 2019). The transformational role of HRM from an administrative and bureaucratic function to a more proactive and integrating one, links HRM to business strategy and sets a premise for achieving sustained competitive advantage (Browning et al., 2009). In context of resilience as well, scholars have put greater emphasis on the role that strategic human resource management can play in the development of organizational resilience (Bouaziz & Hachicha, 2018). Individual capacities in the form of knowledge, skills, abilities and superior performance are said to have a positive impact towards developing organizational resilience (Lengnick-Hall et al., 2011; Bouaziz & Hachicha, 2018). In light of the same, we highlight the role that human resource flexibility can play in contributing to organizational resilience. We propose that resilience is developed as a sum of a system’s individual parts (Van der Vegt et al., 2015) and is embedded in a set of individual level knowledge, skills, and organizational routines that help an organization to overcome disruptive shocks successfully (Lengnick-Hall & Beck, 2009; Lengnick-Hall et al., 2011). Additionally, we review and conceptualize the positive role that organizational resilience plays in improving the overall performance of an organization (Kantur & Iseri-Say, 2012; Akgun & Keskin, 2012; Rodriguez et al., 2019). The objective of the current paper is to build on the ongoing arguments and bring the three constructs of human resource flexibility, organizational resilience, and organizational performance. Thus, this paper is an attempt towards advancing the current literature on organizational resilience and build on the ongoing arguments with respect to its development and operationalization in a practical sense of business. In respect of the same, we propose an antecedent-consequence of organizational resilience.

The paper includes four sections. We present the theoretical background in Section 2 and discuss the three constructs in detail. Section 3 presents the conceptual frameworks and builds on the hypotheses for the study. Discussion section is given in Section 4. Lastly, section 5 discusses conclusion and future research directions.

2.0 Literature Review

In the following section, we discuss the literature on the three constructs of human resource flexibility, organizational resilience, and organizational performance.

2.1 Human resource (HR) flexibility

Today's business environment is defined as unpredictable and unprecedented as a result of several factors including technological changes, market globalization, etc. (Beltrán-Martín et al., 2008). These swift changes in the business environment make it imperative for business organizations to develop such internal capacities to respond to external market demands (Way et al., 2015). The scholarly work in human resource management area has now leaped into advancing the work on strategic human resource management that is primarily aimed at developing organizational capabilities to adapt according to the changing environment needs (Wright & Snell, 1998). In this respect, the field of strategic human resource management has emphasized on the importance of strengthening flexibility in organizations in form of human resource (HR) flexibility as instrumental in responding to changing circumstances and in meeting market demands (Ketkar & Sett, 2009; Way et al., 2015). HR flexibility is defined as, "a firm-level capability that represents the extent to which a firm's human resources and HR practices enable the firm to be responsive to changes in competitive outputs and pressures and readily and effectively pursue strategic courses of action in response to competitive changes" (Way et al., 2018). It is flexibility internal to an organization and embedded in its people, i.e., a firm's human resources. The individual capacities stored in intangibles in the form of individual's knowledge and skills become an important source of achieving competitive advantage, as much as other tangible physical assets (Snell et al., 1996). It reflects the extent to which an organization's human resources along with a right amalgamation of HR practices are able to adapt and adopt to strategic alternatives in light of competitive changes (Wright & Snell, 1998; Way et al., 2015). In essence, HR flexibility is thus perceived as an organizational capability essential to adapt to the environmental contingencies (Ketkar & Sett, 2009).

2.2 Organizational resilience

'Resilience' was first used in material sciences where Holling (1978) defined the term as, "the measure of persistence of systems and their ability to absorb changes and still exist." Since then, the term finds its mention in different areas of research, including child psychology, ecology, economics, engineering, behavioral sciences, environmental studies, etc. (Lengnick-Hall et al., 2011; Kantur & Iseri-Say, 2012; Akgun & Keskin, 2014; Ruiz-Martin et al., 2018; Andersson et al., 2019; Desjardine et al., 2019; Melian-Alzola et al., 2020; Morales et al., 2020; Nyaupane et al., 2020). In management and organization studies, the term was formally introduced at micro level with study of employee resilience (Luthans et al., 2007; Bardoel et al., 2014; Britt et al., 2016; Kuntz et al., 2017; Naswell et al., 2019) and team resilience (Alliger et al., 2015; Gucciardi et al., 2018; Chapman et al., 2020; Hartwig et al., 2020). At organizational level, the term resilience was usually associated with surviving and bouncing back during periods of emergency and in disaster management situations (Chewning et al., 2013; Sahebjamnia et al., 2015; Teng-Calleja et al., 2020; Jiang et al., 2020). It is only recently that the term resilience has found increased importance in an everyday context and in 'normal' organizations, including business organizations (Raetze et al., 2021). However, the literature is still unclear in portraying a clear understanding of the term 'organizational resilience' (Lengnick-Hall et al., 2011; Richtnér & Löfsten, 2014; Linnenluecke, 2017; Melian-Alzola et al., 2020). Several interpretations exist with respect to the same. This includes resilience as a static concept vs. a dynamic concept. Some

view resilience as an outcome while others view resilience as a characteristic embedded within a system's individual parts (van der Vegt et al., 2015). For example, some of the earlier conceptualizations of resilience focused on the ability of an organization to survive and resist changes or to simply recover from adverse situations, thus viewing resilience as a static concept. Horne & Orr (1998) defined organizational resilience as, "the fundamental quality of individuals, groups, organizations, and systems as a whole to respond productively to significant change that disrupts the expected pattern of events without engaging in an extended period of regressive behavior." In a similar manner, Robert (2010) defined organizational resilience as, "a firm's capacity to maintain or restore an acceptable level of functioning despite perturbations or failures." In recent years, scholarly research has taken a transformative view of resilience as an 'intellectual concept' that offers an understanding of how different organizational actors behave and respond to circumstances differently (Bhamra et al., 2011; Liu et al., 2019). This view recognizes resilience as a positive process of adaptation where organizations situate themselves by developing new capabilities and resources in light of continuous adaptation (Cheese, 2016; Carden et al., 2018; Linnenluecke, 2017; Andersson et al., 2019). Lengnick-Hall et al. define organizational resilience as, "the firm's ability to effectively absorb, develop situation specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organizational survival." In a similar view, Williams et al. (2017) defines organizational resilience as, "the process by which an actor (i.e., individual, organization, or community) builds and uses its capability endowments to interact with the environment in a way that positively adjust and maintains functioning prior to, during, and following an adversity. Keeping this transformative view in mind, Lengnick-Hall et al. (2011) also suggest that strategic human resource management practices can be lucrative in enabling resilience in organizations.

For the purpose of the current study, we view organizational resilience as a dynamic concept that develops over time and involves a set of processes, practices, routines, and behaviours to contribute to its development (Gittell et al., 2006; Ruiz-Martin et al., 2018; Anderssen et al., 2019; Shani, 2020; Raetze et al., 2021). As a progressive concept, the scope of the concept expands beyond mere survival and rather more focussed on promoting behaviours that create new opportunities to keep pace with changing circumstances (Richtnér & Löfsten, 2014; Koronis & Ponis, 2018).

2.3 Organizational performance

Organizational performance is a complex and multidimensional construct that is essential to survival and success of an organization (Liao & Wu, 2009; Richard et al., 2009). It is defined as the measure of an organization's actual output as against the intended output. It determines how successful an organization is in achieving its business objectives (Richards et al., 2009). It is analysed via both financial and non-financial performance measures. As a quantitative measure, it is defined as the capability of an organization to achieve higher objectives, such as attaining high profits, improving financial results, gaining a larger market share, etc (Mutahar et al., 2015). As a qualitative measure, it is defined in form of greater customer satisfaction, growth, and achieving other intangible benefits (Muthuveloo et al., 2017). Accordingly, an organization may include elements such as customer service, productivity, cost management, quality, and asset management performance (Durst et al., 2019).

3.0 Proposing a conceptual framework & hypothesis development

Having discussed the individual constructs in details in the previous section, we now establish the relationship between the identified constructs, frame hypotheses, and propose a conceptual framework, in form of an antecedent-consequence model of organizational resilience.

3.1 HR flexibility and organizational performance

As previously discussed, HR flexibility represents the extent to which an organization can easily adapt to the changing environmental conditions and sustain competitive advantage with help of its deployed intangibles, i.e., employees in an organization (Snell et al., 1996; Wright & Snell, 1998; Úbeda-García et al., 2016). This capability offers an opportunity to organizations to develop and act on several strategic alternatives within a competing environment and successively create positive business impact (Way et al., 2013; Úbeda-García et al., 2018). Literature set within the frameworks of human capital theory has previously postulated that a set of employee capabilities and skills are responsible for several activities in an organization (Rönnmar, 2004). Employees with a broader knowledge base are said to be more efficient in accomplishing different task requirements, thus, adding to an organization's competitive advantage (Wright et al., 1994; Boxall, 1999). Great flexibility is also associated with employee satisfaction, motivation, and productivity (Camps et al., 2016). This is because when employees increase their knowledge base, their performance variability reduces over time, thus contributing to greater productivity (Beltrán-Martín et al., 2008). When employees learn and apply new skills, they are in a better position to adopt innovative solutions and respond to a difficult situation in a much better way than previously (Beltrán-Martín et al. 2008). These employee skills and behaviours that arise out of flexible HR practices become sources of competitive advantage and in turn influence firm performance. Following the same argument, we propose the following hypothesis:

H1: HR flexibility positively impacts organizational performance.

3.2 HR flexibility and organizational resilience

The current scholarly work on organizational resilience as emphasized on the impending need for organizations to shift their focus from mere survival and coping to developing resilience in order to be more adaptable and effective in responding to environmental changes (Teixeira & Werther Jr., 2013; King et al., 2015; Williams et al., 2017; Duchek, 2020). To develop resilience in organizations requires a set of processes, structures, and practices to serve between coping with challenges and adversities but also encourage adequate growth and efficiency for organizations (Rioli & Savicki, 2003; Vogus & Sutcliffe, 2007; Lengnick-Hall et al., 2011; Kantur & Iseri-Say, 2012; Ngoc Su et al., 2021). A system's resilience is said to emerge as a result of the capabilities and capacities of the parts of a system. In this context, Van Der Vegt et al. (2015) noted that studying the characteristics and capabilities of the individuals and their parts thereof are essential to determining overall resilience in an organization. While the literature has previously explored the impact of other variables, such culture and learning on resilience, the role of integral organizational capabilities in developing organizational resilience still needs to be explored in further detail. It is already established in the literature that HR flexibility is essential to responding to complex and dynamic business environment. Thus, we take from the strategic human resource management literature and propose that developing capabilities in form of human resource flexibility as an important antecedent to developing organizational resilience.

Previous studies in slightly differing contexts have highlighted the role of employee behavior in determining resilience in organizations. For example, in a study by Weick et al. (1999), the authors studied the positive impact of behavioral competencies among front-line workers as imperative to growth and generating organizational resilience. The authors observed that the behavioral processes of frontline employees stored in form of developing and refining shared understanding of the situation and engaging themselves in proactive resolution of the present crisis situation led to timely detection and correction of events to minimizing of adverse outcomes (Weick et al., 1999; Vogus & Sutcliffe, 2007). In another conceptual study by Rioli & Savicki (2003) on organizational resilience in information systems, the authors emphasized on promoting healthy individual behaviours and patterns as essential to developing both individual and organizational resilience. An interplay of individual dispositions, skills, and values with external environmental events serves as a source of both protection and vulnerability among individuals. However, the individual coping and performance in event of acute stressors depends on a combination of personal and situational factors. Thus, person-environment

relationship determines how quickly individuals prepare themselves to face acute stressors and recover from harm (Riolfi & Savicki, 2003). Additionally, organizational functions stored in form of personnel policies and culture have a positive impact on individuals' behaviours that further determines collective resilience of the organizations. But it was only recently that the role of strategic human resource management has emerged in resilience literature. It was initially with the work of Lengnick-Hall & Beck (2005) and Lengnick-Hall et al. (2011) that the role of strategic human resource management was first recognized as important to building organizational resilience. An individual's knowledge, skills, abilities, and behaviour can help an organization to strategically position itself and move forward in a manner that enables it to overcome and emerge stronger during stronger times. These individual attributes together contribute to creating collective resilience in organizations. As such, the role of strategic human resource management becomes instrumental in developing the requisite skills sets and other attributes to generate appropriate resilience outcomes (Lengnick-Hall et al., 2011). Pertaining specifically to resilience, the works of the authors like Bouaziz & Hachicha (2018), Al-Ayed (2019), and Rodriguez et al. (2019), etc., have emphasized on the role that human resource management can play in developing resilience in organizations. Investments in human capital and development of a positive work environment are some of the requisites in encouraging employee adaptability (Ho et al., 2014). Similarly, HR practices stored in form of training, compensation, employee participation, performance appraisal, etc., are also essential to developing organizational resilience. These practices help prepare employees to look at adversities from an opportunity glance and develop such actions that help to evolve in an uncertain environment. They help an organization to prepare, cope, and adapt to the changing circumstances (Bouaziz & Hachicha, 2018). As one of the major goals of strategic human resource management is to help employees achieve its organization's strategic objectives, developing adequacy of employee skills and knowledge becomes a prerequisite to achieving resilience in organizations (Ho et al., 2014). Following the same suit, we propose the following hypothesis:

H2: HR Flexibility will positively impact organizational resilience.

3.3 Organizational resilience and organizational performance

From our study of the literature, we now know that resilience in organizations is associated with an organization's ability to respond to adversities in a manner that is not only effective but also ensures minimal stress and loss (Mallak, 1998). Previous literature has argued that developing resilience is essential to generating greater positive outcomes for the organization (Suryaningtyas et al., 2018). For example, the works of Prayag et al. (2018), studied the relationship between organizational resilience and financial performance. The authors studied the impact of organizational resilience (second order construct divided into planned resilience and adaptive resilience) on business performance in a post-disaster context. The results of their study showed organizational resilience as a significant predictor of financial performance. An interesting insight from their study was that adaptive resilience had a more positive impact on financial performance than planned resilience did on organizational resilience. Thus, the authors strongly emphasized on proactive measures such as strong levels of leaderships, employee role adaptability, and resources sufficiency, as essential to deal with difficult and challenging circumstances. In a study by Beuren et al. (2021), the authors noted that organizational resilience has a positive impact in improving the product quality, meeting customer demands, and improving the overall operational efficiency, gradually leading to greater organizational performance. In another study by Rodriguez-Sanchez et al. (2019), the authors studied the relationship between organizational resilience and company performance mediated by organizational learning capability. Following the arguments as presented in the previous literature, we propose the following third hypothesis:

H3: Organizational resilience will positively impact organizational performance.

Figure 1 below illustrates the proposed conceptual model and the proposed hypotheses.

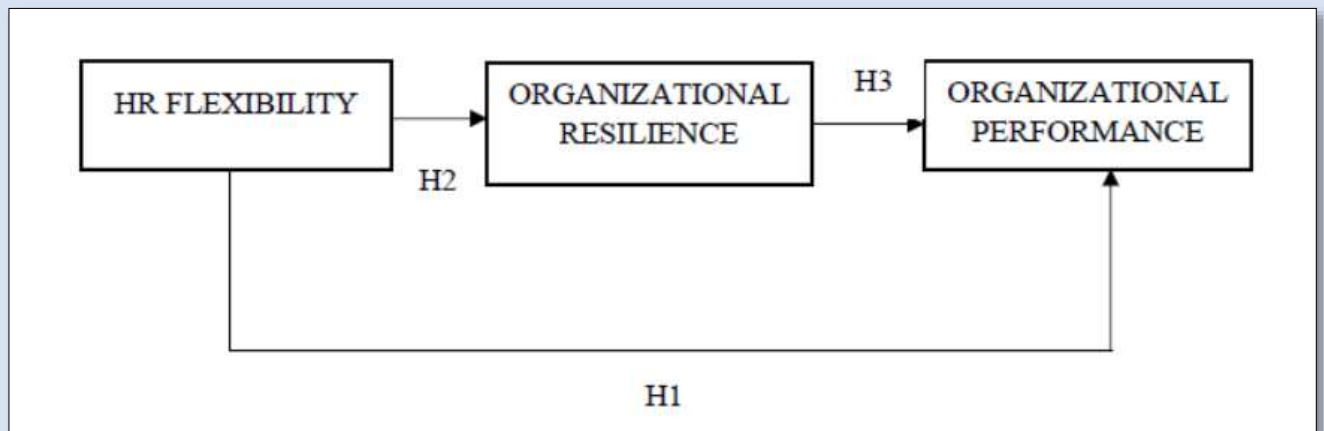


Figure 1: Antecedent-consequence model of organizational resilience

4.0 Discussion

In recent years, the round the table discussions and scholarly discussions on organizational resilience have risen, in light of challenging circumstances and changing business environments. The objective of the current paper was to build on the ongoing research on the same and contribute to the literature in form of proposing an antecedent-consequence model of organizational resilience. The purpose of the same was to revisit and answer some of the pressing questions related to conceptualization and operationalization of organizational resilience, both in theory and in practice (Bhamra et al., 2011; Linnenluecke et al., 2017; Hillman & Guenther, 2021). Firstly, the paper builds on an important and pressing concept of organizational resilience, that has come to be recognized as “a valuable construct for management research” in recent scholarly discussions (Hillman & Guenther, 2021). An important area of study in management research, organizational resilience is needed to move beyond survival and coping during adverse time periods (Duchek, 2020; Hillman, 2020). We recognize the importance of study of resilience in organizations as a necessary construct to predict, respond, adapt, and transform oneself during periods of uncertainties as well as changing needs of the environment (Gittell et al., 2006; Lengnick-Hall et al., 2011; Barasa et al., 2018; Duchek, 2020). For long, resilience was studied only during periods of emergencies in crisis and disaster management literature. However, this study builds on the recent arguments raised in the literature that recognizes the importance of developing organizational resilience in an everyday context in “normal organizations” (Raetze et al., 2021) having multiple functions and characterized by short- and long-term impacts on organizational health even during adverse times.

Secondly, this paper suggests that resilience in organizations is not an inherent quality that some organizations have while others do not possess, rather it can be developed within an organization over time. Thus, as a second contribution, this paper studies the role of HR flexibility in contributing to organizational resilience. The strategic human resource management literature already recognizes the importance of human resources flexibility and its encompassing HR practices during dynamic environments. We link the two sets of literature and suggest that an organization’s internal capabilities embedded in its human resources in form of knowledge, skills, behaviours, and abilities are essential to building collective resilience in organizations (Lengnick-Hall et al., 2011). Embedded within the dynamic capabilities view theory (Teece, 2007), this paper suggests that in light of changing circumstances, an organization’s intangible assets prove to be as valuable an organization’s tangible resources. These intangibles stored within the employees of an organization together help in creating resilient organizations. When there’s clear communication and greater involvement of employees, they are more involved in sensing the changes in their immediate environment, and more receptive of the upcoming challenges (Gittell et al., 2006; Powley, 2009; Duchek, 2020). Employees start to look at

challenges and adversities as opportunities to thrive better during turbulences, and develop more innovative solutions, thus contributing greater resilience (Teixeira & Werther Jr., 2013; Rodriguez-Sanchez et al., 2019). Lastly, both HR flexibility and organizational resilience are said to contribute to greater competitive advantage as against its rival competition. This also has implications for superior firm performance.

The study also has certain managerial implications. Our study emphasizes that top leaders and managers in the organizations should pay more attention to developing organizational resilience in order to respond more effectively to turbulences and disturbances in the environment. They should focus on moving beyond survival and coping to effective transformation to achieve greater competitive advantage. Secondly, to develop greater resilience, organizations should put equal focus on their intangible assets as on the tangible assets. These means putting efforts in developing one's human capital. An organization's human resources are important during adversities. The companies should focus on incorporating such training modules and techniques that promote creativity in the workplace. A creative workforce is likely to be more responsive to changes and can easily adapt to the sifting changes in the business environment (Cruickshank, 2020; Ríchtner & Löfsten, 2014). Additionally, when employees are placed in a supportive environment and a positive organizational climate, they are less likely to get demotivated in stride of adversities (Sharma et al., 2020). Thus, it becomes easier for organizations to transform itself and continue to thrive irrespective of the daunting business challenges.

5.0 Conclusion

The current study was done with the objective of building on the existing literature on organizational resilience. It proposed an antecedent-consequence model of organizational resilience. Borrowing from the literature on strategic management, and strategic human resource management, this paper build on the essential role that human resources played in developing organizational resilience. More specifically, we highlighted that an organization's internal capabilities embedded in form of HR flexibility is an important antecedent to developing organizational resilience. When appropriate skills, behaviours, and HR practices are incorporated in the daily functioning of an organization, the sum of these individual characteristics result in generating a system's resilience. We also take from the dynamic capabilities view theory to state that in order to develop resilient organizations, organizations need to incorporate such higher capabilities in their daily routine that helps an organization to not only survive also bounce-back and thrive to the changing circumstances. HR flexibility is associated with the extent to which an organization's human resources and practices are able to respond to the changing business needs. When employees are more adept to the changing business needs, they are more responsive to changes and contribute to a higher collective resilience in organizations. Employees are useful in not only anticipating, but also in responding and adapting to the dynamic circumstances. This also has an advantage for greater business performance.

However, the current study is not free from limitations. Firstly, the proposed conceptual model and the hypothesized relationships are not empirically tested. We have taken existing evidence from the literature on build on the arguments. Future research can benefit greatly by empirically testing the model and the strength of each hypothesized relationship. This will significantly advance the strategic management literature in contributing to organizational resilience. Scholars can also incorporate qualitative study in form of either interviews or case studies to identify the set of HR practices that are more essential to generating resilience in organizations. Secondly, our paper only studies the impact of a single antecedent variable in contributing to organizational resilience. However, other factors such as employee resilience, employee involvement, etc., also have an impact on overall resilience. Future research can look into incorporating other factors into the proposed model and study the impact that a group of organizational processes and practices create on generating resilience in organizations. Thirdly, our model does not study the impact of any moderating variables in the study of organizational

resilience. Future research can look into the impact that factors such as environmental uncertainty can play in moderating the said relationship between the listed variables.

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Does Social Mobilization affect the Financial Inclusion and Livelihood Promotion? Evidence from Sundargarh District of Odisha

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Abstract

The purpose of the study is to assess the effect of social mobilization on financial inclusion and livelihood promotion among the tribal women of Sundargarh district of Odisha. Social mobilization is the process of mobilizing the rural poor into groups, community, team etc. This study focuses the social mobilization process of National Rural Livelihood Mission in Odisha. The study has interviewed 348 self-help group members from the tribal regions of the Sundargarh district. To evaluate the theoretical framework, the study selected the tribal beneficiaries of NRLM residing in Sundargarh district of Odisha. Under the aegis of NRLM, respondents have formed a self-help group through social mobilization process and through SHG-Bank linkage process linked with the banking system. It is observed that SHG beneficiaries have engaged themselves in various economic activities such as mushroom farming, poultry farming, production of food and household items, tailoring etc. in order to fulfill their basic needs of life through creation of sources of income. It is evidenced that regular participation in the group activities have developed their socio-economic conditions. Hence, social mobilization has positive and long-term effect of financial inclusion and livelihood promotion.

Keywords: Social Mobilization, Financial Inclusion, Livelihood Promotion, Tribal Women, NRLM

1. Introduction

Self Help Groups (SHGs) has productive importance in social inclusion of marginalised segment of the society through social mobilisation. These are self-sustainable structure of the women community

promoted by government, NGOs and banks through counselling, training and teaching of basic curriculum of group administration (Mohanty, 2013). In this study, government promoted SHGs groups of tribal women under National Rural Livelihood Mission have been selected as the respondents (NRLM, 2011; Gattoo & Akhtar, 2014). Under the scheme, large number of backward women mobilised into groups or associations and triggers financial inclusion process by developing savings habit and access to formal credit lending through bank linkage from various financial institutions. Institutional actors include NGOs, Commercial Banks, Cooperative Banks and Regional Rural Banks (RRBs) play proactive role in group formation and facilitate banking linkage to avail a formal banking operation (Reji, 2012). Financial Inclusion ensures equal services and facilities for all the beneficiaries and promotes life time sustainable opportunities (RBI NSFE, 2020; Ozili, 2020). It combines various aspects such as awareness, education, skill development, behaviours that are basic in making financially sound decisions, and becoming financially well-being at the individual level (OECD, 2011). It is evidenced that poor and rural people are mostly excluded from formal finance system as they functioned in an informal way. To access the financial support, they dependent on the informal sources of lending such as money lenders who charge high rate of interest and sometimes ask for security against the loan (UNCDF, 2018). Financial inclusion considered as a necessary parameter for inclusive growth of a developing countries and can be achieved through mainstreaming the unbanked rural poor into the financial system of a nation (UNDP, 2012).

SHG program should not be seen as a financial inclusion mechanism but it has various extends such as enterprise-based training, growth of maternal health, encourages social political participation and achievement of basic livelihood needs (Anand et al., 2019). They have enlarged their life, maximized personal control, social networks, end of idleness, created space in decision making and achieved self-reliant (Mohapatra & Sahoo, 2016; Moyle et al., 2006). It enhances the courage of rural women in both social and financial aspects towards life livelihood promotion and poverty alleviation (Jakimow & Kilby, 2006). There are lacks in literature that covers the financial inclusion and livelihood development of tribal community in Odisha. So, the study focuses on the social mobilization process of the tribal women in a backward district i.e., Sundargarh of Odisha (OES, 2022). The purpose of the study is to assess the effect of social mobilization on financial inclusion and livelihood promotion among the tribal women of Sundargarh district of Odisha, who are active beneficiaries of National Rural Livelihood Mission.

2. Literature Review

2.1 Social Mobilization

Social Mobilization is a collective approach of poverty alleviation and rural development. It strengthens the durability in decision-making, social confidence, self-reliant, access to financial resources and availing opportunities on asset development for the rural poor (Bharamappanavara et al., 2014). In other words, social mobilisation means to create an active and sustainable institution at the community level. This promotes mutual understanding through group actions, collective approach among the rural women by developing their own plan and strategy (Rani, 2014). It ensures participation of rural women into a group organisation through rural development programmes. Participants of poverty alleviation programmes are more developed than others who don't participate (Chowdhury and Rabbani, 2005). National Rural Livelihood Mission is such type of rural development programme that facilitates social mobilisation of the marginalised women of the society including scheduled tribe. It identifies the poorest of the poor tribal women and mobilises them into self-help groups. Post group formation, they practice Panchasutra i.e., regular meetings, inter lending, regular repayment, book keeping and regular savings; and revolving fund (RF) is provided to these SHG groups for their initial development (NRLM, 2016). These meetings provide them an active platform for leadership development and taking decisions on collective action for future development (Vijayanthi, 2002).

SHGs have the potential, dominant and effective means of empowering women through participation as they can enable them to transform their position away from being marginalized and towards change agent and participating citizens (Tesoriero, 2005; Deininger & Liu, 2013). Self-help groups have developed mutual networks and leadership skills through different skill-based training programmes and interactions with other developed SHGs, community organisations and simultaneously develop collective approaches at the community level (Sahu, 2015; Dale & Newman, 2008). SHG groups clubbed into a large structure i.e., village organisation (VO), which is the central part of the government agencies, NGOs, and other promoters engaged in rural development under NRLM. It gives better platform to the promoters at the grass root level in order to facilitate the rural poor (Bernard et al., 2008). Besides, it also facilitates the rural poor in improving the income level through self-employment in the long run (Desai and Joshi, 2013). Active participation in a community programme generates strong synergy within the group members which is capable of facing any sort of difficulties in the way of development (Mukherji et al., 2013)

2.2 Financial Inclusion

A committee chaired by Rangarajan in 2008 defined financial inclusion; a process that facilitates formal access to banking products, services through bank linkage to the weaker section of the society, low-income groups etc. at an economical rate (RBI, 2013). Indian financial system includes banks, NBFCs, insurance companies, and various other financial institutions that performs savings and lending activities and financial instruments includes cash deposits, loans etc. (World Bank, 2014). It includes all the products and services that is available at an affordable rate to the vulnerable portion of the country who are unable to get formal financial access (Omar & Inaba, 2020). Some of the important financial inclusion schemes implemented in the country are PM Jan Dhan Yojana that allows people to open a zero-balance bank account; Atal Pension Yojana, PM Jeevan Jyoti Bima Yojana, PM Suraksha Bima Yojana for insurance related benefits and livelihood promotion schemes include National Rural Livelihood Mission, Mahatma Gandhi National Rural Employment Guarantee Act etc. that broaden the financial inclusion landscape (NABARD, 2019; RBI NSFE, 2020).

Financial inclusion facilitates formal way of accessing financial services at an affordable cost through different mechanisms but can be beneficial only if the target population makes use of these services effectively (UNDP, 2012). Financial inclusion is a necessary mechanism in order to increase the growth of economy through decrease in vulnerability. It supports the financial and economical sustainability through improved saving and investment behaviour of people (Satyasai and Kumar, 2020). Following set of indicators that helps in understanding financial inclusion on a complete way. These are grouped into number of ATMs available, number of bank branch available per 1,000 adults, availability of banking customer service points; stretch of financial services geographically i.e., presence of number of bank branches and ATM points in a particular geography; number of bank accounts, frequency of deposits and lending penetration to SMEs and households; and dispute management, reliable customer services etc. (Babych et al., 2018; UNDP, 2012; Chattopadhyay and Kumar, 2011; Arora, 2010).

Financial inclusion connects the concept of social inclusion and poverty alleviation together through accessing banking facilities for saving and sometimes lending activity reasonable rates to start micro level enterprise (Cnaan et al., 2011). Availability of financial products helps people in making financial transactions easy and reliable to lower the poverty situations through education facilitation and business growth (World Bank, 2014; NABARD, 2019). It expands the asset base of the rural people through practicing of savings habit. It proves to be a suitable tool in alleviating poverty through promotion of self-employment, gender equality, income sustainability etc. (Omar & Inaba, 2020; Suprabha et al, 2014; Swain & Wallentin, 2016). Access to formal savings options can boost household welfare and have the potential to support job creation, lower poverty and uplift human capital (Robert

et al., 2014; RBI NSFI, 2020). It can be achieved through SHG-Bank Linkage programmes (RBI, 2013; Swain & Varghese, 2009; Arora et al, 2012).

2.3 Livelihood Promotion

A livelihood is an aggregation of the capabilities, assets such as social and economic resources and presence of economic activities that are necessary for living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Chambers & Conway, 1991). Livelihood assets can be of tangible such as food, cash, savings, land and livestock whereas intangible assets include claims for work, food, assistance, information, health services, education and job opportunities etc. (Serrat, 2017; Solesbury, 2003).

There are two main reasons to promote livelihood of the poor people. In the first, to ensure a stable livelihood in order to increase the income substantially in the long run and achieving self-esteem. The second reason is to promote the economic growth of the country by enhancing the purchasing power of rural poor to buy basic necessities of life such as food, cloth and shelter (Krantz, 2001; Hertz et al., 2010). Government program such as NRLM promote self-employment among the poor through acquisition of an income generating asset with the help of a bank loan and a government subsidy (NRLM, 2016). Long term engagement with the SHGs positively benefits in asset creation various entrepreneurial activities such as livestock farming, fish farming, household activities like making of incense sticks, dry papad etc (Swain & Varghese, 2009; Bhingardive et al, 2015)

Andhra Pradesh based livelihood program “Indira Kranti Patham” increased the participant’s access to formal finance, freedom in participating and promotion of entrepreneurial activities. It also helps in increasing the employment base of the programme beneficiaries through entrepreneurship development and hence promotes sustainable livelihood in the long term (World Bank, 2019). Community based activities provide rural households a higher voice and promotes wide range of participation in social and economic activities (Grootaert & van Bastelaer, 2001). Gram Mooligai Limited (GMCL), a community level enterprise working in herbal sector evidenced that community represents a suitable mechanism to promote local development in the long run (Torri et al, 2010). In another illustration, PRODECO, a World Bank sponsored community project which promotes positive approach towards poverty alleviation through development of self-employment and capacity building (Gallardo & Raufflet, 2014).

3. Theoretical Framework and Hypothesis Development

A well formulated hypothesis is very much essential for a good and healthy research. The study seeks to develop a conceptual framework for creating relationship of social mobilisation with the financial inclusion and livelihood promotion. Two hypotheses have been constituted through the intensive literature review described below.

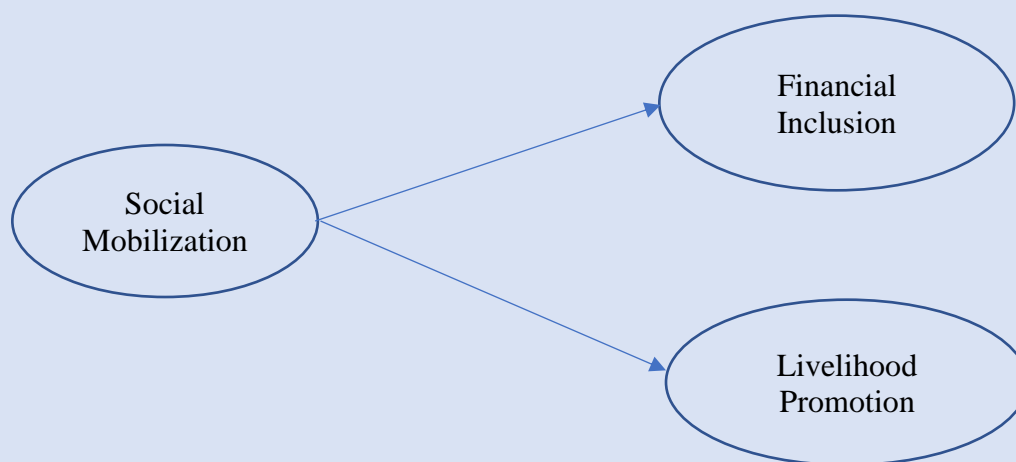


Figure 1: Theoretical framework

3.1 Social Mobilization and Financial Inclusion

Social mobilisation is emerging in a fairly widespread way as platforms for socio-economic change for poor and women (Shylendra et al, 2017). It is easy to gain economies of scale, value-added services, reduction in transaction cost, and achievement of financial stability for the SHG members through financial inclusion while being associated with the federation (Nair, 2005). Financial inclusion facilitates formal access to banking products and services to the marginalised low-income groups at minimal rates through bank linkages (RBI, 2013; Omar & Inaba, 2020). Access to finance delivers a crucial role in creating assets, managing risk and financing small businesses (Bapat et al., 2016; Lal et al., 2018). Under National Rural Livelihood Mission, socially mobilised self-help groups achieve financial inclusion through bank linkage which permits them in accessing saving bank accounts, availing loans and educate them on various aspects of banking of their benefits (NRLM, 2011; Davidson & Sanyal, 2017).

H₁: Social mobilisation helps in achieving financial inclusion among the tribal women.

3.2 Social Mobilisation and Livelihood Promotion

Social mobilisation of the NRLM SHGs have brought positive changes in terms of access to education, participation of backward women, access to financial resources, improved standard of living, drinking water and food security etc (Tiwari, 2014). Community driven development programs have both the social and economic impacts to the society (Deininger & Liu, 2013). SHGs enhance the

courage of rural women towards livelihood promotion and poverty alleviation (Mohapatra & Sahoo, 2016). They have enlarged their life, maximized personal control social networks, end of idleness, created space in decision making at their households in a meaningful way (Moyle et al., 2006; Jakimow & Kilby, 2006).

H₂: Social mobilisation positively impacts the livelihood promotion of tribal women

4. Methodology

The study has been conducted among the tribal women self-help groups residing in the Sundargarh districts of Odisha. On a scale of multi scale random sampling method, a total of 348 women were interviewed of from the six villages such as Kuarmunda, Andali, Gobira, Ratakhadi, Badmal and Teliposh villages of Kuarmunda block on their development in terms of financial inclusion and livelihood promotion. The selected respondents of the study were the beneficiaries of National Rural livelihood Mission and the reason behind choosing the scheme is that, the scheme provides all the factors discussed in the study such as social mobilisation, financial inclusion and livelihood promotion. So, the beneficiaries of the NRLM were the right selection for the present study.

The study has used a deductive approach where the hypotheses was drawn from the rigorous literature survey. Multiple regression analysis was used for analysing the relationship between the social mobilisation and financial inclusion; and social mobilisation and livelihood promotion. Data were collected from the tribal members of the self-help groups of the Sundargarh district of Odisha. The questionnaires for group member were close ended type, structured exclusively to test the research hypothesis. The analysis of results was done by using SPSS statistical software.

5. Result and Discussion

In the first, the personal and the family profile were delineated. The personal profile constitutes the information relating to age group, education level and marital status; whereas the family profile considers the family type, no. of family members, head of family, no. of children, employment of husband, monthly income of husband, decision maker of the family and main spender in family. In the next, social mobilisation process of the group members were measured with eight defined indicators. Similarly, financial inclusion and livelihood promotion of the group members were measured with three indicators and four indicators respectively. In the last, a multiple linear regression was run in order to assess the impact of social mobilisation on financial inclusion and livelihood promotion.

5.1 Personal Information of the Respondents

In the following table, personal information of the respondents has been delineated in terms of their village, age, education, marital status, vulnerable category, type of family, number of family members, number of children, husband employment, monthly income and size of the land. A total of 348 responses were collected through the field survey from the tribal self-help group members. Five villages of Kuarmunda block namely Kuarmunda, Andali, Gobiral, Ratakhandi, Badmal and Teliposh were selected on the basis of the presence of scheduled tribe population in the villages and who are also beneficiaries of National Rural Livelihood Mission.

Table 1: Personal Information of the Respondents

Demographic Type	Components	Response Count
Village	Kuarmunda	73 (21%)
	Andali	49 (14%)
	Gobira	63 (18%)
	Ratakhandi	69 (20%)
	Badmal	57 (16%)
	Teliposh	37 (11%)
Age	15-25 Years	128 (37%)
	25-35 Years	111 (32%)
	35-45 Years	95 (27%)
	45 and above	14 (4%)
Education	Illiterate	254 (73%)
	Primary	59 (17%)
	Middle	35 (10%)
Marital Status	Unmarried	42 (12%)
	Married	282 (81%)
	Widow	17 (5%)
	Divorced	7 (2%)
Vulnerable Category	BPL Card holder	348 (100%)
	Disabled	45 (13%)
Type of Family	Joint	24 (7%)
	Nuclear	324 (93%)
Number of Family Members	1 Member	10 (3%)
	2 Members	38 (11%)
	3-5 Members	271 (78%)
	6 or More	28 (8%)
Number of Children	1 child	80 (23%)
	2 children	195 (56%)
	3 or more	73 (21%)
Husband Employment	Daily wage	289 (83%)
	Self Employed	42 (12%)
	Unemployed	17 (5%)
Monthly Family Income (in Rupees)	Up to 5000	45 (13%)
	5000-10000	219 (63%)
	10000-15000	66 (19%)
	15000 and above	17 (5%)

Size of the Total Land (in Acre)	No land	80 (23%)
	0.5 Acre	146 (42%)
	1 Acre	129 (37%)
	1.25 Acre	59 (17%)
	1.5 Acre	42 (12%)
	2 Acre or More	7 (2%)

Source: Authors Calculation

5.2 Social Mobilisation and its Dimensions

Social mobilisation means to create an active and sustainable institution at the community level. This promotes mutual understanding through group actions, collective approach among the rural poor by developing their own plan and strategy rather than being imposed from outside (Rani, 2014). It ensures participation of rural women into a group organisation through rural development programmes (Chowdhury and Rabbani, 2005). National Rural Livelihood Mission is such kind of rural development programme that facilitates social mobilisation of the marginalised women of the society including scheduled tribe women (NRLM, 2016).

There are eight dimensions of social mobilisation were identified through rigorous literature survey. These eight dimensions are presented in the following table with their reliability i.e., Cronbach alpha value. Under NRLM scheme, tribal women gone through different phases of group mobilisation i.e., pre group and post group formation. In the social mobilisation process, different mission co-ordinators are engaged in group formation, awareness creation about the group and scheme, facilitations in training related to various aspect of group functions for capacity building, exposure visit of the group's members towards expanding self-reliant motivation and development of a social capital.

Table 2: Reliability Analysis/ Cronbach's Alpha of Social Mobilization

Construct	Dimensions	Cronbach's Alpha	References
Social Mobilization	Identification and facilitation of poor people into NRLM beneficiaries	0.834	Chowdhury and Rabbani, 2005; NRLM, 2016
	Facilitation in awareness with the scheme	0.658	Desai and Joshi, 2013; NRLM, 2016
	Awareness of various activities and aspects of SHG	0.628	Sahu, 2014; NRLM, 2016; Tesoriero, 2005; Deininger & Liu, 2013
	Following the Panchasutra of SHGs	0.661	Dale & Newman, 2008; NRLM, 2016; Tesoriero, 2005
	Motivation to join the group under NRLM	0.854	Deininger & Liu, 2013; NRLM, 2016
	Management with the various activities and aspects of SHG	0.666	Mukherji et al., 2013; NRLM, 2016

	Development of a social capital among the group members	0.702	Bernard et al., 2008; Rani, 2014;
	Orientation with panchayat meeting and exposure visit	0.668	Bharamappanavara et al., 2014; NRLM, 2016

Source: Authors Calculation

Table 3: Mission Co-ordinators engaged in Social Mobilisation of tribal women into Self Help groups

Dimensions of Social Mobilisation	Mission Co-ordinators		
	Community Resource Person	Village Organisation	Block Resource Person
Identification of tribal people into NRLM beneficiaries	38 (11%)	73 (21%)	237 (68%)
Facilitation in awareness with the scheme	195 (56%)	115 (33%)	38 (11%)
Awareness of various activities and aspects of SHG	188 (54%)	80 (23%)	80 (23%)
Motivation to join the group under NRLM	240 (69%)	73 (21%)	35 (10%)
Following the Panchasutra of SHGs	264 (76%)	77 (22%)	7 (2%)
Management with the various activities and aspects of SHG	254 (73%)	59 (17%)	35 (10%)
Development of a social capital among the group members	258 (63%)	90 (26%)	38 (11%)
Orientation with panchayat meeting and exposure visit	240 (69%)	38 (11%)	70 (20%)

Source: Authors Calculation

NRLM is implemented through the different mission coordinators engaged in the block level and village level. In order to facilitate the eight dimensions of social mobilisation, three main mission agents such as CRPs, VO and BRP were engaged. It is evidenced from the above data that CRPs has a crucial role towards the facilitating social mobilisation among the tribal self-help groups except in identification of tribal people into NRLM beneficiaries where BRPs were actively engaged.

5.3 Measuring the impact of Social Mobilisation on Financial Inclusion

National Rural Livelihood Mission promotes financial inclusion among its SHG members by linking them with the banks and financial institutions through SHG- bank linkage, availing loans, interest rate and repayment and educate them on various aspects of banking of their benefits (NRLM, 2016). Financial inclusion gain economies of scale, value-added services, reduction in transaction cost and achievement of financial stability for the SHG members while being associated with the federation (Nair, 2005; Davidson & Sanyal, 2017). It supports the financial and economical sustainability through improved saving and investment behaviour of people (Satyasai and Kumar, 2020). Following set of

indicators that helps in understanding financial inclusion on a complete way. These are; number of ATMs available, number of bank branch available per 1,000 adults, availability of banking customer service points; stretch of financial services geographically i.e., number of bank branches, ATM points in a particular geography; number of bank accounts, frequency of deposits and lending penetration to SMEs and households; and dispute management, reliable customer services etc. (Babych et al., 2018; UNDP, 2012; Chattopadhyay and Kumar, 2011; Arora et al., 2010).

Table 4: Reliability Analysis (Cronbach’s Alpha) of Financial Inclusion

Construct	Description	Cronbach’s Alpha	References
Financial Inclusion	Access to the banking products and services	0.826	RBI, 2013; Satyasai and Kumar, 2020; NRLM, 2017
	Usage of the baking products and services by the group members	0.861	World Bank, 2014; NABARD, 2019; Arora et al., 2010
	The quality of products and services provided by the banks and financial institutions	0.806	Omar & Inaba, 2020; Babych et al., 2018; UNDP, 2012; Chattopadhyay and Kumar, 2011

Source: Authors Calculation

Table 5: Access to banking products and services

Dimensions	Response Count
Existence of Bank account	348 (100%)
ATM, Rupay Card holder	251 (72%)
Frequency of Visit	Weekly (52%); Monthly (32%); When required (16%)
Awareness on loan repayment and loan default circumstances	285 (82%)

Source: Authors Calculation

Social mobilisation under NRLM ensures access to the various banking services such as possession of bank account, debit cards, formal visit to the bank premises and awareness on the banking and micro credit services. All the tribal beneficiaries of NRLM have a saving bank account and majority of them have access to other allied services as described in the above table.

Table 6: Usage of banking products and services

Dimensions	Response Count
Participation in group internal lending	348 (100%)
Deposit and withdraw activities	334 (96%)
Use of Rupay Card, ATM Cads	251 (72%)
Micro credit, small loan taken	271 (78%)

Source: Authors Calculation

All the groups’ members have engaged in the group lending activities where a small amount of money is collected from each of the members and saved in their group account. In almost cases,

members are actively visiting the banks for their money deposit and withdraw work. 72% of tribal women know the use of debit cards and 78% of the total women have availed micro credits or small loans for various purpose such as family needs, economic activities, medical emergencies etc.

Table 7: Service quality offered by Banks

Dimensions	Response Count
Visit of Bank Sakhi/BCs to the households	Yes (79%); No (21%)
Attitude of bank staff	Positive (56%) Negative (44%)
Process of bank activities	Normal (72%); Complex (28%)
Existence of sufficient bank staff	Sufficient (66%); Not sufficient (44%)
Ask for collateral against micro credit	Yes (23%); No (77%)
Availability banks or financial institutions within 10 km range	Yes (73%); No (27%)

Source: Authors Calculation

It is evidenced, bank provides reliable services to the tribal self-help groups and some bank Sakhi or banking correspondents are actively working in the rural areas towards the promotion and facilitation of banking products at the door step. But it observed in some case, there is a shortage of bank staffs, banking points are away from the rural areas which halt the banking activities and, in minor cases, bank ask for collateral or security against the loan which demotivate SHG members in availing loans.

Table 8: Mission Co-ordinators engaged in facilitating Financial Inclusion

Co-ordinators	Dimensions of Financial Inclusion		
	Access to the banking products and services	Usage of the baking products and services	Quality of products and services
Bank Sakhi/ Bank Mitra	254 (73%)	271 (78%)	219 (63%)
Community Resource Person	24 (7%)	66 (19%)	NR
Village Organisation	70 (10%)	10 (3%)	NR

NR: No Response

Source: Authors Calculation

Bank Sakhi, CRPs and VOs were the mainly engaged in achieving financial inclusion among the tribal women group members. In order to access and usage of the banking products and services, all the above three agents were engaged but bank Sakhi had an active engagement. While the quality of the banking services was delivered by bank Sakhi itself only, as she works as mediating agent between bank and the SHGs.

5.4 Measuring the impact of Social Mobilisation on Livelihood Promotion

Social mobilisation is emerging in a fairly widespread way as platforms for socio-economic growth of the rural poor women (Shylendra et al, 2017). Community driven development programs have both the social and economic impact to the society (Deininger & Liu, 2009). In order to ensure a stable livelihood, it is necessary to have skill acquisition for market ready, engaged in some economic activities, sustainability in income or enhancing the purchasing power and improvement in the social conditions such as food, cloth and shelter (Krantz, 2001; Hertz et al., 2010). Social mobilisation of NRLM SHGs have brought positive changes in terms of their social development, economical activities and income enhancement as discussed below.

Table 9: Reliability test of Livelihood Promotion

Indicators of Livelihood Promotion	Cronbach's Alpha	References
Skill acquisition for market ready	0.895	Chambers and Conway, 1991
Engaged in an economic activity	0.936	Serrat, 2017; Solesbury, 2003; Krantz, 2001
Maintaining sustainability in Income	0.966	Krantz, 2001; Hertz et al., 2010
Improvement in the social conditions	0.856	Swain & Varghese, 2009; Bhingardive et al, 2015; Hertz et al., 2010

Source: Authors Calculation

Table 10: Skills towards Enterprise Promotion

Category of Training	Name of the Training	Response Count
Enhancement/ Diversification of existing Livelihood	Book keeping	271 (78%)
	Mushroom cultivation	94 (27%)
	Bee keeping	59 (17%)
	Poultry farming	129 (37%)
	Goat farming	45 (13%)
	Fishery	129 (37%)
	Milk production	143 (41%)
Capacity Building	Business plan	164 (47%)
	Market information	94 (27%)
	Soft skills	171 (49%)
	Leadership	181 (52%)
	Role Model	146 (42%)
	Exposure Visit	101 (29%)

Source: Authors Calculation

Respondents have acquired various livelihood promotion skills such as book keeping, mushroom cultivation, bee keeping, poultry farming, goat farming fishery, milk production and simultaneously have also received capacity building training on business planning, market knowledge, soft skills or communication skills, leadership, motivation through role models and exposure visit etc. But it is evidenced that a smaller number of members have received livelihood development trainings

which negatively impact their opportunity to become self-employment. This indicates the failure of the scheme in some areas in order to provide skills necessary to be self-employed and enterprise development.

Table 11: Mission co-ordinators engaged in Enhancing/Diversification of Livelihood activity and Capacity Building Training

Dimensions	Co-ordinators	Response Count
Enhancing/Diversifying the Livelihood activity	Community Resource Person	108 (31%)
	NGOs	172 (49%)
	Village Organisation	70 (20%)
Capacity Building Support	Community Resource Person	233 (67%)
	Village Organisation	94 (27%)
	Block Co-ordinator	21 (6%)

Source: Authors Calculation

CBOs, NGOs, VOs were engaged in the providing training towards the livelihood diversification and among them CRPs and NGOs have played majority roles. Whereas capacity building support was provided by the CRPs, VO and the Block coordinator; CRPs had the major contribution. CRPs were directly associated with the group members, group activities on a regular basis, that's why her contribution has great influence on the different activities of the group members.

Table 12: Engaged in Economic Activities

Economic Activities	Nature of Work	Years in Operation (in years)	Response Count
Horticulture	Seasonal	3	272 (78%)
Fishery farming	Full Time	3	79 (23%)
Tailoring	Full Time	2	167 (48%)
Mushroom Cultivation	Seasonal	3	230 (66%)
Poultry Farming	Full Time	3	121 (35%)
Livestock farming	Part Time	4	49 (14%)
Paddy Selling	Seasonal	2	300 (86%)
Making of food items (pickles, papad, sattu)	Part Time	4	223 (64%)

Source: Authors Calculation

As discussed in the above, respondents have received their training on various aspects by the mission co-ordinators and later on they got engaged themselves in some economic activities on the basis of their skills and capability. The respondents are involved in different livelihood activities in the areas of agriculture and allied activities, tailoring and making of food items. Majority of the respondents were working in the horticulture activities i.e., growing vegetables, paddy selling, mushroom cultivation, tailoring etc.

Table 13: Individual Annual Income

Financial Year/Income (Rs)	Below 50,000	50,000- 1 Lakh	1 Lakh -1.50 Lakh	1.5 Lakh to 2 Lakh
2016-17	63%	24%	13%	NA
2017-18	47%	34%	11%	8%
2018-19	23%	45%	25%	7%
2019-20	17%	49%	27%	7%
2020-21	23%	54%	21%	2%
2021-22	21%	45%	23%	11%

Source: Authors Calculation

Income of the respondents have substantially increased over the years. Since 2018-19, one fourth of the respondents have maintained their income sustainability in the range of 1 lakh to 1.50 lakh per annum. On an average, majority of the respondents were earning 50000 to 1 lakh rupees per annum consistently which accounts 8000 to 9000 per month from their economic activities and seems to be a good income for the tribal women living in backward regions.

Table 14: Improvement of Social Conditions

Dimensions	Levels	Response Count
Ownership Status of House	Own	324 (93%)
	Rent	24 (7%)
Electricity Availability	Yes	338 (97%)
	No	10 (3%)
Condition of House	Pucca	254 (73%)
	Kutchha	59 (17%)
	Semi Pucca	35 (10%)
Hygiene Sanitation Practices	Availability of Toilets	254 (73%)
	Availability of Clean Drinking Water	143 (41%)
	Use of Toilets	146 (42%)
	Cleaning of Surroundings	129 (37%)
Odia Language Fluency	Reading and Writing	310 (89%)
	Either Reading /Writing	38 (11%)
Awareness on Health Conditions	Malnutrition	258 (74%)
	Maternal Health	219 (63%)
	Disease Control	198 (57%)
	Domestic Violence	143 (41%)
Decision Making	Status and position as equal to your husband in the family	223 (64%)
	Freedom to take birth control decisions	303 (87%)
	Decision on spending your own income	271 (78%)
	Freedom of movement	181 (52%)
	Feeling of Self-reliant after joining SHGs	258 (74%)

Source: Authors Calculation

In this section, social conditions of the respondents were analysed in terms of their living standard, education and decision making. It is evidenced that majority of the respondents have their own house, equipped with electricity, toilets and 73% of the respondents have pucca houses.

Respondents were practicing the hygiene living but a smaller number of the them are using toilets, cleaning of surrounding, access to clean drinking water. Respondents have also developed their education in terms of Odia language fluency (which is the local language spoken in Odisha), awareness on health conditions. Whereas in decision making, tribal women have gained status and position equivalent to their husband in various aspects such as; freedom in birth control decisions, spending self-income, freedom of movement outside the home and hence achieved the self-reliant after joining the self-help groups under National Rural Livelihood Mission.

6. Regression Analysis

6.1 Measuring the impact of Social Mobilisation on Financial Inclusion

The following table 15 provides the model summary results for impact of Social Mobilization on Financial Inclusion. The simple correlation value (R) is 0.613, indicates a higher degree of correlation. The R^2 value define the total variation in the dependent variable i.e., financial Inclusion and is explained by the social mobilisation (dependent variable). It is observed that R^2 value is 37.6% seems to be average but F-test results i.e., $F(1,1054) = 635.72$ and $p < 0.001$, which is less than 0.05 indicates the statistical significance of the regression model. Thus, there is a $(B=0.443, SE=0.018)$ and significant impact of social mobilization on financial inclusion among the tribal women and with each unit increase in social mobilisation the financial inclusion value increases by 0.443 units (*Refer Table 16*).

Table 15: Model Summary for Impact of Social Mobilization on Financial Inclusion

R	R Square	Adjusted R Square	F-Test Results
.613 ^a	.376	.376	$F(1,1054) = 635.72, p\text{-Value} = .000b$

Source: Authors Calculation

Table 16: Regression model showing impact of Social Mobilization on Financial Inclusion

Dependent Variable	Independent Variable	Unstandardized Coefficients B	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Financial Inclusion	(Constant)	25.369	3.316		7.650	.000
	Social Mobilization	.443	.018	.613	25.214	.000

Source: Authors Calculation

Table 17: Impact of Co-efficient of Social Mobilization on Financial Inclusion

Dependent Variable	Independent Variable	Unstandardized Coefficients B	Std. Error	Standardized Coefficients (Beta)	t	Sig.
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Financial Inclusion	(Constant)	8.665	3.548		2.442	.015
	SM 1	.517	.121	.095	4.287	.000
	SM 2	-.230	.099	-.070	-2.313	.021
	SM 3	.044	.091	.015	.490	.624
	SM 4	.325	.194	.046	1.676	.094
	SM 5	.640	.044	.398	14.692	.000
	SM 6	1.221	.111	.301	11.043	.000
	SM 7	.698	.183	.098	3.820	.000
	SM 8	.508	.097	.165	5.235	.000

Source: Authors Calculation

The eight dimensions of social mobilization have both positive and negative impact on financial inclusion (table 17). There are seven dimensions that have positive impact on financial inclusion i.e., SM 1 (B=0.517, SE=0.121), SM 3 (B=0.044, SE=0.091), SM 4 (B=0.325, SE=0.194), SM 5 (B=0.640, SE=0.044), SM 6 (B=1.221, SE=0.111), SM 7 (B=0.698, SE=0.183), and SM 8 (B=0.508, SE=0.097) and only one dimension i.e., SM 2 (B=-0.230, SE=0.099) have negative impact on the financial inclusion.

6.2 Measuring the impact of Social Mobilisation on Livelihood Promotion

The following table 18 provides the model summary results for impact of Social Mobilization on Livelihood Generation. The *R* value represents the simple correlation and is 0.532 which indicates a medium degree of correlation. The *R*² value indicates how much of the total variation in the dependent variable i.e., livelihood promotion by the independent variable i.e., social mobilization. In this case, 28.3% has been observed, which seems to be low but the results of F-test i.e., $F(8, 1046) = 51.677$, *p*-value = 0.000 and the *p* value i.e., $p < 0.001$, represent the dependent variable significantly well. This indicates the statistical significance of the regression model and a positive impact of social mobilization on livelihood promotion (B=0.331, SE=0.037). Thus, increase in social mobilization results in increase in livelihood promotion i.e., with every unit increase in social mobilization, the livelihood promotion score is increased by 0.331 units (Table 19).

Table 18: Model Summary for Impact of Social Mobilization on Livelihood Generation

R	R Square	Adjusted R Square	F Test Results
0.532	0.283	0.278	$F(8, 1046) = 51.677$, <i>P</i> -Value= 0.000b

Source: Authors Calculation

Table 19: Regression model showing impact of Social Mobilization on Livelihood Generation

Dependent Variable	Independent Variable	Unstandardized Coefficients B	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Livelihood Promotion	(Constant)	12.680	6.945		1.826	.068

	Social Mobilization	.331	.037	.267	8.978	.000
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Source: Authors Calculation

Table 20: Impact of Co-efficient of Social Mobilization on Livelihood Promotion

Dependent Variable	Independent Variable	Unstandardized Coefficients B	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Livelihood Promotion	(Constant)	51.634	7.508		6.877	.000
	SM 1	-.220	.255	-.024	-.864	.388
	SM 2	.632	.210	.112	3.004	.003
	SM 3	.866	.192	.169	4.522	.000
	SM 4	.661	.411	.054	1.610	.108
	SM 5	-.121	.092	-.044	-1.313	.189
	SM 6	-.704	.234	-.101	-3.007	.003
	SM 7	-1.361	.387	-.111	-3.518	.000
	SM 8	1.686	.205	.318	8.214	.000

Source: Authors Calculation

Table 20 represents the eight coefficients of social mobilization that impacts the livelihood promotion. The co-efficient of social mobilization that positively impact livelihood promotion are SM 2 (B=0.632, SE=0.210), SM 3 (B=0.866, SE=0.192), SM 4 (B=0.661, SE= 0.411) and SM 8 (B=1.686, SE=0.205) whereas the co-efficient that negatively impact the livelihood promotion are SM 1 (B= -0.220, SE= 0.225), SM 5 (B= -0.121, 0.092), SM 6 (B=-0.704, SE=0.234) and SM 7 (B=-1.361, SE=0.387).

Conclusion

Self Help Group is a socially mobilized structure of backward women of the society. National Rural Livelihood Mission mobilized marginalized poor women into a self-help group including scheduled tribe women, who are the respondents of the study. With the help of mission coordinators of the scheme, tribal groups learn the structure and objectives of the group. Social mobilization of the tribal women and following the group norms on a regular basis, the group finally linked with banking system of the country. It is observed that all the respondents have the bank accounts and majority of them visit the bank regularly, aware of banking transactions and the micro credit process. 78% of the respondents have taken loan for their family needs, medical emergencies and education of their children. In supply side, there are bank Sakhi, who regularly visits to provide various banking services at their door steps. In some areas, customer service points are also there to serve the people. But, in some areas banking services lacks to serve the people due to shortage of staff, long distance of the bank branches etc. So, in majority cases, financial inclusion has been achieved for the respondents. Thus,

there is a positive and significant impact of social mobilization on financial inclusion and hence, first hypothesis is justified.

Social mobilization of tribal women into self-help groups under the National Rural Livelihood Mission forms a strong social capital among its group members by participating regularly in the group activities. As discussed above, these groups were facilitated with the banking services simultaneously. In the meantime, they receive livelihood development training by the coordinators. Majority of the respondents have received training on capacity building and to enhance their livelihood. In addition, they have also engaged themselves in various economic activities such as book keeping, mushroom cultivation, bee keeping, poultry farming, goat farming fishery, milk production etc. in order to fulfill their basic needs of life and earns around 8000 to 9000 rupees per month. It is evidenced that regular participation in the group activities have developed their socio-economic conditions such as housing status, education, hygiene practices and their decision making. Thus, social mobilization among the tribal women groups has positive impact on their socio-economic conditions and hence, promote their livelihood. In addition, regression results have also positive outcome. So, the second hypothesis is also proven valid. Therefore, social mobilization has positive and long-term effect on financial inclusion and livelihood promotion among the tribal women of Sundargarh district in Odisha.

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Factors triggering Digital Transformation Journey in organizations

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Abstract

Edwin Louis Cole once said, “Maturity comes not with age but with the acceptance of responsibility. You can only become young once but immaturity can last a lifetime” and when it comes to an organization in today’s world, one cannot afford to not be immature. A matured organization is the one, which has been stable and established for at least 5 years, has a clear sight of stable growth, a well-established set of products and loyal customers. Now when we talk of the 21st century, an organization apart from being matured also needs to be digitally matured. Organizations now embark on the journey of digital transformation which helps them reach the other end of the Digital Maturity curve. Through this paper, I have tried to bring forward the factors which trigger organizations to start their digital transformation journeys. Now these factors, external or internal, have a huge impact for the leadership to approve the digital transformation initiative for their organization.

Keywords: Digital transformation; digitalization; digital maturity; digital readiness

1.0 Introduction

Digital Disruption has changed the mentality from “survive and thrive” to “evolve or die”

Digital Disruption can be seen in any industry – retail, manufacturing, pharmaceutical, telecom and that too across the globe. What we need to ensure is how to grow with this disruption and improve our maturity levels along the way. Digital Transformation is the process which many organizations adopt to reach on the other end of the digital maturity curve. This process involved undergoing a revolution to embed technology at the core of the organization. This would also involve integrating the operations and resources of an organization to the digital processes and the other way round. It essentially means putting technology at the centre of operations.

But just “doing” digital things will not make an organization more digital. The maturity spectrum runs from Discovering Digital, Undertaking Digital, Standing Digital to being Digital and this is all part of Digital Transformation.

- **Discovering Digital:** This involves leveraging traditional technologies to automate existing capabilities and dabbling with digital. This does not involve any change to the organization
- **Undertaking Digital:** This leverages digital technologies to extend capabilities, but still largely focused around same business, operating and customer models
- **Standing Digital:** Business operating and customer models are optimized for digital and profoundly different from prior business, operating and customer needs

It is imperative to understand

- 1) How Digital you are today i.e. what is the level of digital maturity of your organization today to know where to begin
- 2) How digital you need to become i.e. planning where you need to get to in 6, 12, and 18 months
- 3) How do you get there i.e. Change happens more rapidly when you infuse digital traits into the existing legacy environment – your organizational digital readiness

2.0 Literature Review

Companies across the globe are conducting multiple interventions to explore digital technologies to make processes simple for business and these can be through social networks, mobile, artificial intelligence, machine learning (Fitzgerald, M., Kruschwitz, N., Bonnet, D., Welch, M., 2013). This essentially cannot be done without transforming business operations and disrupting the processes in an

organization (Matt, C., Hess, T., Benlian, A.: 2015). Society globally is facing a radical change as digital technologies are getting matured penetration to all markets (Ebert, C., Duarte, C.: 2016). Globalization is also adding pressure to companies (Westerman, G., Calm ejane, C., Bonnet, D., Ferraris, P., McAfee, A.: 2011). Companies which are “born digital” seem to have grown more powerful than companies that are more traditional in their approach (Sebastian, I., Ross, J., Beath, C., Mocker, M., Moloney, K., Fonstad, N.:, 2017). Even though the world has seen advancements in this area and the field related to this, digital Transformation for organization is taking longer and is more complex than it has been expected (Zinder, E., Yunatova, I., 2016). It has been challenging for companies to keep up with the new digital reality: case in point - bankruptcy of movie-rental Company Blockbuster being one of them (Hess, T., Matt, C., Benlian, A., Wiesb ock, F., 2016). Despite this, Digital technology needs to contribute by providing an economic impact for an organization and hence organization needs to be ready to invest in digital interruptions (Carcary, M., Doherty, E., Conway, G.: 2016).

Below table illustrates typical definitions taken from various literatures.

Definition of Digital Transformation		
Interventions to explore digital technologies to their benefits. These can be social networks, mobile, artificial intelligence, machine learning	Fitzgerald, M., Kruschwitz, N., Bonnet, D., Welch, M.:	MIT Sloan Management Review, Research Report (2013)
Transforming business operations and disruption the processes in an organization	Matt, C., Hess, T., Benlian, A	Digital transformation strategies (2015)
Companies which are “born digital” (e.g., Amazon, Facebook and Google) have grown more powerful than companies that are more traditional in their approach	Sebastian, I., Ross, J., Beath, C., Mocker, M., Moloney, K., Fonstad, N	How Big Old Companies Navigate Digital Transformation. MIS Quarterly Executive (2017)
There are examples of organizations that have been unable to keep up with the new digital reality: bankruptcy of movie-rental Company Blockbuster being one of them	Hess, T., Matt, C., Benlian, A., Wiesb�ock, F.	Options for formulating a digital transformation strategy. MIS Q. Executive 15(2), 123-139 (2016)
Digital technology also needs to have an economic impact for an organization and hence organization needs to be ready to invest in digital interruptions	Carcary, M., Doherty, E., Conway, G.:	10th European Conference on Information Systems Management. Academic Conferences and publishing limited, pp. 20- 28 (2016)
Emphases on the end-to-end digitization of all physical assets and integration into digital ecosystems with value chain partners	Lee, M., Lee, Y., Chou, C	Essential implications of the digital transformation in industry 4.0. J. Sci. Ind. Res. 76, 465-467 (2017)
Apart from initiative digital transformation in an organization, another prominent change is	Horlacher, A., Hess, T	In: System Sciences 49th Hawaii International Conference, pp. 5126-5135 (2016)

to integrate digital into the cultural DNA of business models		
Digital transformation takes place in three key areas of the firm: customer experience, operational processes and business models, suggesting that the effects of digital transformation in business organizations are felt in these three key areas	Westerman et.al.	IT Leadership in Transition - The Impact of Digitalization on Finnish Organizations (2015)

Digital Transformation has always had a healthy connection to the industry and business of an organization and is currently re-experiencing huge changes in an organization, as the industry 4.0 represents the coming industrial revolution. It weighs on the completed digitization of all processes in an organization and also integration into digital ecosystems with partners (Lee, M., Lee, Y., Chou, C. 2017).

Definition of Digital Transformation	
Strategy	Bharadwaj, et.al. (2013); Matt, et.al. (2015); Mithas, et.al. (2013); Hansen & Sia (2015); Granados & Gupta (2013);
Process	Agarwal, et.al. (2010); Berman & Marshall (2014); Bharosa, et.al. (2013); Janowski (2015); Kreutzer (2014); Loebbecke & Picot (2015); Stieglitz & Brockmann (2012); Tamm, et.al. (2015); Wang, et.al. (2016); Hansen et.al. (2011);
Business Model	Henriette, et.al. (2015); Stieglitz & Brockmann (2012);
Paradigm Shift	Berman & Marshall (2014); Piccinini (2015a);

3.0 Insights from existing literature

Digital transformation may initiate conflict with respect to culture between younger and relatively inexperienced digital employees and older but more experienced pre-digitization employees (Kohli R, Johnson S (2011). In addition to a cultural divide digitalization also leads to a gap in the growing skills in amongst the employees of an organization as in the above mentioned 2 categories of employees. Digital transformation is also impacting the day to day work environment in incumbent firms in terms of work structures: key lessons learned. MIS Q Exec 14(2):51–66). Digital transformation doesn't really challenge the technology being driven in an organization but also needs a deep cultural change. The employees, partners, all the stakeholders in an organization must be ready to adapt the journey with changes in their culture and in the way of working. Digital interconnectivity permits the appearance of flexible and networked cross-location teams across the entire geographical company map. The implementation of a digital workplace is highly important.

Digital transformation can never become successful with no data-sharing and data-driven corporate culture (Dremel C, Wulf J, Herterich MM, Waizmann JC, Brenner W (2017). Data is a highly recognized much more as a valuable resource and an enabler in the digital transformation journey. This will require higher operational transparency in day to day work and a mindset amongst employees to share data when needed. The need is to change the informatic culture in employees to informational culture; (Hum Syst Manag 23(4):213–225). In comparison to an informatic culture, an informational culture considers IT as a core element of planned and tactical decisions. It also understands the financial

and transformative potential of digital technologies. It is imperative to not allow 2 different cultures arising in the same organization i.e. a group of employees who have digital capabilities and the other group which is more inclined towards the traditional way of working with technology lagging behind.

4.0 Drivers of Digital Transformation Journey in organizations

Most organizations believe that digital transformation is often a business led decision and program and is usually sponsored by business and leadership. Drivers can be seen as external or internal triggers for why organizations engage in digital transformation. Organizations report a need to keep up with digital shifts occurring in the industry in which they operate. Digital transformation is found to often be triggered by changing customer behaviors and expectations (Haffke et al., 2017; Schmidt, Drews, and Schirmer, 2017), digital shifts in the organization's industry, and changes in the competitive landscape (Berghaus and Back, 2017).

1. The directive from the group or global team who had already launched similar initiatives in other markets
2. The learnings and case studies from the competition in the same geography leading to exciting impact

For organizations with massive data volume across 150+ countries in segregated businesses and leveraged by 50K+ employees plus various customers. In order to obtain the most efficiencies when it comes to business process execution from ITO (Invoice to Order) to OTR (Order to Receive), it was critical to have standardized and transform DT (Digital Technology) across all the business units. Digital Transformation spanned across the following pillars and more -

- Digital Workplace - Next generation end user experience solutions including end user assets, mobility penetration, leveraging virtual capabilities like VDI etc.
- Centralized hosting - Transition to cloud AWS and Azure for the strategic business applications. Further leverage SaaS offering as first option
- Application rationalization - Transforming the application footprint based on business capabilities
- Collaboration - Leveraging the new technologies also accelerated by the need for remote work
- Digital Thread - Consolidated data transfer across various applications so as to get the end to end visibility of data across the platforms for best business decision making
- Cyber security - Critical from potential operational disruptions perspective as well as regulatory guidelines across all countries / regions
- Acquisitions - Need for stronger Digital Technology foundation in order to absorb multiple acquisitions

5.0 Factors leading to embarkment of digital transformation journey for organizations through Case studies

Through research and studying the digital transformation case studies of various organizations, it was evident that factors leading to the initiation of digital transformation in organizations can be external or internal, largely depending on the project and the organization in scope. For telecom, financial organization, pharma etc a lot of initiatives are driven by government regulations whereas for retail, FMCG, competition has a huge role to play in triggering the digital transformation.

6.0 Role of Internal Factors in triggering digital transformation in organizations

For many organizations, the push to initiate the digital transformation journey is internal, coming from leadership, a new entrant to the team (either in leadership or a new team formation).

Drivers of Digital Transformation	
Digital Technologies	Agarwal, et.al. (2010); Berman (2012); Bharadwaj, et.al. (2013); Bharosa, et.al. (2013); Janowski (2015); Kreutzer (2014); Luna-Reyes & Gil-Garcia (2014); Mithas, et.al. (2013); Lucas, et.al. (2013); Stieglitz & Brockmann (2012); Setia, et.al. (2013); Wang, et.al. (2016); Berman & Marshall (2014); Loebbecke & Picot (2015); Westerman et.al. (2011);
Digital Capabilities	Berman & Marshall (2014); Loebbecke & Picot (2015); Matt, et.al. (2015); Schuchmann & Seufert (2015); Tamm, et.al. (2015); Wang, et.al. (2016); Westerman et.al. (2011);
Strategies	Berman & Marshall (2014); Bharadwaj, et.al. (2013); Matt, et.al. (2015); Stieglitz & Brockmann (2012); Tamm, et.al. (2015); Mithas, et.al. (2013);
Business Models	Agarwal, et.al. (2010); Berman & Marshall (2014); Bharadwaj, et.al. (2013); Janowski (2015); Loebbecke & Picot (2015); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Mithas, et.al. (2013); Schuchmann & Seufert (2015); Tamm, et.al. (2015); Stieglitz & Brockmann (2012);
Value Chain	Agarwal, et.al. (2010); Berman & Marshall (2014); Bharosa, et.al. (2013); Janowski (2015); Stieglitz & Brockmann (2012); Tamm, et.al. (2015); Wang, et.al. (2016);

Companies like HUL, Deloitte also have an Innovation cell launched which does a holistic research on the latest digital trends in the market and how the competition or ancillary companies are leveraging from these initiatives. Getting right leaders on board is a must. HUL believes, getting right people is crucial across verticals (the process started in 2016) – when the organization onboarded leaders under Big Data, AI, ML. Unilever is always open to diversification, intelligent diversification is important.

For another major food company, things started seeing a change when the vendors the company was dealing with provided feedback against the systems and processes the organization was using. Need for user guides, multiple follow ups, inefficient systems, huge waiting time, operational efficiency were the key challenges faced by the partners and the key stakeholders of the organization.

For another key media player, the initiation of Digital transformation was provoked internally when the leadership felt the need to drive sales efficiencies in the organization. It was driven by internal leadership when a key leadership member joined the organization from an external organization and changed the legacy. The project was outsourced, but lot of heavy lifting was done internally.

For yet another company – Wagh Bakri, the requirement was to increase overall revenue and in digital world become Starbucks of tea. The client wanted to expand tea lounges and use backend of tea business to support a new vertical. The company wanted to reduce cost, have the ability to turn around things faster and also provide enriched customer experience,

7.0 Role of Government regulation in triggering digital transformation in organizations

Governments and regulators play a major role in inspiring digital innovation and in incentivising the growth of these technologies for the benefit of organization. They can cater to the public and consumer interests and limit any possible unintended negative consequences of these developments by providing general rules that reflect societal values and preferences. Often, however, regulatory frameworks lack the agility to accommodate the increasing pace of technological developments. Digital transaction is a way of ensuring that money is visible through-out the chain in the value chain, therefore helping the government in keeping track of the way money is moving and hence extracting taxes and duties at various steps. It also adds a lot of convenience for users in terms of

- 1) not having to carry physical cash/card which can become hassle
- 2) Being able to tender cash in exact amount without having to bother about hassles of change
- 3) Also, there is no transaction fee which means essentially consumer gets all conveniences of digital payment at no additional cost.

Government body NPCI (National Payment council of India) was pushing in this direction and it was evident that the push was here to stay and hence Google had the backing.

Oil and Gas is a highly regulated industry and, in most instances, more regulated than the Life Sciences / Healthcare. Considering the push to zero carbon footprint in the Energy sector along with regional requirements have both a direct and in-direct impact on Digital Transformation -

- Eliminate direct carbon emissions related to Digital - Application hosting plays a big role with direct impact on carbon. GE O&G / Baker Hughes focus on eliminating self-hosted environments and leveraging the likes of AWS / Azure helps with that objective. The regulatory push accelerates the execution on such projects
- Acquisitions / Divestitures - It has become more critical in the business to review the implications of buying a company which adds complexity to the Digital environment. Digital has recently got a strong voice in decision making since the cost / complexity to Digitally transform the acquisition outplays the business benefits in select occasions

8.0 Role of Covid-19 in triggering digital transformation in organizations

Google Pay The project was launched pre Covid, but during pandemic the organization realized that digital and contactless payments gathered a lot of momentum because of the way the consumer behavior was changing. People wanted to avoid physical contact at any point. Exchange of currency notes through hands was also something consumers wanted to avoid. To get the transaction done with no touch and through mobiles was preference. This was also well taken by the merchants. It made a lot of sense for Google to get into this space of digital payments and also get a sense of how the consumers pay (which mode was being used as a preferred MOP). Covid 19 had a huge role to play in many organizations across globe and industry. Although the pandemic has had a negative impact on many businesses, it has also uncovered new opportunities for entrepreneurship. It has boosted digital entrepreneurship, for instance, reflecting changing consumer behaviour during and in the aftermath of the pandemic. For retail specific organizations, Covid 19 gave way to many digital transformation initiatives which include:

- Video calling in stores – when the customers are not able to reach you, you reach the customers and this was possible by installing video calling mechanism in stores where customers could directly connect with the store staff
- Placing orders on Whatsapp – Many a times there was a resistance from the customers to get up and visit the store outlet, though the online site was very much there, but for better customer delight, instant and convenient connect through whatsapp always helped

- Click and Collect – this was another functionality which had been of great help during Covid 19 when customers could place orders online and visit the store next day to collect the order without having to stand in the queue

Even internal to organization, Covid definitely accelerated a lot of the Digital Transformation journey. A few key one to highlight in particular -

- Employee experience with Digital Workplace Transformation - As all other industries, remote collaboration became the key in GE O&G / Baker Hughes. The project to consolidate to one chat / voice / data sharing platform immediately took the priority and had to be delivered in less than a month. This helped improve employee experience and productivity where business decisions could be made remote across geographies
- Remote access - With IT assets supply chain issues, and hiring was still at the usual pace, the dependency on remote applications like Citrix / VDI increased and it helped define standards and transform to a more mature next generation technology which is also a preference from Cyber perspective
- Automation - Leveraging RPA where there was reliance on employees / contractors to perform actions

For the linear TV business (TV channels), undertaking Digital Transformation during Covid 19 was inevitable. Media industry had the most profound impact from Digitalization. During Covid, People were at home, media consumption also went up. To mobilize all this, it required lot of operations, to speed up the process, linear TV undertook complete transformation.

9.0 Role of Competition in triggering digital transformation in organizations

It is very essential to be on top of what competition is doing and gain and learn from the successes and failures of the implementation of such initiatives from competition. Competition has a huge role to play when one is embarking on this journey since you also always want to be ahead in the game and also keep oneself up to date with respect to the trends in the market in the same or parallel industry. The idea behind a digital transformation is to incorporate technology into every facet of a business, creating sophisticated operations that deliver more value to customers and improve a company's bottom line. For organizations like Dyson, HP where the core fight is on the market share and the competition is too strong, it is very crucial to know what trends are being followed by Competition.

For Organization like GE when they embarked on the journey of Digital Transformation, key competitions were already on the path of 'One ERP' which automatically provides centralized data visibility, leans the business processes, eases the management of cyber security and gives a strong foundation to consume additional acquisitions. Other companies in the Technology sector had started leveraging next generation offerings to improve employees productivity which like other companies in the Energy sector. Hence it was crucial for GE to fast pace their journey.

Wagh Bakri, though mentioned above had a huge trigger from internal leadership, another reason which helped them speed up the process was presence of competition in this space. There are more digitally native companies – ChaiPoint, Chaayos, which were disrupting the space and the company wanted to be able to match them.

10.0 Conclusion

An underlying assumption of the following description of the external drivers of digital transformation is that firms tend to adapt along transformational initiatives during times of conservation steadiness but may periodically carry out more radical organizational change during times of high environmental velocity of change (Gersick 1991; Romanelli and Tushman 1994; Tushman and Anderson 1986; Tushman and Romanelli 1985). This may not be the only present perspective on organizational transformation and change (Van de Ven and Poole 1995), it is nevertheless a recognized and extensively adopted perspective in the existing literature.

What follows from this viewpoint is that the digital transformation at firms will be to a great degree activated and driven by factors that occur in the firm's direct environment. We discuss some of these external factors in the following paragraphs. Three major factors driving the need for digital transformation.

- The change in the consumer behavior (during Covid – 19) and expectations from government regulations are changing and improving. The rise technologies leading to the adoption of electronic commerce. This may include internet, online payments, mobile usage etc.
- The ubiquity of data and arrival of emerging technologies which include machine learning, artificial intelligence, blockchain, internet-of-things (IoT), have exceptional impact on the growth of business goals (Chen et al., 2012, Iansiti and Lakhani, 2014, Ng and Wakenshaw, 2017) which persuade the leadership to embark on this journey of digital transformation. Not all of the technologies mentioned above are as impactful as expected, the extensive emergence of them though signifies the requirement for organizations to proceed with digital transformation of their business.
- Lastly, most crucial external factor driving the need for digital transformation in an organization is the digital transformation and adoption of the competitors. Know-how of what the competitors are doing and the latest digital initiatives being implemented in their organization and to keep up with the pace, an organization needs to evaluate the impact of implementing and adopting a digital initiative relevant to their organization and industry.

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Framing and Responding to Covid-19 by Leaders across Cultures

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Abstract

The purpose of the study is to analyze how the leaders of different nations interpreted and responded to COVID-19. We have taken into consideration ten countries representing different cultures, namely India, Japan, USA, UK, Italy, France, South Korea, Netherlands, Taiwan, and Germany. We gathered data from online sources, including the interviews, press conferences, and public addresses by the leaders. We collected the documents in the time-frame of January 2020 to July 2020 and analyzed the data qualitatively using ATLAS.ti software. We found that leaders' framing of the pandemic is grouped into economic, healthcare, and life framing. The responses of different countries are categorized under preventive measures, administrative responses, economic measures, and healthcare responses. We also highlight dominant characteristics of the leaders and discuss perceived nature of the pandemic. Our study implies that framing is as important as responses while looking at a given problem. Furthermore, it is recommended that the leaders should always have a broader vision in a challenging situation in order to handle multiple aspects of the challenge in hand. This study is a pioneer in identifying and highlighting how different leaders have framed/perceived the pandemic.

Keywords: *Leadership, Strategy, COVID-19, Qualitative analysis.*

1. INTRODUCTION

Coronavirus (COVID–19) has spread all over the world creating a global crisis and the World Health Organization (WHO) in March 2020 declared it as a pandemic. The quick and vast spread of the coronavirus crisis posed serious challenges for the leaders (Kavanagh & Singh, 2020; Kerrissey & Edmondson, 2020) threatening both the economy and health (Nicola et al., 2020). Indeed, it has been no less than a stress test for the authorities to lead during the global crisis (Kaul, Shah & El-Serag, 2020). The pandemic is posing huge strain on the global healthcare ecosystem in terms of testing capabilities, logistics, supplies and medical equipment (Nicola et al., 2020).

There exist significant differences across nations in terms of policy making and implementation by national leaders in order to ensure adequate testing, accessibility to proper healthcare infrastructure, effective handling of infected patients, and to contain the spread of the deadly coronavirus (Luoto & Varella, 2021). It is imperative that the leaders not only have to efficiently deal with such elements, but also have to learn from experiences and devise strategies to protect the health of people, national economy and overall society (Kaul et al., 2020). We have encapsulated framing and responses of leaders of ten countries: India, Japan, USA, UK, Italy, France, South Korea, Netherlands, Taiwan, and Germany.

The existing literature on leadership during COVID-19 is fragmented in nature as the studies have separately handled issues like gender differences (e.g., Garikipati & Kambhampati, 2021); leadership styles (e.g., Luoto & Varella, 2021); and responses to the pandemic (e.g., Kavanagh & Singh, 2020). However, our study integrates and outlines a broader picture of how the leaders representing diverse cultures have framed and responded to the pandemic. In addition, we shed light on dominant characteristics of the leaders, experiential learning and international collaboration, and perceived nature of the pandemic. In this regard, this study contributes to two streams of literature, crisis management and leadership, by giving a comprehensive overview of leadership in ten different

countries during the pandemic. Also, our study is a pioneer in identifying and highlighting how different leaders have framed/perceived the pandemic.

The rest of the paper is structured as follows. The next section discusses the methodology followed by the findings and analysis. Finally, the paper concludes by discussing contributions, limitations, implications and future research directions.

2. METHODOLOGY

2.1. Sample

The sample size is restricted to ten countries that represent diverse cultures. These countries include both developed and developing nations, namely India, Japan, USA, UK, Italy, France, South Korea, Netherlands, Taiwan, and Germany. We analyzed 187 documents from all ten countries.

2.2. Data collection

For the purpose of our study, we gathered data from online sources, including the interviews, press conferences and public addresses by the leaders. We collected the documents in the time-frame of January 2020 to July 2020.

2.3. Data analyses

We analyzed the data qualitatively using ATLAS.ti software that has been widely used by different scholars (Hengst et al., 2020; Jay, 2013, Saini, 2010) for qualitative data analysis. The data was coded in three stages (first order, second order, and third order coding) by applying Gioia methodology (Gioia et al., 2013).

3. FINDINGS AND ANALYSIS

We identified 1,694 quotations from a total of 187 documents for the purpose of our study. We then grouped similar quotations into 71 second order codes which were broadly classified into five categories namely, framing (economic framing, healthcare framing, and life framing); responses (preventive measures, administrative responses, economic responses, and healthcare responses); perceived nature of the pandemic; dominant leadership characteristics; and learning and cooperation. The five broad categories are discussed below.

3.1. Framing

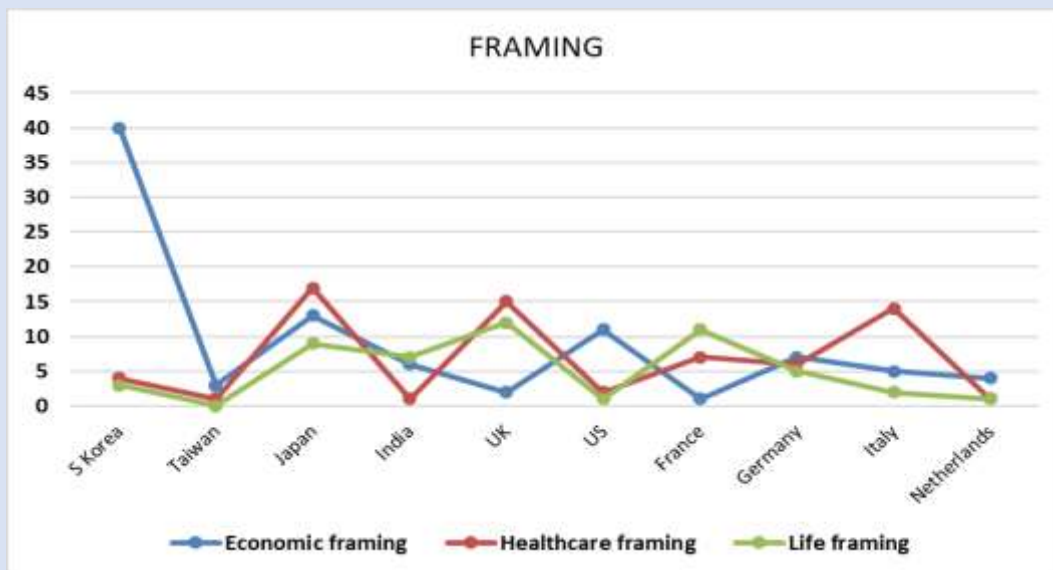
We found three types of framing; economic, healthcare, and life among the ten countries considered for analysis (see Figure 1). It is important to note that we found all three types of framing in all the countries. However, overall economic framing was dominant followed by healthcare and life framing. The details of each kind of framing are discussed below.

3.1.1. Economic

Some leaders perceived the pandemic majorly as an economic crisis. South Korea topped the list in terms of viewing the crisis economically followed by Japan and US. South Korea anticipated that the pandemic will cause a huge negative impact on the economy. Moon Jae-in, South Korea, quoted, “The Government has been responding to the worst economic crisis in history by taking rapid and bold emergency measures.” On similar lines, Shinzo Abe, Japan said, “There has been an exceedingly enormous impact across the Japanese economy.” Donald Trump, former President of US also perceived the negative economic impact but was extremely confident of successfully overcoming the negative repercussions of the pandemic. While addressing the nation, he said, “Our banks and financial

institutions are fully capitalized and incredibly strong. Our unemployment is at a historic low. This vast economic prosperity gives us flexibility, reserves, and resources to handle any threat that comes our way.” We found the least evidences of economic framing in France, UK, and Taiwan.

Figure 1: Framing: Economic, Healthcare, and Life



X axis represents the countries and the Y axis represents the number of quotations

3.1.2. Healthcare

Japan, UK, and Italy were the leading countries that viewed the pandemic as healthcare crisis. Leaders of different countries felt that the pandemic will pose burden on their healthcare systems. Giuseppe Conte, Italy, said, “As I mentioned earlier, what we are able to do right now is, first of all, to limit the explosive spread of the infection. By doing so, we will be able to provide appropriate medical care to all those suffering from severe symptoms and avoid what is called a collapse of the medical care system.” The Prime Minister of UK, Boris Johnson said that the country faced a "moment of national emergency" and staying at home was necessary to protect the national healthcare system and save lives. Shinzo Abe, Japan said, “Patients with mild or no symptoms will recuperate at lodging facilities or similar places rather than at medical institutions, thereby reducing the burden on medical institutions.”

3.1.3. Life

Various leaders perceived that the virus is not only a threat to life in absolute terms but also has the potential to hinder the daily routine and tasks. Such obstacles will leave a negative psychological impact on lives of people. Leaders of UK, France, Japan, and India placed maximum emphasis on safeguarding the lives of their citizens. For example, Boris Johnson (UK) mentioned that their priority is to protect the public and save lives. France, India and Japan prioritized protecting the lives of the people over the economy. Table 1 includes quotations extracted from the direct speeches and public addresses of the dignitaries of these nations.

Table 1: Life over economy

Leader	Country	Quotes
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Emmanuel Macron (President)	France	It's clear that economy is no longer the priority. And when it's a matter of humanity, women and men but also the ecosystems in which they live, and so CO2, global warming, biodiversity, there is something more important than the economic order. No one will hesitate in making very brutal and deep changes when it's comes to saving human lives
Narendra Modi (Prime Minister)	India	The nation will have to certainly pay an economic cost because of this lockdown. However, to save life of each and every Indian is mine, Government of India's, each state Government's, each local unit's top most priority. He said that the priority of the government is saving each and every life coining the slogan that ' <i>jaan hai to jahaan hai</i> ' (life is more valuable than anything else)
Shinzō Abe (Former Prime Minister)	Japan	I intend to make decisions and implement them without hesitation, prioritizing the protection of the health and lives of the people over anything else. I would like to ask for your continued efforts

3.2. Responses

We found four types of responses; preventive measures, administrative responses, economic responses, and healthcare responses among the ten countries considered for analysis (see Figure 2). The details of each response are discussed below.

3.2.1. Administrative

Administrative responses of the countries included enhancing the existing capacity and building new capabilities, careful planning, forming expert committees, striking public-private collaborations, graded response mechanism, and feedback-based response strategy. Japan tried to enhance the capacity with regard to Polymerase Chain Reaction (PCR) screening. As a result, they were able to conduct more than 4,000 screenings per day. They further provided necessary equipment to private sector screening institutions in order to speed up the screening process. India stressed upon building the capacity of healthcare workers and adopted a graded response mechanism to counter the spread of the virus. The Central Government not only sought continuous feedback from the States to design the exit strategy, but also asked the ministers to suggest appropriate actionable measures to augment manufacturing and exports.

Germany paid attention on reducing its dependence on other nations in terms of comprehensive testing and productive capacities for protective equipment especially, face masks. Similarly, Taiwan boosted the production capacity of surgical masks and enhanced the domestic epidemic prevention capabilities with the cooperation of private medical companies. For example, Taiwan's facemask team successfully built the capacity of producing 9.2 million face masks per day.

Netherlands and US formed expert committees to effectively handle the crisis situation. In Netherlands, an Outbreak Management Team (OMT) was constituted to regularly advice the cabinet on significant decisions like reopening of schools. Similarly, in US, President's Coronavirus Task Force was formed to take the essential administrative measures to control, minimize, and monitor the spread of the coronavirus disease. Likewise, Germany and India also formed similar task forces to deal with the economic affairs and the pandemic in general respectively.

Countries like South Korea, Japan, and Germany were quick enough to take actions to contain the virus, while some other countries such as Netherlands were found to have a delayed response. South Korea relied upon and benefited from quick testing at an early stage. This is evident from the fact that

Government officials in South Korea arranged a meeting with medical companies within a week after diagnosis of country's first case. On the other hand, Netherlands and UK did not close schools even after the escalation of negative repercussions of the pandemic. No lockdown was imposed in UK until March, while countries like Spain had already shut most businesses.

3.2.2. Economic

Economic responses mainly involved rolling out economic packages and taking necessary economic measures to revive the affected sectors of the economy as well as providing economic assistance to vulnerable sections. Japan chose to invest 108 trillion yen (20% of its GDP) to implement relevant economic measures. The measures included providing liquidity support (500 billion yen), cash payments to micro, small and medium enterprises (MSMEs) and affected families (over 6 trillion yen). In addition to economic measures, Japan decided to carry out budgetary measures and financial measures worth 430 billion yen and 1.6 trillion yen respectively.

South Korea involved local Governments to boost the national economy, for example, a reserve of 136.7 billion won was maintained to prevent coronavirus and provide support to local businesses. Economic measures for small businesses included providing emergency financial aid of 50 trillion won to MSMEs in order to prevent them from bankruptcy, facilitating small businesses to avail loans at subsidized interest rates, and providing them options to refinance loan principal and postpone interest payments. An additional package of 85 trillion won was devised to promote job security and stabilize the business operations. Speaking of specific industries like tourism, a special loan arrangement of 900 billion was made to provide emergency support.

Like Japan, Taiwan also provided economic assistance to affected industries including travel and tourism industry by introducing a relief package worth NT\$60 billion. It allocated approximately NT\$40 billion of the government budgets and funds toward emergency relief and economic stimulus measures. Taiwan emphasized on measures to stabilize the stock and foreign exchange markets, to accelerate the domestic demand by increasing Government and private investments, and to eliminate investment obstacles so as to maintain private sector investment momentum.

Italy realized the need of providing economic assistance to the hungry and transferred 400 million euros to the local governments for distributing meal vouchers to the needy people. It rolled out a package worth 7.5 billion euros for a dual purpose; (1) to assist directly affected businesses and families, and (2) to support workers through social safety nets. It provided a state guarantee enabling easier access to bank financing up to 200 million euros and extended liquidity support of 400 billion euros to businesses to help them avoid layoffs and smoothly overcome the difficult phase. Italy also intended to bring structural economic measures for different affected sectors, from manufacturing to tourism.

India relied on the following measures to deal with negative economic impact of the pandemic: (1) Boosting manufacturing and exports, (2) safeguarding income source of tribal population by ensuring procurement of tribal products, (3) insulating internal trade and local value chains, (4) providing additional job opportunities in the villages, (5) directly transferring money into bank accounts of disadvantaged sections under *Pradhan Mantri Garib Kalyan* package, (6) protecting commerce in essential supplies and logistic chains, and (7) enhancing liquidity and improving credit supply to assist MSMEs, farmers and the poor. Germany, France, US, UK, and Netherlands also adopted similar economic measures to deal with the negative economic impact posed by the pandemic.

3.2.3. Healthcare

Augmentation of healthcare infrastructure, containing transmission and spread of virus, coronavirus alert levels, infection zones, provisional medical facilities, research and development, self-reliance, technological adoption, testing, and tracing and tracking were found to be the prominent healthcare responses. The most followed healthcare responses are discussed in Table 2.

Japan, Germany, Italy and India put emphasis on augmenting the medical infrastructure to reduce the burden on existing healthcare facilities. India’s Prime Minister, Narendra Modi reviewed the country’s readiness with respect to the accessibility to hospitals, availability of beds, isolation and quarantine facilities, disease monitoring, testing, tracing and training frontline workers. In view of the crisis situation, an integrated action was taken to increase the availability of doctors and dedicated hospital facilities for COVID-19 patients; strengthen medical workforce and medical infrastructure; and ramp up quarantine facilities and isolation wards. To implement the aforesaid measures, the Indian Government made provision of Rs 150 billion. Japan also focused on strengthening the medical infrastructure including screening mechanisms, consultation and testing centers, medical supplies and equipment such as ventilators and hospital beds. To treat critical patients, Japan secured over 3,000 ventilators and 12,000 beds as well as enacted budgetary provisions to secure more. Japanese Government collaborated with private inspection institutions and universities to scale up the number of screenings per day. Italy also responded with similar healthcare measures and was able to increase the intensive care places in Emilia Romagna, Veneto and Piedmont by 141%, 167% and 135% respectively.

Table 2: Healthcare responses

Code/Country	TS	RD	TA	TE	TT
France		Clinical trials for vaccine, increased investment in research, speeding-up the design and production of diagnostics, therapeutics and vaccines		Self-reliance in developing testing kits	
Germany	Flattening the curve, limiting transmission risk, containment measures, breaking infection chain	Active participation of virologists and epidemiologists, investment for vaccination development, drug discovery, commitment to international vaccine initiative-CEPI, anti-body surveys		Expanding capacities for comprehensive testing	Tracing each and every chain of infection through an app

India	Breaking infection chain	Common platform to coordinate research, collaborative research	Tele-medicine, contactless digital payments, encouraging shopkeepers to invest in digital tools, e-platform for COVID warriors, Arogya setu app	Ramping up testing and diagnostic facilities, manufacturing testing kits	Tracking suspected cases, Arogya setu app for tracing and tracking, community surveillance to track spread
Italy		Drug testing	Enhancement of tele-assistance	Building testing capacities	Strengthening of contact-tracing activities
Japan	Reducing person to person contact, counter-cluster measures, co-ordination with local governments, early detection, solid screening and medical treatment structure	Pharmaceutical treatment: AVIGAN, collaborative efforts for therapeutic medicines and vaccine development, clinical trials, observational studies	Online learning, tele-working, telephonic/online medical consultations	Establishing testing centers in cooperation with medical associations, simple test equipment to reduce testing time	
Netherlands			Launching apps for contact tracing and increasing accessibility to doctors	Speeding up testing, prioritizing healthcare workers, elderly, and people with comorbidities for testing	

South Korea		Developed unique protein to detect antibodies, Self-testing kits, intensive collaborations to develop vaccines and effective treatments, increased Government R&D investments	Mobile phone alerts about nearby infection paths, GPS-enabled app to monitor those under quarantine and set off an alarm if they ventured outdoors, Travelers entering the country are also being asked to record their symptoms on a state-sponsored app, self-quarantine and self-diagnosis app for those under self-isolation	Speeding up testing process, expanding the network of testing labs, testing capacity building, drive-through testing centers, mass testing, walk-in testing centers, easy and affordable tests	Contact tracing and surveillance, contact tracing through security camera footage, credit card records and GPS data from cellphones
Taiwan		Utilizing research strengths to develop treatment and protection measures, international collaboration		Extending help to other countries for rapid testing, airport testing, rigorous testing	Rigorous investigative efforts to track travel and contact history of every patient
UK		Vaccine development	Text message emergency alerts	Increasing facilities with testing capabilities, importing testing kits, building testing capacity	
US		Vaccine development, Convalescent plasma to manufacture a concentrated antibody treatment		Free testing for needy, speeding-up testing	

Note: TS = containing transmission and spread, RD = research & development, TA = technological adoption, TE = testing, TT = tracing and tracking

France, Japan, South Korea, India and UK came up with coronavirus alert levels and infection zones in order to distinguish areas with different degrees of infection. In order to reduce the burden on medical institutions, Japan constructed temporary facilities for medical assistance for patients with severe symptoms.

3.2.4. Preventive Measures

There were six major preventive measures undertaken by different countries in order to control the spread of virus: (1) boosting hygiene, protection, and immunity; (2) lockdown; (3) quarantine/ self-isolation; (4) screening, monitoring, and vigilance; (5) social distancing; and (6) travel/ border controls. These are discussed in Table 3.

Table 3: Preventive Measures

Country /code	HPI	LD	QSI	SMV	SD	TBC
France	Follow coughing etiquette	Extending nationwide lockdown, eventually relaxing lockdown restrictions, gradual opening of schools and some businesses	Quarantine and self-isolation until situation get back to normal		Urged people to keep a minimum of 1 meter distance between each other and not to shake hands or hug each other while greeting	Banned the entry of all non-essential foreign nationals, shut country's border, suspended foreign vacations, quarantining French/foreign nationals entering France
Germany	Wearing masks, regular hand-washing, hygiene instructions to businesses	Cancellation of religious events and gatherings, no prohibition on economic activity as a whole, gradual easing of restrictions, reopening of small businesses after protective requirements are met, gradual reopening of	Quarantining infected individuals identified through transmission chains	Isolating infection hotspots	Urged public to keep a minimum distance of 1.5 meters from one another (especially with elders), strict actions for violation of social distancing norms, no handshakes	Emphasized on freedom to travel and recognized travel restrictions as a last resort, Intensive border controls, restrictions on entry from neighboring countries, restrictions on tourist travel

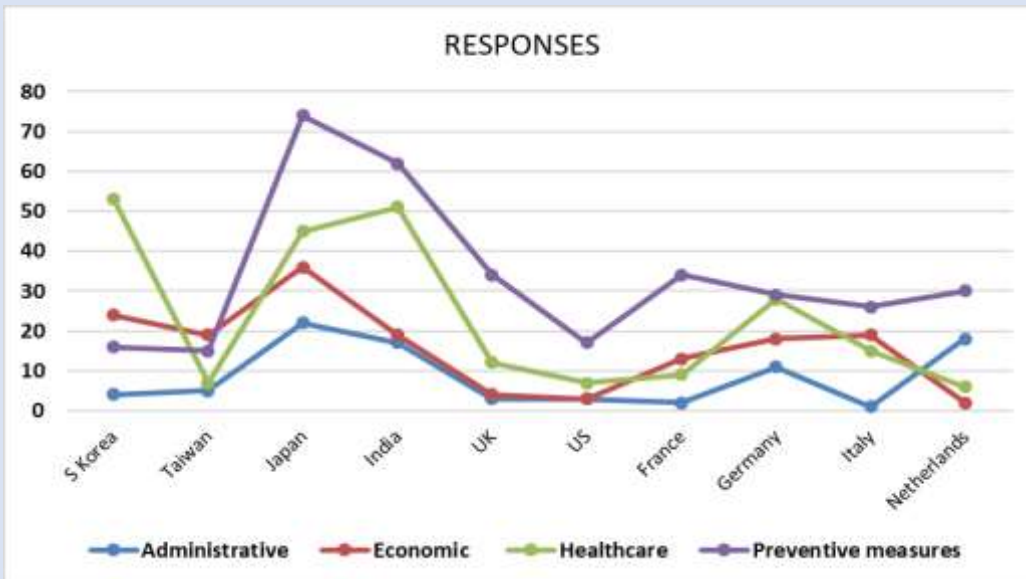
		schools and shops				
India	Sanitization campaigns in villages, regular cleanliness of hands, wearing mask/ face cover, Swachh Bharat campaigns (cleanliness drives), e	Phase-wise different lockdown restrictions, strict implementation of lockdown, strategizing for emergent conditions after lockdown, extending lockdowns, phased exit after lockdown, curbing lockdown violations	Quarantining suspected cases, facility of home quarantine, creating new quarantine centers	Screening and monitoring of international passengers, close vigil on international borders, close monitoring of red zone areas (virus hotspots)	Asked people to maintain a minimum of 2 yards distance, enforcement of social distancing rules	Travel restrictions
Italy	Sneeze and cough in a tissue or in a crease of elbow, wearing masks, insulation spaces, use of personal protective equipment	Closing educational institutions, closing all commercial and retail activities with the exception of grocery stores, basic necessities and pharmacies, closing down non-essential productive activities	Home-quarantine for people with fever, requested people to stay at home to avoid risky contacts		Avoiding hugs and handshakes, 1 meter away in social contacts, avoid crowded places	Restriction on movement of people between different zones, limiting travel to work and shopping, ban on direct flights, thermo-scanning visitors at airports
Japan	Avoid crowded places, wear masks, avoid closed	Closing and then gradual reopening of schools, trains, buses and other forms of	Quarantining travelers for 14 days, on-board quarantine on cruise ship	Enhancing domestic screening mechanisms such	Avoid closed spaces, crowded spaces and close contact settings, urged	Denied entry to foreign nationals from Hubei province of China, US, Europe, and other affected

	spaces with poor ventilation, avoid conversations in close proximity, washing hands and observing proper coughing etiquette, hygiene instructions to business operators	transportation continued to operate, no blocking of roads, cancellation of sports tournaments	‘Diamond Princess’	as rapid testing kits, high degree of vigilance to safeguard lives and health of people	business owners to ensure that customers keep a safe distance from each other	areas, suspend the services of passenger ships, urging residents to strictly avoid people moving between prefectures, for non-essential, non-urgent trips back to their hometowns, travel, or other reasons, temporarily closing down tourist places
Netherlands	Immunity building	Did not impose a complete public shutdown, no bans or imposition of fines	Stay at home with symptoms such as common cold, cough, sore throat or fever		Asked people to keep about 1.5 meters difference from each other including when shopping, not shaking hands	Scrapping flights from high-risk areas
South Korea	Regular handwashing and wearing masks	Did not consider complete nation-wide lockdown	Requested people with mild symptoms to stay and get treated at home, focused on refining quarantine measures, closely-knit quarantine network		Aggressive promotion of social distancing through public information campaigns	Denied entry to foreign travelers coming from/through China’s Hubei province, automatic immigration check systems for foreigners, an app to track and monitor visitors
Taiwan	Strengthening of personal hygiene routine		Domestic electronic quarantine system that utilizes big data analytics,	Monitoring of incoming passengers from China and other nations,	Introduced social distancing guidelines	Travel restrictions, quarantine protocol for high-risk travelers, tightened border controls to

			quarantine protocols for high-risk travellers, travellers with a history of travel to Hubei will be subject to home quarantine	enforcing stringent requirements for truthful declarations upon entry to Taiwan and rigorous follow-up		manage unnecessary movement of people
UK	Regular hand-washing	Lockdown imposition	Recommended self-isolation for anyone who shows symptoms for 7 days, medical facility only if symptoms worsen during self-isolation		A minimum of 6 feet distance between 2 unknown people to be maintained, imposition of fines for violation of social distancing rules	
US	Wearing masks	Did not feel the need to impose national lockdown	Mandatory quarantine of 14 days for people coming to US		Introduced social distancing guidelines	Closed down borders with China, Europe and other affected areas, temporarily suspended immigration into the US

Note: HP = hygiene protection & immunity, LD = lockdown, QSI = quarantine/self-isolation, SMV = screening, monitoring & vigilance, SD = social distancing, TBC = travel/border controls

Figure 2: Responses; Administrative, Economic, Healthcare, and Preventive measures



Note: X axis represents the countries and the Y axis represents the number of quotations

3.3. Leaders’ characteristics during Pandemic

The leaders of different countries displayed various emotions while addressing the public during the pandemic (see Figure 3). The dominant affects were empathy, gratitude, motivation, and optimism (refer to Table 4).

Table 4: Dominant Leadership Characteristics

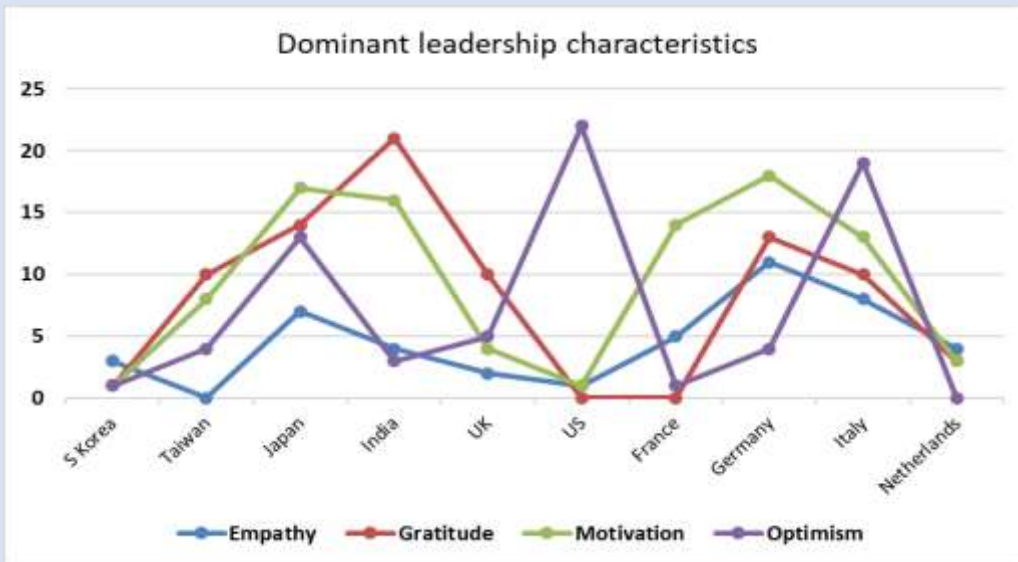
Leader	Country	Dominant characteristic(s)	Quotes
Emmanuel Macron (President)	France	Empathy	I appreciate the impact of all these decisions on your lives. Giving up seeing your loved ones is a wrench, stopping your everyday activities and habits is very difficult
		Optimism	I believe that we are about to exit a world which was hyper-financialized in a way, where there was financial hegemony and hegemony of the non-co-operative military powers, and we can enter something which will enable us to reshuffle the cards. When people are scared of death and come back to these deep existential subjects, they co-operate
		Motivation	I’m aware of the dedication of several teams throughout our country, and the first rays of hope, and we’ll also continue making progress on the vaccine
Angela Merkel (Chancellor)	Germany	Empathy	I myself am particularly saddened to hear about what people living in care homes, retirement homes and centers for people with disabilities are having to go through

		Optimism	we can manage to defend the country against the virus and we can pass this extremely difficult test
		Gratitude	I'd like first of all to take this opportunity to thank all the people in Germany most sincerely once again, members of the public who have upended their lives, who have forgone social contacts, who are restricting their activities – not because they want to do the government a favor, but because they want to help their fellow human beings
		Motivation	I am convinced that the best way for us to address these challenges, and all of the troubles, hopes, desires and expectations we have, is for us to summon the strength we need to maintain severe and strict measures – especially at the outset of this pandemic
Narendra Modi (Prime Minister)	India	Empathy	I request the business world and high-income segments of society to as much as possible, look after the economic interests of all the people who provide them services. In the coming few days it is possible these people may not be able to come to office or your homes. In such a case, do treat them with empathy and humanity and not deduct their salaries
		Optimism	I am confident that this country must, of course defeats the epidemic
		Gratitude	All of you deserve praise for ensuring the success of Janata-Curfew
		Motivation	Experience the collective resolve, the collective superpower of 130 crore Indians. This will give us the strength to fight, as well as the confidence to win, in this hour of crisis
Giuseppe Conte (Former Prime Minister)	Italy	Empathy	I experience daily the suffering and pain of many, too many families who have lost loved ones, who have lost their jobs, who risk losing trust and hope in the future
		Optimism	we are a strong country, a country that does not give up: it is in our DNA. We are facing the challenge of the Coronavirus. A challenge that has no political color, that must call the whole nation together. It is a challenge that must be overcome with the commitment of all: citizens and institutions, scientists, doctors, health workers, civil protection, law enforcement
		Gratitude	My thanks also go to all of you, who are respecting the measures that the government has taken to counter the spread of the virus
		Motivation	In my soul there is also the pride of leading a country that is showing itself to be a united, cohesive,

			supportive community. The Italians are showing great courage, composure, resilience
Shinzo Abe (Former Prime Minister)	Japan	Empathy	March is an important period for children as the end of school year, before they graduate or go on to the next stage of education. It is truly heartbreaking to put in place measures to close schools during this period when students make great memories with friends, they spent the school year with
		Optimism	I have the highest confidence that, as long as we join forces, we will be able to overcome any and all difficulties, bar none
		Gratitude	The presence of medical workers armed with dependable techniques and a strong sense of mission encourages all of us. I thank you all sincerely
		Motivation	We will take all possible courses of action to support you as you give your very best, unafraid of the severe situation fraught with the risk of infection. We will do everything we can to protect your workplaces at medical facilities
Mark Rutte (Prime Minister)	Netherlands	Empathy	I'd like to begin by expressing my sympathies to the families of those people who have died from the virus. And I'd like to wish all the very best to everyone who is in hospital or is recuperating at home
		Gratitude	I would like to thank everyone in the Netherlands for the way in which they have heeded the instructions and measures announced so far, and for all the heartwarming examples we've seen of people offering each other their help and solidarity
		Netherlands	This is a time in which we must find common ground, overcoming our differences and divisions. A time in which we must put the common interest above our own self-interest. A time in which we must put our trust in those who are working day and night in difficult conditions to help others and get the virus under control
Moon Jae-in (President)	South Korea	Empathy	I extend my deepest sympathy and consolation to all COVID-19 victims and their bereaved families
		Optimism	A virus can spread anxiety, but it cannot break people's will. If we believe in our ability to overcome a crisis, and if we pool our strengths to prevail over this infectious disease and revive economic vitality, we will be able to surmount the current difficulties without fail

		Gratitude	I extend my infinite respect and gratitude to the people who are striving to overcome the disaster through trust and cooperation while encouraging each other amidst hardship
		Motivation	I hope Korea will rise as a leader in the development of these treatments and vaccine as well in the same way that we have emerged as an exemplary nation for quarantine measures
Tsai Ing-wen (President)	Taiwan	Optimism	We will do everything we can to control the COVID-19 outbreak and protect our citizens
		Gratitude	There has been no community outbreak. This is the result of close cooperation, so on behalf of my fellow citizens, I would like to thank all of you
		Motivation	At this time, we are all part of a collective entity, and we can only defeat this virus if we come together
Boris Johnson (Prime Minister)	UK	Optimism	The people of this country will rise to that challenge. And we will come through it stronger than ever. We will beat the coronavirus and we will beat it together
		Gratitude	I want to thank everyone who is working flat out to beat the virus. Everyone from the supermarket staff to the transport workers to the care-givers to the nurses and doctors on the frontline
		Motivation	The people of this country will rise to that challenge. And we will come through it stronger than ever. We will beat the coronavirus and we will beat it together
Donald Trump (Former President)	US	Empathy	We grieve alongside every family who has lost a precious loved one
		Optimism	it's going to all work out. Everybody has to be calm. It's all going to work out
		Motivation	To honor and celebrate the extraordinary examples of patriotism and citizenship, we're seeing — I'm asking Americans to use the hashtag #AmericaWorksTogether when sharing stories of how we're all working together, get through — getting through this ordeal in a fashion that nobody would have ever thought possible. It's been incredible

Figure 3: Dominant Leadership Characteristics; Empathy, Gratitude, Motivation, and Optimism



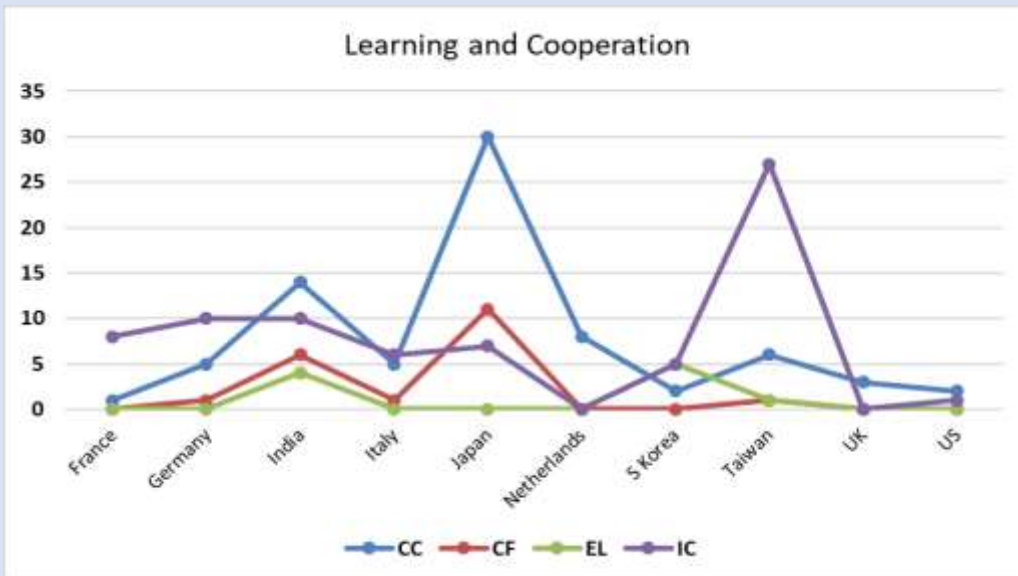
Note: X axis represents the countries and the Y axis represents the number of quotations

3.4. The role of learning and cooperation

Along with cooperation among domestic stakeholders, the countries also collaborated beyond national boundaries. The countries battled the crisis through collaborative efforts of public health professionals, private sector, public sector and society at large. Regarding international collaboration, countries like Taiwan donated surplus masks and other essential supplies to other adversely hit countries. Apart from sending testing kits to India, South Korea also exhibited willingness to share medical expertise with it. India assisted Maldives in evacuating their people from Wuhan.

In the spirit of cooperative federalism, India, Japan, Germany, and Taiwan reaffirmed democratic foundations by involving local governments in the fight against pandemic. Some countries utilized learnings from prior experiences to devise strategies to cope with the current crisis. South Korea applied knowledge gained during Middle East Respiratory syndrome (MERS) in 2015 while Taiwan adopted approaches similar to those used during the SARS outbreak. The different aspects of learning and cooperation are presented in Figure 4.

Figure 4: The role of learning and cooperation

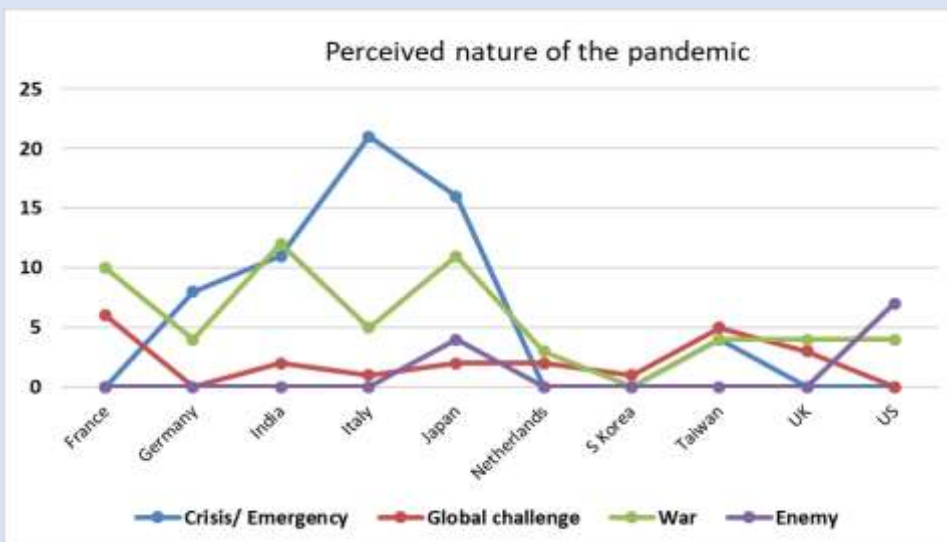


Note: CC = Community based approach and cooperation; CF = Cooperative Federalism; EL = Experiential Learning; IC = International Collaboration

3.5. Perceived nature of the pandemic

COVID-19 is a global crisis. Leaders used different metaphors to highlight the intensity of the pandemic (see Figure 5). Some countries perceived it as an ‘emergency’ or ‘war’ situation while other countries also called it an ‘enemy’. For instance, Former President of US, Donald Trump said, “We have to fight that invisible enemy that, I guess, unknown but we’re getting to know it a lot better.” While addressing the citizens, Emmanuel Macron, President of France said, “We’re not up against another army or another nation. But the enemy is right there: invisible, elusive, but it is making progress. We are at war.”

Figure 5: Perceived nature of the pandemic



Note: X axis represents the countries and the Y axis represents the number of quotations

4. DISCUSSION

In this study, we integrated the framing and responses to COVID-19 of diverse leaders belonging to ten different countries. On qualitatively analyzing the secondary data, we categorized leaders' framing into economic, healthcare, and life framing whereas the responses to COVID-19 were grouped into preventive measures, administrative responses, economic responses, and healthcare responses. It is important to note that each country displayed a combination of framing and responses mentioned above. No country was limited to a single type of framing or response. However, the extent to which each country relied on the given framings and responses differed as discussed in the findings section. For example, in India, we could find maximum evidences of life framing, however in the US economic framing was dominant. Japan, UK, and Italy prioritized healthcare framing over life and economic framing as analyzed from the documents.

A variety of framing and responses implies that leaders look at a crisis situation like COVID-19 from diverse lenses rather than sticking to a narrow and constrained perspective. We believe that framing the crisis differently aids the leaders to come up with corresponding responses. In addition to analyzing the framing and responses, our study also highlighted the perceived nature of the pandemic by different countries; dominant leadership characteristics; and the role of learning and cooperation. This study contributes to two streams of literature, crisis management and leadership, by giving a comprehensive overview of leadership in ten different countries during the pandemic. Also, our study is a pioneer in identifying and highlighting how different leaders have framed/perceived the pandemic.

Nonetheless, our study is not free from limitations. One of the limitations of the study is that we have extracted documents keeping in view a pre-decided time frame which may create a bias in the reported framings and responses adopted by different nations. Another limitation is that we relied on secondary data for our analysis as it is cumbersome to gather primary data from the leaders of ten different countries. However, we mostly extracted direct speeches and public addresses of the leaders to mitigate the secondary data bias.

Despite of the limitations, the study has valuable theoretical and practical implications for the leaders, researchers, and policy-makers. Our study implies that framing is as important as responses while looking at a given problem. Furthermore, it is recommended that the leaders should always have a broader vision in a challenging situation in order to handle multiple aspects of the challenge in hand.

Future studies may analyze the leadership during the pandemic in a broader time frame to see if there are changes in the framings and responses by leaders as the situation unfolds. Also, we call for further research in countries that are have not been considered in our analysis. Another interesting direction for future research is to explain differences in framing and responses among countries based on pertinent research dimensions such as individualism vs collectivism (Hofstede, 1980). We hope the suggested research directions will enrich the literature and uncover interesting insights in the field.

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Entrepreneurs' Strategic Responses to Covid–19

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Abstract

The COVID-19 pandemic triggered a renewed interest in understanding firms' strategic responses to crises. Retrenchment, persevering, innovating, and exit were identified as four strategic responses based on prior literature. We study the actual strategies employed by entrepreneurs in India, the third-largest startup ecosystem in the world, with all the pandemic problems accentuated in the developing economy context. Except for 'exit,' we found the three other strategies in implementation, and we discovered 'diversification' and 'alliance formation' as two additional strategic responses by these entrepreneurial firms. This study contributes to enriching our understanding of the strategies of entrepreneurial firms under conditions of uncertainty.

Keywords: Entrepreneurship, COVID-19, crisis, strategic response, strategy

1. INTRODUCTION

The coronavirus (COVID-19) has spread all over the world, creating a global crisis and the World Health Organisation (WHO) in March 2020 declared it as a pandemic. COVID-19 has inflicted several social, economic, and psychological adversities on humankind. Social distancing and lockdowns (including travel restrictions and border controls) have been implemented by nations across the world to contain the spread of the dangerous coronavirus. Such measures have not only adversely impacted the routine of the population but also led to disruption in economic activity that is not similar to any previous crisis of demand or supply (Giones et al., 2020). An economic recession is forecasted by economists, which is made more evident by the stock market crash (Baker et al., 2020).

This COVID-19 pandemic sparked interest among strategy scholars on firms' responses to crises, in general. Drawing upon extant research, Wenzel, Stanske, and Lieberman (2020) point to 'retrenchment, persevering, innovating, and exit' as four strategic responses to crises, where a crisis has been defined narrowly as a shock that is perceived by organizational members as sudden, unexpected, and massively disruptive (Weick, 1993; Pearson & Clair, 1998).

While the impact of COVID-19 has been far-reaching, affecting economic organizations of all kinds—global or local, large or small, manufacturing and non-manufacturing, the problem might be more acute in the case of entrepreneurial organizations that face various challenges ranging from compliance with government-imposed policies, reduced purchasing power and demand, supply chain disruptions, and reduced production (Kraus et al., 2020). Therefore, the current crisis provides an opportunity to explore entrepreneurs' strategic responses under uncertainty, which has remained an exciting and central field of research (Brown et al., 2018).

In this paper, we study the actual strategies employed by Indian entrepreneurs to uncover whether entrepreneurial firms implement the crisis response strategies pointed out by Wenzel et al. (2020). India, being the third-largest startup ecosystem in the world, presents an interesting context because several problems posed by the pandemic are accentuated in developing economies. Moreover, the Indian entrepreneurial ecosystem is rapidly growing, with the launch of more than 55,000 startups in the last five and a half years (The State Of Indian Startup Ecosystem Report, 2020). It is intriguing to understand the strategies employed by Indian entrepreneurs during the pandemic since the country was able to mint 12 unicorns despite the challenges posed by the global crisis (Economic Survey, 2020–21).

We analyzed secondary interviews extracted from yourstory.com, an online repository of interviews conducted with entrepreneurs in the timeframe from April to December 2020. We were able to identify three strategies that were actually implemented out of the four strategies proposed by Wenzel et al. (2020). We discovered two additional strategies that were employed by these entrepreneurial firms. Thus, our study contributes to enriching our understanding of strategies of entrepreneurial firms under conditions of uncertainty.

2. BACKGROUND LITERATURE

Crises have increasingly become a common feature of organizational life (Wenzel, Krämer, Koch & Reckwitz, 2020). Consequently, uncertainty regarding the appropriateness of business activities is a question that confronts managers and employees quite often (Alvarez, Afuah, & Gibson, 2018).

In a recent SMJ special issue, Wenzel et al. (2020) reviewed the literature on firms' strategic responses to crises and came up with four potential strategies which firms might adopt: retrenchment, persevering, innovating, and exit (see Table 1). Albers & Rundshagen (2020) also mapped European airlines' reactions to the pandemic along the four strategies suggested by Wenzel et al. (2020), and they added resume as an additional strategy (Albers & Rundshagen, 2020).

Table 1: Strategic responses to crisis suggested by Wenzel et al., 2020

<i>Retrenchment</i>	It is the strategy of cutting costs, narrowing product lines and reducing overheads. It can be a useful strategy in the short run
<i>Persevering</i>	It refers to maintaining the status quo of the business and sustaining its operations with no or minor changes believing that it would be a competitive advantage in the post-crisis times (Albers & Rundshagen, 2020).
<i>Innovating</i>	Innovating means renewing the strategies of an organization in response to the crisis. It may be a useful strategy when the crisis lasts for long duration.
<i>Exit</i>	Exit refers to discontinuing a business. It may be a forced response or a strategic response to the crisis as some businesses prefer exit over bankruptcy.

Source: Adapted from Wenzel et al. (2020)

In the context of entrepreneurship, scholars have suggested various strategic responses to the COVID-19 crisis. Giones et al. (2020) have proposed an initial evaluation of the situation to understand the current phase of the crisis before arriving at any concrete decision. Kuckertz et al. (2020) suggested strategies like internal restructuring, downsizing some activities, activating network resources, discovering new value-creating opportunities, and supporting lobby initiatives of trade associations to face challenges such as startup failure, infrastructural disruptions, and growth impediments posed by the pandemic.

The situational approach can serve as an important strategy for entrepreneurs to frame efficient solutions to deal with an unexpected crisis. It may help entrepreneurs to make informed decisions in order to sustain their businesses (Azahari, Zaki & Wahab, 2020). Giones et al. (2020) highlighted the importance of planning activities, frugality, and human and social capital management to tackle the challenges faced during the pandemic. Under planning activities, they recommended adjusting the resources, creating buffers for uncertainties, and adopting a minimum physical documentation unit. Frugality involves adopting a frugal culture, resource conservation, maintaining quality, and reinforcing negotiation powers. Human and social capital management deals with providing emotional support, strengthening cohesion, and sharing concerns. Ratten (2020) recommended the development of innovations in order to respond to Covid-19.

In this study, we aim to determine whether the potential strategies suggested by Wenzel et al. (2020) as strategic responses to crises are actually seen in the case of entrepreneurs in emerging economies like India.

3. METHODOLOGY

We qualitatively analyzed pre-existing interviews (Hughes et al., 2020) of Indian entrepreneurs openly available on yourstory.com. This website has a repository of stories of entrepreneurs and change-makers, funding analyses, resource pieces and emerging trends from India’s entrepreneurial ecosystem, and profiles of great businesses and entrepreneurs from all over the world. It provided open access to interviews of many entrepreneurs where they explicitly spoke about how COVID-19 affected them and what they have done in response. We focused on the interviews of Indian entrepreneurs published in the year 2020. We ran a search with the phrase ‘money matters with Shradha Sharma’ with a filter ‘money matters,’ resulting in eighteen hits. Out of the eighteen results, only fourteen were relevant for the purpose of our study. These formed our sample of fourteen secondary interviews of Indian entrepreneurs. We applied thematic analysis to interpret the interviews.

4. FINDINGS AND ANALYSIS

By analyzing the secondary interviews, we were able to identify five strategies employed by the entrepreneurs as a response to COVID-19. ‘Retrenchment,’ ‘persevering,’ and ‘innovating’ were the three strategies that overlapped with the potential strategies identified by Wenzel et al. (2020). We did not find ‘exit’ as an actual strategic response. Besides these, we also identified diversification and alliance formation as strategic responses. Innovating (64.28 per cent) was used by the majority of the entrepreneurs, followed by persevering (42.85 per cent), retrenchment (28.57 per cent), alliance (14.28 per cent), and diversification (14.28 per cent). Instead of adhering to a single strategy, more than half of the entrepreneurs employed a combination of strategies (see Table 2). All five strategic responses are discussed in detail below.

Table 2: Strategic responses by entrepreneurs

S.no	Name of the entrepreneur(s)	Designation	Name of the organization	Business description	Strategic response(s)
1	Vijay Arisetty	Founder and CEO	MyGate	App-based security and community management for gated societies	Innovating
2	Gaurav Hinduja and SashankRishyas ringa	Co-founder and MD	Capital Float	Credit-led digital financial services	Innovating
3	William Bissell	Chairman	Fabindia	A private platform for products made from traditional techniques and handmade processes	Diversification
4	Archit Gupta	Founder & CEO	ClearTax	Taxation and financial solutions to individuals and organizations	Persevering and Innovating
5	Ajay Bijli	Chairman & MD	PVR Limited	Film entertainment	Retrenchment and Persevering

6	George Alexander Muthoot	MD	Muthoot Finance	Gold loan non-banking financial company	Innovating
7	Nitin Saluja	Founder & CEO	Chaayos	Tea cafe	Persevering and Innovating
8	Piyush Bansal	Founder & CEO	Lenskart	Optical prescription eyewear retail chain	Persevering and Innovating
9	ViditAatreya	Founder & CEO	Meesho	Online reselling platform	Innovating and Diversification
10	Ritesh Agarwal	Founder & CEO	OYO	Hospitality chain of leased and franchised hotels and living spaces	Retrenchment and Alliance
11	Ashish Hemarajni	Founder & CEO	Book My Show	Online ticketing platform	Retrenchment, Alliance, and Innovating
12	Vivekananda Hallekere	Co-founder & CEO	Bounce	Rental scooter service	Persevering and Retrenchment
13	Varun Alagh	Co-founder	MamaEarth	Natural, toxin-free beauty and baby care brand	Innovating
14	Nikhil Sikri	Co-founder & CEO	Zolo stays	Online application offering co-living spaces, rental homes, and apartments	Persevering

Source: Authors' own work

4.1. Retrenchment

Retrenchment is the strategy of cutting costs, narrowing product lines, and reducing overheads. It can be a useful strategy in the short run (Wenzel et al., 2020). Four out of fourteen (28.57 per cent) entrepreneurs adhered to retrenchment as a strategy to cope with the crisis. Ajay Bijli, Chairman and MD of PVR limited (a film entertainment company), had to retrench some of the contractual workers and requested the management to accept a considerable cut in the remuneration. In this context, he said,

'Unfortunately, the off-roll people who are house-keeping, security immediately we had to end those contracts...I mean, we'll have to look. We are asking for government support over there, but whatever we can do, we're doing...I am very happy with the fact that our senior management has taken a 50 per cent cut. So, it's a balance of furloughing, cuts, and maybe some letting go if things don't improve.'

Vivekananda Hallekere, co-founder and CEO of Bounce (a rental scooter company), also relied on the dismissal of employees to decrease the expenses and sustain the business operations. He said: *'First time we went through layoffs, which was painful.'*

Along similar lines, Ritesh Agarwal, founder and CEO of OYO (Hospitality chain), also prioritized reducing costs by implementing pay cuts and a voluntary retirement program. In this context, he said:

‘In terms of revenue, our first focus was reduced costs...I announced that the founders would take 100 per cent pay-cuts through the year...various leaders in our management have taken up 25 per cent to 50-60 per cent pay-cuts...unfortunately, we also had to bring in schemes like voluntary retirement programs.’

Realizing the potential long-lasting impact of the pandemic, three of the fourteen entrepreneurs stuck to the strategy of bringing down fixed and controllable expenses (see Table 3).

Table 3: Retrenchment

Entrepreneur	Quotation
Ritesh Agarwal, founder & CEO, OYO	<i>‘Some expenses like Capex expense or marketing expense are reasonably controllable expenses, and as we realized that the impact is going to last long, we tried to reduce these expenses’</i>
Ashish Hemarajni, Founder & CEO, BookMyShow	<i>‘The first thing we did when we realized that it is going to be a long-term impact is that we had to cut the fixed costs. The founders and the leading team have taken a 50% cut’</i>
Vivekananda Hallekere, Co-founder & CEO, Bounce	<i>‘There are a lot of controllable costs. Now we have asked people to get their own helmets. The cost of helmet is removed now as people bring their own helmets owing to safety reasons’</i>

Source: Authors’ own work

4.2. Persevering

Persevering refers to maintaining the status quo of the business and sustaining its operations with no or minor changes believing that it would be a competitive advantage in the post-crisis times (Wenzel et al., 2020; Albers & Rundshagen, 2020). Six entrepreneurs (42.85 per cent) followed persevering as a strategy to sustain their businesses during COVID-19. Instead of retrenchment, some entrepreneurs like Nikhil Sikri, co-founder and CEO of Zolo stays (an online application offering co-living spaces, etc.), emphasized persevering as the core strategy and resisted implementing pay cuts. Archit Gupta, founder and CEO, ClearTax (Taxation and financial solutions company), said:

‘The tax stuff we do, I think is not affected by this lockdown and like. So for us, what has happened is like it's definitely slowed down in customer access...On the digital side, I think we were very good at inside sales. We continued to engage with customers digitally.’

Ajay Bijli, chairman and MD of PVR Limited, received a massive setback as the cinemas were shut entirely during the lockdown in India. However, he was successful in negotiating rental terms with the developers. He mentioned:

‘We have cash in the bank to take care for a few months, but at the same time, in this lockdown period, we have requested the developers to understand the fact that it is not

because of us that you know we are not able to make business and we have got a very good response...we tried to be fair with every stakeholder, and one of our stakeholders has been developer because we rent huge spaces from them...We believe that in the lockdown period, we should get some reliefs, and in the post-lockdown period, we are hoping to get some reliefs till business picks up.'

The CEOs of Bounce (rental scooters), Lenskart (optical eyewear retail chain), and Chaayos (tea café) also adopted persevering as a strategic response. Table 4 consists of the related excerpts from their interviews.

Table 4: Persevering

Entrepreneur	Quotation
Vivekananda Hallekere, co-founder & CEO, Bounce	'We will focus on capability building & growth, a lot of savings & value creation in the long run and just survive this'
Piyush Bansal, founder & CEO, Lenskart	'Along with ensuring safety at lenskart stores, what we have enabled in this pandemic is that we have somebody who comes to your house with a full PPE kit and does eye test at home. We were clear that the first quarter is about sustenance; the second quarter is about recovery and from third quarter it is all about growth'
Nitin Saluja, founder & CEO, Chaayos	'We kind of anticipated as soon as the country went into lockdown that if there can be some beneficiaries of this entire covid euphoria it will be those organizations that can gain the trust of the customer when it comes to hygiene and while we have done a brilliant job over the course of last eight years of being able to keep the safety of our guests as our number one priority. It was time to be able to just bring in our expertise of last 8 years and quickly get into action...brands that customers can trust for their hygiene are the ones that are the fastest to recover'

Source: Authors' own work

4.3. Innovating

Innovating means renewing the strategies of an organization in response to the crisis. It may be a helpful strategy when the crisis lasts for a long duration (Wenzel et al., 2020). The majority of entrepreneurs (64.28 per cent) responded to the pandemic by adopting innovative measures, i.e., 'innovating' as a strategic response.

Some of the entrepreneurs integrated innovative safety measures for better acceptance of their products during the pandemic. For example, Vijay Arisetty, Founder & CEO, MyGate (security application for gated societies), said, *'we have built systems in a way that even security guard does not have to interact with the visitors. We have made it completely contactless in terms of how delivery boys can come and leave the parcels at the gate...We have integrated aarogyasetu status.'*

Along similar lines, Founder & CEO of Chaayos (tea café), Nitin Saluja, quoted:

'We were the first company in the pandemic to start to print body temperatures of our teams on the bills, so it's not done by somebody with their hands. It is body temperature that is measured every two hours. It is put into the billing system.'

Due to the lockdown, people were restricted to their homes. Therefore, some enterprises initiated 'at-home services' for the convenience of their customers and to sustain their operations.

Examples include Muthoot Finance (gold loan non-banking financial company) and Lenskart(optical eyewear retail chain).

‘We have also started something else. That is, we are saying we will come to your house and take the gold. We call it ‘loan at home.’ We have started it one month back. It's now catching up (George Alexander Muthoot, MD, Muthoot Finance).’

‘Along with ensuring safety at lenskart stores, what we have enabled in this pandemic is that we have somebody who comes to your house with a full PPE kit and does eye test at home (Piyush Bansal, founder & CEO, Lenskart).’

Bringing new features and expanding existing features in the products were seen as crucial innovating strategies among entrepreneurs engaged in sectors like digital security, e-commerce, financial services, eye care, and entertainment (see Table 5). Other strategies included capacity building, localization, and digitalization. All the entrepreneurs implemented innovation in the product except Varun Alagh, founder and CEO of MamaEarth (natural beauty and baby care brand), who resorted to production innovation focusing on localization and capacity building.

Table 5: Innovating

Entrepreneur(s)	Organization	Industry/sector	Strategy	Excerpts from interviews
Vijay Arisetty, founder & CEO	MyGate	Digital security	Adding new features	<i>‘We have released various features like alerting all the residents that this particular food vendor has come at the gate and you may want to pick up something’</i>
Gaurav Hinduja and SashankRishyasinga, Co-founders	Capital Float	Financial services	Digitalization	<i>‘We have spent the last three months completely redesigning our SME lending product where it is 100 per cent fully digitalized. The idea moving forward is how can we make every small process even more digitized, giving customers an experience to take a loan that is similar to, let’s say, buying a fridge or a TV online’</i>
Archit Gupta, Founder & CEO	ClearTax	Financial services	Expanding existing features	<i>‘We were doing eLearning and a bunch of other things, so we doubled down on those. We got like a lot of famous people from the community like experts, CFOs, CAs who understand this space and gave interesting perspectives either on the lockdown or like how should they think about their business or what are the strategies to run their business’</i>

George Alexander Muthoot, MD	Muthoot Finance	Financial services	Digitalization	<i>'we actually started by calling up all the customers and mapping their bank accounts to our bank. We mapped more than 1million accounts and because of this people could transact more...today 40% of the people transact online either to pay interest or to take up money or to repay'</i>
Piyush Bansal, founder & CEO	Lenskart	Eyecare	Adding new features	<i>'We have enabled people with a virtual try-on. They can try glasses online. We have also enabled them with a size tool with which they can find the right size of the frames. Using this, people are ordering and they are liking the experience'</i>
ViditAatreya, founder & CEO	Meesho	E-commerce	Adding new features	<i>'We asked women entrepreneurs to make masks at home and introduced new categories like health and fitness'</i>
Ashish Hemarajni, founder & CEO,	BookMyShow	Entertainment	Expanding existing features and adding new features	<i>'We are extending our categories of online content. We have launched Watch guide. It tells you how to keep yourself entertained, sends reminders based on personalization, and gives recommendations to watch across OTT platforms. We have introduced categories like stay fit India with celebrities doing workshops along with live concerts'</i>
Varun Alagh, co-founder	MamaEarth	Skincare	Capacity building	<i>'What we started changing quickly was more on a supply chain front. One thing that we started doing was localization as some of our materials were export-oriented before... like from China. We quickly figured out replacements of those paths.Second thing which we did was the decentralization of warehousing. During lockdown itself, we expanded warehouses in different parts of India'</i>

Source: Authors' own work

4.4. Diversification

Diversification refers to changes in the features of the product line or market. The product line includes both physical and performance features (Ansoff, 1957). Only two out of fourteen enterprises (14.28 per cent) diversified their businesses to cover the negative impact of the pandemic on their core businesses. Meesho (a reselling e-platform) started a grocery business in Bangalore. William Bissell, chairman of Fab India (platform for traditional and handmade products), tried to increase the production

of their second product line, *i.e.*, organic food and health supplements, in order to cover the losses from their core business, *i.e.*, textiles. In this regard, he mentioned:

'We were able to get the factory up and running very quickly, and you know, because it was producing food and supplements, we ramped up the sale of food products... You know food, which had traditionally been in hygiene products 2 per cent or 3 per cent of our business, grew to be about 15-20 per cent of our business.'

4.5. Alliance formation

An alliance refers to partnership among entities facilitating product, services, and technology exchanges (Gulati, 1998). Again, only 14.28 per cent of entrepreneurs responded to the pandemic with alliance formation as a strategy. Ritesh Agarwal, founder and CEO of OYO, partnered with the Indian government in the 'Vande Bharat Mission' to assist the government in providing quarantine facilities. BookMyShow's (online ticketing platform) founder and CEO, Ashish Hemarajni, collaborated with the sponsors and partners to attain the finance needed to provide free over-the-top (OTT) services, keeping in view the reduced paying capacity of the customers.

5. CONCLUSION

This study contributes to the literature on strategic management and crisis management by uncovering the actual strategies adopted by entrepreneurs to deal with the adversities caused by the pandemic. As specified in detail, we observed five strategies; retrenchment, persevering, innovating, diversification, and alliance formation. The first three strategies were as outlined by Wenzel et al. (2020). The last two strategies were identified in this study; thus are an addition to the strategic responses. The findings can inform entrepreneurs operating in industries similar to the ones studied.

Like any other research study, this study also has its limitations. We have utilized secondary interviews that were available online. We did not find "exit" as an actual strategic response in these interviews. However, there is a possibility that we could discover exit as an actual strategic response, either in an expanded sample of secondary interviews or when interviews are conducted with more entrepreneurs in person. Future research using primary data may further explore the actual strategies. A deeper analysis of the relationship between strategies adopted and the nature of business/industry may also be an exciting area for future research.

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