

**MATA SUNDRI COLLEGE FOR WOMEN
UNIVERSITY OF DELHI
&
NORTHCAP UNIVERSITY**

Presents

**PROCEEDINGS OF
INTERNATIONAL CONFERENCE ON
“SUSTAINABILITY, TECHNOLOGY,
RESILIENCE, INNOVATION,
DEVELOPMENT AND
ENTREPRENEURSHIP
(STRIDE 2023)” on
December 15-16, 2023**



**SAMIKHIYA
A MULTIDISCIPLINARY
RESEARCH JOURNAL
ISSN:2583-827X (ONLINE)
VOLUME 4, ISSUE 1
(SPECIAL ISSUE)
JUNE-2025**



SAMIKHIYA: A Multidisciplinary Research Journal

ISSN: 2583-827X (Online)

Volume 4, Issue 1 (Special Issue), June 2025

Available at: https://journal.mscw.ac.in/mscw_Journal.aspx



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About Mata Sundri College for Women, University of Delhi

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We provide liberal education in Humanities, Commerce as well as Sciences. Our college is one of the eight colleges of University of Delhi which offer the B.El.Ed. course that is an integrated professional degree programme. With a view to encouraging skill-based education, we offer various skill development programmes like Basic and Advanced Courses in Computers, Travel & Tourism, Textile Designing, Foreign Languages etc.

Our mission is to provide quality education to students that not only nurtures individual talents but also fosters a spirit of camaraderie and teamwork. This is blended with sound values and ideals. Innovative teaching methods including experiential activities, project work and field work are an inherent aspect of the teaching-learning process. Backed by thorough mentoring on an individual level by teachers, students are provided not only with a strong conceptual foundation but also market-driven skills and competencies to succeed in a competitive world. We make all endeavours to infuse a spirit of research among faculty and students as we recognize that it is the edifice for any Institution of higher learning. Besides our commitment to academic excellence, we also pursue a flurry of co-curricular activities with equal enthusiasm for all-around development of the students.

Located in the heart of Delhi, with easy accessibility to metro stations of I.T.O, Rajiv Chowk, Barakhamba Road and Mandi House, the college is an ideal destination for those who choose to chart out their own unique trajectory.



About The NorthCap University, Gurugram

The NorthCap University (NCU), situated in Gurugram, Haryana, is a distinguished private institution established in 1996. Formerly known as ITM University, NCU has evolved into a multidisciplinary university offering a wide range of undergraduate, postgraduate, and doctoral programs across engineering, management, law, liberal arts, and applied sciences. The university is recognized by the University Grants Commission (UGC) and holds a Grade 'A' accreditation from the National Assessment and Accreditation Council (NAAC).

NCU's modern campus in Sector 23-A, Gurugram, is equipped with state-of-the-art facilities, including air-conditioned classrooms, advanced laboratories, a comprehensive library, and dedicated spaces for extracurricular activities. The university emphasizes industry-aligned education, offering programs in collaboration with global tech leaders like AWS Academy, Google Cloud, and IBM. Its strong placement record features top recruiters such as Deloitte, TCS, EY, and Amazon, with competitive salary packages.

Beyond academics, NCU fosters a vibrant campus life with various clubs, cultural events, and sports facilities, contributing to the holistic development of its students. With a legacy of excellence and a commitment to innovation, The NorthCap University continues to be a preferred destination for students seeking quality higher education in India.



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About STRIDE 2023

The School of Management & Liberal Studies at The NorthCap University successfully organized STRIDE 2023 — the International Conference on Sustainability, Technology, Resilience, Innovation, Development, and Entrepreneurship — on campus over two enriching days. Held in collaboration with Emerald Publishing and Springer Nature Group, the event brought together academic scholars, industry professionals, and thought leaders from across the globe to discuss the future of sustainable and innovative business practices.

STRIDE 2023 was privileged to have a distinguished Advisory Board, including Dr. Jayantha Dewasiri, Co-Editor-in-Chief, South Asian Journal of Marketing (Emerald Publishing); Dr. A.K. Dey, Editor, South Asian Journal of Business and Management Cases (SAGE); and Dr. Sudhir Rana, Editor, FIIB Review (SAGE). We were also honoured to host Ms. Neha Chatwani, an Organizational Psychologist from Vienna, who brought an international perspective to the discussions.

With a wide range of paper presentations, keynote speeches, and networking opportunities, STRIDE 2023 fostered vibrant academic exchange and global collaboration. The School of Management takes immense pride in the successful execution of this conference, which strengthened NCU's position as a hub for impactful research and interdisciplinary learning.



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Yantra Packs: Towards a Sustainable Future

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ABSTRACT

This case illustrates the innovative mechanism incorporated by Yantra Packs in the logistics industry oriented towards sustainable business practices. Under these innovative practices, Yantra replaced corrugated boxes with returnable reusable packaging to protect the eco-system and reduce costs. Through this case study we will try to understand how using returnable packaging items can a company reduce its carbon emissions and how using technology solutions such as Radio Frequency Identification (RFID) we can improve identification and tracking solutions and make processes efficient. This case study highlights the solution to four major problems in logistics that increase carbon emissions. Problems created by corrugated boxes, underutilization of resources, idle return load, and loss and theft of returnable packaging items are solved by Yantra Packs through optimal utilization, innovation, and technology. This case study draws a comparison between corrugated boxes and returnable packaging.

Keywords: Sustainability; Packaging; returnable packaging; Yantra packs.



INTRODUCTION

Packaging helps in information transmission, marketing, safe transportation, and security of the products. Over a period, various materials have been used for packaging, in ancient times (1900-1950) ordinary pages, wooden cages, glass, and metal containers were used. However, these materials had poor shelf life and were largely used for households. In modern times (1950-1990) came coated glass, metal containers, metal foils, plastic, modified paper, and synthetic materials. These were used as they were effective and had improved shelf life, but they were not eco-friendly. Finally, after the 1990s came biopolymer-based packaging and edible packaging which are eco-friendly have improved shelf-life. Packaging adds to the global environmental footprint because the package is discarded after its usage. Because of this environmental impact, it is necessary to adapt to novel and safe technology (Oloyede et al., 2021; Verma et al., 2021). Packaging can be environmentally sustainable if virgin resources are used less in producing packaging material and if the post-consumption material can be recycled or reused. Use and disposal of the material takes up 60% of the total cost of producing packaging (Chirilli et al, 2022). Packaging material, shipping packaging, and pallets are now replaced with returnable-type reusable packaging to protect the eco-system and make it less expensive. Cost can be saved by reducing disposal costs and eradicating one-time-use packaging material (Maleki & Meiser, 2011). Sten Gustaf Thulin, the Swedish engineer created plastic bags. According to his son, paper bags were less sustainable and plastic bags were used as alternative, Paper bags were weak and considered unsustainable as they resulted in deforestation. Plastic bags were strong and could be reused (Weston, 2019). According to Stanford Magazine, the more you reuse plastic, paper, or cotton bags, the more sustainable they become (Thompson, 2017).

Through this case study we will try to understand how using returnable transport items can a company reduce its carbon emissions and how using technology solutions such as Radio Frequency Identification (RIFD) can improve identification and tracking solutions and make processes efficient. It helps in making sustainable choices and increasing turnover.



TRANSPORT PACKAGING

Functions of packaging can be classified under three categories i.e. marketing, logistics, and environmental. The logistical function helps in distribution, protection of the product, and providing information about conditions and location. The marketing function oversees the graphic design and format of the packaging. The environmental function is responsible for recovering, recycling, and dematerializing the packaging materials. Packaging can also be classified as primary, secondary, or tertiary. Primary packaging is for the interaction of product with the consumer, usually consumer takes this packaging home. Secondary packaging has primary packaging. When primary or secondary packaging is assembled on a pallet or container, it becomes tertiary packaging. Transport packaging is used for conveniently handling, storing, and transporting products (Saghir, 2004). Tertiary packaging effects supply chains and is vital for bulk handling and transportation. It also produces packaging waste. These packaging materials can be collected back for reuse if their condition is good enough (chung et al, 2018). Reverse logistics (RL) facilitates the collection of return products for reusing, recycling, etc. Forward supply chain (FSC) facilitates distribution of products from producers to consumers. RL along with the FSC helps in creating Closed Loop Supply Chain (CLSC). CLSC is the integration of conventional/forward logistics and reverses supply chains. Returnable Transport Items (RTI) such as containers, boxes, pallets, and so on are also known as reusable logistical packaging (Zhang, 2019). The CLSC model is focused on the economic aspect of SC and not the environmental aspect. Returnable Transport Item in CLSC reduces carbon emissions and hence RTI is vital (Sarkar et al, 2017). The most common RTIs that are used are pallets, 80% of the world trade is carried by these pallets. The design structure of the pallets is standardized, which has helped in developing an efficient logistics system. Pallets are reused and environmentally friendly (Tornese et al, 2021). RTI reduces the material waste in the environment and reduces Carbon dioxide emissions in comparison to one-way packaging. RTIs also provide better protection and transportation than disposable packaging (Zhang, 2019). To make any packaging sustainable it is vital to effectively recover the packaging after the end of its useful life, followed by subsequent reuse in industrial or biological cycles. Closed-loop material chains can help companies to achieve this goal of effective recovery at



the end of the lifecycle which will eventually reduce cost and improve sustainability for any firm. RTI and CLSC together helps in reducing waste in landfills with pooling and standardisation (Maleki & Meiser, 2011). Total energy consumption is one of the ways to calculate environmental and economic costs. The more carbon dioxide is omitted, the less sustainable the method becomes. Single-use packaging containers emit more carbon dioxide than reusable packaging containers. Also, the mass of returnable packaging containers is half the mass of single-use packaging containers which results in lower transportation emissions (Mahmoudi and Parvizomran, 2020).

PROBLEM

Corrugated boxes are used for commodity packaging and transportation. These boxes are sensitive to environmental moisture as it is made of paper. Environmental humidity affects and influences the relevant properties of these boxes such as comprehensive strength (Zhang et al, 2011). Corrugated boxes are biodegradable, they degrade and release CH₄ under anaerobic conditions in landfills. Methane emissions from landfills combined with higher packaging weight are less sustainable than reusable plastic packaging (Silva & Molina-Besch, 2023). The problem of underutilization of space is also caused often, which means that the volume of containers exceeds the volume of packaging boxes. Usually, the space gets wasted because there is no standardization in packages, and the volume and weights of the materials also differ. The order made by the customer is also not the same and recalculation may be required at every shipment making space planning a difficult task. And this calculation is done manually which gives rough estimates of the container volume and weight. This also causes an increase in the transportation cost (Lapanan, 2008). Empty trips of trucks can also be categorized under the problem of underutilization. Empty truck trips increase carbon emissions (Islam and Olsen, 2014). Asset visibility is limited in RTIs and hence the management of RTIs becomes difficult. It requires accurate counting and reporting. There is constant problem of breakage, unavailability, and high lost rates of RTIs. These items are vulnerable to theft and misplacement because of their limited visibility (Demir, 2010).



SUSTAINABILITY

Environment, economy, and equity are three elements or pillars that hold up the concept of sustainability. To achieve sustainability economy must grow, the environment must be protected, and equity must be promoted. The World Commission on Environment and Development states that sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own need (Portney, K.E. 2015). Sustainability first emerged in the late 1970s and 1980s and it was in the 1990s that this term became familiar. Industrialization and humankind have created a disbalance in the ecological environment. Sustainability is a corrective measure to this disbalance and climate change that we must now consider. Climate change is going to be a problem for the rest of the century. Global warming caused due to greenhouse gas emissions has led to the problem of climate change. With the increasing population of the world, the global carbon footprint is also increasing. Overexploitation of resources, increasing pollutants, and human-generated waste have disrupted the environment. 8 million people died in 2018 due to pollution caused by fossil fuels. Exploiting finite resources for economic growth is driving humankind toward catastrophe. Anything that can harm the livelihood of future generations must be rejected. Efforts should be made to rely on renewable resources and create an economy that is green and low carbon (Caradonna, J.L. 2022). If any society wants to be sustainable,

- i) it must not rely on critical resources,
- ii) it must avoid population growth as it increases consumption,
- iii) the rate of usage of renewable resources must be less than or equal to the rate of natural replenishment,
- iv) use of non-renewable resources must decline, and the rate of decline must be greater than or equal to the rate of depletion,
- v) substances introduced by human activities must not be harmful to the environment.

The aim of sustainability is to be maintained over time (Heinberg and Lerch, 2010). The ideas of sustainability and sustainable development are the outcomes of long debates on using resources, population stresses, and climate change. Countries and organizations across the globe acknowledge the importance of sustainable development and agree to adopt means to



become sustainable. For instance, 193 UN member states adopted the 17 Sustainable Development Goals (SDGs) in 2015. These 17 goals were the plan of action for achieving the 2030 agenda for sustainable development. Despite this acknowledgment and adoption, the health of the environment continues to decline. It is difficult to understand why the health of the environment is not improving. One possible reason for this is that organizations and corporations are molding the meaning of sustainability on their terms and not on the terms laid down by the government. It seems that the meaning of sustainability and sustainable development is inconsistent and understood differently and hence policies by different corporations are different vaguely fulfilling the terms of being sustainable (Farley and Smith, 2020).

INDUSTRY OVERVIEW

As per Shangliao Sun's report, the size of the Indian logistics market in the year 2022 was around 274 billion US dollars. It is estimated that by 2030 this market will grow to 563 billion dollars. Manufacturing companies nowadays are striving for efficiency and transparency. With industrial Internet of Things otherwise referred to as 'Industry 4.0' allows companies to redefine everything from the way they interact with consumers and how they structure the supply chain. Data integration and analytics are vital for Logistic Service Providers (LSPs). Sustainable supply chains, provide better traceability and predictability along with smart warehousing solutions will become essential. Digital fitness is becoming a must for every logistics business (9). Radio Frequency Identification (RFID) technologies, barcode, and BLE tag technologies are increasing productivity by automation and reducing human error in the logistics business. A few of the challenges in the logistics industry are related to natural disasters, political instability, and health crises (e.g., COVID-19). Such events can lead to delays, increased costs, and inventory issues. A rise in fuel cost can also increase transportation costs which may affect profitability. Nowadays customers seek fast, reliable, and cost-effective deliveries which is a challenge. Integration with new technologies such as IOT, AI, and blockchain is expensive and these technologies come with the risk of data breach and cybersecurity threats. Traffic congestion in urban cities can lead to unnecessary delays and disrupt supply chain management. Returns and product recalls require efficient reverse



logistics (Thompson, 2023). Adani Ports, Container Corporation of India, Delhivery, and Blue Dart Express are a few of the leading companies in the logistics industry.

BACKGROUND OF THE COMPANY.

Yantraksh Logistics Pvt. Ltd. was started by Vipin Battu in 2018. Vipin did his B.Tech. from Manav Rachna University and MBA from Symbiosis, Pune. Mr. Battu started his career with Vijay Tanks and Vessels building megastructures - Asia's largest cryogenic LNG tanks and then joined Rivigo Logistics' initial team to set up their new business venture Zoom Ops. Yantraksh Logistics initially provided Full Truck Load (FTL) services and supply chain services to its clients. In 2020 Mr. Battu collaborated with Mr. Karan Saharan and launched Yantra Packs. Mr. Saharan is a CA by academics, and he started his career with EY. In 2015 Mr. Saharan launched a last-mile logistics company that pivoted to become DoneThing (an on-demand personal assistant mobile app). It was acquired by OYO, post which he joined them to launch their long-stay business as Director. This new collaboration Yantra Packs was a returnable transport item pooling solution for intermediate use in the industrial supply chain. They researched returnable packaging items and developed a feasible strategy to inculcate returnable packages in the logistics business and save the earth some 52000 plus trees. Yantra Packs eradicated corrugated boxes from their customer's supply chain and have completed some 225000 trips which were cost-effective and sustainable. Yantra Packs offers returnable transport items (RTI) to industrial supply chain users on –

1. Static hire: It Is a service that includes only the right to use asset pools for a pre-defined period.
2. transit hire: It is a service including the right to use and relocate asset pools for pre-defined locations and cycle times.

Yantra Packs has warehouses at different locations across India serving multiple brands such as TATA, Mahindra, Denso, Gabriel, Lumax, Delhivery, Filpcart, Raicam, and others. These firms transport raw materials for the automotive sector. Raw materials include parts for automobiles. Yantra packs help in effective and efficient transportation for the same by providing optimal routes which eventually adds value to the supply chain and renting plastic crates. Their head office is in Gurugram.



CASE

Returnable Packaging Items over corrugated boxes:

Vipin identified the disadvantages of transporting goods in corrugated boxes. A standard corrugated box generates 4500 grams of GHG. These boxes are used for bulk packaging. These are standard packages used by firms to transport their products to the vendors. After using these boxes, they are dumped into the garbage. Few of the boxes get recycled and others reach huge heaps of waste into the landfills. Corrugated boxes are biodegradable, they degrade and release CH₄ under anaerobic conditions in these landfills. Transporting goods using corrugated boxes is less sustainable than returnable packaging. In 2020 Vipin and Karan developed a feasible strategy by bringing returnable packaging into the picture. Returnable packaging is a sustainable, cost-effective solution for businesses looking to reduce their environmental impact. Plastic crates can be used thirty-six times before they become futile and no longer be used whereas a corrugated box is discarded after the material is delivered. When plastic crates become futile, Yantra Packs delivers them to a German firm which then recycles these crates. Using 60% of the virgin plastic along with disposed of crates can be used to make new returnable packaging. If we draw a comparison between using returnable packaging and corrugated boxes, then we will discover that returnable packaging is far more a sustainable and viable option. It helps in improving supply chain efficiency, reduces transportation costs, and enhances brand reputation. The following are the benefits of returnable packaging:

1. Returnable packaging item prevents component damage which may occur in corrugated boxes due to moisture or heavy weight.
2. Corrugated boxes once used are dumped which increases waste in the environment, returnable packaging items are durable and can be used for multiple trips which helps in waste reduction.
3. Returnable packaging items promote absolute and optimal utilization of resources as they require low cubic space which reduces costs and increases profitability.
4. Returnable packaging items are reused multiple times and damaged items can be repaired and recycled which further reduces its carbon footprint.
5. Sustainable and cost-efficient methods increase overall customer satisfaction and further increase the profitability of the firm.



Reduction in Cycle times through optimal utilization of space:

The second problem that Vipin analyzed was underutilization. Where one cubic meter space inhabited five corrugated boxes, Yantra Packs increased that capacity to 10-15 boxes with the help of returnable packaging items. Figure 1 differentiates the utilization of space between corrugated boxes and foldable plastic boxes which are returnable packaging items. As we can see foldable crates optimally utilize the space in comparison to corrugated boxes and decrease the cost by 36%. It also improves the quality of the supply chain as it avoids any damage. A truck can occupy 220 corrugated boxes, whereas only 22 foldable crates can be inhabited. However, the component pack density per box is higher for foldable plastic boxes than corrugated boxes. In one corrugated box, 6 components can be placed whereas foldable plastic boxes can have 90 components. A truck carrying 22 boxes can transport 1320 components, whereas if these boxes are replaced by foldable plastic boxes 1980 components can be transported. The figure draws a comparison between two types of packaging for transporting 3000 components. In the case of corrugated boxes transporting 3000 items in a month will need 2.27 trucks and foldable crates will only need 1.52 trucks. This alone will create a differentiation of 33605 rupees. Foldable plastic boxes optimally have utilised the space and reduced the cycle time which has reduced the cost of transportation. Reduction in cycle time also saves fuel costs and makes foldable plastic boxes more sustainable than corrugated boxes. If we further compare the cost of buying corrugated boxes and renting plastic boxes for the same number of components, then foldable plastic boxes are a bit more expensive than the boxes. But adding further the cost of damage and the cost of labor to transportation cost and packaging cost we can see that transporting components in corrugated boxes is far more expensive and a supplier will save 36% of the total cost if foldable plastic boxes are used. The number of laborers required for component handling is less in the case of returnable packaging and components are safer which also reduces the cost of damage. The combination of all these costs has made returnable packaging a far better, safer, cheaper, sustainable, and efficient way of transporting components.

	Corrugated Box	FLC
Carrying capacity per truck	220	22
Component pack density per box	6	90
No. of components per truck	220 x 6 = 1320	22 x 90 = 1980
No. of trucks required to transport	3000 / 1320 = 2.27	3000 / 1980 = 1.52
3000 components per month		
Cost of transportation	45000	45000
Manesar to Pune in 20 ft truck		
Total Transportation Cost (A)	45000 x 2.27 = 102150	45000 x 1.52 = 68500
Cost per box	25 (Buy)	1500 (Rent)
Total Packaging Cost (B)	220 x 2.27 x 25 = 12485	22 x 0.45 x 1500 = 14850
% of damage in-transit	0.50%	-
No. of components damaged per month	3000 x 0.5% = 15	-
Cost of re-making damaged components	15 x 600 = 9000	-
Cost of transporting damaged components	15 x 35 x 2 = 1050	-
Cost of packaging damaged components	15 x 25 / 6 = 62.5	-
Total cost of damaged components (C)	9000 + 1050 + 62.5 = 10112.5	-
No. of labour required for material handling	2	1
Labour salary per month	12500	12500
Cost of labour required (D)	25000	12500
Total cost (A+B+C+D)	1,49,747.5	95,750.0
Total cost per component	49.9	31.9
Savings per component	18.00	
Savings %	36%	

FLC - Foldable Large Container with dimensions of 1200*800*1000 mm



Figure 1. Comparison between corrugated boxes and FLC. Source: Yantra Packs pitch deck.

Pooling to solve the problem of idle return load:

The third problem that Yantra solved was idle return load. Vipin calls this solution an outcome of their network and hard work. A report from the Office of Energy Efficiency revealed that 39% of the study's participant fleet vehicles idled three to four hours every day. And this problem combined with idle return load becomes more expensive. Considering the high fuel cost of trucks, it is significant to solve this problem of idle load return. Yantra Packs solved this problem by pooling. To understand what pooling is, let us understand the Transit hire model of Yantra packs which is represented in Figure 2. Yantra Packs has a warehouse in Gurugram, Lunax's component manufacturing plant in Gurugram wants to send supplies to Tata in Pune and hence it requests Yantra for returnable packaging items such as foldable crates, foldable containers, etc. Yantra sends packaging items to Lunax, and Lunax sends material using returnable packaging items to Tata, the Original Equipment Manufacturer (OEM) plant in Pune. Once the material is unloaded at Tata, Yantra Packs collects the packaging items from the OEM plant in Pune and transports them to their warehouse in Pune until further use. Now when Gabriel, the other component manufacturing plant in Pune requests for packaging items, Yantra Packs transport them from their Pune warehouse. Gabriel then sends material to their plant in Gurugram for further processing and supply to nearby OEMs. Packaging items are then

collected by Yantra Packs from Gabriel's Gurugram plant to their warehouse in Gurugram. The packages are customized, repaired, and reconditioned in the warehouses. This is how pooling works; it makes sure that empty packaging doesn't get transported as this increases company cost and reduces profitability. Yantra Packs achieved this through networking, like in the above case Yantra Packs have clients both in Pune and Gurugram who intend to transfer goods from Gurugram to Pune and from Pune to Gurugram. Yantra Packs makes use of AI to ensure optimal utilization of packaging items and other resources. AI model helps in ascertaining the best feasible plan for transporting material. It reduces underutilization of resources which saves cost and makes this cycle sustainable. The following are the benefits of pooling:

1. Pooling is sustainable and saves money as it nullifies idle return load. It minimizes the transportation of empty packaging.
2. Companies don't have to buy packaging items or pay for waste management, recycling, or maintenance. It reduces overall cost and pooling helps in converting capital expenditure to operational expenditure for the companies.
3. Pooling makes sure that packaging items are available and ready when and where they are needed.

Transit Hire - how it works

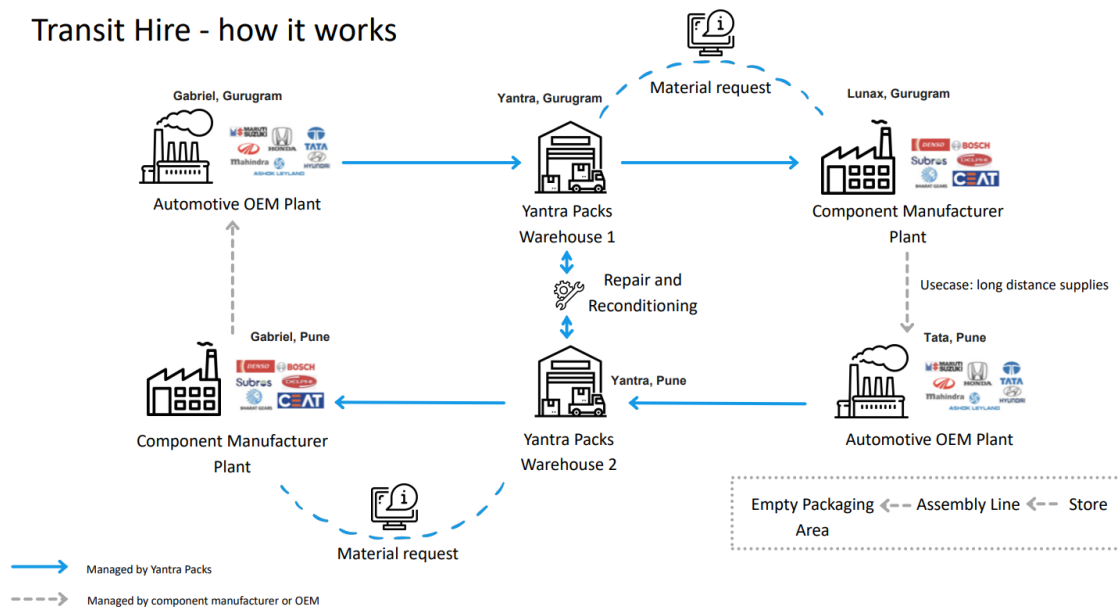


Figure 2. Working on transit hire model of Yantra packs. Source: Yantra Packs pitch deck.



RFID to prevent loss and promote optimal utilization

Returnable packaging is sustainable if it is being reused by the company. It must be repaired timely and once the life cycle of the returnable packaging item ends; it must be recycled. In case of theft or loss of the packaging items, it becomes difficult to maintain sustainability or profitability. To tackle this problem of loss and theft Yantra Packs is taking the help of AI and IoT devices like Radio Frequency Identification (RFID) technology. There are two types of tags that RFID technology offers: Active and Passive. Yantra Packs makes use of passive RFID technology. The tag is made up of an antenna coil and an electronic chip. These tags are placed on every packaging item. The electric power for transmitting signals is driven by time-varying radio frequency waves generated by the reader. Radiofrequency creates AC voltage when it passes the antenna coil. After this, the tag gets a power supply which transmits information back to the reader which further helps in the identification of the tag which is placed on every packaging item. Vipin's Yantra Packs is a pioneer in leveraging a combination of these technologies in the logistics industry in India. The following are the benefits of passive RFID technology:

1. Theft and loss of packaging items are prevented as tags on the packaging items are automatically scanned. It is easy to keep track of the items, in case of missing items, the concerned authorities are immediately informed automatically by the system itself.
2. Automatically scanning items reduces labor costs, saves time, and avoids errors.
3. Passive RFID tags are lighter and cheaper than active RFID and Wi-Fi technologies.
4. Tags can be read without a line of sight.

DISCUSSION

Rupi Kaur in her book "The Sun and Her Flowers" says "I find it deeply important to accept that we are not the masters of this place. We are her visitors, and like guests let's enjoy this place like a garden. Let us treat it with gentle hands, so the ones after us can experience it too." Poetically and beautifully Kaur is asking us to be sustainable. In every field today across the world people are encouraging and promoting sustainable practices. From clothing to housing, from consumption to disposal sustainability can be practiced in every segment and it must be



practiced. It is the need of the hour. In recent years global warming and climate change have created a noticeable impact on our environment. The average temperature of the globe is alarmingly rising. Scientists have predicted that Asia will receive a maximum number of heat waves in the coming years. Increasing pollution, population, and urbanization have disrupted ecological balance. Plastic waste, industrial waste, and commercial fishing have disrupted marine life. If humans continue these practices, it is believed marine life cannot survive beyond 2050 and if that happens humans too cannot survive. It is important to address this issue and promote sustainable development across all corporates, agencies, and governments. Yantra Packs is one firm that is promoting sustainable development and working towards reducing carbon footprint. Yantra Packs are creating awareness and encouraging firms to switch to sustainable methods of transporting products. They have helped companies in achieving sustainable goals and increase their profitability simultaneously. Yantra Packs provide returnable packaging items instead of corrugated boxes. Corrugated boxes are biodegradable, they degrade and release CH₄ under anaerobic conditions in landfills. Returnable packaging is far more sustainable than corrugated boxes. Yantra Packs has saved more than 52000 trees by eradicating corrugated boxes from the supply chain. Another issue in the logistics business was related to idle return load. Considering the high fuel cost of trucks, it is significant to solve this problem of idle return load. Transporting materials from point A to point B is not challenging but once at point B the material is unloaded, the transport is empty and the movement of vehicles beyond that point is both costly and unsustainable. Yantra packs solved this issue with the help of pooling. Where one cubic meter space inhabited five corrugated boxes, Yantra Packs increased that capacity to 10-15 boxes with the help of returnable packaging items. This causes underutilization of resources which increases cycle time and fuel cost. Returnable packaging solves this problem as well and reduces the cycle time which saves fuel and saves unnecessary costs which makes it more sustainable. Finally, the problem of loss and theft of returnable packaging items was solved by Yantra Packs in their warehouses. Yantra Packs used modern Radio Frequency Distribution technology to solve this problem. Passive RFID technology is used to keep track of returnable packaging items in case an item does not reach the warehouse in the given time, rightful authorities are notified. Packaging items have a light tag placed on them, which helps in identifying and tracking. Yantra Pack is a Returnable transport item



pooling solution for intermediate use in the industrial supply chain. Once the packaging item becomes obsolete, Yantra Packs delivers it to a firm based in Germany that recycles these items. Yantra makes sure that none of their packaging items go into the trash which increases environmental waste. Overall problems created by corrugated boxes, underutilization of resources, idle return load, and loss and theft of returnable packaging items are solved by Yantra Packs through optimal utilization, innovation, and technology. We must reduce our carbon footprint, not for us but for future generations. Sustainable housing, reducing food waste, avoiding fast fashion, sustainable packaging, and reusing, and recycling resources are a few of many ways which can reduce your carbon footprint. Yantra packs are a good example that tells you how innovation, research, and willingness can reduce carbon emissions and reduce costs.

DISCUSSION QUESTIONS

1. How important is it to have sustainable business practices across industries?
2. India considers climate change as the biggest issue for businesses. What impact can unsustainability have on businesses?
3. Discuss some of the challenges that social entrepreneurs can face in starting their ventures.
4. How can we change the general stigma that sustainability is expensive?
5. Creativity and risk-taking abilities are important for social entrepreneurs. Explain with the reference to the case.

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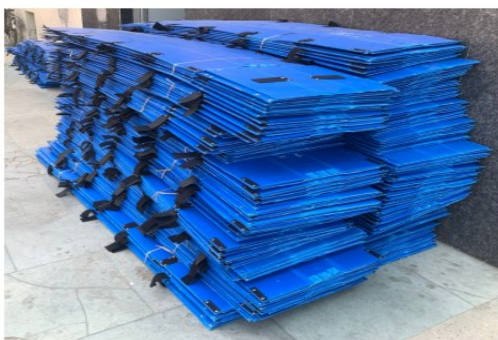
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Exhibit-1





Exhibit- 2





Assessing Financial Management Behavior in Digital Context: A Comparative Analysis

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ABSTRACT

Digitalized Financial Behaviour (DFB) is the use of digital technology for personal finance management, including mobile banking, digital payment systems, and online investment platforms. The increasing reliance on digital financial services makes it essential to understand how these services are changing financial behavior. However, research on the relationship between demographic variables and DFB in developing countries like India is limited. Identifying demographic factors that influence DFB is vital for assessing and refining policy interventions to improve financial outcomes and stability. This study investigates the impact of demographic variables such as age, gender, marital status, class, occupation, income level and education on DFB in Delhi (India). The analysis of 388 individuals was analyzed using independent samples t-test and ANOVA in SPSS version 24. However, those with higher incomes accepted DFB than those with lower incomes. These findings may encourage regulators, NGOs, financial institutions and institutions to promote digital financial management in developing countries like India, thereby promoting Accounting and security.

Keywords: age, marital status, digitalized financial management behavior, employment class, working sector, income level, gender, and education.



INTRODUCTION

In recent years, the revolution has shifted the focus from globalization and security to the fields of digitalization, automation, and robotics (Garai-Fodor, Varga, and Csiszárík-Kocsir, 2022). This digital revolution has permeated every aspect of human life, affecting people, education, health and finance. The emergence of data analytics enables banks to take advantage of solving customers' financial management problems by analyzing large data sets of customers to offer solutions (Gellért Vinnai, Product Manager, W.UP, n.d.). The growth of apps makes it easier to obtain more personal information, allowing businesses to create customer profiles and offer financial advice and services. Data-backed financial management helps clients manage a variety of life situations and provides helpful advice on spending, budgeting and saving money. The use of machine learning and artificial intelligence algorithms can help clients manage their investments and understand their financial health, as seen in digital asset managers or robo advisors (Chhillar and Arora, 2022). Additionally, banks have access to a wide range of customer data, allowing them to deliver real-time information for each customer by sending cross-account information along with third-party information Dayama (2018) and Fathima (2018) stated that there is an urgent need for digital financial literacy (DFL) initiatives that highlight the importance of digital finance and supporting Indian citizens as DFL. Digital Financial Management Behavior (DFB) plays an important role in the growth of the economy by promoting good financial management, increasing financial capital and supporting the economy as a whole.

Unlocking DFB is pivotal for nations like India, offering multifaceted benefits. DFB fosters financial inclusion by extending services like mobile wallets and digital payments to the unbanked or underbanked. It elevates financial literacy by providing tailored advice through robo-advisors and facilitates capital access, aiding job creation and propelling economic growth. Additionally, it bolsters transparency in financial transactions, mitigating fraud and corruption risks. Comparative analysis of DFB across demographics reveals disparities, guiding targeted campaigns for wider adoption and showcasing its varied impacts. This information equips policymakers and financial institutions to tailor DFB tools and services, addressing diverse needs. Comparative studies,



examining DFB across genders, age groups, education levels, marital statuses, and incomes, inform policies, driving inclusive, literate, and empowered financial landscapes for societal segments and overall economic advancement.

DFB's research can help policymakers and financial institutions develop digital financial education programs to promote financial security and economic growth. The use of DFB in developing countries like India is important because it can inform policy decisions, guide the development of digital products and services, promote financial education of the digital economy, and contribute to the growth of the economy. Comparative analysis based on demographic factors provides insight into how different groups approach digital financial management and suggests interventions to improve digital financial literacy and security.

REVIEW OF LITERATURE

Digitalized Financial Behaviour (DFB) or Personal Financial Management Behavior using digital platforms pertains to financial behavior involving planning, execution, and assessment of financial matters using digital platforms. This definition acknowledges the prevalent digital culture influencing individuals' financial management behavior (Chhillar and Arora, 2022). In today's digital age, there is a significant shift towards digital financial services, driven notably by generations Y and Z, who are active users of digital products and services. Personal financial activities increasingly occur in a hybrid digital-physical environment, with digital platforms offering a wide array of financial services such as spending, saving, and managing personal finances. The utilization of digital payments, including salary and government transfers, is found to stimulate the adoption of other digital financial services such as savings, payments, and borrowing.

Market research indicates that the personal finance mobile app sector experienced growth, particularly during the COVID-19 pandemic, as individuals sought real-time transactions and banking services through digital platforms. The shift towards digital payments and reliance on virtual money transfer platforms is expected to drive revenue growth in the PFM apps market post-



COVID-19 (Fact.MR, October 2021). The Global Findex 2021 study reveals a high prevalence of digital payments globally, with significant market presence in North America and anticipated growth in regions like Asia Pacific, including India. Projections suggest significant market growth in the personal finance software sector in the coming years (Khan, Modi, and Kumar, 2020).

Lindiawati and Lestari's (2023) study delves into understanding the determinants of financial behavior among career women and their impact on financial well-being. It revealed that higher self-efficacy is associated with better financial management, while lower lifestyle levels correlate with improved financial behavior. The study also identified the mediating role of financial behavior in connecting self-efficacy and lifestyle to the financial well-being of career women. Financial literacy and income did not moderate the relationship between financial management behavior and financial well-being. Panjaitan and Digdowiseiso (2023) conducted a quantitative study on lecturers, finding that financial literacy significantly influences financial behavior, alongside financial technology and income. Dare et al. (2023) discovered a strong positive association between financial self-efficacy and financial well-being through positive financial behaviors. Wagner and Walstad (2023) found that females were significantly less likely than men to engage in positive financial behaviors. In Kumar, Pillai, Kumar, and Tabash's 2023 study, skills were identified as directly influencing financial decision-making and perceived financial well-being. Digital financial literacy emerged as a significant predictor, both directly and as a mediator, while financial capability and financial autonomy played mediating roles in the relationship between skills and financial decision-making. Impulsivity did not exhibit mediating effects on financial decision-making.

Digital transformation in India triggered by financial measures such as PMJDY, NRLM, DBT and APY has led to a rise in the adoption of digital financial services. Therefore, there is an urgent need to investigate the personal financial management behavior of working adults in Delhi (India) from a digital perspective. This study aims to compare digital financial management (DFB) across different groups to provide a better understanding of the digital financial behavior of working adults in NCT, India. The results of this study lead to a deeper understanding of the DFB and contribute to the development of policies and programs that address the specific needs and



problems of various groups. By promoting responsible financial management practices in developing countries like India, these initiatives can promote digital finance and improve the health of people and families.

RESEARCH OBJECTIVES

The study seeks to assess and compare the Digitalized Financial Behaviour (DFB) among working individuals in Delhi (India), focusing on various demographic profiles including gender, marital status, age, income, education, and employment class.

RESEARCH METHODOLOGY

1.1.The study, the Sample and the Sampling technique

This analysis is descriptive in nature and aims to evaluate how individuals' profiles influence their Digitalized Financial Management Behavior. The criteria for inclusion were respondents who are employed in the Delhi, aged between 18 and 60 years, and users of digital financial services.

As per Cochran's 1977 formula, with $p = 0.5$ and a 95% confidence level providing Z values of 1.96, the employed population in Delhi (India) = 55.87 Lakhs (as per Delhi Budget 2022), the sample size is calculated to be 385 respondents. In this study, 410 respondents completed the survey independently, and the researcher digitally filled out 110 questionnaires on behalf of participants using their digital devices. Of the 520 responses collected, 499 met the study's criteria and were considered engaged responses. All selected respondents had a minimum senior secondary education qualification, ensuring their capability to fill out the questionnaire using digital devices such as smartphones, tablets, laptops, etc.

In terms of gender, there were 204 males (52.5%) and 184 females (47.4%). Marital status showed that 225 individuals were married (57.9%) while 163 were unmarried (42.0%). The age distribution included 135 people aged 18-30 (34.7%), 158 aged 31-40 (40.7%), and 95 aged 41-50 (24.4%). Regarding education, 48 individuals had secondary education or equivalent (12.3%), 185 had graduated or had an equivalent degree (47.6%), and 155 had post-graduation or higher qualifications (39.9%). Employment status revealed that 232 individuals were from the salaried



class (71.1%) and 156 were self-employed (28.9%). Annual income data indicated that 60 individuals earned less than 2 Lakhs (15.4%), 95 earned between 2 and 5 Lakhs (24.4%), 105 earned between 5 and 10 Lakhs (27.0%), and 128 earned above 10 Lakhs (32.9%).

This study used a purposive sample to collect data from employees aged 18 to 60 who were also users of digital financial services. Purposive sampling involves selecting participants based on specific criteria relevant to the research question. Data for the study was collected digitally through online invitations sent via email and social networking platforms such as WhatsApp, LinkedIn and Facebook. A total of 388 responses were recorded.

1.2.Tool for Data Collection

The DFB scale developed by Chhillar and Arora (2022) was utilized to assess the Digitalized Financial Behaviour of employed individuals. Chhillar and Arora (2022) formulated this scale by synthesizing financial indicators from ten previous studies (Watson, 2003; Furnham, 1999; Setiawan et al., 2020; Dew & Xiao, 2011; Pan et al., 2019; Jacobs-Lawson et al., 2004; Wu, X. Q., 2019; Alonso García et al., 2017; Muellbauer, 1988; Marsh, B. A., 2006). They found that the full DMBS is a reliable and valid measure of Digitalized financial management behaviors in developing nation like India.

1.3.Tools for Data Analysis

To examine the research hypothesis, the parametric Independent-Samples t-Test was employed, as the p-value from the one-sample Kolmogorov-Smirnov test did not reach significance at the 5% level (see Table 1). The skewness and kurtosis statistics fell within the acceptable range, as outlined by Ghasemi and Zahediasl (2012), with values within ± 2.58 at the 0.01 significance level or ± 1.96 at the 0.05 significance level. Consequently, the distribution of Digitalized Financial Behaviour did not deviate significantly from normality based on the Kolmogorov-Smirnov test, skewness, and kurtosis statistics. The data processing was conducted using SPSS version 24.



Table 1. Normality test

	Kolmogorov-Smirnov ^a			Skewness		Kurtosis	
	Statistic	df	Sig.	Statistic	Std. Error	Statistic	Std. Error
DPFM_score	.045	388	.052	-.255	.124	.063	.247

Source: Authors' calculation. SPSS output.

1.4 Research Hypotheses

Personal financial behavior can be affected by many demographic factors such as age, gender, income, education and marital status. These factors play an important role in shaping a person's ability to make financial decisions. Lusardi (2008), Holzmann et al. (2013), Hira and Mugenda (2000), Lim et al. (2003), Falahati and Sabri (2015), Loke (2017), Giannetti et al. (2014) and Disney et al. (2008) emphasized the impact of demographic factors such as gender, age, income and education on personal financial management behavior. Kamau, A., Misati, R., Ngoka, K., Odongo, M., & Were, M. (2023) found that women have lower financial literacy and higher chances of being over-indebted than men. Singh, Chaturvedi, & Jain, (2018) found that race, gender, and educational qualification too have minor effect on personal financial management behavior among working professionals in India. Individuals with higher education and income might have more opportunities to develop financial management skills through their professional roles (Lyons, Chang, & Scherpf, 2006). Therefore, it is important to examine the characteristics of personal financial management across different populations because different groups of people have different levels of access and understanding of digital financial services. This difference may impact their ability to make informed financial decisions and utilize these services. Therefore, the following considerations are put forward:



H01: DFB does not differ in a considerable way between the male and female employed of Delhi.

H02: DFB does not differ in a considerable way between marital and unmarried employed of Delhi.

H03: No, there is no considerable difference of DFB between private sector and public sector employed individual of Delhi.

H04: There is no considerably in DFB between salaried and self-employed Delhi.

H05: DFB scores of employed undergraduates and postgraduates in Delhi are not significantly different

H06: DFB scores of different age groups of employed persons in Delhi have no significant difference

H07: DFB scores of different income levels of employed persons in Delhi are not significantly different.

To examine the research hypothesis, the parametric Independent-Samples t-Test was employed, as the p-value from the one-sample Kolmogorov-Smirnov test did not reach significance at the 5% level (see Table 1). The skewness and kurtosis statistics fell within the acceptable range, as outlined by Ghasemi and Zahediasl (2012), with values within ± 2.58 at the 0.01 significance level or ± 1.96 at the 0.05 significance level. Consequently, the distribution of Digitalized Financial Behaviour did not deviate significantly from normality based on the Kolmogorov-Smirnov test, skewness, and kurtosis statistics. The data processing was conducted using SPSS version 24.

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DPFM_score	.045	388	.052	-.255	.124	.063	.247

Source: Authors' calculation. SPSS output.



Reliability of the measures

The reliability of the dta was evaluated using the Cronbach alpha test across all 25 items, yielding a score of 0.91. This result indicates sufficient reliability for subsequent analysis, as suggested by Nunnally (1978).

HYPOTHESIS TESTING

To measure Digitalized Financial Behaviour (DFB), the study utilized the validated scale developed by Chhillar and Arora (2022). This scale consisted of items rated on a five-point Likert scale, where higher values indicated better DFB and lower values indicated weaker DFB. The findings revealed that employed individuals demonstrated a satisfactory level of DFB, with a mean score of 71.49%. This level should be maintained and enhanced for further improvement (see Table 2).

Table 2. DFB scores

Categories	DFB scores
Man	72.61
Women	69.59
Married	72.96
Singles	71.21
Private	73.25
Public	69.79
Salaried	71.56
Self-employed	72.02
Secondary education	66.64
Graduates	72.38
Postgraduates	72.48
18-30	72.24
31-50	75.11
Above 50	69.15
Below 2 Lakhs	67.48
2 Lakhs - 5 Lakhs	71.35



5 Lakhs - 10 Lakhs	73.22
10 Lakhs and Above	78.76
Overall	73.38

Source: Authors' calculation

H01: Gender and DFB Scores

The first hypothesis posited no substantial difference in DFB scores between male and female employed individuals in the Delhi. An independent sample t-test was conducted. Although the mean DFB score for male employees was higher than for female employees (see Table 2), the difference was not statistically significant, with a p-value of 0.441 at the 5% significance level (see Table 3). Thus, the null hypothesis could not be rejected, indicating no significant gender-based difference in DFB scores among employed individuals in the Delhi.

Table 3. Results of Independent sample t-Test

The Null Hypothesis	Test	p-value	Decision
H01	Independent sample t-Test	0.441	Fail to reject
H02	Independent sample t-Test	0.675	Fail to reject
H03	Independent sample t-Test	0.360	Fail to reject
H04	Independent sample t-Test	0.514	Fail to reject
H05	ANOVA	0.107	Fail to reject
H06	ANOVA	0.107	Fail to reject
H07	ANOVA	0.000	Reject

Source: Authors' calculation. SPSS output.



H02: Marital Status and DFB Scores

The second hypothesis suggested no substantial difference in DFB scores between married and unmarried employed individuals in the Delhi. An independent sample t-test showed that while married individuals had a higher mean DFB score than unmarried individuals (see Table 2), the difference was not statistically significant, with a p-value of 0.675 at the 5% significance level (see Table 3). Therefore, the null hypothesis was not rejected, indicating no significant difference in DFB scores based on marital status.

H03: Employment Sector and DFB Scores

The third hypothesis proposed no substantial difference in DFB scores between private and public sector employed individuals in the Delhi. An independent sample t-test revealed that the mean DFB score for private sector employees was higher than for public sector employees (see Table 2). However, this difference was not statistically significant, with a p-value of 0.360 at the 5% significance level (see Table 3). As a result, the null hypothesis was not rejected, suggesting no significant difference in DFB scores between private and public sector employees.

H04: Employment Type and DFB Scores

The fourth hypothesis posited no substantial difference in DFB scores between salaried and self-employed individuals in the Delhi. An independent sample t-test showed no statistically significant difference in mean DFB scores between these groups, with a p-value of 0.514 at the 5% significance level (see Table 3). Thus, the null hypothesis could not be rejected, indicating no significant difference in DFB scores between salaried and self-employed individuals.

H05: Education Level and DFB Scores

The fifth hypothesis suggested no substantial difference in DFB scores among employed individuals with different education levels in the Delhi. ANOVA was used to test this hypothesis. The results indicated no statistically significant difference in DFB scores based on education level, with a p-value of 0.107 at the 5% significance level (see Table 3). Hence, the null hypothesis was not rejected, implying similar DFB scores across different education levels.



H06: Age and DFB Scores

The sixth hypothesis proposed no substantial difference in DFB scores across different age groups among employed individuals in the Delhi. ANOVA results showed no statistically significant difference in mean DFB scores among the age groups, with a p-value of 0.107 at the 5% significance level (see Table 3). Therefore, the null hypothesis could not be rejected, indicating no significant age-based differences in DFB scores.

H07: Income Level and DFB Scores

The seventh hypothesis posited no substantial difference in DFB scores across different income levels among employed individuals in the Delhi. ANOVA results revealed a statistically significant difference in DFB scores based on income level, with a p-value of 0.000 at the 5% significance level (see Table 3). Thus, the null hypothesis was rejected, indicating significant differences in DFB scores among different income levels.

In a specific comparison between groups (Appendix 1a), significant differences were found between: people with income above 10L; People with income above 10L have higher DFB scores than those with income of 5L-10L, and according to Tukeys post hoc test (Appendix 1b), people with income of 5L-10L have higher DFB scores than those with income of 1L-2L. . This shows that there is a good relationship between the level of DFB and the income level of the people of Delhi.

RESULTS

The findings indicated that employed individuals demonstrated a satisfactory level of DFB, with an average score of 73.38%. This level should be maintained and enhanced for continued improvement. Several factors may contribute to this satisfactory DFB, including the increasing accessibility and affordability of digital financial management tools, heightened awareness and education about personal finance, and the convenience and efficiency of digital methods over traditional ones.



The study also revealed no statistically significant differences in DFB across various demographic profiles of employed individuals in the Delhi based on gender, education, working sector, marital status, type of employment (service or non-service), and age, with the exception of income level. This could be attributed to the relatively uniform distribution of financial management behaviors among employed individuals in Delhi across various demographic profiles. The lack of statistically significant differences in financial management behaviors based on gender, education, working sector, marital status, service or non-service employment class, and age suggests a level of consistency in financial decision-making and practices among these groups. This uniformity may be influenced by similar financial education initiatives, cultural factors, or institutional frameworks that impact individuals across different demographic categories.

The exception found in income level suggests that financial management behaviors may be more responsive to variations in income among employed individuals. Higher income levels may afford individuals greater flexibility and resources to adopt different financial management strategies, leading to observed differences in financial behaviors. The impact of income on financial decision-making could be attributed to the increased financial autonomy and choices that come with higher earnings.

Overall, the findings highlight the need for targeted interventions and educational programs aimed at improving financial management behaviors, particularly among individuals with lower income levels. Additionally, the results underscore the importance of considering income disparities when developing policies and initiatives to promote financial well-being among the employed population in Delhi.

DISCUSSION

The DFB score indicates that the DFB staffing level is satisfactory, with an average score of 71.49%. Maintaining and improving this level is essential for further progress. Factors driving this demand for DFB include the increasing availability and affordability of digital financial management tools, increased personal financial literacy and education, and the ease and convenience of digital financial management compared to traditional methods. Employees,



especially those with higher education, are more likely to understand the importance of personal financial management and to acquire skills through education or work (Perry and Morris, 2005). However, there is still room for improvement in the DFB workforce, which can be achieved through ongoing training in personal finance management and training and development of users on quality and easy-to-use digital financial management tools. Employers and financial institutions can also promote DFB to employees and customers. Developing DFB empowers people to better manage their finances, reduce financial stress and achieve their financial goals. industry, marital status, type of job (service or non-business), and age (income level only). These findings are consistent with previous studies by Humaidi et al. (2020), Achadiyah and Laily (2013) and Dzomonda and Fatoki (2018) also found that gender, marital status and age do not affect financial management behavior. Moreover, Singh, Chaturvedi, and Jain (2018) found that age, education, gender, and marital status have little impact on the decision-making process of Indian professionals regarding financial management of their identity. However, the results of this study are contrary to those of Lusardi (2008) and Holzmann et al. This contradicts previous studies conducted by. (2013) showed that individuals with lower education reported poorer financial management skills. Additionally, Hira and Mugenda (2000), Lim et al. (2003) and Falahati and Sabri (2015) found gender differences in financial behavior, but this was not supported by this study. The current study shows that digital money management behavior is similar among different groups of people in Delhi. This suggests that efforts to promote DFB may target employees in general, regardless of specific situations. The fact that DFB scores are higher in individuals with income over 10L than in other income groups indicates a positive relationship between DFB and income. This finding is consistent with studies by Loke (2017), Giannetti et al. (2014) and Disney et al. (2008) defined income as a determinant of financial management behavior. On the contrary, it contradicts the research of Purwidiyanti and Mudjiyanti (2016) and Humaidi et al. (2020) found that income had no effect on financial management behavior. This difference may be due to wealthy people needing financial management tools, enabling them to use personal financial management. This means people on low incomes will need more support and training to improve their digital money management skills. Interventions such as digital financial literacy education, access to affordable



financial management tools, and support for low-income people will benefit. Overall, the study shows the importance of supporting DFB to help all employees, regardless of their demographics, better manage their finances and improve their financial situation.

CONCLUSIONS

This study aims to analyze and compare the effects of gender, marital status, occupation, job type (service or non-service), age, education and income through digital financial management (DFB) of Delhi employees. It was determined that there was no significant difference in terms of DFB between different populations according to gender, education, profession, marital status, occupation type and age. However, DFB scores were higher in individuals with income above Rs 10 million, indicating a positive relationship between DFB and income. Customizing DFB to meet the needs of different customers. This includes continued access to digital financial services and digital financial education. Financial institutions should offer financial literacy courses to teach consumers how to effectively use digital financial tools, manage their finances, and make informed decisions. These services can be offered through online courses, mobile applications and face-to-face training. Additionally, technologies such as robo-advisors and artificial intelligence (AI) can be leveraged to provide personalized financial advice and solutions. Transparency and security in digital marketing are also important for building trust. Promote financial inclusion and economic growth. Institutions can help by integrating digital financial management into their curricula, providing training, and partnering with financial institutions and fintech companies. Measures to improve DFB's accounting, such as activities to stimulate savings, budgeting and investment. They can also manage digital finance and support related research. Providing digital financial education in the workplace can reduce financial stress for employees, increase productivity, and encourage savings and investments, especially in business. Community groups can support DFB to support their members and improve their financial health. Therefore, the Delhi government, schools and financial institutions in NCT need to first access digital financial information and services. The study's findings support the promotion of DFB and digital financial literacy through collaboration between regulators, NGOs, financial institutions and schools. Further research could investigate other



determinants of DFB, such as digital literacy, use of digital infrastructure, financial literacy, cultural beliefs, and social media.

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Adapting the Insurance Value Chain to Catastrophic Risk: toward Sustainable and Equitable Risk Management

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ABSTRACT

OBJECTIVE

This study aims to explore how insurance companies are restructuring their value chain—both primary and support activities—in response to the growing incidence and severity of catastrophic risks, particularly those driven by climate change. It examines the critical role of the insurance sector not just as a financial intermediary, but as a strategic actor in disaster risk reduction, mitigation, and resilience-building. The paper also investigates the transformative impact of sustainable insurance practices—such as precycling, recycling, and green insurance—on promoting social and environmental equilibrium in the face of increasing natural disasters.

DESIGN METHODOLOGY

The research methodology is qualitative in nature and based on an extensive review of scholarly articles, white papers, and industry reports sourced from reputable databases including JSTOR, ScienceDirect, Wiley Online Library, and Google Scholar. The study integrates theoretical insights from the insurance value chain model and empirical observations on climate-induced catastrophes to identify shifts in insurance operations, strategies, and sustainability approaches.



FINDINGS

The findings suggest that the insurance industry, although traditionally reactive in its approach, is gradually shifting towards proactive risk management strategies to adapt to the heightened frequency and intensity of weather-related catastrophes. This adaptation is evident across the insurance value chain—from underwriting, claims management, and product development (primary activities) to technology integration, risk modelling, and stakeholder communication (support activities). However, despite advances in digital transformation, critical challenges remain. The lack of access to granular, real-time climate and catastrophe-related data, along with widespread insurance illiteracy—especially in vulnerable and rural regions—continues to hamper the effectiveness and reach of innovative insurance solutions. Furthermore, the industry is beginning to align its investment policies with sustainability benchmarks, emphasizing ESG (Environmental, Social, and Governance) criteria and green asset allocations.

PRACTICAL IMPLICATIONS

The study highlights that climate change poses not only environmental and humanitarian crises but also significant macroeconomic and sectoral risks. India, being one of the most climate-vulnerable countries, stands at a critical intersection of economic development and environmental sustainability. The paper underscores the transformative role insurance can play in bridging this gap by serving as a catalyst for sustainable growth. By offering risk-transfer mechanisms and financial buffers, insurance enables households, businesses, and governments to recover more effectively from climatic shocks. Moreover, sustainable insurance mechanisms—such as precycling (anticipatory risk management), recycling (reintegration of loss learnings into policy frameworks), and green insurance (eco-friendly product design and investment practices)—are identified as essential pathways to ensure long-term resilience and equity in risk sharing.

ORIGINALITY

To the best of our knowledge, this study provides a novel perspective by synthesizing the concepts of catastrophic risk, sustainability, and the insurance value chain in the context of



climate change adaptation. It contributes to the limited but growing body of literature that examines the intersection of environmental sustainability and insurance industry transformation, particularly in developing economies like India.

Keywords:

Insurance; Sustainability; Value Chain; Catastrophic Risk; Green Insurance; Precycling; Climate Change; Risk Management.

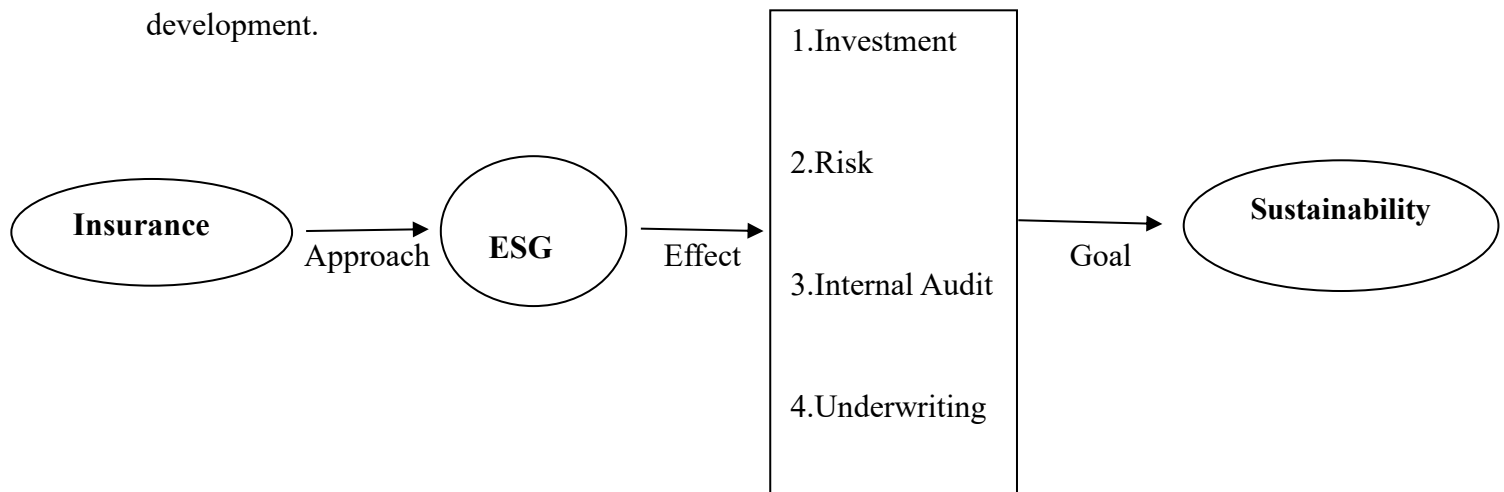
INTRODUCTION

The Indian insurance industry is the 10th largest in the world. Total insurance premiums in India increased by 13.5 % in 2021, and the global average was 9%. (Invest India report). Given the immensity of its investment in the total GDP of the economy, it is perceived as a stabilizer during a crisis. According to IRDAI, India's share in the global insurance market is 2.73%. In 2022, the insurance industry's value addition to GDP was 2.6%. (Insurance Information Institute). According to the EM-DAT international disaster database, the following data are found regarding damage cost due to natural disasters in India were US\$ 2.92 billion during the 1970s. The extent of damage costs increased in the subsequent decades from US\$ 5.92 billion during the 1980s to US\$ 18.41 billion and US\$ 23.74 billion during the 1990s and 2000s, respectively. Further, Padmanabhan (2012) reports that the total economic damages due to extreme events were US\$ 48.06 billion during the period 1980-2010 – this corresponds to an average of US\$ 1.55 billion per annum during the same period, with the direct losses touching about 2% of India's GDP. The data mentioned above shows the growing position of the Indian insurance industry and its major contribution to economic growth. The data also talks about the economic loss caused due to natural disasters. The damage caused by to disaster can be covered by the appropriate and timely action of insurers. The paper tries to identify the role of insurance in maintaining sustainability by taking the environment, social, and governance factors (ESG) approach in its value chain. ESG has 17 valuable goals established by united nation in 2015 which is seen through the lens of sustainability like No poverty, Zero Hunger, Good Health, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy,



Decent Work and Economic Growth, Industry Innovation and Infrastructure, Reduced Inequalities, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Peace Justice and Strong Institution, Partnership for Goal. The insurance industry is working towards the following goals, i.e, No Poverty, Good Health, Affordable and Clean Energy, Responsible Consumption and Production, and Life on Land to be achieved. Altogether, it will help in mitigating climatic risk, increasing profitability, more stability, achieving resilience, and maintaining stakeholder expectations.

Due to the turbulent movement of the economy and drastic changes in climatic conditions, the insurance industry is more exposed to catastrophic risk. Investment, Risk management, Internal Audit, and Underwriting activities are directly affected. Industry is identifying and redesigning the specific segment of the value chain, considering ESG as a factor for sustainable development.



1.1 Concept of Sustainability

The existence of sustainability is almost as old and everlasting as the dismal science. In 1798, Malthus was concerned about how Britain would manage to rise in population from a finite amount of land. The International Union for Conservation of Nature and Natural Resources had internationally established the concept of sustainability and sustainable development in the World Conservation Strategy (IUCN) in 1980. This concept was more widely recognized through the Brundtland Commission's 1987 report. Commission defined Sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs “.



Concerning Sustainability launched a new agenda for development and environmental economies (Pezzey Toman 2002). The idea of CSR revamp by the concept that firm productivity is a product of productive intangibles. The mediating role of productivity is discovered between corporate social performance and financial performance (**Hasan, Kobeissi, Haizhiwang, 2018**). Financial conglomerates are better performers than individual insurers. Social and Ethical aspects of CSR are better integrated in the business activities of insurers than the environmental aspect (**Scholtens B 2011**). The Creation of the United Nations Environment Programme Financial Institution (UNEPFI) Initiative in 1992 gave a platform for discussion on Sustainable Development Goals (SDGs) in financial services.

The year 2010 marks the year of the green economy, with the capital market and finance playing a major role in the “Green New Deal”. The UNEPFI Insurance Working Group (IWG), an academic group, started a survey on understanding and integration of ESG factors in insurance underwriting and product development [3]. UNEPFI Principal for Sustainable Insurance (PSI) was launched at the UN Conference 2012. This initiative is a collaboration between the UN and the Insurance industry. Sustainable insurance is a strategic approach in which primary and secondary activities of the value chain are designed and performed by identifying, assessing, and monitoring risks associated with ESG factors. There are many articles on the application of this standard in the regular operational practice of the insurance industry. **Scordis et al. (2014)** are one of the first to put the PSI in the (general) literature on sustainability and value maximization.

As the financial world is changing rapidly and experiencing roller coaster movement: strategic alliances, on-demand products, demand-based delivery channel, rise of catastrophic risk, AI influence, big data base, technology intervention, etc. This situation leads to a focus on the value chain model of the insurer. The factors that will give direction to a working model of the insurance company in today's economy will be customer, technology, and environment. “A sound national insurance and reinsurance market is an essential characteristic of economic growth” (**UNCTAD, 1964**). Due to deregulation of the financial market, Insurance has a major role as a shock absorber, risk manager, and long-term investor for maintaining a sustainable and inclusive economy.



1.1 Impact of climate change on the insurance sector

- i. Insured property loss will increase after an extreme weather occurrence.
- ii. Climate change will affect the investment decision, specifically the long-term asset management.
- iii. Today's operation of the insurance sector will become more costly. After clearing up the claim, the reserve will be affected.
- iv. Underwriting will be affected.
- v. As sustainability is affecting the political environment

Challenges for sustainable insurance

Climate change, continuous decrease of renewable resources, a big gap between the above and below poverty line, and technological risks are some of the biggest sustainability challenges faced by the insurance industry.

1.2 Insurance and Its Value Chain Model

External demand and internal potential are giving birth to a new insurance structure which works on preventive measures using back casting, in which planning is attached to a goal, not with current situation.

Value chain is a systematic and fundamental approach to link and analyze the activities that create value addition and competitive advantage in this turbulent economy. Capon (2008) A value chain is “a string of units working together to satisfy market demands.” The value chain aims to add more to the bottom line of the company and reduce costs and achieve the managerial goal of the company. The value chain is flexible enough to adjust to changes in the service industry. Value chain model when ESG factors are proxied for value addition and attending to sustainability.



Redesign of the Value Chain Model from product supplier to service provider

Primary Activities	Old	Action performed	New Reality
<i>Product and Service Development</i>	Restricted product, inadequate consumer service.	Privatization Globalization Digitalization	Diversity of products: Usage-based insurance, i.e., Travel.
<i>Marketing</i>	Products were designed and marketed according to the set rules of the state and the advisory body	Focus on customer retention and building trust by brand management, increasing size through strategic collaboration. Focus on financial literacy	Product positioning and pricing according to demographic, psychographic, and geographical segments. Engaged the customer by using their sentiments.
<i>Distribution and Sales</i>	Rural areas were neglected, focusing only on urban and semi-urban areas. Agents were considered the most trusted people for selling insurance products.	A balance between direct selling, digital selling, agent selling, and through banks is proving to be balanced	Digital platforms for selling and information increased in number in urban and semi-urban urban compared to rural areas. Agents are more in rural areas for the sake of trust
<i>Underwriting</i>	As a policy, we were a regulation-based model product of the least competitive and stable environment.	Data-driven underwriting with the help of technologies Internet of Things. Insurance activities	Premium prices increased. Risk assessment is becoming a challenging task. More options to switch. The



	<p>Their risk assessment was easy.</p> <p>Accordingly, premium pricing was low</p>	<p>are interconnected with the financial system, so systematic risk plays an important role in risk assessment. Climate is a very vulnerable sustainability Risk, and catastrophic risk is also considered.</p>	<p>performance of the companies is judged based on ESG factors.</p>
<i>Claim Management</i>	<p>Many pending cases for claim settlement, increased operational cost of insurance companies, and Dissatisfied customers</p>	<p>Automation of the claim management process.</p> <p>Sustainable claim</p>	<p>Easy payment of clean claims, Rapid judicial working on disputed claims. The negative impact of the claim on the climate is reduced.</p> <p>The claim reporting process improves a Sustainable claim is both economical for an insurer and customer regarding property.</p>
<i>Investment Management</i>	<p>Investment is managed according to the direction given by the IRDA. The aim was to protect the capital.</p> <p>Maximum investment in govt</p>	<p>Macroeconomic factor influence: increased inflation rate, higher interest rate, Damage loss due to sudden climate change, implementation of</p>	<p>The aim is to generate profit along with the protection of the capital amount. Through the SDG approach, investment is made in green bonds, green infrastructure, and green</p>



	securities or companies has a trend of dividend payment from long-term	Sustainable investment	assets for the sustainable growth of the company and shareholders
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Value Chain: Supporting Activity

Risk management	Old	Action performed	New reality
	Assessment of risk was easy and manageable. The premium pricing was easy to calculate. More cushion capital was not much required	Risk occurring due to sudden climatic change gives rise to catastrophic risk. ESG factor for risk management	To cover catastrophic risk, alter its coverage condition, pricing, underwriting strategies, or method of capital management. The insurance company can increase its reserve or do more reinsurance. Funds available after a disaster help in the resilience of the society

Social inequality has having direct impact on the stability and resilience of the economy. Social insurance, such as Employee Provident Fund, Gratuity, and Inequality, gives protection against various risks like loss of income due to disability or sickness. If income gets minimized, it directly affects the potential growth of the economy. Microinsurance is designed to give protection to the rural section of society. Lee et al (2017) the researcher find that life insurance plays a role in mitigating social inequality, and non-life insurance plays a prominent role in promoting economic growth.



Problem Statement

The contribution of insurance is significant to the total wealth of the country. The supportive and risk management activity for the transition of society towards sustainability attracts the attention of various people and the government. As incremental improvement is witnessed by the insurance industry till 2000, under which problems were managed according to their impact. Problems were common in nature, identifiable, and concentrated in specific geographical areas. There was no seismic effect. After globalization, digitalization, and drastic changes in the environment, the problems are at a varied level and interconnected. Multiplier effect can be seen in different sectors of the economy due to the claim payment (**Bouakez et al.2022**). This study will help to get valuable information about the role of specific variable factors that directly influence the value chain of the insurance industry. These factors should be considered and controlled on a priority basis for achieving sustainability.

Aim of the Paper

The paper aims to study the adaptation of value chain models of insurance companies with the rise of catastrophic risk due to climate change. How insurance companies are helpful in reducing the aftereffects of a natural disaster. The role of an insurance company in maintaining social resilience and growing to achieve sustainability. For this purpose, articles had been collected from various databases. EBSCO, Google Scholar, Emerald.

Research Contribution

The paper highlights the various areas that need specific attention from insurers, insureds, investors, and stakeholders. It talks about customer-centric value chain models, which will help with more insurance penetration. Technology absorption, which helped in giving symmetric information. The pace with which the insurance industry is coping with climatic challenges and helping in maintaining the growth of the economy.

Paper Structure

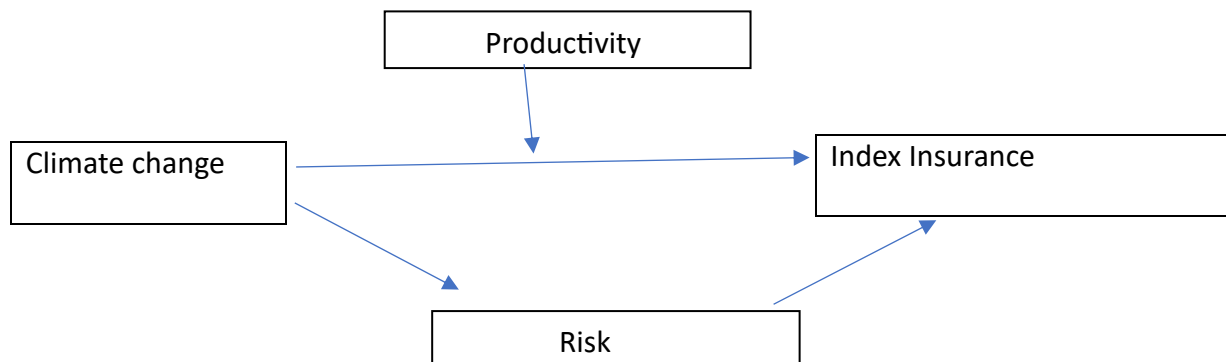
The paper is divided into three sections:

- Introduction, which gives a background for the research



- Literature Review and Research Methodology
- Conclusion of the research

Conceptual Framework



Climate change is an independent variable having a direct impact on the demand for Index insurance. (Index insurance is acknowledged as an adaptive strategic instrument to safeguard against the risk of reduced production due to climate change.) Demand for index insurance decreases when there is an extreme effect of climate change compared to a scenario of no climate change. When farmers face uncertain distribution of loss, they are not able to understand the benefit of insurance, and learning remains stuck to prior beliefs (**Partridge & Wagner, 2016; Daron Stainforth, 2016**). Productivity acts as a moderating factor on the link between environmental performance and climatic performance (Ramanathan, Ramakrishnan, 2016). Productivity is significantly affected by climate change, and it shows lots of variations depending on the operational efficiency of insurers. Different types of risk are growing and emerging due to climate change, which significantly affects the pricing of premiums and product design of index insurance (Pankaj Singh 2022). Catastrophic risk increases the cost of the premium. The benefits of Index insurance are highly influenced by the climate change phenomenon and environmental disasters like drought and flood, etc.

Literature Review

Literature Review consists of a structured and standardized identification process. Keywords used are “insurance” and “economy”, “sustainable insurance “and “value chain”, “insurance”



and “sustainability”, “insurance” and “risk”, “ESG” and “insurance”, “sustainability” and “growth” factors 30 papers are selected from 50 identified papers. Databases searched are EBSCOhost, Google Scholar.

Papers identified talked about the role of insurance in a growing economy and maintaining its sustainability. Challenges and opportunities faced by the insurance industry due to climate change have been overcome. Optimizing the value chain for implementing ESG factors in its management and operational activities.

The insurance sector has been increasingly recognized for its multifaceted role in driving sustainable development, promoting economic growth, mitigating climate risk, and adapting to technological and regulatory transformations. James Greyson (2006) introduced the concept of *precycling insurance*, a market-led decision-making tool that promotes sustainability before risks arise, aligning well with China’s proactive circular economy legislation. A.F. Dlugolecki (2000) addressed the initially slow response of the insurance industry towards climate change but argued that this would change as the sector began to realize the opportunities and threats embedded in environmental risks. This is further emphasized by Lukas Stricker (2022), who analyzed the emergence of *green insurance* in the property and casualty domain as a response to sustainable insurance principles, drawing a roadmap along the value chain to make insurers early movers in climate resilience. At the strategic level, Anton van Rossum (2002) questioned whether insurers should operate as specialists or conglomerates in the changing economic environment and highlighted the importance of optimizing the value chain by identifying high-value-creating segments. Parallely, Martin Eling and Davide Nuesle (2022) explored how Artificial Intelligence could revolutionize the insurance business model by enhancing predictive accuracy, minimizing asymmetric information, and transitioning from loss compensation to loss prevention—ultimately making operations more cost-efficient and risk-aware. The integration of AI was also studied by Martin Eling and Martin Lehmann (2018), who identified customer experience, product innovation, and inter-sector competition as key transformation zones in the insurance value chain. Focusing on sustainability, several studies explored the role of Environmental, Social, and Governance (ESG) factors. Laura Chiaramonte and Alberto Dreassi (2020) found that ESG-driven sustainability enhances the financial



stability of American life insurers, with environmental and social factors playing more influential roles than governance. Similarly, Flavio G. Nogueira and Andre F.P. Lucena (2017) presented an integrative ESG model, demonstrating a positive correlation between company size and ESG awareness in underwriting and risk management. The need for robust ESG implementation is echoed by Inna Khovrak (2020), who underscored the importance of improving ESG reporting and disclosure practices, while Silvia Bressan (2023) confirmed that insurers with strong ESG scores tend to have high operational leverage and deliver excess returns, thus creating long-term value for stakeholders. In the Indian context, G. Parvathi (2013) and Debabrata Jana (2020) explored how the liberalization of the insurance sector post-1991 contributed to economic growth. Their work revealed that indicators such as real premium growth rate, total investment, and claim settlement play a significant role in linking insurance to inclusive national development. Complementing this, Rahul Kanojia (2014) examined how sustainability in the Indian insurance sector faces several challenges, including regulatory compliance and strategic alignment. The contribution of insurance to economic development was also strongly emphasized by Patrick M. Liedtke (2007) and Gulzira Serikova and Yerkenazym Orynbassarova (2019), who underlined the sector's role in supporting income stability, savings, and investment as economies become more integrated. On the risk management front, Nadine Gatzert and Philipp Reichel (2020) explored the balance sheet implications of sustainable insurance, noting that opportunities in underwriting and investments are often hampered by data limitations and a lack of internal expertise. Nadine Gatzert (2020) further elaborated on the European insurance market, suggesting that while climate change presents an opportunity, transparency and access to reliable sustainability data remain key barriers. Ruslana Pikus and Natliia Prykaziuk (2018) investigated sustainability in the Ukrainian insurance sector, which is challenged by economic instability and shifting regulations. They identified a multi-layered risk management approach involving the qualitative and quantitative assessment of insurance, market, operational, and strategic risks to protect insurer solvency. From a regulatory and governance standpoint, Asier Garayeta and J. Inaki De la Pena (2022) examined the evolving solvency frameworks across global markets, concluding that the sustainability of these systems depends on a country's regulatory congruence. Meanwhile, Bert Scholtens (2011) revealed that although insurers have integrated



the social and ethical components of Corporate Social Responsibility (CSR), environmental factors still lag in implementation. In Taiwan, Chao-Chung Ho and Chih Huang (2018) emphasized that CSR practices must be driven by managerial commitment and legal compliance, particularly in a sustainability-focused insurance framework. Furthermore, studies by Marina Brogi and Antonella Cappiello (2022) and Karolina Pulawska and Wojciech Strzelczyk (2023) found that insurers with high profitability, solvency, and diversity in operations show higher ESG awareness and perform better in sustainable investments. In contrast, the systematic literature review by Laura L. Aburto Barrera and Joel Wagner (2022) revealed that while risk management, underwriting, and investment have received considerable research attention, critical areas such as claim management and sales remain underexplored in the context of ESG. Finally, studies like those by Mangulu Charan Dash (2018) and Seema Rawat and Aakankshu Rawat (2021) shed light on behavioral factors influencing insurance decisions, such as risk-bearing capacity, claim-filing motivations, and investment preferences in high-inflation environments. Moreover, Sussan Holliday and Inna Remizova (2021) underlined the insurance sector's potential in supporting the United Nations Sustainable Development Goals (SDGs) by facilitating risk transfer and enhancing economic and environmental resilience. The Intergovernmental Panel on Climate Change (IPCC), in its Sixth Assessment Report (2022), emphasized that agriculture had become increasingly vulnerable to climate-induced events such as droughts, floods, and extreme temperatures. The report underlined the importance of risk transfer mechanisms, particularly crop insurance, in mitigating the socio-economic impacts on farmers, especially in South Asia. According to the Insurance Regulatory and Development Authority of India (IRDAI) Annual Report (2023), significant progress had been made under the Pradhan Mantri Fasal Bima Yojana (PMFBY), including the adoption of technology for faster claim settlements and enhanced involvement of private insurers. However, challenges such as low insurance penetration and a persistent trust deficit among farmers continued to hinder the program's effectiveness. The report recommended further integration of satellite imagery and artificial intelligence for damage assessment to improve credibility and efficiency. Mahul and Stutley (2021) noted the growing relevance of parametric and index-based insurance solutions in economies vulnerable to climate change. Their study advocated for the use of climate data analytics to design sustainable



and resilient agricultural insurance products. Das and Sethi (2021) drew attention to several structural issues within India's crop insurance framework, including basis risk, delayed claim settlements, and ineffective grievance redressal mechanisms. They proposed a climate-smart insurance model aligned with the Sustainable Development Goals (SDGs), highlighting the need for public-private partnerships and the incorporation of agro-climatic zoning in risk evaluation. A global report by the FAO and OECD (2020), in collaboration with the Swiss Re Institute, showed that agriculture-related losses attributed to climate change had doubled over the past decade. The report emphasized the potential of digital technologies, blockchain solutions, and weather-indexed policies in enhancing the effectiveness and accessibility of agricultural insurance. Chatterjee and Singh (2023) conducted a state-level analysis of PMFBY's implementation and recommended the development of localized risk assessment models, increased stakeholder engagement, and the use of climate resilience indicators to better assess insurance outcomes. UNDP India (2022) documented pilot initiatives in Maharashtra and Odisha, demonstrating that bundled insurance products—combined with advisory services and climate-resilient technologies—had strengthened the capacity of marginal farmers to withstand climate-related shocks and recover more effectively. Narayanan (2021) provided a nuanced evaluation of the role of crop insurance in addressing farmer distress and suicides. The findings suggested that while insurance offered partial protection, it needed to be integrated within a broader risk management framework that included credit access, agricultural extension services, and improved irrigation infrastructure.

CONCLUSION

Climate change, such as an increase in sea level, shift in weather patterns, is forecasted to increase the occurrence and intensity of extreme weather aftereffects in India. It will create a big threat and challenge for the economy. Those who can identify the key trend of climate change can envision the definite opportunities. Based on the level of the need of the country and the risk to be insured against are agriculture, flood, earthquake, property, crops, and natural disaster. Insurer investment management focus will go for renewable sources of energy, green market, green infrastructure, etc. These areas will create new opportunities for underwriting. Natural hazards increase the loss potential of the insurer. They are trying to act proactively and



take prior initiatives. The insurance industry is trying to move from taking incremental steps to preventive steps. Zero waste, Sustainability, and stable economic growth can only be achieved by a preventive approach. Insurance plays a very eminent role in the economic development of the country by creating direct and indirect employment opportunities.

Due to increased literacy about sustainability awareness, levels of consumer, insurer, investor, and stakeholders are growing. They understand the positive impact of insurance on the adverse effects of climate change. Insurance companies are striving to achieve the goal of sustainability by implementing ESG factors for every activity of their value chain. ESG is the three pillars on which the insurance industry is trying to implement its brand value and trust in the eyes of customers, investors, and stakeholders. Although it is an ambitious approach in today's scene, it will be a prime necessity for the survival of future generations. The growth and stability of an insurance company has a positive relationship with sustainability. In the conceptual framework, productivity is identified as a moderating variable, and risk is identified as a mediating variable between climate change, an independent variable, and the demand for index insurance dependent variable. Although progressively people are becoming aware of the role of insurance in mitigating risk, there is a gap between the associated risk and the product offered. A few key barriers have been identified in these aspects, like illiteracy, asymmetric communication, hindrance of data, standardization of data, etc. Following the sustainability path is a real challenge at present for the insurance sector. A limitation of our study is research related to the database used, considering the topic.

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Strengthening Sustainable Corporate Governance Through Forensic Accounting Insights with Literature Review

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ABSTRACT

Purpose- The objective of this study is to investigate how forensic accounting affect sustainable corporate governance, fraud detection and prevention. This article provides a way ahead to tackle the numerous risks that can distress the organization and human. Forensic accounting aligned with ICAI Standards and sustainable corporate governance can accomplish, anticipate, and stop the fraud before organization reaches the point of no return.

Design/Methodology- For this study, forensic accounting is an independent variable and sustainable corporate governance & fraud prevention is the dependent variable. This study used a systematic literature review by analyzing the existing literature on forensic accounting and sustainable corporate governance and by recognizing the existing gap in the respective fields.

Findings- Results reveal that there is a positive relationship between forensic accounting and sustainable corporate governance. And it helps to resolve the unresolved issues, thus strengthening corporate governance.

Practical Implications- This study can assist law enforcement agencies, insurance companies, financial institutions, and professional bodies in modifying their codes of corporate governance and organization policies by adding sustainable corporate governance clauses and making forensic accounting a compulsory component of the governance system.

Originality- This certifies that the study article was produced independently and entirely by the researchers, as far as I am aware there are no prior studies conducted that verify the forensic accounting aligned with ICAI and how it affects sustainable corporate governance.

Keywords- *Sustainable Corporate Governance, Forensic Accounting, Fraud Prevention, Fraud Detection, financial crime, litigation support, digital forensic, ICAI Standards.*



INTRODUCTION

Frauds are increasing at an alarming rate; it is very important to stop it for sustainable development. Whether it is a developed or developing country no country remains unaffected by the virus of fraud. There is a negative relationship between fraud and development, and fraud can place a country in an unsustainable direction in which its assets and capital are ruined. The two primary pillars required for organizational successful business growth and business sustainability are sustainable corporate governance and fraud control (**Ali Rehman and Hasim, 2020**). In view of the fact of the organizational financial crimes, contemporary history observed and magnified concern for sustainability in corporate governance and to prevent fraud and financial crime activity on such a large scale, one must have expertise in fraud detection and that expertise can be achieved only with the complete knowledge of forensic accounting. Corporate sustainability's goal is to build long-term value for stakeholders by putting an ethical, social, cultural, environmental, and economic perspective on business strategy and operations. The tactics developed aimed to promote longevity, openness, and appropriate staff development in commercial organizations.

The four main pillars of corporate governance are:

Accountability: It's an assurance that an individual or organization is judged on its performance or behavior related to something for which it is responsible.

Transparency: Disclosing relevant information to stakeholders.

Fairness: The BOD must treat employees, shareholders, stakeholders, and other relevant parties equally without any discrimination.

The board must be aware of and support the successful, impartial ongoing performance of the company and risk management and it all affects the trust of stakeholders and board members' decisions.

To maintain sustainable corporate governance in companies forensic accounting must be implemented. Forensic accounting is a special branch of accounting that helps in the detection and prevention of fraud by examining the evidence and nature of financial crimes. Forensic accountant combines the skills and knowledge of accounting, auditing, and investigation techniques to detect, analyze, and study the nature & cause of frauds and financial crimes to present them as legal evidence in court to resolve cases. In now a days forensic accounting has gained a lot of importance because of the rapid increase in financial crimes and white-collar frauds. The auditor's job is to ensure whether the financial statements of the company comply with generally accepted



accounting principles, and auditing standards or not whereas forensic accountant detects frauds in financial statements. Because of this new branch of accounting has emerged to detect and prevent fraud. With the use of forensic accounting techniques like trend analysis, ratio analysis, CAATs (computer-assisted auditing techniques), generalized audit software, data mining techniques, and forensic analysis of material and electronic evidence, forensic accounting is a dynamic and strategic tool that aids in the fight against corruption, financial crimes, and frauds (**Jonika Lamba & Esha Jain, 2020**). In India, frauds are increasing rapidly because of the inadequacy of proper rules and regulations for punishing fraudsters and poor monitoring and auditing of financial statements. Companies should follow the rules and regulations so that they are not open to penalties and litigation against them, and it will help companies to retain their goodwill in the market and to grow sustainably. White-collar fraud can be controlled with the help of an accountant who has expertise in forensic accounting and auditing. Three important functions of forensic accounting are litigation support, investigation, and dispute resolution. Litigation support is an invaluable function of forensic accounting. A forensic accountant helps in extracting information that is not noticeable or suspicious to others. ICAI has brought FAIS (forensic accounting and investigation standards) effective from 1st July 2023 to unify the financial reporting and to safeguard the trust of interested parties. India is the first country to issue FSAI standards. Till now around 20 FAIS have been issued by the digital accounting and assurance board (DAAB) of ICAI. FAIS standards explain what to include in financial reports, accounting, and auditing policies like forensic accounting and investigation standard no. 230 which deals with the responsibility of the professional concerning the use of an expert to assist in collecting relevant and reliable information, FAIS no.240 which deals with engaging with agencies, etc. These standards are designed to be beneficial for law enforcement agencies such as CBI, RBI, SFIO, banks, corporate entities, regulators, and other end users of these financial reports on standardizing the exercise and to illuminate the basic principles to be followed by members while auditing and acts as a performance benchmark. These standards state the principal subjective actions for conducting an inspection. As per the Reserve bank of India, it is mandatory to have forensic accounting audits for credit disclosure above rupees 200 crore taking into consideration that it was demanding for the reports to be permissible in courts of justice as there was no standard or similar process in such cases.



Forensic accounting can be used in many categories to detect fraud and white-collar crimes example:

- Tax fraud,
- money laundering,
- cash embezzlement,
- cyber-crime frauds,
- securities fraud,
- economic damages calculation,
- bankruptcy,
- insurance fraud,
- financial statement fraud etc.

No matter what method is followed for committing fraud the result is always the loss of money or profit. Some of the major frauds in India are the 2G spectrum case, the Vijay Malaya case, the Harshad Mehta scam, the Satyam scandal, the Punjab National Bank scam, the ABG shipyard scam, and many more. As per Times of India news India lost rupees 100 crore to banking fraud every day for the duration of the past seven years.

Table 1: Summary of various fraud survey reports

REPORTS	IMPORTANT FINDINGS
AUTHORITY ACFE Occupational Fraud 2022: A Report to the Nations	It's a greater anti-fraud community, in their 12 th edition of the report they covered 2110 cases from 133 countries which caused a total loss of more than \$3.6 billion. As per this report, the typical organization Loses 5% of revenue to fraud each year, median loss per case of \$117000 and an average loss cost of \$1783000. Asset misappropriation is 86% of frauds are the most common but least costly \$100000 and financial statement frauds are 9% least common but most costly \$593000.



PWC's Fraud Survey 2022	For this survey, 112 companies from diverse industries were taken. As per this report, 52% of Indian organizations suffered fraud or financial crime within the last 24 months. 40% of these companies lost between USD 50000-100000, 17% of companies lost between USD 1million-50 million, and 5% suffered a loss of USD 50 million and above. As per this survey top 5 frauds that affect organizations are customer fraud, cybercrime, KYC failure, tax fraud, and procurement fraud.
2023 AFP payments fraud and control survey report	The report from the 2023 AFP payments fraud and control survey in 2022, attacks or attempts at payment fraud affected 65% of the organizations that experienced payment fraud, either actual or attempted, were victims of business email compromise (BCE). The survey was completed by over 450 treasury practitioners. 63% of respondents agreed that cheques remain the payment method that is most susceptible to fraud. 27% of the victims of fraud organizations were able to recover at least 75% of the lost funds but almost half 44% failed to recover any money.
CII-Kroll India Fraud Survey Second Edition 2021	The COVID-19 Pandemic has worsened the economy. As per this survey, 65% of companies reported that they have become victim of fraud in this pandemic. As in comparison to the fraud survey report in 2019 and 2021 fraud triggered by conflict of interest increased from 10% to 26% and supply chain



	frauds went to 14% from 5%. Two out of three companies experienced at least one fraud event as compared to 57% earlier. survey reports that 57% of companies think that the biggest impact of fraud on their business is reputation damage to counter fraud 65% of companies have strengthened IT security.
STATISTA 2023 public opinion on experiencing financial fraud in the last three years in India from May 2023	In this survey total of 11873 respondents participated out of which 30% of the respondents reported that they or one of their family members had been victims of financial fraud in the last three years 9% reported that they become victims of fraud multiple times in past three years. As per RBI banking report total of 5046 fraud cases were reported in the first half of fin. Year 2023.

Source: Compiled by author from various published resource

From the above table, we can understand that fraud is accelerating rapidly especially because of a pandemic. During the pandemic companies, institutions, people, economy all were under pressure which motivated the fraudsters to act. As the fraud environment increases and to control and minimize white-collar crime companies should ensure sustainable corporate governance by ensuring an effective board of directors, regular evaluation of financial statements & performance of directors, and proper transparency by sharing clear and as it is information to stakeholders including shareholders and outsiders, by ensuring board of directors & auditors independence and is not afraid to think out of the box.

Corporate governance states how the company is directed and controlled there are various theories that states the importance of corporate governance and how it works some of them are:

1. Agency theory
2. Stewardship theory
3. Stakeholders' theory

4. Resource dependency theory
5. Transaction cost theory and
6. Political theory.

BIGGEST FINANCIAL SCAMS IN INDIA ARE:

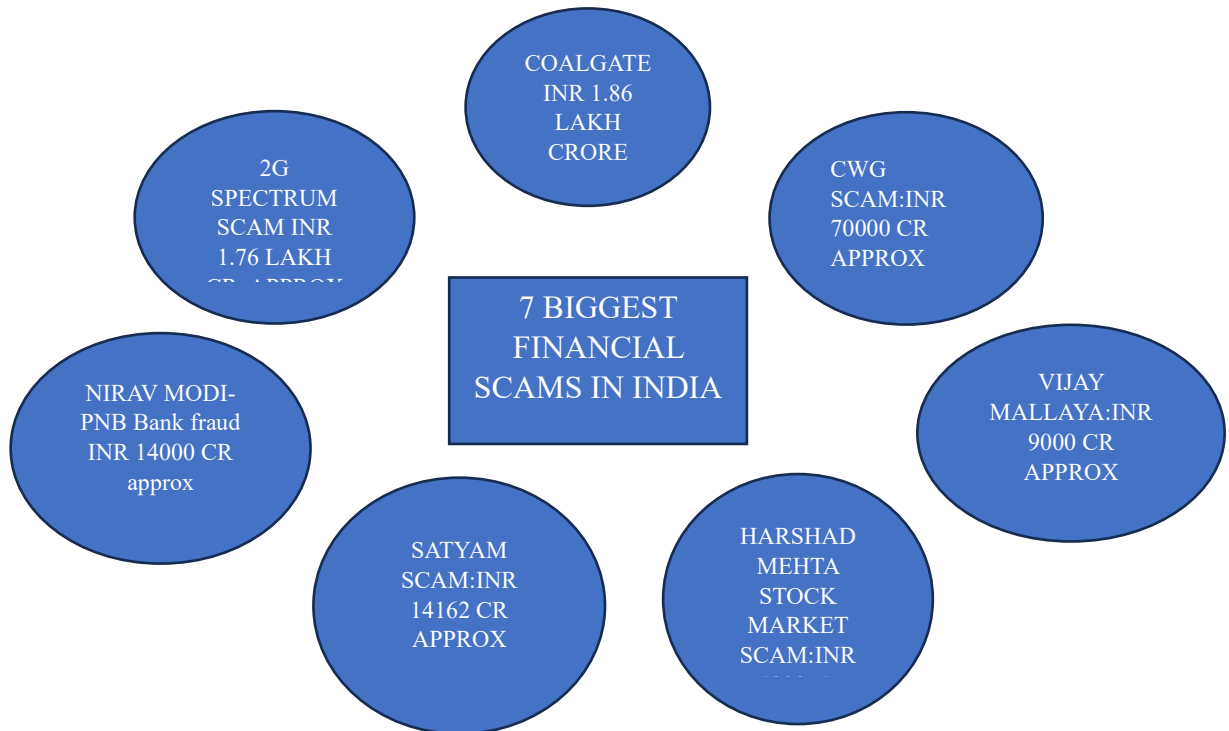


Figure 1: *Biggest financial scams in India*

- I. **COALGATE SCAM INR 1.86 Lakh crore:** It's a significant political controversy involving the distribution of the country's coal reserves to private and public sector enterprises (PSEs) by the Indian government. The CAG office accused the Indian government of assigning coal blocks in an inefficacious way between 2004-2009 in a preliminary report released in March 2012. The draft reports most important sections are found in chapter 5 where the CAG alleges that:
 - Instead of using the screening committee to distribute coal blocks, the government was legally able to do so in 2005 but it chose not to.



- Public and Private corporations received “windfall gains of INR 10673 billion because of its inability to auction the coal blocks; private companies received INR 4795 and government companies received INR 5078 billion (55%).
- II. 2G SPECTRUM SCAM INR 1.76 lakh crore:** A Raja telecom minister in the year 2007 was charged with selling 2G Spectrum licenses for extremely low prices causing the government to lose out on INR 1760 billion. According to the CAG report, all the demand drafts were backdated, which suggests that the telecom operator was already aware of the licenses that were going to be granted.
- III. NIRAV MODI PNB- BANK FRAUD INR 14000 CRORE APPROX:** Second largest bank in the public sector PNB bank disclosed that two of its employees were involved in a fraudulent scheme that resulted in a loss of around INR 11400 crore. The fake letter of undertaking valued at INR 12000 crore, that PNB issued at its Brady house branch in Fort Mumbai, is the subject of the PNB fraud case.
- IV. SATYAM SCAM INR 14162:** Up until 2010, the Satyam computer services scam was the biggest corporate fraud in India. The executors, directors, and founder of the outsourcing business Satyam Computer Services, situated in India, inflated the share price, fabricated the accounting, and embezzled substantial sums of money from the business. Most of this was used to buy real estate.
- V. HARSHAD MEHTA STOCK MARKET SCAM:** Mehta was found guilty of only 4 of the 27 criminal counts that were brought against him before he passed away suddenly from a heart attack in 2001 at age 47. Mehta was accused of a large-scale manipulation operation that was funded by worthless bank receipts that his company arranged for banks to attract in ready-forward transactions.
- VI. VIJAY MALLAYA SCAM:** United Spirits is the owner of Kingfisher. The chairman of United Spirits is Vijay Mallya. Mallya is accused of money laundering and fraud in India, where he is indebted to 17 Indian banks INR 9000 crore (LAPASS Blog).
- VII. CWG SCAM:** Indian media and investigative organizations have brought attention to several 2010 Commonwealth Games-related issues, including grave corruption by game officials. It cost a total loss of 70000 crore approx.



LITERATURE REVIEW

Table 2: The following table represents the existing literature on forensic accounting.

AUTHOR	AREA	FOCUS	METHODOLOGY	FINDINGS
1. Bhavik Umakanth swadia, baxi minouti kaivalya (2010)	India	This study highlighted the functions of forensic accounting for financial fraud and other economic offenses.	Descriptive, based on secondary data	A forensic accountant needs a variety of skills like technical accounting, critical thinking, time management, deductive analysis, diagnostic composure, diagnostic unstructured problem solving, and fraud risk assessment.
2. Zabihiullah rezaae, larry, Robert (2004)	US	Academicians' and practitioners' views on the significance, applicability, and delivery of FA education are collected in this study.	both secondary and primary(questionnaire) data were used.	To a further extent universities are planning to offer forensic accounting education and demand for FA is anticipated to rise both the respondents have



				the opinion that FA education is pertinent and advantageous to accounting students, the accounting profession, and the business community.
3.Maryjo, Timothy, Bonnie, Richard (2008)	US	This paper has focussed on creating a model of curriculum and courses for forensic accounting.	Experimental study	The model for the curriculum was developed in three main phases. This project was supported by the National Institute of Justice (NIJ) the research, development, and evaluation agency of the US Department of Justice.
4.Lester E Heitger, Dan L. Heitger (2008)	US	To verify various features of forensic accounting and to direct the special educational experiences that	Based on secondary sources.	In this study author suggested how faculty can provide an effective learning environment by



		appear from forensic accounting courses.		carefully constructing the forensic accounting courses in an interesting way that comes up with an essential beginning for practicing forensic accounting services.
5. Prof. Shimoli Dhami (2008)	India	To identify the skills and tools required to become forensic accountant.	Based on secondary sources	Only those possessing these abilities, bravery, and knowledge of concealment may succeed in the forensic accounting investigative procedure.
6.Nisha Chaturvedi (2015)	India	Need, concept, and role in measuring white collar frauds of forensic accounting.	Secondary source and convenience sampling were used.	They examined the meaning, components, and use of forensic accounting. Various big scams that happened in India were discussed.



7. R. Parth Bhatt and Prof. Dr. K. Bhatt (2007)	India	The purpose is to shed light on forensic accounting, its history, functions, methods, and the current state of FA in India.	Based on secondary sources and previous studies conducted.	A three-fold approach to forensic accounting and techniques of forensic accounting was discussed.
8. Murat Cihan Sorkun and Taner (2017)	Turkey	This study focussed on data mining methods to find fraud in e-ledgers through financial statements.	Both secondary and survey method was used.	Decision stump has been the most fruitful algorithm. Another algorithm that was successful was J48, random forest, and decision table.
9. Hrashini and Prabath Perera (2020)	Sri Lanka	Systematically analyzed the existing literature on FA and identified the existing gaps	The systematic literature review (SLR) method and PRISMA method are used to analyze the data.	The demand for forensic accounting outpaces the supply. A forensic accountant ought to be knowledgeable in several fields. big data modules must be added to the forensic accounting curriculum.



10.Jonika Lamba and Dr. Esha Jain (2020)	India	Presents the application of information technology and cybercrime forensics to curb fraud.	Existing literature study	Various techniques such as benchmarking, ratio analysis, specialist software, system analysis, etc discussed. the roles of forensic auditors are also explained.
11.Bonita, Michael and Georgiy (2017)	US	Focussed on the views of accountants, educators, and practitioners regarding forensic accounting.	A survey and univariate analysis were conducted.	Scholars and professionals strongly agree that forensic accounting needs to be a part of the curriculum because it is a growing topic in which students' interest is high. To enable teaching additional of non-traditional accounting topics in course of forensic accounting like computer science, law, justice,



				information technology etc.
12.Abdulrahman.S (2019)	Nigeria	This paper focussed on whether forensic accounting deters fraud in Nigerian public sector, as well as how it does so.	Conceptual paper, Secondary sources or content analysis	As per this paper additional measures should be implemented to guarantee fraud prevention using forensic accounting. A comprehensive and efficient legal structure should be created for efficient enforcement.
13.Dr. Madan Bhasin (2013)	Kazakhstan	Aim is to know is there a difference in accounting practitioners, academics and consumers of forensic accounting about the pertinent abilities of forensic accountants.	Both primary (questionnaire) and secondary data was used.	study's findings define the necessary abilities to go along with a forensic accounting curriculum, they may be able to help educators build curricula.



14. Augustin and Mrs Rose Mary (2014)	Nigeria	This study presents the opinions of Nigerian accounting and academics professionals regarding the growth and use of forensic accounting in Nigeria today.	Exploratory study	This study makes several recommendations, including that nigerian professional associations and the government provide forensic accounting a specific place in the law and unique professional status.
15.nornajihah and shazali (2022)	Malaysia	Examined the global research trend in forensic accounting.	Secondary data, bibliometric analysis, and VOS viewer.	This study suggested that during past 6 years publications pertaining to forensic accounting has increased, most of the contributions from united states and Canada and the type of forensic accounting such as litigation support, expert witness and fraud investigation



				is also determined in this study.
16.Ms. Nirali Dev (2023)	India	Focussed on certificate course forensic accounting and fraud detection (FAFD) incorporated by ICAI for practicing CAs.	Descriptive study, secondary data.	ICAI's forensic accounting and fraud detection certification course aims to equip accountants with the knowledge and abilities needed to recognise, prevent, and prosecute economic crimes.
17.Hashem Alshurafat, Mohannad Obeid, Ibrahim Mansour (2021)	Jordan	Highlights the strength and weakness of forensic accounting education and profession.	Existing literature review	Advantages are growing demand and need for it, the new career path it offers and the decrease in fraud are its strong points. Lack of specialised research journal, lack of control over entry into the profession, absence of regulation, lack of



				highly qualified practitioners and educators etc are weak points of forensic accounting.
18.Ika sahari and Hashana haron (2020)	Malaysia	This paper presents the value of adopting good governance to achieve accountability, transparency and enhance the effectiveness of performance.	Convenience sampling, least square structural equation modelling statistical software, existing literature review.	This study suggests that institution should adopt stakeholder theory. SSB needs to ensure a diversity in the director and management board of zakat for better governance and should adopt regular auditing.
19.Saloman Ricardo, Joshua Onome, Luciane (2023)	Brazil	This paper focussed on role of connectors in a fraud and corruption prone environment of circular economy.	Surveys, interview, and literature review	This research demonstrated the significant role that connectors have in relation to dishonest and corruption behaviour. Author also demonstrates the the connectors capacity to motivate a team



				and manipulate others likely by invoking Machiavellianism- while serving as the focal point of group discussion.
20.Pawan Kumar Gupta (2022)	India	This paper examines the theoretical underpinnings of forensic accounting, its application and advancement, the relevant authorities, and recommendations for improved forensic accounting implementation from an Indian standpoint.	Existing literature review	Various fraud survey reports results were discussed. Potential dangers and risk to organisations were identified in FICCI and Pinkertons IRS 2021 report which also released the India risk survey 2021 report. The 12 risk variables from the basis of India risk survey 2021. The corruption, bribery and corporate fraud elements which ranks 10 th in the report is noted to be



				significant in 2021.
21.Ali Rehman and Fathiyah Hashem (2020)	Malaysia	The aim of this paper is the calculation of forensic accounting impact on sustainable corporate governance inside Omani public listed companies.	Descriptive cross sectional survey design, analysed using partial least square structural equational model, PLS SEM.	The findings indicate that FA significantly influences SCG directly additionally FA can be incorporated into governance management to help attain SCG and eradicate fraud. This study has identified three elements required for SCG whereas prior related studies only verified one component.
22.Harish Kumar and Pinki (2022)	India	The study's goal is to give a thorough evaluation of the existing literature by examining the body of	Systematic literature review, Scopus database during 2002-2021.	Except for a very small number of papers, there is little research on the development, application or utility of forensic



		knowledge on forensic accounting and corporate governance and identifying any gaps in those domains.		accounting or any other fraud detection methods beside whistleblowing. Instead they found that in the limited literature, various aspects of corporate governance, rules and regulations are directly or indirectly related to corporate frauds, misgovernance and misstatement in the monetary reporting of the corporations.
23.Dr. Madan Lal Bhasin (2017)	Malaysia	Its to find out how can we combine the proficiency of forensic accounting to enhance overall corporate governance	Explanatory, Questionnaire based survey,	The most crucial abilities to become CFAs are critical thinking, writing and spoken communication, legal knowledge, auditing abilities, deductive analysis



		scenario common in India.		and unstructured problem solving.
24.Neetu Singh and Anjali (2022)	India	This study examined the function of forensic accounting in maintaining sound corporate governance and investigated the potential benefits of forensic accounting and corporate governance integration for financial crime investigation and prevention.	Theoretical research	This study concluded that the organisation will be better able to create a transparent internal control system, maintain transparency by releasing all relevant information, and create a clear and ideal CG policy with the assistance of forensic accounting.
25.Clement Olatunji and Temidayo (2018)	Nigeria	This study looked at how corporate governance in Ekiti state was affected by forensic accounting and inquiry.	Structured questionnaire	Forensic accounting and investigation improved the corporate governance group by 76.2 percent were appropriately classified;



				altogether the percentage was 80.4 percent. This represented a significant improvement above the 54.5 percent right categorization that resulted from the model's omission of important independent factors including fraud detection, internal control and financial report quality.
26.Vedrana Vukovic and Jelena Cevlic and Blaz Cevlic (2018)	Slovenia	Focussed on the use of FA in the account statements of the company to improve the accuracy and legitimacy of the accounting data provided and allow for more effective corporate	Literature review and survey	The probability of fraud is higher vulnerable with bad corporate governance and low corporate culture. The result of experimental research is emulated in the scientifically justified way of finding the



		management for users, managers, entrepreneurs, and possible investors.		connection between forensic accounting and financial reporting to attain more effective and efficient corporate governance.
27.Obiara, Onuara and Okpala (2022)	Nigeria	This study investigated the utilisation of forensic accounting and CSR in Nigerian listed enterprises.	Descriptive research design.	It has been observed that socially conscious businesses generate more profits as, at their core, all businesses want to maximise profits to fulfil the demands of their shareholders. This paper also suggested for rotation of employees so second employee reviews the work done in forma. Furthermore, it was recommended that the companies should reveal



				more of this information in their annual reports.
28.Meenu Gupta, Prof. Pradeep Kumar Aggarwal and Rekha Gupta (2023)	India	The goal of this paper is to evaluate the most recent fraud case involving ABG shipyard limited. Which was more significant and widespread than any other fraud case in India's history.	Both quantitative and qualitative methods used.	The report concludes that the primary sources of fraud include self-dealing promoters, tunnelling, negligent auditors, and poor management. It is recommended to utilise forensic accounting and auditing in concert to discover and prevent frauds, as conventional audits have consistently shown to be useless in this regard.



29. Aggelia Xanthupoulou, Patros kalantonis and Christos Kallandrani S (2023)	West Attica	The current study aims to demonstrate the framework of forensic accounting execution to counter fraud risk and crimes and enhance the efficacy of corporate governance in fraud detection.	Descriptive study	This study inspected the methods, expertise and ways that corporate governance and forensic accounting interact to stop fraudulent activities.
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Theoretical framework

Three main areas of forensic accounting are litigation support, investigation, and dispute resolution (as per CG team).

Litigation support: It offers accounting support in a case involving ongoing or upcoming legal action. It mainly addresses problems pertaining to the estimation of economic damages. To calculate economic damages, forensic accountant is also required to examine and evaluate evidence from contracts, financial accounts, tax returns, emails, and other documents. The aim is to find out how much a person, business or other organization has lost financially because of another's activities particularly considering potential legal ramifications.

Investigation of fraud: The globalisation of the industry, technological advancement, accounting knowledge manipulation, and massive everyday company transactions that could result in complicated situations are some of the factors that have contributed to commercial fraud. Because of these circumstances there is ample need of investigation (AG Kaifah et al, 2022) Forensic accountant tries to expose evidence of financial misconduct or fraud by doing in depth investigation of financial statement.

Dispute Resolution: Forensic accounting plays a crucial role in dispute resolution by examining financial records, identifying discrepancies, and providing expert analysis. It helps in exposing and uncover financial misconduct or irregularities, providing a solid foundation for legal proceedings. Forensic accounting by providing litigation, investigation and dispute resolution services helps in detection of irregularities, risk mitigation, compliance assurance, preventing fraud and dispute resolution which contributes to sustainable corporate governance.

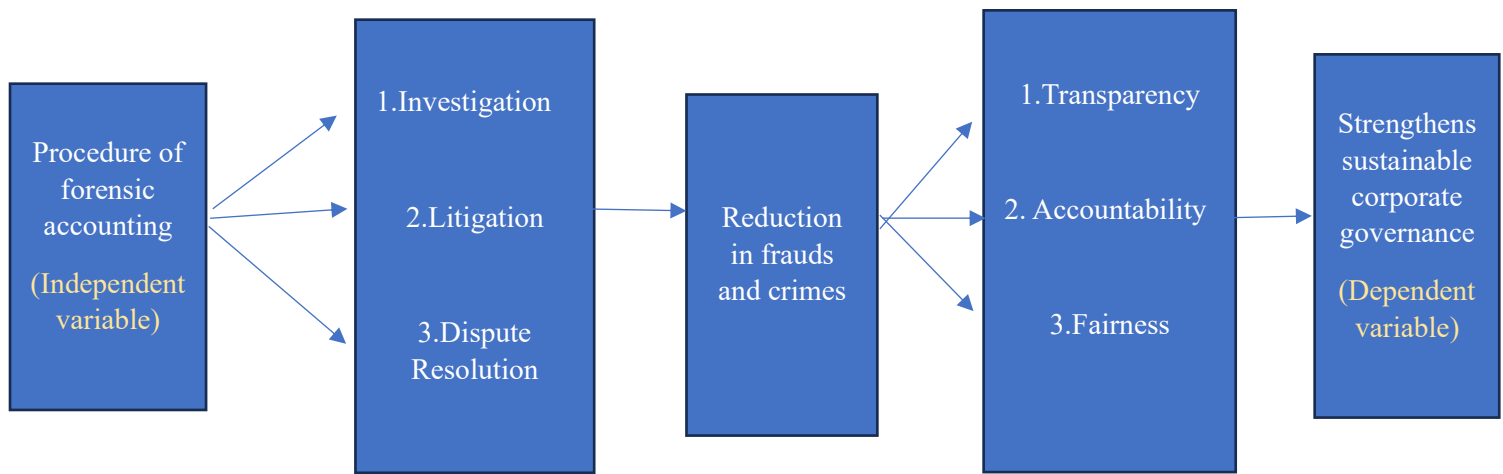


Figure2: Theoretical framework representing the impact forensic accounting for ensuring sustainable corporate governance.

According to Allias et al. (2017) sustainable corporate governance gives businesses ambitious edge in terms of growing their market share and helps them minimise risk, which incorporate fraud risk. As per Robert et al. (2103) SCG also helps firms avoid misconduct and unfavourable externalities. However, as they are eventually in charge of maintaining fraud free environment and satisfying shareholders, organisations need the involvement of board of directors (Jones and Thompson, 2012) and other governance administration activities to prevent dishonesty, negative face, and fraud risk.

Governance management needs the expertise of forensic accounting to prevent fraud and create anti-fraud measures, which can ultimately help achieve sound and long-lasting corporate governance (Smith, 2016; Rehman and Hashim, 2019). SCG is essential to satisfying shareholders, who also want that their organisational procedures and financial statements be free from fraud and



associated practices. Forensic accounting can supply this gratification which will improve organisational opportunities to reach SCG (Rehman and Hashim, 2020).

METHODOLOGY

This study is descriptive study. It's based on existing literature on the topic forensic accounting and how it ensures sustainable corporate governance. A systematic method for reviewing previous research papers created by prior scholars is called a systematic literature review (Haneem, Ali et al.,2017). Data was collected from secondary sources like e journals, websites, reports, books. The articles were selected using keywords like forensic accounting, fraud, sustainable corporate governance, fraud prevention and fraud detection. The following diagram presents sub field of selected literature as forty one percent (12 Articles) describing what, why and trends in forensic accounting, thirty five percent (10 Articles) describing impact of forensic accounting in ensuring sustainable corporate governance and twenty four percent (7 Articles) the awareness and education level of forensic accounting.

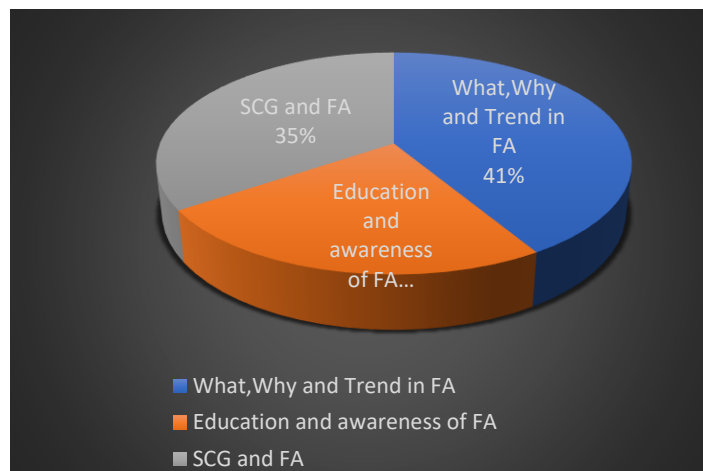


Figure 3: Categorization of Research Articles

LIMITATIONS OF STUDY

This study is completely based on an existing literature review, no empirical or practical research was conducted which can limit the conclusion, variability in the quality of studies included in the literature review has also impacted the overall reliability of the findings and major limitation is the availability of the data as limited access to certain datasets or information has also constrain the depth of analysis.



CONCLUSION

Forensic accounting plays a pivotal role in ensuring sustainable corporate governance by providing a robust framework for detecting and preventing financial fraud. Through meticulous examination and analysis, forensic accountants contribute to transparency, accountability, and ethical conduct within organizations. By identifying irregularities and implementing preventative measures, they safeguard the integrity of financial systems, fostering long-term corporate sustainability and trust among stakeholders. In essence, the integration of forensic accounting practices is instrumental in upholding the principles of good governance, ultimately fortifying the foundation for a resilient and responsible corporate environment. The literature incorporated herein consists of around thirty articles from renowned databases and various fraud survey reports. There is incredibly less research on examining the relationship between SCG and FA, the results recovered were only 18 articles when we narrowed down our search on the databases to only “corporate governance” and “forensic accounting”. Ninety percent of research has been conducted in established or emerging countries, indicating that there is significant geographic disparity in this sector; therefore, undeveloped or developing economies have a plethora of opportunities to pursue research in this domain.

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Hauz Khas Village (Delhi): A Peek into Affective and Cognitive Image from Place Marketing Perspective

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ABSTRACT

India attracts millions of tourists every year due to its diverse and rich culture and history. It is home to various historic sites. Hauz Khas Village (HKV) in South Delhi is a modern urban village having affluent and chic personality while retaining the old charm of medieval times through tombs, the royal tank (i.e., Hauz Khas; now a beautiful lake) and other synecdoches of archeological splendor. Present study is an attempt to understand the current image of HKV in the minds of residents and visitors of the place. To accomplish this; primary data was collected from 257 respondents through convenience sampling using a well-designed questionnaire having closed questions to elicit 'Affective' and 'Cognitive' image of HKV, along with one open ended question to understand the overall image. The paper also provides recommendations for future research and place marketing practitioners.

Keywords: *Hauz Khas Village, Affective Image, Cognitive Image, Place Marketing, Place Image.*

JEL classification: *M31, M37, Z33*



INTRODUCTION

The ability of tourism sector to create jobs and its spillover effects on a number of related industries are well established in the available literature (Kandampully, 2000). Tourism industry is a major source of revenue in India with a contribution worth INR 15.7 trillion to the economy in 2022 (World Travel & Tourism Council). There is an intense competition among places to project their perceived images in a positive and enticing manner and to repel the rival places. These demands developing a positive image in the minds of various stakeholders of a place (residents, visitors etc.) through appropriate place marketing strategies. And for this, understanding of place image is essential. The present study is an attempt to understand the ‘Cognitive place image’ and ‘Affective place image’ of Hauz Khas Village (HKV), an urban village in South Delhi, New Delhi, India. Destination image or place image is the most sought after research topic in tourism research. The perception of stakeholders defines the mightiness of a place’s strengths and call for action to reduce weaknesses. Most of the studies have taken into account the visitors’ image and have ignored residents’ perceived image of a place. In the present study, image of HKV has been studied from both perspectives to have a holistic view of overall image of HKV. HKV has huge potential for cultural and historical tourism besides being a place known for clubbing, partying, shopping and hanging out. There is lack of empirical research on place image of HKV. The present paper shall help the place marketing practitioners to understand the current image of HKV and thereby develop a suitable marketing plan to position it on global tourism map.

LITERATURE REVIEW

Place image is the culmination of people’s ideas, perceptions and beliefs about a certain place (Kotler et al., 1994). It may be regarded as ‘connotations’ that distinct locations and areas have irrespective of their actual characteristics (Shields, 2013). Places must figure out how to stand out from the competition and where they fit into the relative positions in the minds of their target markets. Stakeholders can differentiate or characterize a destination in terms of cognitive, affective and conative elements that make up the place image. A place’s image is shaped by its geography, history, music, art, notable citizens or residents and other elements (Herstein, 2012).

Three interconnected elements make up the place image.

1. Cognitive i.e., individual’s beliefs and knowledge about the attributes of a place.
2. Affective i.e., emotional connect or sense of place.



3. Conative i.e., behavioral intent of place image. It is the individual's intention to revisit the place or recommend others to visit.

Perceived image of a place depends upon the attractions that it offers, infrastructure, recreational facilities, historic and cultural hues, overall environment (including natural, political, social environment). These factors dominate the cognitive element of image. Whereas affective image is composed of feelings, emotions and impressions about a place (Baloglu & McCleary, 1999; Hosany et al., 2007). It is generally believed that cognitive component impacts the affective component (Beerli & Martin, 2004; Gallarza et al., 2002; Lin et al., 2007; Stern & Krakover, 1993; Zenker & Braun, 2017). And these two make the perceived image that ultimately leads to behavioral part i.e., conative element. The evaluation of a place's image is viewed as a fundamental component of place marketing since it provides perceptions, connotations and visual imagery that convey the good and bad aspects of a place from the perspectives of potential tourists and others (Yang et al., 2022).

Place image is important for a variety of reasons, including drawing in tourists and highly trained personnel, motivating authorities and investors to fund the development projects for a place, and fostering civic pride and self-assurance among locals. For the locals, tourist destination is the core of commercial activities through which they earn their livelihoods, a place where they raise their family and a place of community engagement. As a result, the perceptions that locals have of a place may be nuanced and varied (Stylidis et al., 2016). Therefore it is imperative to analyze stakeholders' image that can provide local knowledge which could be used to design apt marketing strategies that are beneficial for both visitors as well as residents. Places are crucial to the formation of an individual's identity because they influence how they connect with and differentiate from others as well as how they perceive and express who they are in their social context (Strandberg et al., 2020). In developing an overall image of a place and on the desire to recommend it, emotive image has a stronger influence than cognitive (Stylidis et al., 2017). Former is more closely related to perks and advantages, whereas the latter is related to beliefs and dispositions.

HKV which is lined with domed tombs of Muslim rulers from the 14th to the 16th centuries was converted into a fashionable residential and commercial neighborhood. It is home to a variety of fine art galleries, luxury stores, cafes, bars & restaurants. HKV is currently retaining its modern chic appeal through the blend of its glorified history and modern urban look. Green Park, South Extension, Greater Kailash are all close to the village complex. Prominent and esteemed establishments including IIT, NIFT, JNU, IIFT and AIIMS are located nearby. HKV combines natural habitat with metropolitan experience. It is not like a conventional retail mall or a big



glamorous showroom with a well-defined and straightforward layout and architecture. It has historical and cultural roots that need to be promoted. There are many historical monuments in HKV complex (like **Dadi poti tomb, Sakri gumti**). Some are in the deer park (like **Bagh-i-Alam ka gumbad, Tohfe wala gumbad and Kali Gumti**) and the major ones are in the HKV complex/fort (like **Madrasa, Firoz Shah Tughlaq's tomb, Three domed building**). HKV has a *beautiful lake* and *huge green area*. Not everything about HKV is ideal or perfect. There are certain odds that need to be addressed such as parking problems, congestion, unregulated development, entangled electric wirings etc. This place has potential to become a popular tourist destination.

OBJECTIVES OF THE STUDY

1. To examine the perceived image of HKV within 'cognitive' and 'affective' dimensions and overall image of HKV.
2. To analyze whether the present image of HKV is positive or negative.
3. To provide marketing insights for place marketers and suggest directions for future research.

RESEARCH METHODOLOGY

The purpose of this study is to examine the cognitive and affective image of HKV in the minds of its visitors and residents. Both quantitative and qualitative research approach are used for the same. The available literature on place image is huge and extensive but conceptual, having only a few scale/instruments to measure the same. Therefore a questionnaire based on existing scales in the literature on cognitive and affective place image was developed with few modifications to adapt to the present context. A pilot study was conducted with 40 respondents including 3 academicians. Based on their feedback and reliability test (cronbach's α), 2 items were deleted. Final questionnaire had 4 items to assess Affective Image (AI) and 8 items to understand Cognitive Image (CI). The responses were measured through 5-point semantic differential scale. Each response was one mark along a 5-point scale for each bipolar pair.

AI and CI scales are adapted from (Hosany et al., 2007). One open ended question was also asked to understand the overall image of HKV. Convenience sampling was used to collect the data. 257 valid responses were found eligible for further analysis. Hence valid sample size for the present study is 257.



DATA ANALYSIS AND FINDINGS

1. Sampling Characteristics

Data was analyzed using SPSS 26. Table 1 depicts sampling characteristics i.e., socio-demographic profile of the respondents. Out of 257 respondents, 133 (51.8%) were male and 124 (48.2%) were female. Majority (60.7%) of survey participants were in the age group of 16-24 years followed by 27.2% from 25-34 years of age, indicating that majority of participants are young people. Majority had annual income of less than INR 500000. Out of 257 participants, majority (68.5%) was unmarried.

Table 1: Descriptive summary of demographic profile of respondents

Demographic Profile	Frequency	Percentage
Gender(N=257)		
Male	133	51.8
Female	124	48.2
Other	0	0
Age(N=257)		
16-24	156	60.7
25-34	70	27.2
35-44	22	8.6
45 years and above	9	3.5
Educational Qualification(N=257)		
High School	69	26.9
Graduation	117	45.5
Post-Graduation	55	21.4
M.Phil / Ph.D	10	3.9
Any other	6	2.3
Annual Income (In Rupees)(N=257)		
Less than 500000	164	63.8
500000-1000000	56	21.8
1000000-1500000	22	8.6
1500000-2000000	7	2.7
More than 2000000	8	3.1
Marital status (N=257)		
Married	81	31.5
Unmarried	176	68.5
Nature of association with HKV (N=257)		
Visitor	188	73.2
Resident	69	26.8



2. Construct reliability

The data was assessed for internal consistency (construct reliability). Table 2 shows the value of cronbach's α . The α value of 0.70 and above is considered 'reliable' and 'consistent' (Hair Jr et al., 2021). AI had α value of 0.922. CI initially had α value of 0.457 with 10 items. Therefore, reliability check was done using option 'scale if item deleted'. Item total statistics in Table 3 show that if CI3 and CI6 were deleted, the α value shall improve significantly. Therefore these 2 items were deleted and for the final data collection and analysis only 8 items for CI were kept to have a reliable scale. The α value of CI with 8 items was 0.732. Hence the scale is reliable.

Table 2: Construct reliability

Construct	Cronbach's α
Affective Image (AI)	0.922
Cognitive Image (CI)	0.732

Table 3: Cronbach's α if item deleted

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Isolated/ Easily accessible	28.67	15.763	.362	.357
Artificial/ Natural	28.84	14.491	.558	.277
Overcrowded / Sparse	29.75	23.928	-.387	.605
Noisy/ Quiet	29.04	16.854	.294	.390
Simple/ Sophisticated	29.02	16.964	.284	.394
Old/ New	29.81	23.415	-.350	.588
Underdeveloped / Overdeveloped	29.62	22.416	-.260	.562
Poor/ Upmarket	28.70	15.533	.526	.311
Unsafe/ Safe	28.78	14.923	.664	.269
Not at all touristy/ Very touristy	28.75	15.506	.501	.315

3. Descriptive statistics for AI and CI constructs

Respondents were asked to choose a point on the given scale (ranging from 1 to 5) that best describes their perceived image (AI) of HKV. Each of the 4 items had 2 characteristics opposite of each other (antonym). For example, the first option had 2 characteristics i.e., 'stressful' and 'relaxing'. If a respondent considers HKV as a stressful place, his/her selection of response position on the scale would be towards '1' depending upon the degree of its being stressful. If HKV is perceived as a relaxing place, the response on the scale would be towards '5'. Similarly other options (items) can be read.

It can be seen from Table 4 that the mean values for AI1, AI2, AI3 & AI4 are 3.34, 3.39, 3.42 and 3.50 respectively i.e., on all 4 dimensions the respondents have rated HKV positively. They have a positive affective image of HKV.

Table 4: Descriptive statistics (AI)

Items	N	Mean	Std. Deviation
Stressful/ Relaxing (AI1)	257	3.34	1.169
Dull/ Exciting (AI2)	257	3.39	1.106
Unpleasant/ Pleasant (AI3)	257	3.42	1.076
Ugly/ Beautiful (AI4)	257	3.50	1.129

To understand the CI of HKV, respondents were asked to choose a point on the given 5 point ‘semantic differential scale’. The CI construct was measured using 8 bipolar items. Table 5 portrays the ‘mean’ and ‘standard deviation’ values of items of CI construct. For items CI1, CI2, CI3, CI4, CI6, CI7 and CI8, the mean values are towards positive polar. Only 1 item i.e., CI5 had mean value towards negative polar with 2.71 giving an impression that HKV is rated as ‘underdeveloped’ by majority of respondents.

Table 5: Descriptive statistics (CI)

Items	N	Mean	Std. Deviation
Isolated/ Easily accessible (CI1)	257	3.67	1.252
Artificial/ Natural (CI2)	257	3.49	1.186
Noisy/ Quiet (CI3)	257	3.30	1.145
Simple/ Sophisticated (CI4)	257	3.31	1.141
Underdeveloped / Overdeveloped (CI5)	257	2.71	1.052
Poor/ Upmarket (CI6)	257	3.63	1.041
Unsafe/ Safe (CI7)	257	3.55	.983
Not at all touristy/ Very touristy (CI8)	257	3.58	1.080

Frequency tables have been drawn for all the items. Table 6 to 9 show the **frequency distribution** of AI items. It can be seen that majority (37%) of respondents feel that HKV is a relaxing place. 38.5% of respondents chose the option of somewhat exciting. 105 out of 257 i.e., 40.9% believe HKV to be a pleasant place. People also view HKV as a beautiful place with 33.9% respondents choosing this option.



Table 6: Stressful/ Relaxing (AI1)

	Frequency	Percent
very stressful	25	9.7
somewhat stressful	33	12.8
neither stressful nor relaxing	66	25.7
somewhat relaxing	95	37.0
very relaxing	38	14.8
Total	257	100.0

Table 7: Dull/ Exciting (AI2)

	Frequency	Percent
very dull	17	6.6
somewhat dull	38	14.8
neither dull nor exciting	66	25.7
somewhat exciting	99	38.5
very exciting	37	14.4
Total	257	100.0

Table 8: Unpleasant/ Pleasant (AI3)

	Frequency	Percent
very unpleasant	15	5.8
somewhat unpleasant	37	14.4
neither unpleasant nor pleasant	65	25.3
somewhat pleasant	105	40.9
very pleasant	35	13.6
Total	257	100.0

Table 9: Ugly/ Beautiful (AI4)

	Frequency	Percent
very ugly	16	6.2
somewhat stressful	31	12.1
neither ugly nor beautiful	71	27.6



somewhat beautiful	87	33.9
very beautiful	52	20.2
Total	257	100.0

Similarly, Table 10 to 17 can be read and interpreted to have a bird's eye view of 'Cognitive Image' (CI) of HKV. Majority of respondents opine that HKV is very easily accessible, natural and elemental; neither noisy nor quiet; somewhat sophisticated; relatively underdeveloped place having a somewhat upmarket image. 20.6% people feel it a very safe place to visit and reside whereas 1.6% feel it very unsafe place. 23.7% perceive it as very touristy place whereas 28% consider it as somewhat touristy. It can be seen as an opportunity to convert their impression from untouristy to touristy by repositioning HKV through a strategic marketing plan.

Table 10: Isolated/ easily accessible (CI1)

	Frequency	Percent
very isolated	12	4.7
somewhat isolated	48	18.7
neither isolated nor easily accessible	42	16.3
easily accessible	67	26.1
very easily accessible	88	34.2
Total	257	100.0

Table 11: Artificial/ Natural (CI2)

	Frequency	Percent
very artificial	20	7.8
somewhat artificial	37	14.4
neither artificial nor natural	49	19.1
somewhat natural	100	38.9
very natural	51	19.8
Total	257	100.0



Table 12: Noisy/ Quiet (CI3)

	Frequency	Percent
very noisy	21	8.2
somewhat noisy	38	14.8
neither noisy nor quiet	82	31.9
somewhat quiet	76	29.6
very quiet	40	15.6
Total	257	100.0

Table 13: Simple/ Sophisticated (CI4)

	Frequency	Percent
very simple	22	8.6
somewhat simple	35	13.6
neither simple nor sophisticated	79	30.7
somewhat sophisticated	83	32.3
very sophisticated	38	14.8
Total	257	100.0

Table 14: Underdeveloped / Overdeveloped (CI5)

	Frequency	Percent
underdeveloped	31	12.1
somewhat underdeveloped	77	30.0
neither underdeveloped nor overdeveloped	105	40.9
somewhat overdeveloped	24	9.3
overdeveloped	20	7.8
Total	257	100.0



Table 15: Poor/ Upmarket (CI6)

	Frequency	Percent
very poor	7	2.7
somewhat poor	27	10.5
neither poor nor upmarket	80	31.1
somewhat upmarket	82	31.9
very upmarket	61	23.7
Total	257	100.0

Table 16: Unsafe/ Safe (CI7)

	Frequency	Percent
very unsafe	4	1.6
somewhat unsafe	27	10.5
neither unsafe nor safe	102	39.7
somewhat safe	71	27.6
very safe	53	20.6
Total	257	100.0

Table 17: Not at all touristy/ Very touristy (CI8)

	Frequency	Percent
not at all touristy	11	4.3
somewhat touristy	24	9.3
neither untouristy nor touristy	89	34.6
somewhat touristy	72	28.0
very touristy	61	23.7
Total	257	100.0



Table 18 shows the modal value of responses to AI items. The modal value for AI1, AI2, AI3 and AI4 is 4 which again establish that HKV is a relaxing, exciting, pleasant and a beautiful place.

Table 18: Value of mode (AI)

Items	Mode
Stressful/ Relaxing	4
Dull/ Exciting	4
Unpleasant/ Pleasant	4
Ugly/ Beautiful	4

Table 19 shows the modal value of responses to CI items. Modal value of CI1, CI2, CI4, CI6 are above 3 whereas CI3, CI5, CI7, CI8 have modal value equal to 3 i.e, most frequent answer to these items is 3 which means respondents have neither a positive nor a negative impression for these items. Hence more efforts are required on part of policymakers, administrators, locals and place marketers to make this place better with regard to these elements.

Table 19: Value of mode (CI)

Items	Mode
Isolated/ Easily accessible	5
Artificial/ Natural	4
Noisy/ Quiet	3
Simple/ Sophisticated	4
Underdeveloped / Overdeveloped	3
Poor/ Upmarket	4
Unsafe/ Safe	3
Not at all touristy/ Very touristy	3



4. Overall image of HKV

Overall image of HKV was captured through an open ended question. Respondents were asked to describe HKV in their own words. Few answers are mentioned below:

- Hauz Khas hai khas.
- Chic place to chill out.
- Nice place to drink & dine.
- Perfect place for party and clubbing.
- Desi market of new era.
- Happening and instagrammable spot in Delhi.
- A place that requires more recognition.
- Fusion of traditional architecture, nature and urban lifestyle.

These responses clearly show that people perceive it as a place to hang out. Most of the people visit HKV for party and clubbing. They hang out in the lanes of HKV that have many options to shop, eat & drink. Although there is a lot more about HKV in terms of historic monuments, cultural heritage, lake and deer park but only few talk about it.



CONCLUSION

The present study finds that HKV has a positive affective image. It is seen as a relaxing, exciting, pleasant and beautiful place. The cognitive image is also positive under majority of its dimensions, establishing that HKV is considered to be an accessible, natural, a bit quiet, sophisticated, upmarket, somewhat safe and a touristy place. People believe it to be somewhat underdeveloped place which is due to the unregulated development that happened over the years and led to various civic problems in the area. Overall HKV is seen as a place with huge potential of tourism. HKV needs more efforts to popularize its historic and heritage value. Many people (even delhiites) are not aware of its glorified past. The architectural historic monuments, tombs, beautiful lake, adjacent green areas need to be promoted through appropriate promotional effort.

Limitations and future scope of study

Present study examined the place image of HKV using scale for AI and CI only. Future research can focus on conative image as well as other aspects/ dimensions of AI and CI that are not part of the current study. Mediation effect of 'Place Attachment' between 'Place Image' and subsequent behavioral dimensions may also be studied to uncover the various nuances that can help to position HKV as a historic, cultural and ethnic place with modern urban look.



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Burnout, Distrust, and Turnover: The Cynicism Epidemic in India's IT Sector

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ABSTRACT

Cynicism at the workplace is on the rise and is particularly increasing in the Information Technology (IT) industry. Because the Indian IT sector has one of the highest rates of job dissatisfaction due to stress and turnover, this research paper seeks to examine the causal factors and effects of cynicism in the modern workplace. From the present literature, the study identifies the antecedents of Cynicism like over work, job insecurity, and unconstructive organizational practices that foster cynicism as well as analysing the consequences of Cynicism, which are low productivity, high attrition, poor job satisfaction and negative organisational climate. Finally, the paper suggests possible ways to reduce cynical attitudes and promote the development of a more health-supporting work climate.

Keywords: Cynicism, Job Satisfaction, Leadership, Organizational support, IT sector

INTRODUCTION

The Information Technology (IT) sector has played an immensely critical role in India's economy it has provided huge contribution in terms of affecting its growth rate, GDP and the employment too (NASSCOM, 2021). The industry has grown significantly and during the last two decades has turned India into an IT software services, outsourcing and technology development centre of the World.

At this pell-mell pace of expansion, however, the labour force encounters that several problems such as stress management, working-hour leisure balance and job insecurity. These challenges



culminate in negative employee attitude, particularly cynicism which is an inward organization perception that cannot be trusted to deliver, (Abraham, 2021). Employee welfare, satisfaction, and turnover remain large concerns the sector has yet to fully address.

Employee cynicism is another problem that has emerged as an important problem for consideration. Employee cynicism is the general skepticism, distrust and disbelief relating to employee's employer motives and action (Dean et al., 1998). Organizational cynicism is thus defined as attitude and outlooks of distrust, frustration and pessimism with regards to the organization and the leadership of the organization (Evans et al., 2019). Generally, cynicism is observed where there is stressors which include: Work overloads, job insecurity attributable to dynamism in technologies, and perceived unfair treatment by the organization in the Indian IT sector (Gupta & Singh, 2018). Consistent with the presence of cynicism, employees' job satisfaction decreases, job productivity declines, and turnover increases (Kotter & Schlesinger, 2000). In India where culture is predominant in non-hierarchical structures with people showing a mentality of obedience and proprietary to employers, the gap between their expectations and what a firm offer is deeper (Pandey & Khanna, 2022). Research has shown that a lack of organizational support and effective leadership can exacerbate cynicism, increasing employees' intention to leave the organization (Kearney et al., 2023). Moreover, when employees in high-tech industries perceive their workplace as unsupportive or misaligned with their values, they are more likely to experience disillusionment, which contributes to feelings of burnout and disengagement (Gim & Ramayah, 2021).

Addressing these challenges is crucial, as the IT industry, in particular, relies heavily on retaining skilled professionals. Organizations can counteract cynicism by fostering a supportive work environment and focusing on employee well-being. As noted by Anwar et al. (2024), leaders who demonstrate emotional intelligence and provide organizational support play a pivotal role in mitigating cynicism, which in turn reduces turnover intentions and enhances job satisfaction.

RELEVANCE OF THE STUDY

In light of changes in the IT sector and the influence of technological growth and stiff competition across the globe, it is important to overcome the cynicism of the employees that



impacts the growth and innovative part of the business (Kumar & Mathimaran, 2018). It clarifies how and why cynicism has emerged and what effects it can have in firms speaking to sustain competitiveness while preserving e-worker health. The paper is significant as it explores biographical data associated with cynicism in the Indian IT industry and measures the effects of cynicism on organizational results. To prevent cynicism, organizations can now develop intervention approaches to improve attitudes and behaviours in their employees, thus increasing engagement and lessening turnover.

LITERATURE REVIEW

CAUSES OF CYNICISM IN THE IT INDUSTRY

Excessive Workload & Burnout:

Strenuous working conditions are the prevalent characteristics of the IT industry; thus, the workload could be seen as one of the causes of employees' burnout and cynicism provoking factors (Maslach & Leiter, 2008). Stress, a result of continued working in stressful conditions, is a prevalent psychological affliction known as burnout, among Information Technology workers (Liu & Lo, 2018). Working hours, working projects, and an expected level of performance can cause stress levels and compromises the work-life balance (Ahuja et al., 2007). Burnout is not only detrimental on the psychological and physical health of a person it also leads to negative attitudes towards the organization (Maslach, Schaufeli, & Leiter, 2001). Acknowledging the fact that burnout is a growing problem in the world today, we should be glad to be well armed with knowledge on how it operates. The nature of IT jobs very often expects fast problem-solving, long hours of work, and adhering to tight project deadlines, so employees are likely to be in excessive stress. Study findings reveal that working under such heavy conditions leads to emotional fatigue, a central part of burnout syndrome that, in turn, results in detachment and cynicism towards not employees but also to customers (Maslach & Leiter, 2021). Matta et al. (2020) found that the workload in IT companies in India is often complicated by the company's demand that staff remain reachable even during non-business hours, which in turn causes the employee dissatisfaction of such problems and a highly-promoted cynical attitude.



Job Insecurity Due to Technological Changes:

The technological advancements are so rapid that IT professionals are continuously required to learn new things in the form of upskilling at a time when job security is at stake (Silla, Gracia, & Peiró, 2005). Fear of getting irrelevant in converts and the need to acquire new skills in relation to the different kinds of technology are the tools that organizations normally rely on to help focus efforts and attain turn around requirement faster. Automation and AI give a gray area on whether the jobs will still be there for the workers; one possible effect will be retrenchment (Fuchs & Siggelkow, 2019). In India, where the sense of job stability is predominant, employees in such insecurity of their jobs have a negative opinion of the company. "As a result of the lack of collaboration, teams feel uncertain and cannot identify what the clients want." (Bhardwaj et al., 2021).

A study by Kalyani and Reddy (2020) showed that the lack of job security is connected with the growth of organizational cynicism among IT professionals in India, as employees create environments where in they are apprehensive of being laid off.

Poor Leadership and Lack of Organizational Support

It's an indisputable fact that leadership is the most important thing that influences the way employees feel about their job. The form of poor leadership that goes hand in hand with ineffective communication, lack of transparency, and poor employee support is now a widely recognized perpetrator of workplace cynicism (Soni & Gulati, 2019). Leadership in Indian IT companies often has a hierarchical structure, which makes it difficult for employees to speak openly and thus tend to the alienation of the employees who are at a lower level (Pandey & Khanna, 2022). The lack of top-level support, with particular regard to issues of work-life balance and career development, is what properly leads the rise of the problem (Sharma et al., 2021). The employees who claim not to get the necessary amount of support from their supervisors are more likely to be the ones that will start to develop cynical attitudes to management and, in general, the organization.

Cultural Factors and Communication Barriers:



Within the cultural dimension, the hierarchical nature of Indian organizations and the high level of power hindering the initiation of the open communication process is very obvious (Hofstede, 2001). The employees that work in such places might think that their managers do not listen to them, and this indifference becomes a source of disengagement and cynicism (Rao & Agarwal, 2019). Communication that fosters reciprocal relationships is vital in both mitigating negative emotions and nurturing trust due to shared perceptions of the well-intended actions (Vakola & Nikolaou, 2005). The distance created between management and employees due to the existence of a high-power culture either creates a situation of breaks in communication resulting in employees' solitude or leads to the beliefs that such a hierarchical structure is only created for the benefit of authority and power. Possible changes and improvements are the subjects of the majority of interpersonal conflicts.

Consequences of Cynicism

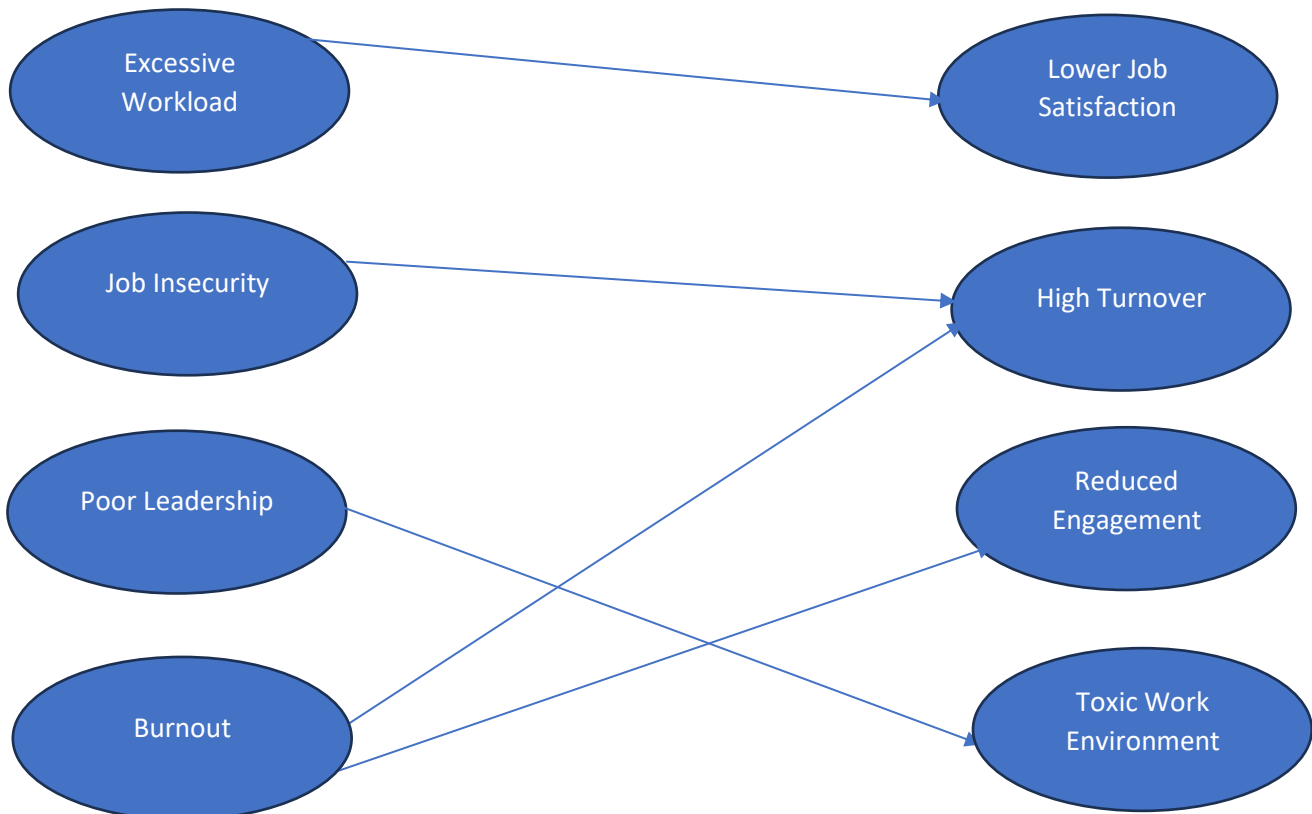
Reduced Job Satisfaction and Employee Engagement:

Cynical people frequently have low satisfaction with their work, which is clearly visible as the decrease in motivation and engagement with their work (Evans et al., 2019). Research by Sharma et al. (2021) showed that employees with high levels of cynicism were less likely to put the effort to the work being done or a sense of personal accomplishment, so, therefore, it resulted in the decrease of the work productivity. Also, cynicism, apart from damaging the emotional connections between the employee and the organization, is tapping away the feeling of togetherness (Evans et al., 2019).

High Turnover and Attrition Rates:

High turnover intention is directly together with high levels of cynicism from staff as it was their way of escaping the problem. Those employees who feel that the company is not considering them are those who have more chances to want to find another job (Chiaburu et al., 2013). There is a direct positive link between being more cynical and showing the willingness to quit your job. When the sentiment of employees turns to disappointment with working conditions, it will certainly translate into employment wafering and displacements of workers.

Conceptual Diagram: Causes and Consequences of Cynicism in the IT Sector



Source: Author Analysis

The above conceptual diagram shows the main antecedents and outcomes of workplace cynicism in IT sector. Four major antecedents generate workplace cynicism, which are: Excessive Workload, Job Insecurity, Poor Leadership, and Burnout. These directly lead to various undesirable consequences;

1. **Excessive Workload:** Employees with an overloaded work schedule often have low job satisfaction and high turnover as the stress reduces feelings of accomplishment and encourages employees to seek employment elsewhere.
2. **Job Insecurity:** High Turnover is driven by Uncertainty in job tenure and contributes to Reduced Engagement, i.e. employees becoming less motivated or responsible.



3. Poor Leadership: When you have a manager who is bad, either he/she does not provide you the required support or he/she is totally ineffective; it has a negative impact on your overall level of engagement and satisfaction, and in turn, makes the work culture a toxic one, reduces job satisfaction and engages you less.

4. Burnout: Emotional and physical exhaustion resulting from a career-oriented, professional lifestyle can lead to a Toxic Work Environment, Reduced Engagement, which further predispose to overall job dissatisfaction and turnover.

These interconnections between causes and effects highlight the need to tackle root workplace causes of cynicism and promote IT well-being.

RESEARCH METHODOLOGY

Through an extensive literature review, the article explores the reasons and effects of cynicism in the Indian IT industry, utilizing a qualitative research method. This work is of a conceptual nature, as it mainly involves synthesis of corporate cynicism literature in the IT industry, Indian economy and its socio-political system provided. This study is a conceptual paper and therefore there was no collection of data in the field nor any statistical analysis. However, as it is a theoretical study, the provision of the concepts is sought from literatures reviewed to be quite relevant in explaining the phenomena of cynicism and its effects in the IT industry.

The objective of this research is to explore and make recommendations for factors of cynicism and ways to overcome it which impact adversely on the organization. Other than this, such a method puts possible miscellaneous conclusions conveniently in a structural framework that disregarding the volume of the present knowledge has to be replenished by numerous empirical works in the future.

Ways to Mitigate Cynicism

To lessen the cynicism, such allure can apply more than one focal point namely, policies and practices relevant to the organization and the employee support systems. Organizations can implement the following strategies:

- Work rather than live: Provide flexible working practices and suggest taking breaks to avoid exhaustion (Maslach & Leiter, 2008). For example, bilingual staff may be easily offered some work at home or with flexible hours



- Increase job permanence: Create opportunities for professional training and acquisition of new skills so as to remove the anxiety of being idle or obsolete (Silla et al, 2005). Organizations can support employees' career path through training programs, certification, and upskilling activities.
- Change of leadership style: Prepare the leaders to embrace transformational leadership which is aimed at inspiring the followers (Bass & Riggio, 2006). The vision and understanding of the followers' emotions, as well as their accomplishments, can help reduce cynicism among the follower and help maintain trust.
- Communication accessibility: Construct the trust of the employees and deal with the issues raised by the members of staff by creating channels to convey openness within the organization (Vakola & Nikolaou, 2005). Scheduling periodic team conferences, open door policies, and feedback can improve the communication between members and management.
- Ensure Organizational Justice: Follow proper procedures and reward employees so that there will be no unfairness perceptions (Greenberg, 1990). Clarified definitions of the criteria for promotion, rewards, and allocation of resources enhances fairness perceptions.
- Support the Organization Doing This: Individual employees should believe their organizations care about them and acknowledge their efforts (Eisenberger et al, 1986). If employees perceive high support from the organization, they are likely going to be more loyal, more committed, and more energized which will lessen the chances of cynicism. Support and trust to the employees and organization should grow: employee assistance programs, wellness programs, and grievance mechanisms.

Therefore, organizations should work towards creating a good climate in order to reduce the tendency of employee cynicism and thereby increasing job engagement and performance.

CONCLUSION

Cynicism is nurtured in Indian IT sector by such issues as overburdening, perceived job loss, leadership behaviours, and cultural aspects. Its effects are detrimental to the employees' well-being, job satisfaction, and organizational performance at large.

Resolving this issue is critical for organizations that wish to remain competitive and cultivate a sound work environment.



Various measures designed to support the employees' welfare, increase the effectiveness of the leadership as well as promote justice within the organization can decrease cynicism. Further suggestions for future research could involve conducting empirical studies in the Indian IT context to test the feasibility of these interventions.

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