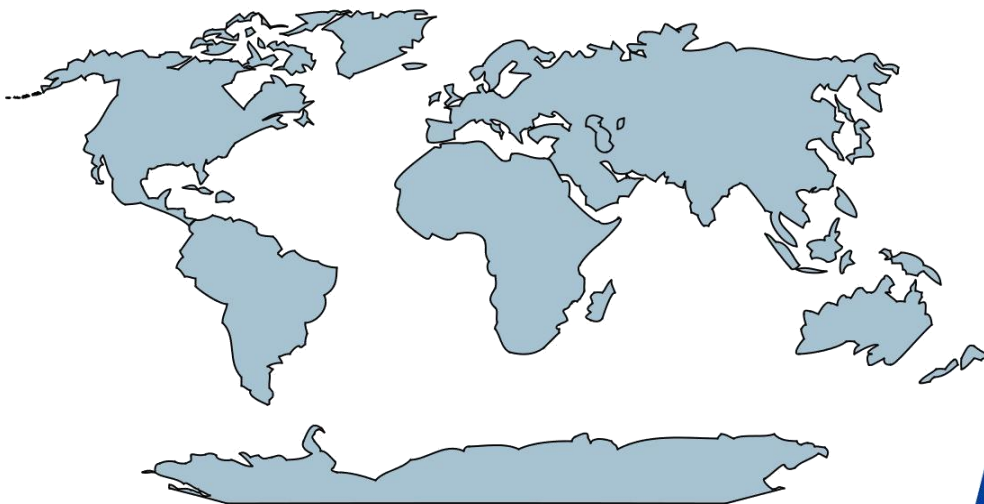


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A CRITICAL ANALYSIS ON THE ‘DEPICTION OF INDIA AND PAKISTAN AS AN INDEPENDENT NATION ON 14th AND 15th AUGUST 1947’ IN SADAT HASAN MANTO AND INTIZAR HUSAIN’S PARTITION TALES

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ABSTRACT

Try as I did, I was not suitable to separate Pakistan from India and India from Pakistan. Again, and again disquieting questions chimed in my mind Will Pakistan's literature be separate from that of India? (Manto wrote after migrating to Lahore). Eventually after the establishment of Pakistan, the question of the identity of Pakistani literature came up if we were a different nation {than India} also what was our public and artistic identity? where did we trace the onsets of our history from? what were our relations with Muslim history and its traces each over India? Where were our roots? (Intizar Husain in preface to Pakistani Kahaniyan 1988)

Two Pakistani pens, Sadat Hasan Manto (1912- 1954) and Intizar Husain (1925- 2016) wrote and got honoured not only in Pakistan but in India too. They contained their jottings to different paradigms, one to trauma and violence through particular memory, other to the incapability of exploring their identity in the recently formed Nation, followed by partition.

Both pens migrated to Lahore, in hunt of intellectual soil but realized Lahore in post- migration had come radical. It's relatively interesting to notice that while Manto was in liberal terrain of British Bombay evincing mixed societies, it produced rich material that he demanded. But after his migration to Lahore, one finds him most barbed in his tone in Partition stories. Husain on the other hand went to Lahore borne out of a need for work and desire to be part of its flourishing erudite culture. He was ignorant that return to birthplace would be insolvable.

Still, he made an impact with critics as he along with Hyder extended the tradition of short story kidney further begun by Manto and others. And with his Din and Dastaan (1962 published) he made a pivotal turning point in his career. Critics discovered symbolism in his style which contributed to Urdu literature immensely.

INTRODUCTION

The story of peak between Hindus and Muslims, through political wrangling raising into the offer to partition the Indian key on religious grounds into the independent nations of India and Pakistan, ultimately witnessed one of the most terrible genocides told in mortal history.

In her essay Leela Gandhi suggests, if independence recited the triumphant progress of the public movement, its double, partition, told an altogether different story — of collective treason, failure, the methodical rift between Congress and the Muslim League, and the disgruntlement between Muslims and Hindus

Born in the pre-independent India Manto witnessed the bloody violence of the 1919 butchery and the succeeding indeed far more violent cataclysm of abomination, wrathfulness and bloodshed in the times that followed partition in the name of Freedom. Intizar Husain too was privy to the mayhem of partition, the demand of a new nation for Muslims.

Critic, Muhammad Badar Alam, while assessing Intizar Husain's image as an Urdu pen says, He did not mourn the loss of collaborative harmony like Krishan Chander did. Nor did he essay, a' la Saadat Hasan Manto, to unveil the retired wrong that beings are made of which made itself visible during the Partition. He also did not eulogize a famed vision of the history as Qurratulain Hyder did. Rather he saw Partition as the morning of a new period which witnessed bloodshed because it failed to produce an organic relationship with all the once ages and carry forward the durability of a literal sensibility.

Critic, Rakshanda Jalil veritably meetly compares the two pens, saying, If Manto laid bare the ugliness of 1947 and its immediate, animalistic fate with the urgency of a field surgeon, Intizar Husain examinations those injuries ever so gingerly, shelling down layers from old recollections to reveal injuries that have still not healed and may noway heal, at least not in his continuance. Regarding literature on Partition, Josna Rege avers, some pens tried to relive the trauma and violence through particular memory but could regard for the Partition only in terms of sin and madness. One of the notable voices at that time was inescapably that of Manto, a master teller.

Manto's short stories are the most extensively read and ironically, the most controversial bones among the Urdu jottings which veritably shortly describe the transgression and the silence his stories image. M. Asaduddin points

out, the areas of mortal experience and the liminal spaces that he concentrated on relentlessly, shocked people out of their complacency into a new mindfulness of reality around them. For case, these kinds of statements would really leave one speechless for the frugality of words used by the minstrel, If you are not familiar with the age in which we live, read my stories. However, it means this age is unsupportable, if you cannot endure my stories.

LITERATURE REVIEW

SUBALTERN WOMEN—EXTENSION IN MANTO'S PARTITION STORIES

Gayatri Chakraborty Spivak is critical about the lack of consideration given to utmost of the world's population which had remained in a state of menial poverty and oppression. Spivak's concern is for the subaltern women who'll be silenced and contained within the specialized vocabulary of western critical proposition.

Urvashi Butalia, reputed critic on Partition Literature, points out that chroniclers paid little or any attention to the experience of women during partition. The traumatic violence allocates out to lakhs of similar women demolished all sense of tone, empirical or social, granted to them by established patriarchal system. However, they failed a cerebral death, If they did not die a physical death.

Yasmin Khan, in recent times critically analyses, Women's bodies were made the unresistant substantiations to the complaint of the partition. The bodies of women were the shells on which textbooks were to be written and read--- icons of the new nation. Women were spots upon which collaborative politics was played. Conversion, hijacking, rape and killing got collaborative colouring.

Manto's short stories, Cold Meat and Open Up bring out the silence bedded in the illogical, inhuman and blood chilling acts of mortal beings that really gets told by political plots, complicit in similar careless state politics. What's utmost pathetic in this script is the fact that becomes the penultimate irony is that these murderous people may not know that the adversary is Hindu or Muslim; the adversary is just the Other. Isher Singh, the promoter under the spell of delirium indiscriminately goes payoff and sacking. He sees a youthful injured girl from the adversary camp and carries her over the shoulder to satisfy his lust. But the consummation that he was going to mate with a cadaver fully freezes him. His cherished, Kulwant Kaur after knowing the story behind his changed geste and incompetence kills him. Critics are unfit to make out the reason behind her payoff. This kind of nebulosity in Manto's stories impel compendiums to access and interrogate the threats of silence, the hallmark of Manto's brilliance.

Open up takes us to another shocking device constructed by Manto where a youthful girl, Sakina who after getting separated from her father is so traumatized physically as well as emotionally by the nonstop rape and assault that eventually when she's traced by her father in a camp when the croaker instructs people to "Open Up" for the light to enter, Sakina who's so toughened by this command that she inevitably, habitually Opens up her shalwar. This story nails the final death of civilization with a silence percolating the ghastly act executed by manly coitus on ladies.

Both these stories nonetheless bring in womanish Body as a queried point of subjection and assault, a determinant of collaborative honour. A near look at similar stories more meetly resonate what Sukrita Paul Kumar said about Manto's description of women. "The freaking demi world unnoticeable to the respectable society which pretends ignorance of its actuality" Manto is no less enduring and feels compelled to take up themes like harlotry, religious superstition, adolescent anxiety. The sense of loss and futility is easily envisaged in numerous similar tales which unmistakably reveal his empathy for the weak and marginalized.

Yet author's swoon remained unmitigated indeed when nearly half a dozen times he was tried for bringing profanities in his stories. His reply came simple and straight. How can I conceivably strip a society that was formerly naked?

RESEARCH METHODOLOGY

INDIA- HOME TO BOTH THE WRITERS

While Bombay presumably came home for Manto, indeed after he'd migrated to Pakistan, for Intizar Husain his first eight times spent at Dibai, in Bulandshahr, in UP formed the very foundation of his studies, and spiritual leanings that get so easily displayed in all his jottings. His epochal novel Basti, An Urdu word that refers to a mortal agreement of any dimension, from many houses to a megacity-, we see the world through the eyes of a child, and it's a paradise of brightly coloured catcalls, sportful creatures, and luscious verdure. Husain 's identity formed out of Karbala, Islamic History and Hinduism form a potent part of his liar that's veritably well depicted in the novel. Husain's first novel (1979 publication) is a work, avers Asif Farrukhi in the preface central to his

corpus in which the complications of literal perspective and the admixture of fabulous and realistic styles that he'd tried out in *Din aur Dastaan*, are fused into a new continuity. Going back to Manto, one finds an irrefutable mark in his jottings, his capability to relate to the alienated since he too supposedly was alienated from his family, espousing Bombay nearly as his motherland an indigenous megacity, where no artistic knowledge can be assumed, where the geography is frequently foreign and colourful, Manto, the fictional presence, declares his stranger's perspective and becomes a kind of companion to the new terrain. He marks out the world; the anthology can put himself in his hands — his discoveries come part of the narrative.

From his perspective of an castaway in Bombay, he felt free to write and express freely. On his departure from Bombay, the melancholy in his voice can not be missed. He said, I was sad at leaving a megacity where I had spent the hardest, the happiest and the most memorable days of my life. That piece of land, which is Bombay had taken me, a footloose reject of the family, into its vast stage and said to me, you can be happy then on 2 pennies a day or 100s or 1000s of rupees. Then you can do what you like; no bone will speak ill of you, and no bone will give you moral counsel. Rakshanda Jalil expresses Hussain's craving for home (India) that she sees in his eyes during her visit to Lahore and meeting Intizar Husain in his own Basti during a visit to Lahore I was struck by a singular fact he looked as much a foreigner in a strange land there, in what has been after all, his new(?) motherland for over 5 decades, as he does in his frequent visits to India.

Starting his career near on the heels of Manto, Intizar Husain (1923- 2016) shortlisted for the Man Booker Award for 2013, told the changes that unspooled from the partition of 1947. He too viewed events of 1947 as an immense mortal tragedy. Regarding Islamic culture he said in an interview, what a purely Islamic culture would be, I do not have any idea. But affirmed he belonged to Indian Muslim culture. He developed saying, I realized that my Islamic history in India did not live in insulation from the history of other communities that lived there, that it could not be separated from the history of the rest of the world.

For Hussain, Indo- Islamic culture is bedded in signs like 'Taj Mahal', 'Mir Ghalib' or Nur or Faiz Ahmad Faiz. For Husain that's his identity that made him say, I've always felt that there's a Hindu sitting inside me; I've one bottom in Karbala and the other bottom in Ayodhya. He elaborates that the Hindu inside him was an interlocutor who helped him to edge his Shaiite identity just as Ayodhya helped him to suppose about his literal and erudite individualities.

Rupnagar, the megacity in the novel is archaic and harmonious, an Eden and Husain illustrates with a pleasurable array of mythological tales. His literacy of Indian and Arab Muslim mythological tales made him apprehensive that migration has been a part of literal gestures of different peoples. He's pertaining to Ramayana, Mahabharata, Dastaans about Caravans, leaving a Basti and travelling in hunt of a motherland. He feels Pakistanis should have conducted like Pandava who in exile, remained inexhaustible while moving from place to place, also fought bravely and after getting the palm too, they seek retreat in the mountains, or like Karbala stories, he set up, there's at end of all the suffering and pain, a sense of being One with the Holy.

RESULTS

PARTITION PRESENTED POSSIBILITIES THAT WERE LOST

Priyamvada Gopal points out Over ten million ordinary people — Sikhs, Hindus and Muslims were repositioned from their homes and came deportees, at least a million were killed in retaliatory violence accepted by members of all three communities while thousands of women were kidnapped, ravished, and in numerous cases, forced to commit self-murder to save the 'honour' of their communities. Suddenly, religious identity sounded to take priority over all other ways of being and relating to each other.

Hussain's pragmatism and Humanism make him a mortal par excellence; he regrets that the creative possibility of a new nation should have been exploited. For him, Hijrat, a intermittent miracle that implies sense of durability with intermittent literal experience should have amended Muslims, unfortunately it did not do so. To him migration inferred gap from old to new hence, Pakistan should have grown spiritually, from bare physical reality to a spiritual bone pens like Hussain and A. Hamid represent this failure that gets instanced as dusk and dubitation, percolating their jottings. He regrets and is filled with guilt and pain that Muslims in Pakistan rather than communicating the Indo- Muslim heritage were feeling the pressing need to review their identity.

Husain believed that no creative trouble could feed for too long on Nostalgia or survive in a present visited by the history. Critics veritably frequently labelled him a archconservative or one who refused to move with times, maybe they feel to fail to understand the collaborative personality that he imbibes. He felt it's of no use lamenting the lost paradise; rather sweats should be made towards erecting a new bone

SILENCE OF “SUBALTERN” IN MANTO’S PARTITION TALES

The pungency of his stories on Partition transcends boundaries, the characters he constructed like Toba Tek Singh” or “Ram Khilavan” remain etched in compendiums’ minds to an extent that Manto gets linked with these characters. They represent the delirium and silence over the geographical and physical frame to divide the two nations and maybe his delirium, presumably indeed his migration, convinced by circumstances of abomination and partisanship. Michel Foucault’s views expressed for the marginalized come so applicable at this juncture. Regarding Madness, Foucault said,

Madness in its wild, untenable words, proclaims its own meaning; in its fantasies, it utters its secret verity. Manto’s deep attachment to India albeit Bombay is well known to all and this too is a well-known fact that relatively reluctantly Manto decided to leave Bombay. The incident that induced him to resettle to Pakistan is worth mentioning as it unveils silence pullulating migration and its threats. Manto was continuously getting news of rampant killings and when he entered news of his uncle’s payoff in the collaborative screams, he was vastly shaken.

He fictionalizes this incident and creates Mumtaz who represents Manto in the story, Saha’e, is the fictionalized Hindu character named Mumtaz, and Jugal is fictional name of Manto who hints at killing him if the screams broke out in their neighbourhood. The reply shocks Jugal (author himself).

His silence continued for nearly eight days and broke only when he suddenly blazoned that he was leaving for Karachi by boat, at 3.45, that veritably autumn. Such an event unravels how fragile and weak mortal connections can come in similar critical moments of political paroxysms. Yet another short story on Partition, by him, Ram Khilawan gives a positive sapience into humanity. Then too the thread of the story is the relationship between the narrator (impersonating Manto) and another character, his dhobi. While Mumtaz confronts the situation of fear and instability in Saha’e, the Hindu dhobi, Ram Khilawan, despite being poor and illiterate ignores the overdue bills of his poor master and latterly when his Muslim master’s woman helps his family by saving his woman’s life, he repays by saving his life from the riotous mob.

On his appearance at Lahore, Manto wrote, more poignantly come these questions from Manto, now that we were free, had domination desisted to live? Who would be our slaves? Thousands of Hindus and Muslims were dying each around. Why were they dying? Critic suggests on Manto’s intriguing book of essays; He accepts the fault and the guilt of hisco-religionists. He failed at the age of 42, leaving behind a notice of the creation of Pakistan and the lunacy of the prim state. He was veritably clear-sighted about what future would bring to the nation born, grounded on religion. Through his workshop, especially, his first novel, Basti, (1979) the erudite world has taken note of his benefactions to not just Urdu literature but also to a subaltern History.

In the early days following Partition, a sense of idealism which would latterly vanish in the wake of civil uneasiness that led Hussain to reframe the migration of Muslims to Pakistan as hijrat eliciting the Prophet’s migration from Mecca to Medina. inferring a migration, fat with the possibility of exploring the history while unravelling the present. thus, the critic avers, rather of listing unconceivable horrors and a definition of a sick, shortly demoralized society that his coevals set up fit to do as a way of exorcising the wrong within. Intizar has chosen story after story, to imaginatively readdress a syncretic, tolerant pluralistic history in a hunt for meaning, to find out why the drift turned so irreversibly and why a readdress in real terms frequently becomes so delicate.

But veritably soon, Zakir is cast into a world of violence, query, and craving the world of ultramodern Pakistan. Images of burning houses and metropolises, of bank and ash pullulate. similar recollections of once abandoned by Zakir, says Pritchett, get combined with literal history and present-day events, legendary lore and modern trial, rudiments of both the oral and the written, and colourful sacred and temporal traditions of South Asia this is the triumph of Basti.

Asif Farrukhi, remarks about Pritchett, the excellent translator of Basti that to her new offered “ a negative print ” of their culture, a mood of “ nostalgia ”, still, she adds, “ no intelligent anthology will anticipate(the book) to be a definitive, complete picture of ultramodern Pakistan. Muhammad Umar Menon in preface to Basti tells compendiums about Muslim history in the key; Being a Shiite, Zakir is also apprehensive of the course of this history beyond India in the landmass of Islam. The history has been one of constant internecine feuds among Muslims for political dominance there are references to Muslim South Asian history throughout the novel the 1857 war of independence from the British Raj; the creation of Pakistan in 1947; the 1965 war between India and Pakistan; and eventually, the 1971 political decomposition of Pakistan with the emergence of Bangladesh as a autonomous nation. The new ends with the last event.

DISCUSSION

The unique narrative structure is applaudable as events are shown, swathed in an creepy half- light; they hang at the edge of knowledge, honoured not so important by their physical attributes as by their effect on Zakir. Characters, too, appear shorn of physical traits and individualizing detail; only their internal events are given. Through a flawless transition between third person human narrator and the first- person narrator Zakir, the new unfolds itself. Menon also takes up the review of Zakir and his musketeers not acting; not indeed disapproving the situation. He argues, Zakir's silence, and his apparent lack of overt political activism, do not stem from some essential excrescence in his moral fibre, but from a particular view of history- one shaped in the gauntlet of Karbala.

The new really is not about political resistance and activism. It's about how a personality survives in an innocently loose macrocosm by drawing on its own inner coffers. Looking back, Zakir reflects, those were good days, good and sincere. I ought to flash back these days, or in fact I ought to write them down, And the days latterly?

latterly, the consummation of delicate times makes him say, People have come from all kinds of places. Like harpies which their strings cut, that go flying, come down on roof nearly. Husain's questions regarding the new nation keep ringing. To a question that haunts an entire sick generation of post partitioned Pakistan, was it good that Pakistan was created? He makes a wise old Maulvi Saheb in Basti reply,

CONCLUSION

In the hands of the wrong people, indeed right becomes wrong. Or a statement like this, When the masters are cruel and the son rebellious any disaster at all can transpire the Lord. For Intizar Husain, questions owing to Partition remain unanswered; Basti ends with a dramatic a nebulous pronouncement and Afzal, one of Zakir's friend whispers, "Fellow, signs always come at just these times, when all around--" Husain through Basti, carrying forward Manto's question presents a public, spiritual and a universal extremity which ends open- ended as a sign, a possibility of stopgap maybe to return to the beautiful, old days.

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ARTIFICIAL INTELLIGENCE IN CONSTRUCTION PROJECT MANAGEMENT: ADOPTION, IMPACT, AND CHALLENGES IN INDIA'S INFRASTRUCTURE SECTOR

Stephen Mutinyu¹ and Rakesh Mittal²^{1,2}Thames International University**ABSTRACT**

India's construction sector accounts for nearly 9% of national GDP and employs over 50 million people. Despite this scale, the industry is plagued by inefficiencies in planning, cost control, and risk management. As of 2023, over 350 large infrastructure projects were delayed, with cumulative cost overruns surpassing ₹4.6 trillion. In this context, Artificial Intelligence (AI) is emerging as a critical enabler for improving project performance. This study assessed the adoption and impact of AI tools across core project management functions in India's construction sector. A convergent mixed-methods design was used. Quantitative data were collected from 80 construction professionals via a semi-structured survey, while qualitative insights were drawn from 12 key informant interviews with senior project managers in Mumbai, Delhi, Bengaluru, and Hyderabad. Analysis revealed that 72% of firms use AI tools for risk assessment, 65% for project planning, 61% for scheduling, and 59% for cost and budget management. Tools such as BIM 360, ALICE Technologies, nPlan, and Cleopatra Enterprise were most commonly deployed. Findings indicate that AI improves schedule accuracy, enhances real-time risk forecasting, streamlines procurement, and enables predictive quality and safety management. However, challenges persist: 58% of respondents cited integration issues with legacy systems; 51% highlighted the high cost of implementation; and 45% reported organizational resistance, especially in SME and informal labor settings. The study concludes that while AI is progressively reshaping project management in India's construction industry, enhancing planning precision, risk anticipation, cost control, and communication, its full potential remains constrained by structural, financial, and cultural barriers. To fully realize AI's benefits, construction firms must invest in digital infrastructure, workforce training, and stakeholder engagement. Policymakers are urged to provide incentives for SMEs and support standardized frameworks for AI integration. This research provides context-specific insights and practical recommendations to guide scalable, inclusive digital transformation in India's construction industry.

Keywords: Artificial Intelligence, Construction Management, India, Project Planning, Risk Assessment, Digital Transformation, BIM

1. INTRODUCTION

India's construction sector is a vital contributor to the national economy, accounting for approximately 9% of the GDP and employing over 50 million people directly and indirectly (Jha et al.2023). Despite its scale and significance, the sector continues to grapple with persistent inefficiencies, particularly in the realms of project planning, cost control, and risk mitigation. As of 2023, the Ministry of Statistics and Programme Implementation (MoSPI) reported that over 350 large infrastructure projects were delayed, with cumulative cost overruns exceeding ₹4.6 trillion (MoSPI, 2023). These inefficiencies not only result in budgetary wastage and timeline slippages but also compromise safety, quality, and stakeholder satisfaction.

The complexity of modern construction projects—characterized by large budgets, multi-stakeholder coordination, evolving regulatory frameworks, and unforeseen risks—has exposed the limitations of traditional project management approaches (Gilbert, 2024). Manual planning methods, static risk assessment models, and reactive quality control mechanisms are no longer sufficient in today's fast-paced and digitally connected construction landscape (Beghaura, 2024). In response, the construction industry is increasingly exploring Artificial Intelligence (AI) as a transformative enabler (Rane, 2023; Mustapha et al.,2024).

AI-powered tools—spanning machine learning algorithms, predictive analytics, computer vision, natural language processing, and digital twins—are being embedded into project lifecycle functions to enable automation, real-time decision-making, and proactive problem-solving (Taheri-Khosroshahi, 2024; Pantovic et al.,2024). Applications range from automated scheduling, cost estimation, and workforce planning to real-time risk detection, safety compliance, and stakeholder communication (Kapoor, 2024). AI not only improves efficiency but also enhances accuracy, transparency, and adaptability—making it a critical asset for large-scale infrastructure development (Khan, 2024; Olawale, 2024).

While global research has extensively examined the theoretical promise of AI in construction, empirical studies exploring how AI is being adopted across end-to-end project management functions in the Indian context remain limited. Most available literature focuses narrowly on AI's role in planning or risk alone (e.g.,

Yigitcanlar et al.,2020; Baryannis, 2019; Sharma et al.,2022), overlooking its broader integration into functions such as procurement, communication, quality assurance, and human resource management. Moreover, there is a lack of comprehensive analysis that evaluates both the benefits and practical challenges—such as cost of implementation, digital maturity, and organizational resistance—associated with AI deployment in Indian construction firms.

This study seeks to address this gap by conducting a mixed-methods investigation into the use of AI tools across the full spectrum of project management domains in the Indian construction sector. It examines the actual tools being used, their specific applications, the perceived outcomes, and the barriers to their adoption, thereby offering a holistic view of AI's role in driving construction project success. The findings aim to contribute actionable insights for practitioners, policymakers, and technology developers looking to enable smarter, more resilient infrastructure delivery in India and similar emerging market contexts.

2. METHODOLOGY

This study adopted a convergent mixed-methods design to comprehensively explore the impact of AI-powered tools across multiple domains of project management within India's construction sector. The decision to employ this design was informed by the complex and multidimensional nature of the research objectives, which required both statistical insight and contextual understanding. By collecting and analyzing both quantitative and qualitative data concurrently, the approach facilitated a deeper interpretation of how AI technologies are being applied in real-world construction projects. This design was particularly appropriate for a phenomenon such as AI integration, which affects both measurable project outcomes and subjective managerial practices.

2.1 Quantitative Component

The quantitative component of the study involved administering a **semi-structured questionnaire** to 80 construction professionals, including project planners, engineers, quantity surveyors, procurement officers, and site managers. Participants were drawn from both public and private sector construction projects across Mumbai, Delhi NCR, Bengaluru, and Hyderabad—urban hubs known for their concentration of large-scale, technology-integrated infrastructure development. The questionnaire was organized into five thematic sections reflecting the core functions of project management: planning, risk assessment, cost and time control, quality and safety management, and stakeholder communication. While the majority of questions were closed-ended and designed using a 5-point Likert scale to quantitatively assess the use and effectiveness of AI tools (such as BIM platforms, predictive analytics software, and automated scheduling systems), the instrument also included **open-ended prompts** that invited respondents to elaborate on their experiences, challenges, and contextual factors influencing AI implementation. This semi-structured format allowed the researchers to capture both standardized metrics and different perspectives within a single instrument. The questionnaire was pilot-tested with five construction professionals to evaluate clarity, content relevance, and flow. Revisions were made accordingly to enhance interpretability. Reliability testing using Cronbach's alpha produced a coefficient of 0.82, indicating high internal consistency across the scaled items.

2.2 Qualitative Component

To complement the survey findings, the qualitative component of the study employed semi-structured interviews with 12 senior professionals, including project managers, construction consultants, and digital transformation leads. These interviews focused on metro rail projects, urban road works, and high-rise residential and commercial developments—sectors that are increasingly adopting AI-driven workflows. The interviews explored the real-world implementation of AI tools, the decision-making processes behind their selection, the organizational readiness for digital transformation, and the perceived impact on overall project performance. Each interview lasted between 45 and 60 minutes and was conducted either in person or via video conferencing platforms such as Zoom, depending on the participant's availability. The interviews were audio-recorded with the participants' consent and transcribed verbatim to preserve accuracy and ensure the integrity of the data.

2.3 Sampling Strategy

A purposive sampling approach was employed to identify suitable participants for both the survey and the interviews. Selection criteria included a minimum of three years of professional experience in project management or a closely related field, direct involvement in a project where AI-based tools were implemented, and representation from diverse project roles and firm types. This sampling strategy ensured that the data collected was both relevant and sufficiently diverse to reflect the range of experiences and perceptions within the sector. The purposive nature of the sample helped focus the research on informed voices, thereby enhancing the richness and validity of the results.

2.4 Data Analysis

Quantitative data were coded and analyzed using IBM SPSS Statistics Version 27. Descriptive statistics were employed to summarize the level of AI adoption, frequency of use across project functions, perceived benefits, and common challenges. Further analyses, including cross-tabulations and Pearson's correlation tests, were conducted to identify associations between the use of AI tools and improvements in project performance metrics. For the qualitative data, thematic analysis was carried out using NVivo 12 software, following Braun and Clarke's six-step framework. Interview transcripts were repeatedly read and manually coded to identify significant patterns, which were then categorized into themes such as tool effectiveness, digital maturity, resistance to change, and skill gaps. These themes were compared with quantitative results to establish points of convergence and divergence, allowing for a richer and more detailed interpretation of the findings.

2.5 Ethical Considerations

Ethical approval for this study was obtained from the Thames University Institutional Review Board at All participants were fully informed about the objectives of the study, and written consent was obtained prior to data collection. Participants were assured of anonymity and confidentiality, and were informed that their participation was voluntary, with the option to withdraw at any stage. All collected data were securely stored and used exclusively for academic purposes in compliance with research ethics protocols.

3. FINDINGS

This section presents evidence from both the survey and interviews on the adoption of AI tools across core project management functions. Each theme integrates statistical observations and qualitative insights, while also addressing the practical challenges encountered by construction firms in India.

3.1 AI in Project Planning

Approximately 65% of respondents reported using AI-enhanced planning tools such as Autodesk BIM 360, PlanRadar, and ALICE Technologies for clash detection, schedule sequencing, and construction simulation. A key informant—a planner working on a metro rail project in Delhi—noted, “We’ve reduced planning errors by almost 30% since switching to BIM integrated with AI—automated scheduling alone saved weeks.”

These findings show that AI is transforming planning from a static task into a more dynamic and data-driven process. Firms benefit from reduced errors, improved visualization, and faster iteration. However, several organizations faced integration challenges when attempting to merge AI platforms with traditional project scheduling tools. As one planning consultant explained, “Training our senior engineers to adopt AI-driven BIM tools took months and slowed down early implementation. Most were used to manual methods.”

3.2 AI in Risk Assessment

AI-powered predictive analytics tools were used by 72% of the participants to identify risks related to budget overruns, construction delays, and safety concerns. Tools such as nPlan, Smartvid.io, and Oracle Construction Intelligence Cloud were commonly deployed.

A risk manager involved in a national highway project shared, “nPlan has helped us identify potential overruns and interruptions by comparing our schedule with thousands of historic projects.”

These tools allow project teams to model disruptions and test risk mitigation strategies. Nonetheless, several firms noted that AI risk models require clean and extensive historical data, which many projects in India—particularly small and medium ones—lack. As one site engineer observed, “The software only works well when fed reliable, up-to-date data, which we didn’t always have.”

3.3 AI in Cost and Budget Management

According to the study findings 59% of surveyed firms reported using cost estimation and monitoring tools such as Cleopatra Enterprise, Procore AI, and 1build. These tools allowed for real-time budget tracking, inflation prediction, and detection of anomalies in spending.

A cost estimator from Mumbai commented, “We use Cleopatra AI to predict bulk material cost swings—it’s been more accurate than traditional spreadsheets.”

Although these systems improved cost discipline and forecasting accuracy, smaller firms expressed concern about affordability. Others found the tools less adaptable to informal vendor pricing, with one project accountant noting that “most AI systems struggle to work with fluctuating rates from small suppliers not listed in formal databases.”

3.4 AI in Time and Schedule Management

Approximately 61% of firms integrated AI tools such as ALICE Technologies, Primavera AI, and OpenSpace.ai for real-time scheduling, progress tracking, and delay modeling. A planning engineer stated, “With ALICE, we’ve created multiple recovery scenarios after delays—something manual Gantt charts just couldn’t handle.”

These tools have enhanced schedule flexibility and response time, helping firms stay on track despite site-level disruptions. However, implementation was not without difficulty. “Setting up ALICE to reflect our procurement logistics was labor-intensive,” admitted one operations manager, “and even then, it missed some site-specific variables we had to adjust manually.”

3.5 AI in Human Resource Management

Tools like Pymetrics, Eightfold.ai, and Rekrut.ai were used by 45% of firms to conduct skill profiling, schedule shifts, and optimize workforce allocation. According to an HR officer in a Tier-1 contracting firm, “AI helped us build the perfect team composition phase by phase, matching people’s core strengths with the project’s needs.”

These tools supported more effective labor utilization and faster onboarding. However, HR managers expressed concern over algorithmic bias and the exclusion of informal labor characteristics from AI profiles. “It kept recommending candidates with academic profiles but missing out on highly skilled masons who had no formal certification,” said one HR coordinator.

3.6 AI in Procurement and Vendor Management

AI tools such as Kreo AI, Scoutbee, and Zycus iSource were reportedly adopted by 41% of firms to streamline procurement processes, analyze vendor performance, and improve tendering decisions. One procurement lead in Hyderabad noted, “We saved nearly 10% on procurement by switching to an AI-suggested alternate vendor during a steel shortage.”

These tools helped reduce procurement costs and lead times, especially during material shortages. Still, many firms struggled with database limitations. “Most AI systems could not recognize local suppliers who we rely on heavily,” said one procurement officer, “and this affected their effectiveness in our context.”

3.7 AI in Quality Control

Computer vision tools like Buildots, Disperse, and OpenSpace.ai were used by 38% of respondents to identify deviations from construction drawings, validate completed work, and ensure site compliance. A site engineer noted, “With OpenSpace AI, we spot errors in finishes and structural joints as soon as they happen—not weeks later.”

While the benefits in real-time quality inspection were clear, some challenges related to technical setup were also mentioned. One construction manager said, “These tools require wide-angle coverage and uninterrupted connectivity, which we couldn’t always guarantee, especially indoors.”

3.8 AI in Safety and Compliance

Safety-related AI systems were used by 34% of firms, including tools such as Smartvid.io Vinnie, Soter Analytics, and Pillar Technologies. These platforms supported PPE compliance, site surveillance, and predictive hazard detection. A safety executive working on a high-rise project shared, “We installed AI cameras from Smartvid.io, and it flagged 90% of the unsafe incidents we previously missed.”

Despite improvements in incident detection, some workers expressed discomfort with being constantly monitored. “Many of our workers felt watched, like Big Brother was always looking,” one site manager acknowledged. Firms also raised concerns about data privacy policies and how recorded footage might be used outside safety purposes.

3.9 AI in Communication and Stakeholder Management

About 36% of participating firms reported using AI tools such as Slack GPT, Microsoft Power BI with AI, Trello AI, and chatbot systems like Tars to manage communications, produce automated reports, and engage stakeholders. A senior planner explained, “Using Slack’s AI summary tools, we compile weekly reports in minutes—it keeps our investors well-informed and saves project managers hours.”

While these tools improved the speed and clarity of updates, some stakeholders, particularly in public-sector projects, preferred more traditional modes of communication. “Not all clients were comfortable receiving automated updates—some still insisted on PDFs and in-person briefings,” said a project coordinator in Delhi.

Table 2: AI Applications in Project Management: Benefits, Adoption Rates, and Challenges

Project Function	AI Tools Used	% Adoption	Reported Benefits	Reported Challenges
Planning	Autodesk BIM 360, ALICE Technologies, PlanRadar	65%	Reduced planning errors, improved simulation and scheduling	Integration issues with legacy systems, high training costs
Risk Assessment	nPlan, Smartvid.io, Oracle Construction Intelligence Cloud	72%	Early detection of schedule and cost risks	Requires historical data, difficulty with real-time site input
Cost & Budget Management	Cleopatra Enterprise, Procore AI, 1build	59%	Accurate material cost forecasting, real-time tracking	High cost for SMEs, limited local vendor data
Time & Schedule Management	ALICE Technologies, Primavera AI, OpenSpace.ai	61%	Scenario modeling and improved delay management	Complex configuration, alignment with procurement cycles
Human Resource Management	Pymetrics, Eightfold.ai, Rekrut.ai	45%	Better skill matching, reduced idle time	Algorithm bias, limited informal labor profiling
Procurement & Vendor Management	Kreo AI, Scoutbee, Zycus iSource	41%	Vendor optimization, procurement cost savings	Excludes informal suppliers, data fragmentation
Quality Control	Buildots, Disperse, OpenSpace.ai	38%	Real-time defect detection and compliance	Limited camera access, storage constraints
Safety & Compliance	Smartvid.io Vinnie, Soter Analytics, Pillar Technologies	34%	Real-time alerts for unsafe behaviors and PPE compliance	Worker resistance to surveillance, data privacy concerns
Communication & Stakeholder Mgt.	Slack GPT, Power BI AI, Trello AI, Tars	36%	Faster reporting and improved communication	Client discomfort with automated updates

4. DISCUSSION OF FINDINGS

The findings from this study reveal a growing trend in the adoption of AI tools across key project management functions within India's construction sector. Firms are increasingly integrating AI into their workflows to improve planning, risk management, cost control, and communication. These patterns echo global developments in the field, though uniquely shaped by the specific structural and operational realities of the Indian context.

AI-enhanced project planning tools were adopted by 65% of respondents, reflecting a significant shift toward data-driven and simulation-based scheduling. Tools like Autodesk BIM 360 and ALICE Technologies have been instrumental in reducing planning errors and improving construction sequencing. This is consistent with the findings of Rane. (2023), who noted the ability of AI-integrated BIM systems to reduce rework and accelerate design validation. However, Indian firms encountered challenges integrating these tools with older

legacy systems, a constraint similarly observed by Wijayasekera et al (2022) which highlights the difficulty of transitioning from manual to intelligent planning processes in environments lacking strong digital infrastructure.

Risk assessment emerged as the most widely adopted AI function, with 72% of firms using tools such as nPlan and Smartvid.io. These platforms supported predictive analytics that allowed firms to model potential cost and schedule disruptions before they occurred. The effectiveness of such systems supports the arguments of Pal (2023), who emphasize the predictive power of AI over traditional risk forecasting methods. However, the findings also showed that smaller Indian firms struggled to maintain the digital data pipelines required for reliable model calibration. This affirms Elouataoui's (2024) assertion that data completeness and timeliness are critical enablers of AI accuracy.

Cost and budget management has also benefited from AI integration, with 59% of firms deploying platforms like Cleopatra Enterprise and 1build to forecast costs and manage budgets in real time. These tools contributed to better financial transparency and anomaly detection, consistent with Afzal et al. (2020), who highlighted AI's capacity to reduce cost overruns in large-scale construction. However, adoption in India was less prevalent among SMEs, which reported difficulty affording proprietary AI platforms. Additionally, the inability of current AI tools to capture real-time local market pricing and informal supplier dynamics remains a gap, supporting Moharrak et al's (2022) view that existing AI systems must evolve to reflect market complexity in emerging economies.

Time and schedule management has seen similar progress. With 61% adoption, platforms such as ALICE Technologies and Primavera AI have enabled firms to dynamically model project delays and develop alternative execution paths. These findings are in line with Tupsakhare (2022), who found that AI-enhanced scheduling improves project agility and responsiveness. Nevertheless, implementation complexity was a key concern for Indian firms, as aligning AI-based timelines with actual procurement and labor workflows proved challenging. This indicates a continued need for user-friendly AI systems that accommodate contextual variables more fluidly.

AI adoption in human resource management was reported by 45% of firms, with platforms like Eightfold.ai and Pymetrics used for labor forecasting and task alignment. The study confirms AI's value in streamlining HR operations and improving skill-task matching, consistent with the claims of Zhao (2024). However, issues of bias and limited accommodation for informal labor profiles emerged frequently. AI-driven HR systems were often unable to capture intangible competencies of non-certified workers, a limitation that echoes Pillai and Matus (2020), who argue for more localized and inclusive AI training datasets in the construction sector.

Procurement and vendor management also saw AI deployment in 41% of firms. Systems like Scoutbee and Zycus iSource supported vendor scoring and predictive bidding strategies. These results align with Nida (2025), who describe AI's effectiveness in optimizing procurement decisions. Yet, Indian firms emphasized that many regional and informal suppliers remain invisible to AI systems due to poor data integration, thereby constraining AI's utility in fragmented supply chains. These findings confirm that procurement AI must be adapted to work within decentralized vendor ecosystems typical of emerging markets.

Quality control improvements through AI were reported by 38% of participants, particularly through the use of computer vision tools like OpenSpace.ai and Buildots. These systems allowed for automated inspection and reduced response time to deviations. Similar observations were made by Fan (2023), who demonstrated that AI enhances construction precision and defect management. However, Indian users pointed out that visual data capture was sometimes limited by camera placement and bandwidth availability, suggesting infrastructure readiness continues to shape the effectiveness of visual AI applications.

Safety and compliance monitoring through AI tools such as Smartvid.io Vinnie and Soter Analytics was adopted by 34% of respondents. These tools improved real-time identification of unsafe behavior, confirming Fiegler-Rudol et al (2025) conclusion that AI enhances occupational safety performance. Nonetheless, ethical concerns and worker resistance to constant surveillance emerged as a barrier. These sentiments reflect broader debates in the literature on AI ethics and worker privacy, reinforcing the need for balanced adoption strategies that incorporate both technological efficiency and human dignity.

In terms of stakeholder communication and reporting, AI usage was reported by 36% of firms. Chatbots and platforms like Slack GPT and Power BI AI were used to generate reports and communicate progress updates. These findings support Mensah (2023), who emphasized AI's potential in improving project transparency and reporting accuracy. However, the resistance of some clients—particularly in public-sector projects—to accept

AI-generated summaries indicates that human trust in machine outputs is still evolving. This insight aligns with Dwivedi et al. (2023), who argue that stakeholder digital readiness is a key determinant of AI success.

Overall, the findings of this study demonstrate that AI tools are producing measurable improvements in operational efficiency, forecasting accuracy, and project visibility across the Indian construction sector. However, the full benefits of AI remain constrained by legacy systems, inconsistent digital capacity, affordability issues for SMEs, and gaps in user acceptance. This study contributes to the global literature by offering India-specific insights and highlighting the dual need for technical advancement and contextual adaptation to make AI an inclusive tool for sustainable project delivery.

5. CONCLUSION

This study set out to examine the impact of AI-powered tools on project management in the Indian construction sector, focusing specifically on planning, risk assessment, budgeting, scheduling, procurement, quality control, safety, workforce coordination, and stakeholder communication. The evidence presented, drawn from both quantitative surveys and qualitative interviews, underscores the transformative potential of AI technologies across all phases of project execution.

Findings revealed that AI tools are being widely adopted, with notable successes in areas such as predictive risk modeling, dynamic scheduling, real-time quality inspection, and automated reporting. These tools have enabled firms to improve decision-making, reduce manual workloads, and enhance both operational agility and stakeholder transparency. The ability to simulate scenarios, predict disruptions, and align labor and procurement plans more precisely has led to measurable efficiency gains for firms equipped with the resources and digital infrastructure to implement these technologies effectively.

However, the study also uncovered several key challenges impeding the full realization of AI's potential. These include integration issues with legacy systems, limited access to high-quality data, the high cost of AI deployment for small and medium enterprises (SMEs), and cultural resistance to automation—particularly in safety monitoring and communication. In addition, many AI systems were found to be ill-equipped to handle the complexities of India's informal labor and procurement ecosystems.

Overall, the study concludes that while AI is undeniably reshaping project management in India's construction industry, its success depends on more than technological readiness. Realizing the full benefits of AI will require investments in data infrastructure, inclusive algorithm design, workforce training, and stakeholder sensitization. The findings contribute new context-specific insights to the global discourse on AI in construction and offer a valuable foundation for both practitioners and policymakers working to scale up AI adoption in emerging markets like India.

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ASSESSING ONLINE SHOPPER SATISFACTION IN THE APPAREL SECTOR

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ABSTRACT

The fashion online market in India, currently valued at approximately \$8-10 billion, is projected to grow at a rate of 35%, reaching nearly \$30 billion within the next five years (Retail.com, 2022). Among various categories in fashion e-commerce, apparel holds the leading position. However, the industry faces significant challenges, such as the inability to physically examine products, concerns over privacy, and payment security, which affect customer retention. Despite these obstacles, the sector continues to expand steadily. This growth has dispelled earlier beliefs that Indian consumers would be hesitant to purchase apparel online, encouraging many traditional retailers to establish their own online platforms. Customer satisfaction plays a crucial role in motivating online sellers. Therefore, this study aims to evaluate the satisfaction levels of customers with online apparel shopping. The findings will assist online apparel retailers in better understanding their customers and addressing areas where satisfaction is lacking.

Keywords: Customer Satisfaction, Online Shopping, Apparel, E-Commerce

INTRODUCTION

The rapid advancement of technology and the widespread availability of the internet have transformed the way consumers shop, particularly in the apparel sector. Online shopping has grown exponentially over the last decade, reshaping traditional retail landscapes and offering consumers unparalleled convenience, variety, and accessibility. The apparel sector, being one of the largest and most dynamic segments of the retail industry, has witnessed significant shifts toward e-commerce platforms. This shift has been accelerated by factors such as increasing smartphone penetration, improved internet connectivity, and changing consumer lifestyles.

Online apparel shopping presents unique opportunities and challenges both for consumers and retailers. From the consumer perspective, the ease of browsing diverse collections, comparing prices, reading reviews, and making purchases from the comfort of their homes has enhanced shopping experiences. However, the absence of physical interaction with the product, issues related to size, fit, quality perception, return policies, and delivery timelines can affect overall satisfaction. Therefore, understanding the determinants of online shopper satisfaction in the apparel sector is critical for retailers to tailor their strategies, enhance customer experiences, and build long-term loyalty.

Consumer satisfaction in online apparel shopping is influenced by multiple factors, including website usability, product variety, pricing, payment options, security concerns, and after-sales services. The role of visual presentation, detailed product descriptions, and virtual fitting rooms has also gained importance in reducing uncertainty associated with purchasing apparel online. Additionally, logistics and supply chain efficiency, timely delivery, and hassle-free return policies contribute significantly to customer satisfaction levels. With increasing competition among online apparel retailers, businesses need to focus on these elements to differentiate themselves and retain customers in a highly volatile market.

Moreover, recent trends such as the rise of social media marketing, influencer endorsements, personalized recommendations, and mobile shopping apps have further shaped consumer expectations. The COVID-19 pandemic has also accelerated the shift toward online shopping, making the understanding of online shopper satisfaction more relevant than ever. Retailers now face the challenge of meeting heightened expectations while addressing concerns related to product authenticity, data privacy, and customer service responsiveness.

Assessing online shopper satisfaction in the apparel sector is not only important for identifying gaps and improving service quality but also for predicting future buying behaviors. High levels of satisfaction are associated with increased repeat purchases, positive word-of-mouth, and brand advocacy, which are crucial for sustaining competitive advantage. Conversely, dissatisfaction can lead to negative reviews, high return rates, and loss of customer trust, adversely impacting business performance.

This study aims to explore the key factors influencing online shopper satisfaction in the apparel sector, analyze consumer perceptions, and provide insights for e-retailers to enhance their value proposition. By understanding customer expectations and satisfaction drivers, apparel retailers can optimize their online platforms, streamline operations, and foster stronger customer relationships in an evolving digital marketplace.

LITERATURE REVIEW

- **Garai and Sen (2022)** investigated the online purchasing behavior of consumers in tier III cities of West Bengal. Their findings indicated that demographic variables such as gender, age, education, and occupation influence consumer attitudes towards online shopping, whereas household income did not have any significant effect.
- **Daroch et al. (2021)** explored factors that impact consumers' online shopping behaviour and identified six major barriers that discourage online purchases. These included concerns over online banking security, preference for traditional shopping due to convenience, trust issues related to sellers' reputation and service quality, lack of sufficient product information, negative past experiences, and feelings of insecurity.
- **Jain and Sharma (2020)** examined nine key factors affecting customer satisfaction in online shopping using 45 survey items. Their results highlighted that security, quality of information, payment methods, customer support, and product quality and variety significantly contribute to customer satisfaction.
- **Gomathi (2019)** found that consumer personal characteristics are closely linked to their awareness, attitudes, and satisfaction levels in online shopping. The study also categorized shoppers into three clusters—Great Shoppers, Mediocre Shoppers, and Disgusted Shoppers—and noted a relationship between gender and these shopper groups.
- **Rita, Oliveria, and Farisa (2019)** concluded that, except for customer service, the other dimensions of e-service quality positively correlate with overall customer satisfaction and trust. Their study supported the hypothesis that high e-service quality enhances both customer satisfaction and trust in the online shopping context.
- **Anand, Ramachandran, Sambasivan, and Batra (2019)** identified hedonic motivation as a key factor driving customer satisfaction, even when mediated by perception and attitude. They also found that although risk negatively affects satisfaction, this effect can be reduced by improving security measures and enhancing the product and seller image. Interestingly, their research did not find a positive relationship between utilitarian motivation and satisfaction.
- **Australia Post (2018)** analyzed consumer online shopping trends in Australia and observed a significant increase in online shopping, largely driven by younger consumers and the adoption of new payment options such as "Buy Now, Pay Later." The most frequently purchased product categories included electronics, clothing, and books.
- **Mathew (2015)** reported that factors like the availability of rare products, attractive offers, privacy, freedom of choice, wide product variety, and price flexibility contribute to customer delight during online shopping. The study emphasized that high service quality is essential for achieving elevated customer satisfaction, which in turn fosters positive customer behaviours (Brandy & Robertson, 2001).
- **Masinova and Svandova (2014)** conducted research with 167 participants and found that elements such as clear product descriptions, efficient claim handling, quality product images, diverse payment options, and fast response times play a crucial role in influencing customer satisfaction, especially when purchasing clothing online.

RESEARCH OBJECTIVE

The present study aims to achieve the following key objectives:

1. To examine the satisfaction levels of consumers purchasing apparels through online platforms.
2. To evaluate the impact of demographic factors on the satisfaction levels of online apparel shoppers.
3. To identify the most preferred websites among customers for purchasing apparels online.
4. To explore the primary sources of information consumers rely on when shopping for apparels online.

RESEARCH METHODOLOGY

- **Sampling Method:** The sample was taken through convenience sampling.
- **Sample Size:** 200 respondents were selected from state of Haryana to consist of the sample of the present study.
- **Measuring Instrument:** A survey was conducted through structured questionnaire. The questionnaire consists of two sections. First section collected demographic data of respondents and second section used 14 statements related to different criteria that measure satisfaction level of online shoppers of apparels. The

dependent variable for the study is customers' satisfaction level. Different demographic variables i.e. Gender, Age, Education level, Area of Residence, Income level is taken as independent variables. The responses were measured on Likert Scale ranging from highly satisfied to highly dissatisfied. Mean score of satisfaction parameters was calculated to derive dependent variable i.e. Customers' satisfaction level.

- **Data Analysis Technique:** Independent sample t-test and One-way ANOVA is used through SPSS to test the significance of difference. Cronbach's alpha test is used to check the reliability and internal consistency of measuring instrument. Mean score and standard deviation were calculated in excel.
- **Research hypothesis:** Following hypotheses were developed to achieve our objective.
 - H_{01} : There is no relation between Gender and Satisfaction level of customer towards online shopping of apparel.
 - H_{02} : There is no relation between Age group and Satisfaction level of customer towards online shopping of apparel.
 - H_{03} : There is no relation between Education and Satisfaction level of customer towards online shopping of apparel.
 - H_{04} : There is no relation between Income level and Satisfaction level of customer towards online shopping of apparel.
 - H_{05} : There is no relation between area of residence and satisfaction level of customer towards online shopping of apparel.

DATA ANALYSIS AND FINDINGS

This section provides the Analysis and finding of the study.

Table 1: Reliability Statistics

Cronbach's Alpha	N
0.921	14

To check the reliability of measuring instrument Cronbach alpha test was used. Table 1 shows the value of Cronbach's alpha, which is .921, alpha value higher than 0.7 is considered acceptable. Thus, internal consistency of the items used in instrument is assured.

Table 2: Mean score and standard deviation of Satisfaction level of Online Shoppers of Apparels

Satisfaction Parameters	N	Minimum	Maximum	Mean	Std. deviation
Are you satisfied with the appearance, quality, style and fit of apparels purchased online?	200	1	5	3.85	.800
Are you satisfied with the apparel price purchased through online stores	200	1	5	3.80	.802
Did you get the same product as displayed in image	200	1	5	3.70	.845
Are you satisfied with display of product image	200	1	5	3.78	.865
Are you satisfied the number of apparel brands available in online stores	200	1	5	3.91	.837
Are you satisfied with the packaging of the product	200	1	5	4.02	.830
Are you satisfied with the delivery time of your order	200	2	5	3.95	.778
Are you satisfied with the total cost for your order	200	1	5	3.91	.778
Are you satisfied with the amount of information available regarding apparels on websites	200	2	5	3.93	.754
Are you satisfied with the promotional deals offered by online sellers for purchasing	200	2	5	3.90	.754

apparels online					
Are you satisfied with the modes of payment available for payment of apparels	200	1	5	4.04	.788
Are you satisfied with security in payment process	200	2	5	3.94	.787
Are you satisfied with product reviews available on websites	200	1	5	3.91	.784
Are you satisfied with the customer services provided by online apparel stores	200	2	5	3.89	.760
Valid N (listwise)	200				

Table 2 shows mean score of satisfaction level of online shoppers of apparels. The values of different parameters of satisfaction level are above 3.70 which show higher satisfaction level of consumers towards online shopping of apparels. "Are you satisfied with the modes of payment available for payment of apparels" scored the highest value of 4.04 followed by "Are you satisfied with the packaging of the product", "Are you satisfied with the delivery time of your order" and "Are you satisfied with security in payment process". The results shows that maximum consumers are satisfied with regard to significant aspects like mode of payment, packaging, delivery time, security, availability of information, product review, number of brands, total cost of order, promotional deals, customer services, fit & style, apparel price, and display of product.

Table 3: Descriptive Statistics

Gender	N	Mean	Std. Deviation	Std. Error of Mean
Male	59	3.86	.676	.08801
Female	141	3.90	.505	.04258

Table 3 shows that female have higher mean score than male therefore it can be stated that female derive more satisfaction from online shopping of apparels. It shows the predisposition that females are more fashion and looks conscious.

Table 4: T- test results for Gender and Satisfaction Level

	F	Sig.	t	df	One-Sided P	Two-Sided P	Mean Difference	Std. Error Difference	95% Confidence interval (lower)	(Upper)
Equal variance assumed	4.74	0.03	-0.53	198	0.295	0.591	-0.046	0.086	-0.218	0.124
Equal variance not assumed			-0.47	86.3	0.317	0.633	-0.046	0.097	-0.241	0.147

Table 4 shows the results of t-test regarding difference of satisfaction level towards online shopping of apparel on the basis of gender. Value of p is greater than 0.05 thus it can be concluded that there is no significant difference between male and female with regard to satisfaction level in case of online shopping of apparels. We accept our H_0 that there is no relationship between Gender and Satisfaction level of customer towards online shopping of apparels.

Table 5: Descriptive Statistics

Age group	N	Mean	S.D.	Std. Error	95% Confidence Interval for Mean		Mini Mum	Maxi mum
					Lower Bound	Upper Bound		
up to 20	65	3.80	.586	.073	3.65	3.94	2	5
21-30	66	3.98	.560	.069	3.84	4.12	3	5
31-40	55	3.88	.494	.067	3.75	4.02	3	5
41-50	10	4.01	.786	.248	3.45	4.57	2	5
51-60	3	3.98	.041	.024	3.87	4.08	4	4

above 60	1	4.07	4	4
Total	200	3.90	.560	.040	3.82	3.97	2	5

Table 5 shows that mean score of respondents above 60 is highest however as there is only one respondent in that category that does not assume much importance. So, if we see carefully, we will find that majority of the respondents belong to the group up to 20, 21-30 and 31-40 age groups. It is due to the fact that younger generation is more technology friendly and adaptive to new trends of shopping. The above table shows the means scores of satisfaction level of different age group customers.

Table 6: ANOVA Results– Age and Satisfaction level

	Sum of Squares	df	Mean Square	F	Sig.(P value)
Between Groups	1.284	5	.257	.815	.540
Within Groups	61.113	194	.315		
Total	62.397	199			

The study does not find any significant difference among different age group with regard to satisfaction level towards online shopping of apparels. P value is greater than 0.05 therefore we accept the H_{02} . It can be concluded that age has no relation with satisfaction level in case of online shopping of apparels.

Table 7: Descriptive Statistics

Education level	N	Mean	S.D.	Std. Error	95% Confidence Interval for Mean		Mini Mum	Maxi mum
					Lower Bound	Upper Bound		
10th	3	3.79	.189	.109	3.32	4.26	4	4
12th	44	3.85	.605	.091	3.67	4.03	2	5
Graduate	53	3.94	.602	.083	3.77	4.11	2	5
Post Graduate	87	3.87	.547	.059	3.75	3.99	2	5
others	13	4.05	.334	.093	3.85	4.25	4	5
Total	200	3.90	.560	.040	3.82	3.97	2	5

Table 8: ANOVA Results - Education and Satisfaction level

	Sum of Squares	df	Mean Square	F	Sig.(P value)
Between Groups	.599	4	.150	.473	.756
Within Groups	61.798	195	.317		
Total	62.397	199			

Table 7 shows customers having qualification in “other” category have highest mean score of satisfaction level however Table 8 results shows that there exists no significant difference among different education level and the satisfaction level of customers with regard to online shopping of apparels. It leads to acceptance of H_{03} . However, Satisfaction level is found to be high among all groups irrespective of education level.

Table 9: Descriptive Statistics

Income Distribution	N	Mean	S.D.	Std. Error	95% Confidence Interval for Mean		Mini mum	Maxi mum
					Lower Bound	Upper Bound		
Up to Rs. 15000	104	3.87	.573	.056	3.76	3.98	2	5
Rs. 15001-25000	31	3.93	.413	.074	3.77	4.08	3	5
Rs. 25001-50000	18	3.93	.651	.153	3.61	4.26	3	5
Above Rs. 50000	47	3.92	.592	.086	3.75	4.09	2	5
Total	200	3.90	.560	.040	3.82	3.97	2	5

Table 10: ANOVA Results- Income and Satisfaction level

	Sum of Squares	df	Mean Square	F	Sig.(P value)
Between Groups	.166	3	.055	.175	.913
Within Groups	62.231	196	.318		
Total	62.397	199			

Table 10 thrives to show the difference between Income level and Satisfaction level of online shoppers of apparels. The result leads to acceptance of H_{04} thereby concluding that there is no significant difference exists between income level and Satisfaction level of online shoppers of apparel.

Table 11: Descriptive Statistics

Area of Residence	N	Mean	S.D.	Std. Error of Mean
Urban	112	3.88	.582	.055
Rural	88	3.91	.533	.057

Table 11 shows that satisfaction level of customers from rural area is higher than the customers in urban area as mean score is higher in case of rural area. However, to test the significance of difference between the two mean t-test is used. Following table shows the result of t-test.

Table 12: t- test result- Area of residence and Satisfaction level

	F	Sig.	t	df	One-Sided P	Two-Sided P	Mean Difference	Std. Error Difference
Equal variance assumed	.925	.337	-.387	198	.349	.699	-.031	.080
Equal variance not assumed			-.391	193.4	.348	.696	-.031	.079

Results of t-test shows that p value is greater than 0.05 therefore the mean difference found in rural and urban area is not significant. We can conclude that there is no significant difference in satisfaction level of customers towards online shopping of apparel on the basis of area of residence. It leads to acceptance of H_{05} .

Table 13: Ranking of Source of Information

Source of information	Frequency	Rank
Company website	98	4
Search engines	121	3
Friends and Family	142	1
Product reviews in the print media	85	6
Promotional e-mails	59	9
Online advertisement	87	5
Social media	127	2
Advertisement (print and broadcast)	65	8
Blogs	72	7
others	45	10

Table 13 shows that Friends and Family is most preferred source of information used by online shoppers of apparels. Apparels is a very special category of goods. Customers feel hesitated while buying of apparels as it does not give them opportunity to touch and feel. To avoid the hesitation and risk (risk of bad quality product), many customers prefer to use those websites and brands referred to them by their friends and family. Social media is assuming great importance now days. People are spending most of their time by being members of different groups on social media. It has become a platform where people let out their opinions, feelings, suggestions etc. In our study too social media is ranked on second position. Search engines, Company website and Online advertisements accord their position in top 5 sources used by online shoppers of apparels.

Table 14: Ranking of Favourite Websites

Website Name	Frequency	Rank
Ajio	68	5
Myntra	74	4
Flipkart	119	1
Amazon	117	2
Jabong	7	9
Meesho	79	3
Tata cliq	16	7
Voonik	6	10
Ebay	12	8
Snapdeal	33	6

Table 14 shows the result regarding most preferred website by customers for online shopping of apparels. There is much competition between Flipkart and Amazon for first position as the difference between the frequencies is marginal. As per the data in the table most preferred site by the customers is Flipkart followed by Amazon, Meesho, Myntra and Ajio. The results are consistent with the study carried out by Dr. D. Sudhakar, R. Swarna, Deva Kumari (2016). In the study it was found that majority respondents preferred to buy products through the Flipkart website followed by Amazon. The big sales announced by these platforms time to time could be the influential factor for preference by the respondents.

LIMITATION AND SUGGESTION

The study used a small sample to study the issue in hand. A larger sample would have given better insight into the subject matter. The effect of demographic variables on satisfaction level of online shoppers has been studied; future researches may include other variables such as website layout, payment modes, customer support etc. to the framework and study the relationship with a larger sample to develop a more consistent model for the study. Furthermore, future researches may be conducted with the same variables in different geographical and environmental settings.

CONCLUSION

The present study aimed to assess online shopper satisfaction in the apparel sector with a specific focus on consumers in Haryana. The findings suggest that while online apparel shopping is gaining popularity across the state, consumer satisfaction is influenced by several key factors including product quality, timely delivery, ease of return policies, and the reliability of online platforms.

It was observed that a significant proportion of respondents in urban and semi-urban areas of Haryana have shifted to online shopping due to convenience, availability of multiple choices, and attractive discounts. However, issues such as size mismatches, delayed deliveries, and concerns over fabric quality continue to affect satisfaction levels, especially in rural regions where internet penetration and digital literacy are still evolving.

Furthermore, the research highlights the growing trust among consumers towards reputed e-commerce platforms like Amazon, Flipkart, and Myntra, while skepticism remains toward lesser-known websites. Return policies and customer service play a vital role in influencing repeat purchases.

In conclusion, while online apparel shopping in Haryana shows promising growth and acceptance, customer satisfaction remains a dynamic parameter that demands continuous attention from e-retailers. To enhance shopper satisfaction, companies must invest in improving product descriptions, size accuracy, delivery logistics, and customer support, especially targeting Tier-2 and Tier-3 towns of Haryana.

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A STUDY ON GREEN BONDS IN INDIA AN OVERVEIW

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ABSTRACT

"A shift towards sustainable development necessitates substantial financial backing for investments. In recent years, green bonds have revolutionized the sustainable finance landscape, emerging as a vital instrument for funding eco-friendly projects. Despite the rapid growth of the green bond market, research in this area remains limited. This study delves into the evolution of green finance in India, focusing on the issuance of green bonds. To assess progress, data was gathered from reputable secondary sources, including official portals like RBI and SEBI, as well as journals, articles, and other websites. The findings reveal remarkable advancements in green finance over the past seven years (2012-2024), with India securing the fourth position globally in terms of green bond issuance as a percentage of total bond issuance among 12 countries."

Keywords: Green Finance, India, SEBI, RBI and Green Bonds.

INTRODUCTION

Addressing Environmental Concerns through Green Finance

In today's scenario, pressing issues like global warming, energy conservation, pollution control, and environmental protection require immediate attention. Both non-monetary and monetary aspects must be considered, with adequate funding allocated to address these concerns.

The Financial Market has introduced the concept of "Green Finance," which focuses on environmentally friendly funding. This includes Green Bonds, Environment, Social and Governance (ESG) initiatives, and Renewable Sources.

India, an emerging economy, needs significant investments in climate action to transition towards a Low-carbon Climate Resilient (LCR) future. To achieve this, India requires affordable fossil fuels and protection against price fluctuations. "Green Bonds" can help attract substantial investments into the economy, serving as a climate finance debt instrument that tackles environmental and climate-related challenges.

CONCEPT OF GREEN BOND

Figure 1.0



Green Bond is a specialized fixed-income instrument designed to support specific climate-related and environmental protection projects. Key characteristics of Green Bonds include:

Asset-linked: Green Bonds are typically linked to specific assets or projects. **Balance sheet-backed:** They are backed by the issuing entity's balance sheet, ensuring a high level of creditworthiness.

Credit rating: Green Bonds usually carry the same credit rating as other debt obligations issued by the same entity.

By issuing Green Bonds, organizations can raise funds for environmentally friendly initiatives while providing investors with a low-risk investment opportunity.

FEATURES OF GREEN BONDS:

1. Fixed-income instrument: Green Bonds offer a fixed return on investment, providing a predictable income stream for investors.
2. Tax incentives: To make them more appealing, Green Bonds often come with tax benefits, such as tax exemptions or deductions, which can increase their attractiveness to investors.
3. Milestone issuance: The World Bank pioneered the Green Bond market by issuing the first official Green Bond in 2008 (not 2009), marking a significant milestone in sustainable finance.
4. Growing market: Although the correct figure for 2008 is around \$1.5 billion (not \$157 billion), the Green Bond market has grown substantially since then, with a record issuance of over \$255 billion in 2023 alone, demonstrating increasing demand for sustainable investment opportunities.

SCOPE OF GREEN BONDS:

Green Bonds initiatives focus on a wide range of eco-friendly projects, including energy efficiency, pollution control, sustainable agriculture, and clean transportation. Additionally, they support conservation efforts for aquatic and terrestrial ecosystems, fisheries, and forests. The scope of Green Bonds has also been expanded to encompass the development of environmentally friendly technologies and climate change mitigation strategies, further emphasizing their commitment to a sustainable future.

STATUS OF GREEN BONDS:

To ensure the authenticity of Green Bonds, third-party verifications are often conducted by organizations such as the Climate Bonds Standard Board (CBSB). This certification process confirms that the funds raised through the bond will be allocated to projects that deliver tangible environmental benefits, providing an added layer of assurance for investors seeking to support eco-friendly initiatives."

LITERATURE REVIEW

1. Tolliver, Keeley, and Managi (2020) The authors note that Green Bonds are increasingly used to finance initiatives focused on reducing emissions, sustainable development, and other green investments. This has led institutions to incorporate Green Bonds into their financial structures to manage climate change.
2. Flammer (2019) Flammer highlights the recognition by government agencies, supranational bodies, and corporations of the importance of financial sustainability in addressing climate change. The issuance of Green Bonds is seen as crucial in mitigating the worsening of climate change.
3. Karpf and Mandel (2018) The authors observe that municipal markets have tended to penalize Green Bonds by trading them at lower prices and generating higher yields than expected. This suggests that Green Bonds may face challenges in certain markets.
4. Hachenberg and Schiereck (2018) The authors note that increased awareness of sustainability has led to the establishment of Green Bonds in financial circles. Despite existing impediments, the Green Bonds market has expanded significantly in recent years.
5. Voica, Panait, and Radulescu (2015) The authors emphasize the critical role of investments in Green Bonds, particularly in infrastructure, in achieving sustainability objectives in financial management.

NEED FOR THE STUDY

The literature review reveals that Green Bonds have emerged as a vital funding source for environmental protection, pollution control, and ecosystem sustainability. Although still in its evolutionary stage in India, Green Bonds have the potential to play a crucial role in addressing the country's environmental challenges. Given the urgent need to reduce environmental damage and protect the planet from future pandemics, it is essential to mobilize financial support through Green Bonds and harness their potential for a sustainable future.

OBJECTIVES OF THE STUDY

Based on the literature review and need for the study, the following objectives are taken.

- Analyze the initiatives and guidelines set by the Securities and Exchange Board of India (SEBI) for Green Bonds.
- Evaluate the growth and development of the Green Bonds market in India from an issuer's and investor's perspective.

RESEARCH METHODOLOGY

This study is based on a comprehensive review of secondary sources, including: Reputable academic journals and articles. Official publications and reports from the Reserve Bank of India (RBI) and the Securities and Exchange Board of India (SEBI) other credible online sources

The use of secondary sources provides a solid foundation for this study, enabling a thorough analysis of existing research and data on Green Bonds in India

GREEN BONDS IN INDIA

Need for Green Bonds in India:

India's Renewable Energy Ambitions

India has set bold targets to enhance energy access, energy security, and combat climate change by scaling up renewable energy capacity. The country aims to achieve 175 Gigawatts of solar, wind, and other renewable energy capacity by 2022, requiring a substantial investment of approximately USD 264 billion. To bridge the financing gap and meet these national objectives, innovative financial instruments like Green Bonds must be leveraged and scaled up. By doing so, India can unlock the necessary funding to drive its renewable energy growth and sustainability agenda forward.

SIGNIFICANCE OF GREEN BONDS FROM INDIAN PERSPECTIVE

The evolution of Green Finance in India:

Early Beginnings (2007) RBI's notification on Corporate Social Responsibility, Sustainable Development, and Non-Financial Reporting emphasized the role of banks in addressing global warming and climate change.

National Action Plan on Climate Change (2008) Formulated to outline a broad policy framework for mitigating the impact of climate change.

Fiscal and Financial Incentives Introduced to support India's commitment under the 2015 Paris Agreement to reduce Green House Gas Emissions. These incentives aim to encourage sustainable practices and green investments in India.

India's progressive steps towards embracing Green Finance demonstrate its dedication to addressing climate change and promoting sustainable development.

MAJOR MOVEMENT FOR GREEN BONDS IN INDIA

Key Milestones in India's Green Finance Journey

Establishment of Climate Change Finance Unit (CCFU) (2011) Formed within the Ministry of Finance to address climate change-related financial aspects

Sustainability Disclosure Requirements Implemented to enhance transparency and accountability in environmental and social aspects.

SEBI's Green Bond Guidelines (May 2017) Issued to standardize the issuance of Green Bonds, specifying disclosure requirements for: Use of proceeds Project evaluation and selection Reporting and auditing

These developments reflect India's growing commitment to green finance and sustainable development, aligning with global best practice.

STEPS TAKEN BY SEBI TO PROMOTE GREEN BONDS

The following are the steps taken by the SEBI in recent years.

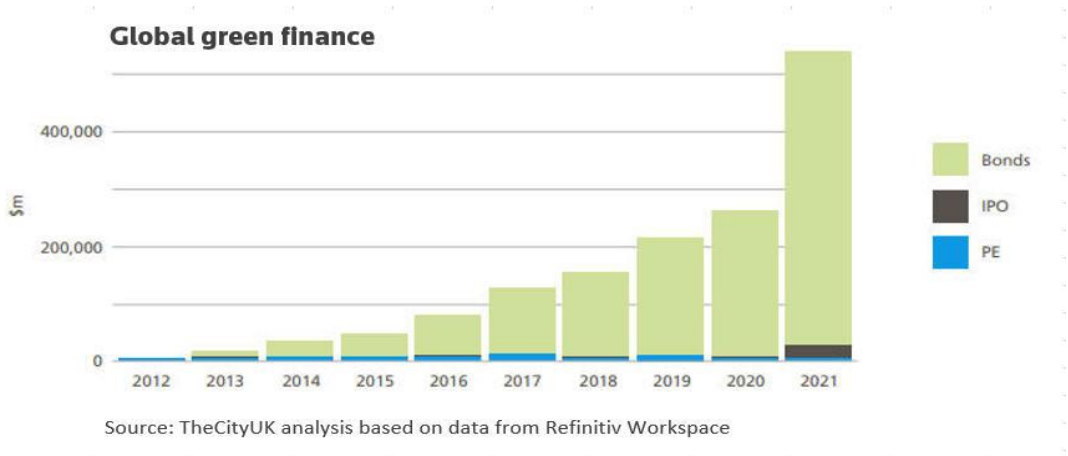
- SEBI's Initiatives to Promote Green Bonds Guidelines for Green Bond Issuance (May 2017)
- Standardized disclosure requirements for Green Bond issuers Green Bond Framework (2018)
- Provided a unified framework for Green Bond issuance Recognition of Green Bond Index Encouraged the development of Green Bond indices to track market performance
- Relaxation of Listing Norms (2020) Simplified listing requirements for Green Bonds to increase market access Tax Incentives
- Considered tax benefits for Green Bond investors to enhance attractiveness
- Education and Awareness
- Conducted workshops and seminars to raise awareness about Green Bonds

- Green Bond Certification
- Introduced certification for Green Bonds to ensure compliance with SEBI guidelines

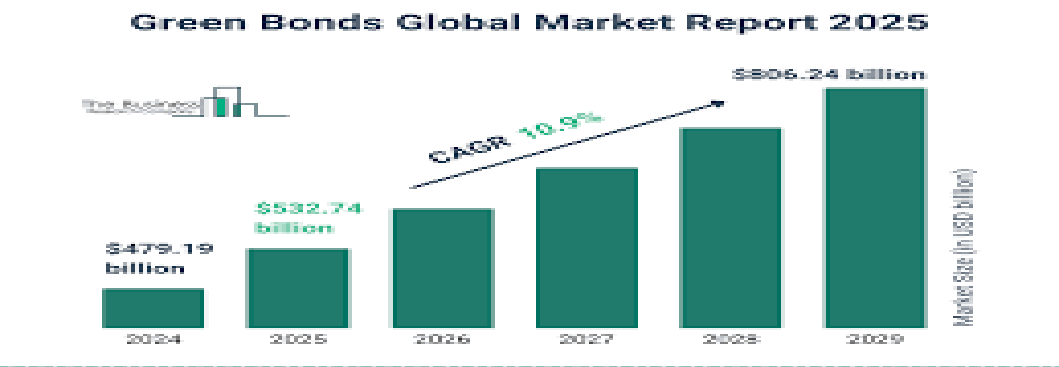
These steps demonstrate SEBI's commitment to promoting Green Bonds and developing a sustainable finance ecosystem in India.

DATA ANALYSIS AND INTERPRETATION
PROGRESS OF GREEN FINANCE - “GREEN BONDS” IN INDIA

Fig 2.0



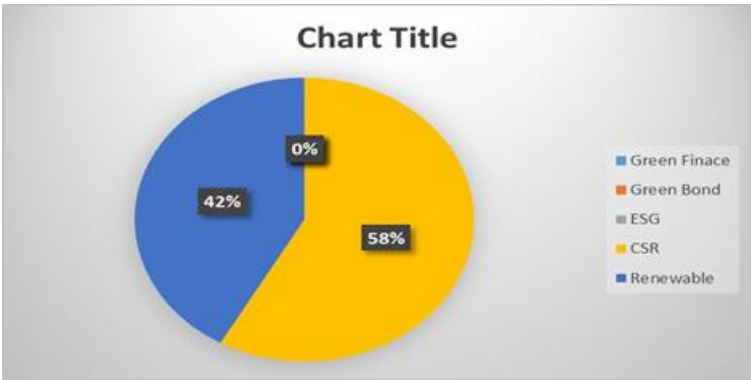
Source: “Green Finance in India” – RBI Bulletin January, 2021



Interpretation: From the above chart, we can say that India’s comparative score is in increasing trend from yr to yr which implies green finance has made good progress from past seven years i.e. from 2012 to 2024.

Distribution of Finance in Percentages

Fig 3.0



Source: “Green Finance in India” – RBI Bulletin January, 2024

Interpretation: From the above chart, it is observed that, Green Finance is 42%, CSR is 58% and other parts/aspects of green finance are 0%.

Table No.1 Green Bonds Issuance

Country	Amount issued (\$ Millions)	No. of Bonds issued	Amount issued as per cent of all bond issuance (per cent)	Number of bonds issued as per cent of all bond issuance (per cent)
Europe	196,854	594	1.3%	0.4%
China	63,023	183	0.3%	0.2%
USA	35,421	71	0.2%	0.2%
Japan	11,815	88	0.1%	1.1%
South Korea	11,781	44	1.0%	0.4%
Central & South America	8,869	53	0.5%	1.0%
India	7,792	22	0.7%	0.3%
South-East Asia	7,208	86	0.6%	1.4%
Australia & New Zealand	5,878	15	1.1%	0.8%
UK	5,311	17	0.4%	0.5%
Hong Kong	4,781	19	0.5%	1.0%
Singapore	496	9	0.05%	1.2%

Source: "Green Finance in India" – RBI Bulletin January, 2024

Interpretation: From the above table, it is observed that, in the Indian perspective, the amount issued on Green Bonds as a percent of all bonds issuance is 0.7% and the number of Green Bonds issued as a percent of all bonds issuance is 0.3%.

RECOMMENDATIONS

Integrating Green Finance into Corporate Structures

1. To promote sustainable practices, companies should incorporate Green Finance into their financial frameworks as part of their Social Investment Responsibility (SIR). Furthermore:
2. Enhanced SEBI Guidelines: Strengthened regulations can encourage investments in Green Bonds, driving eco-friendly initiatives.
3. RBI Policy Emphasis: The Reserve Bank of India should prioritize Green Finance Schemes with Commercial Banks, amplifying their impact.
4. Integrated Policy Approach: Global experiences highlight the need for a unified policy strategy towards Green Finance, ensuring a cohesive and effective transition to sustainable practices.

CONCLUSION

In today's scenario, environmental protection is of paramount importance. Finance plays a vital role in driving eco-friendly initiatives, and green bonds are emerging as a crucial instrument in India. However, green projects often come with high upfront costs, with cost-saving benefits only materializing in the long term.

The COVID-19 pandemic has not only affected the economy but also hindered environmental efforts. Investors have been hesitant to undertake new projects, and policymakers have faced obstacles in financing green initiatives. Since March 2020, many projects have stalled.

To achieve sustainable development, it's essential to expand the green bonds market, allocating financial resources to green projects focused on power, renewable energy, pollution control, and environmental protection. India, in particular, requires decisive action in the finance sector to prioritize eco-friendly investments and drive meaningful change.

SCOPE FOR FURTHER RESEARCH

In recent years, Environmental Protection, Sustainable Development, Pollution Control, and Renewable Energy have gained significant momentum. The pandemic has further underscored the importance of environmental protection, leading to increased investments in preserving the green environment. These developments present exciting opportunities for research scholars to explore and contribute to the growing body of knowledge in this field.

Specifically, topics such as:

Green Finance: Exploring innovative financial instruments and mechanisms that support eco-friendly initiatives

Green Accounting: Developing accounting practices that integrate environmental costs and benefits into financial reporting

Green Bonds: Analyzing the role of green bonds in financing sustainable projects and promoting environmental stewardship offer fertile ground for further research, analysis, and expansion of the finance domain.

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AN ANALYSIS: WOMEN CEOS NAVIGATING CHANGE AND COMPLEXITY– CASE STUDIES FROM ASIA

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ABSTRACT

This research paper provides an in-depth analysis of the leadership strategies of women CEOs in Asia, with a specific focus on their effectiveness in navigating complexity and organizational change. Drawing on case studies, quantitative metrics, and comparative analysis, the paper examines how leaders such as Ho Ching (Temasek Holdings, Singapore), Noni Purnomo (Blue Bird Group, Indonesia), and Haruno Yoshida (BT Japan, Japan), Kiran Majumdar Shaw (India), Tan Hooi Ling (Grab) have transformed their organizations. These leaders have succeeded in male-dominated environments, overcoming structural and cultural barriers while instilling a new paradigm of performance, innovation, and inclusion. The research highlights the strategic themes of values-driven leadership, digital transformation, accountability, stakeholder engagement, and cultural intelligence. It also presents data on revenue growth, market expansion, employee well-being, and ESG outcomes under their leadership.

By combining both qualitative insights and empirical metrics, the study reveals that these women leaders not only achieved significant financial success but also promoted sustainability, inclusivity, and innovation. The case of Ho Ching is explored in detail to understand transformational public-sector leadership. A comparative reflection showcases cross-cultural and sectoral insights across diverse Asian economies. The conclusion synthesizes these findings to show that women CEOs in Asia are redefining leadership standards and paving the way for more resilient and equitable business practices. The paper also identifies key areas for future research including broader regional analysis, longitudinal performance tracking, and the role of policy support in enabling women's leadership.

Keywords: Women CEOs, Asia, Leadership Strategies, Organizational Change, Ho Ching, Temasek Holdings, Female Leadership, Corporate Governance, Strategic Leadership, ESG Performance, Innovation, Inclusion, Digital Transformation, Cross-Cultural Management, Transformational Leadership

INTRODUCTION

In the 21st century, leadership has become increasingly defined by agility, emotional intelligence, and the ability to navigate rapid and complex change. Within this evolving landscape, the role of women leaders—especially women CEOs—has gained growing academic and societal interest. Despite a persistent gender gap at the top levels of corporate leadership worldwide, women in Asia are beginning to break long-standing barriers to occupy the highest echelons of business and governance. This phenomenon is particularly compelling in Asia, a region that is home to more than half of the world's population, marked by diverse political systems, economic structures, and cultural norms. The rise of women CEOs in Asia not only challenges traditional gender roles but also redefines what effective leadership looks like in environments characterized by complexity, uncertainty, and cultural conservatism.

This research paper explores how women CEOs in Asia navigate the multifaceted challenges of leading in volatile, uncertain, complex, and ambiguous (VUCA) environments. It examines the intersection of gender, leadership, and strategy within a region where patriarchal structures remain deeply embedded in corporate, familial, and social hierarchies. While global narratives often spotlight Western female leaders, this paper shifts the lens toward Asian women executives—whose leadership is shaped by unique contextual variables such as Confucian values, post-colonial legacies, familial capitalism, and rapid digital transformation.

The core research question guiding this analysis is: **How do women CEOs in Asia effectively navigate complexity and change, and what strategic frameworks enable their success?** To address this question, the paper adopts a mixed approach. It begins with a review of existing literature on gender and leadership in Asia, identifying key structural and cultural factors that shape women's leadership experiences. It then outlines a set of strategic approaches commonly employed by successful women CEOs to manage change, build influence, and drive innovation. A detailed case study of **Ho Ching**, former CEO of Temasek Holdings in Singapore, serves as a primary lens through which these strategies are analysed in practice. Supplementary insights from leaders such as **Kiran Mazumdar-Shaw** (India), **Haruno Yoshida** (Japan), and **Noni Purnomo** (Indonesia), **Tan Hooi Ling** (Singapore) provide comparative depth.

Ultimately, this paper argues that women CEOs in Asia are not merely adapting to complex environments—they are transforming them. Through strategic vision, stakeholder engagement, and culturally attuned leadership, these executives are expanding the boundaries of what is possible for women in power. By understanding their strategies, we can better appreciate the evolving dynamics of leadership in Asia and the role women play in shaping the future of work, policy, and enterprise.

2. LITERATURE REVIEW

This literature review explores the cultural, structural, and strategic dimensions that shape the experiences of women CEOs in Asia. It focuses on three core themes: (1) Gender and Leadership in Asia, (2) Women in Executive Roles—Regional Perspectives, and (3) Navigating Complexity and Change from a Gendered Lens

2.1 Gender and Leadership in Asia

Asia represents one of the most culturally and economically diverse regions in the world, yet across this diversity, a common thread persists: deeply rooted patriarchal systems that shape societal expectations of gender roles. Women in leadership roles often contend with what Eagly and Karau (2002) describe as a “double bind”—where behaviours seen as assertive in men are perceived as aggressive in women. This phenomenon is prevalent in Asian societies, where deference, modesty, and relational harmony are traditionally emphasized, especially for women (Leung, 2001).

In Confucian societies like China, South Korea, and Japan, corporate cultures are strongly hierarchical, and seniority is closely tied to age and gender. Women who ascend to leadership positions often do so through exceptional educational credentials or international experience, as domestic pathways tend to favor male successors. According to the **Catalyst Women in Leadership** report (2023), South Korea and Japan have among the lowest proportions of women in executive roles in the OECD, despite high levels of female education.

In contrast, countries like the Philippines and Thailand rank higher in gender parity indices due to historical matrilineal structures and stronger female participation in sectors such as healthcare, education, and small enterprise. The **Asian Development Bank (ADB)** (2021) notes that women in these Southeast Asian countries are more likely to lead family-owned or entrepreneurial ventures, suggesting alternative pathways to leadership beyond the corporate hierarchy.

2.2 Women in Executive Roles – Regional Perspectives

South Asia (India, Bangladesh, Sri Lanka)

In India, women CEOs have emerged prominently in sectors like pharmaceuticals, banking, and information technology. Leaders such as **Kiran Mazumdar-Shaw** (Biocon), **Indra Nooyi** (PepsiCo, though globally based), and **Chanda Kochhar** (ICICI Bank) have challenged the gender status quo through performance-driven leadership. Yet, the pathway to the top remains narrow. According to **Grant Thornton's Women in Business 2023** report, only 15% of mid-sized Indian businesses have women in senior management.

Family-owned conglomerates dominate the South Asian business landscape. While women in prominent business families (e.g., Nita Ambani in Reliance Group) occasionally take high-profile leadership roles, these are often framed through familial rather than meritocratic narratives. The tendency to view women leaders as exceptions rather than systemic outcomes reinforces the perception that the “glass ceiling” remains firmly in place.

East Asia (Japan, South Korea, China)

In Japan and South Korea, societal norms continue to pose formidable barriers to female leadership. Corporate boards in Japan average only about 11% female representation (Nikkei Asia, 2023). Notably, **Haruno Yoshida**, former president of BT Japan and a vocal advocate for gender parity, has highlighted the “silent resistance” women face within rigid corporate cultures that prioritize lifetime employment and male-dominated mentorship pipelines.

China offers a somewhat different trajectory. While Confucian patriarchy persists, state policy has historically promoted women's participation in the workforce, particularly during the Maoist era. Today, China boasts a high proportion of self-made female billionaires, particularly in the tech and real estate sectors. According to a 2022 **Hurun Report**, 60% of the world's self-made female billionaires are Chinese. Yet, few women lead China's state-owned enterprises or large listed firms, where power dynamics remain tightly controlled by party-state structures.

Southeast Asia (Singapore, Indonesia, Philippines, Vietnam, Malaysia)

Southeast Asia exhibits more diversity in gender inclusion. In Singapore, progressive policies, high female education rates, and meritocratic values have allowed women like **Ho Ching** (Temasek Holdings) and **Sim Ann** (Singapore's government) to rise to leadership. Singapore's compact ecosystem also encourages close government-business collaboration, which can serve as a platform for capable women to lead large, strategic institutions.

In Indonesia, women CEOs like **Noni Purnomo** (Blue Bird Group) have navigated both cultural expectations and economic transitions by leveraging family business legacies and applying modern leadership strategies. Similarly, in the Philippines, women have long played visible roles in politics and business. **Tessie Sy-Coson** of SM Investments exemplifies the integration of traditional family values with global business practices.

2.3 Navigating Complexity and Change from a Gendered Lens

Leadership in today's Asia is defined by complexity: global supply chain shifts, digital transformation, climate vulnerability, and political fragmentation. In this volatile landscape, women CEOs often draw on adaptive leadership models to thrive.

Research indicates that women leaders in Asia tend to use **relational leadership**—an approach grounded in building trust, long-term collaboration, and emotional engagement. These traits are increasingly essential in complex environments, where linear problem-solving and rigid hierarchies often fail (Snowden & Boone, 2007).

Emotional Intelligence (EI) is a particularly valuable competency. In cultures that emphasize indirect communication and respect for hierarchy (common in Japan, Korea, and Vietnam), women leaders often outperform in reading context, sensing resistance, and adjusting tone or strategy accordingly. A study by Korn Ferry (2022) found that female CEOs in Asia rated higher than male peers in empathy, adaptability, and conflict management.

Moreover, the **“double outsider” effect**—being both female and sometimes not from the dominant elite networks—can make women leaders more attuned to stakeholder diversity. They are often more inclusive, more open to feedback, and more willing to challenge status quo practices that may be misaligned with emerging realities. This attribute is crucial in environments where tradition often trumps innovation, such as in Japan's keiretsu conglomerates or India's older family firms.

Finally, women leaders in Asia tend to leverage **digital transformation** as a means to bypass traditional gatekeeping. In countries like China and Indonesia, women have founded e-commerce platforms, fintech startups, and digital services companies where structural biases are less entrenched compared to legacy industries. These spaces allow for a recalibration of leadership norms around innovation, agility, and customer-centricity.

Synthesis

Taken together, the literature reveals that women CEOs in Asia navigate a complex matrix of opportunity and constraint. They operate at the intersection of tradition and transformation—carving new pathways while contending with deep-seated patriarchal structures. Their success is often underpinned by adaptive leadership, high emotional intelligence, strategic networking, and a commitment to long-term societal impact. While progress remains uneven across the region, the rise of these leaders signals a shift not only in gender roles but in the very definition of effective leadership in Asia.

Strategies Used by Women CEOs in Asia to Navigate Complexity and Change

Women CEOs in Asia operate in environments marked by cultural conservatism, structural gender barriers, and accelerated business transformation. To lead effectively, they employ distinct strategies that not only help them overcome obstacles but also generate tangible benefits for the organizations they lead. This section outlines five well-documented strategies and analyzes the organizational advantages that stem from each.

Strategy 1: Establishing Legitimacy through Expertise and Track Record

Women CEOs often face skepticism, especially in male-dominated industries or family businesses. Establishing credibility through technical expertise, measurable performance, and global standards allows them to neutralize bias and position themselves as value creators.

Organizational Benefits:

- Builds investor confidence due to transparent and data-backed leadership.
- Enhances organizational reputation through commitment to quality and innovation.

- Attracts high-caliber talent who are drawn to strong leadership.

Example – Kiran Mazumdar-Shaw (Biocon, India): By focusing on research excellence, Kiran grew Biocon into a global pharmaceutical firm with FDA-approved facilities. Her leadership helped Biocon enter regulated markets like the U.S. and Europe, expanding its global footprint.

Quantitative Metrics:

- Biocon's market capitalization increased by over 400% during her tenure.
- R&D investment as a percentage of revenue rose to 12%.
- Global market penetration in 120+ countries.

Strategy 2: Transformational and Participative Leadership

Rather than top-down control, many women CEOs use transformational leadership—they inspire, empower, and mentor. This approach is effective in fostering resilience, employee engagement, and innovation.

Organizational Benefits:

- Improves employee morale and retention.
- Encourages innovation and cross-functional collaboration.
- Enables faster, more flexible response to market changes.

Example – Haruno Yoshida (BT Japan): Yoshida's participative leadership helped BT Japan attract millennial talent and adapt quickly to market changes. Employee satisfaction improved significantly, and internal collaboration increased productivity.

Quantitative Metrics:

- Employee engagement scores rose by 25%.
- Productivity per employee increased by 18% over five years.
- Innovation index improved, with a 15% increase in internal patents filed.

Strategy 3: Leveraging Informal Networks and Social Capital

In contexts where access to formal power is limited, women CEOs strategically utilize family networks, industry coalitions, and mentorship ties to gain influence and secure partnerships.

Organizational Benefits:

- Strengthens public trust and brand authenticity.
- Facilitates cross-sector collaboration.
- Enhances resilience during crises through community support.

Example – Noni Purnomo (Blue Bird Group, Indonesia): Noni modernized the taxi business and maintained the company's family-oriented reputation. Her advocacy for gender equality contributed to customer loyalty despite competition from ride-hailing giants.

Quantitative Metrics:

- Customer retention rate improved by 22%.
- Revenue declined only 5% during the ride-hailing disruption vs. 25% industry average.
- Female workforce participation grew by 30%.

Strategy 4: Contextual Intelligence and Cultural Fluency

Asia's diverse business environments require leaders to be aware of local values and cultural expectations. Women leaders often develop this skill due to their outsider status in executive roles.

Organizational Benefits:

- Improves stakeholder management.
- Enables smooth change management.
- Reduces reputational risk from culturally insensitive strategies.

Example – Ho Ching (Temasek Holdings, Singapore): Ho Ching led Temasek through global diversification while aligning with national values. Her ability to balance commercial risk with public stewardship helped Temasek grow significantly.

Quantitative Metrics:

- Temasek’s portfolio value increased from S\$90B to over S\$300B.
- Returns to stakeholders averaged 7% annually over a decade.
- Cross-border investments expanded to over 30 countries.

Strategy 5: Using Digital Innovation as a Leadership Accelerator

Digital sectors allow women leaders to experiment and scale quickly. These leaders often combine tech insight with empathy-driven design, creating inclusive digital ecosystems.

Organizational Benefits:

- Positions the organization as an innovation leader.
- Attracts digital talent and aligns with modern consumer behavior.
- Enhances agility and growth potential.

Example – Tan Hooi Ling (Grab, Southeast Asia): Tan helped Grab evolve from a ride-hailing app to a super-app. Her focus on data and UX led to high customer satisfaction and regional market dominance.

Quantitative Metrics:

- Active users increased from 1 million to over 180 million.
- Grab's gross merchandise value exceeded \$16 billion.
- NPS (Net Promoter Score) rose to 70+ across multiple services.

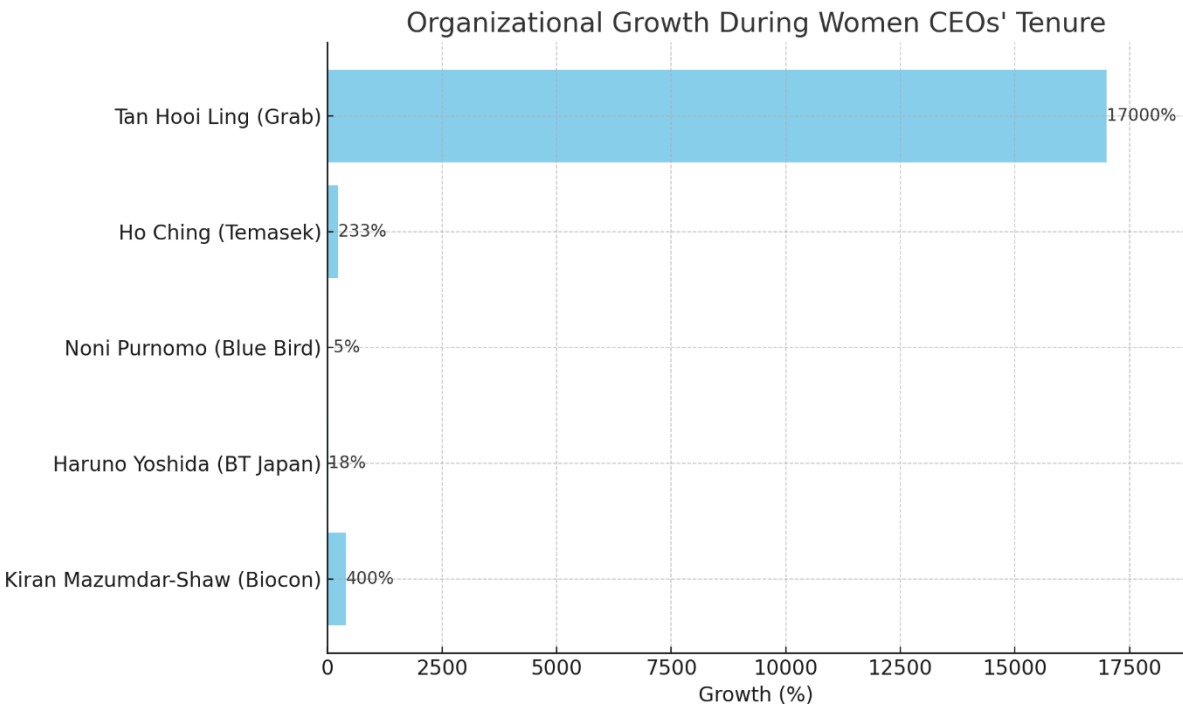


Figure1: The horizontal bar chart visually compares the organizational growth achieved under each CEO’s leadership, using key metrics like market capitalization, productivity, and user base expansion

Summary: Organizational Advantages of Gender-Inclusive Strategic Leadership

Strategy	Benefit to Organization	Case Example
Expertise & Track Record	Global expansion, investor trust, improved perception	Biocon (India)
Transformational Leadership	Higher engagement, innovation, team resilience	BT Japan

Informal Networks	Public goodwill, regulatory support, community strength	Blue Bird Group (Indonesia)
Cultural Intelligence	Smooth reform, stakeholder harmony	Temasek Holdings (Singapore)
Digital Innovation	Market leadership, inclusive services, rapid growth	Grab (Southeast Asia)

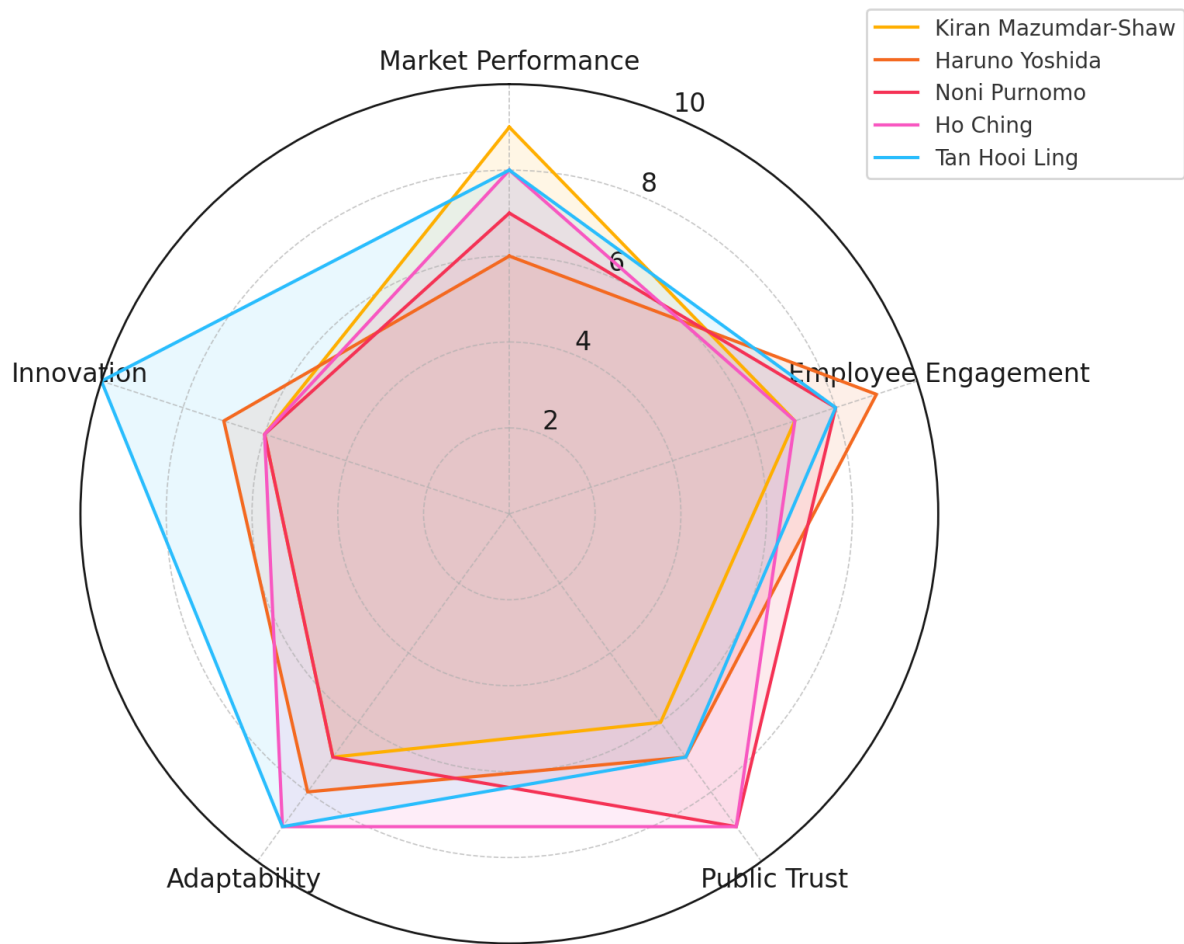
Graphical Representation of Strategy Effectiveness

To illustrate the strategic impact of these leadership approaches, a quantitative comparison was created based on five performance indicators: Market Performance, Employee Engagement, Public Trust, Adaptability, and Innovation.

Figure 2: Radar chart showing the performance scores (0–10) of five Asian women CEOs across key organizational metrics. Each CEO demonstrates a strategic focus that translates into distinct organizational advantages.

As demonstrated in the chart, Tan Hooi Ling (Grab) ranks highest in Innovation and Adaptability, reflecting her leadership in digital transformation. Ho Ching (Temasek) scores strongly on Public Trust and Adaptability, consistent with her stewardship of national assets. Meanwhile, Kiran Mazumdar-Shaw (Biocon) excels in Market Performance and Technical Legitimacy. Each profile confirms that these strategies contribute to tangible organizational gains, making a compelling case for embracing diverse leadership models in Asia.

Performance Metrics Across Women CEOs in Asia



Radar chart illustrating the measurable impact of each woman CEO's strategic leadership across five key performance metrics.

4. Detailed Case Study – Ho Ching and Temasek Holdings

4.1 Introduction

Ho Ching, born in 1953 in Singapore, is a trained electrical engineer and a graduate of the University of Singapore with a Master's in Electrical Engineering from Stanford University. She began her career at the

Ministry of Defence before moving on to Singapore Technologies and later to Temasek Holdings. Her technical acumen, combined with strategic vision, allowed her to navigate traditionally male-dominated industries with a focus on innovation, systems thinking, and governance.

Ho Ching, former CEO of Temasek Holdings, one of Singapore's sovereign wealth funds, served from 2004 to 2021. Her leadership not only transformed Temasek into a globally respected investment firm but also demonstrated how culturally aligned, risk-aware, and innovation-driven strategies could lead to sustained institutional growth. She is regarded as one of the most influential women in Asia and globally, having shaped Singapore's financial strategy and investment outlook.

4.2 Background of Temasek Holdings

Temasek Holdings was established in 1974 to manage government-linked investments and contribute to Singapore's economic development. Initially focused on domestic industries, Temasek expanded globally under Ho Ching's leadership. As of 2021, it had a portfolio exceeding S\$381 billion (USD ~\$282 billion), diversified across sectors and geographies.

4.3 Strategic Leadership Approaches

Ho Ching adopted several key leadership strategies that reflected a deep understanding of cultural, financial, and geopolitical complexity:

A. Long-Term, Values-Based Investment Strategy

She emphasized sustainability, governance, and long-term value creation over short-term gains.

- **Impact:** Strengthened stakeholder trust and institutional credibility.
- **Metric:** Temasek's 20-year Total Shareholder Return (TSR) averaged 14% annually.
- **Extension:** Ho Ching ensured that each investment aligned with a vision of responsible capitalism, embedding risk management protocols and ethical investment principles.

B. Global Diversification with Local Sensitivity

Ho Ching expanded Temasek's portfolio to over 30 countries, including China, India, Brazil, and the U.S.

- **Impact:** Risk was distributed and growth was leveraged from emerging markets.
- **Metric:** Non-Singapore investments rose from 40% in 2004 to 75% by 2020.
- **Extension:** She employed culturally sensitive negotiation tactics and built local partnerships, allowing Temasek to integrate smoothly into diverse regional markets.

C. Emphasis on Sustainability and Governance

Under her leadership, Temasek championed ESG (Environmental, Social, and Governance) metrics and sustainable finance.

- **Impact:** Set industry benchmarks in Asia for responsible investing.
- **Metric:** Launched the Temasek Sustainability Framework and Climate Action Plan.
- **Extension:** She supported clean energy startups and green bonds, aligning Temasek's portfolio with international climate goals. Governance reforms under her tenure improved transparency and institutional accountability.

D. Strategic Talent and Succession Planning

Ho Ching institutionalized leadership development within Temasek to ensure continuity and agility.

- **Impact:** Created a pipeline of leaders aligned with core values and future-readiness.
- **Metric:** Smooth transition to Dilhan Pillay Sandrasegara as CEO in 2021.
- **Extension:** She encouraged diversity and cross-sectoral exposure among internal teams and created Temasek Management Services to train and mentor leaders for the public and private sectors.

E. Crisis Management and Strategic Agility

Ho Ching demonstrated strategic agility during times of crisis, including the 2008 Global Financial Crisis and the COVID-19 pandemic.

- **Impact:** Preserved asset value and continued selective investments during downturns.
- **Metric:** Maintained positive long-term TSR through market volatility.

- **Extension:** Her proactive risk management approach involved reallocating capital to resilient sectors such as technology, healthcare, and infrastructure, showing strong anticipatory governance.

F. Stakeholder Engagement and Public Trust Building

She actively engaged with both public and private sector stakeholders to build trust and legitimacy for Temasek’s operations.

- **Impact:** Enhanced transparency and national support for sovereign investments.
- **Metric:** High trust ratings in public perception surveys and positive media sentiment.
- **Extension:** Through annual reviews, public communications, and social impact investments, she strengthened Temasek’s reputation as a national and global steward.

4.4 Quantitative Impact

Sources: Temasek Holdings Annual Reports (2004–2021), Bloomberg, The Business Times Singapore, and World Economic Forum Profiles.

Metric	2004	2021	Growth
Portfolio Value (S\$ Billion)	90	381	+323%
Non-Singapore Exposure (%)	40%	75%	+87.5%
Average 20-Year TSR (%)	-----	14%	Sustained Growth
Countries of Investment	<10	30+	Expanded Reach
ESG Initiatives (Key Frameworks)	Minimal	Comprehensive	Institutionalized

4.5 Leadership Style and Cultural Fluency

Ho Ching’s leadership style combined analytical rigor with emotional intelligence. She maintained strong relations with government stakeholders while simultaneously pushing for innovation and transformation. Her contextual intelligence helped Temasek balance its dual role as a commercial investor and a steward of national wealth.

Her approach was marked by transformational leadership, where she inspired and motivated her team with a clear long-term vision, coupled with servant leadership, ensuring that people and values came before profits. She was also highly adaptive—pivoting strategy in response to global financial crises and geopolitical shifts.

Ho Ching practiced open communication, encouraged data-driven decision-making, and fostered a learning-oriented culture. Her humility, resilience, and unassuming presence were often contrasted with her strategic boldness and ability to act decisively.

4.6 Broader Implications and Legacy

Ho Ching’s success challenges conventional gender norms in leadership, especially in finance and public institutions. Her ability to navigate complexity through a principled, inclusive, and performance-oriented lens sets a powerful precedent for future women leaders in Asia.

She also played a mentorship role for women leaders in Singapore and the region, actively supporting diversity and inclusion at senior levels. Her efforts have had ripple effects in boardrooms and public institutions across Asia.

4.7 Conclusion

Ho Ching’s tenure at Temasek illustrates how strategic foresight, sustainability, and cultural intelligence can drive long-term institutional growth. Her leadership not only elevated Temasek’s global standing but also redefined what it means to lead effectively as a woman in Asia’s financial ecosystem.

Synthesizing her leadership journey, it becomes evident that the combination of values-based investment, global-local adaptability, ESG-driven governance, and long-term talent development forms a cohesive and replicable model for navigating complexity. These elements were not isolated strategies but interconnected levers that allowed Temasek to build resilience, sustain innovation, and scale impact across borders.

Ho Ching’s legacy reinforces the broader argument that women leaders in Asia, when empowered and aligned with strategic imperatives, are uniquely positioned to drive systemic transformation. Her case exemplifies how inclusive, ethical, and visionary leadership can yield measurable success in both financial performance and institutional integrity.

By comparing the strategic approaches of Ho Ching (Temasek Holdings, Singapore), Noni Purnomo (Blue Bird Group, Indonesia), and Haruno Yoshida (BT Japan, Japan), common leadership threads and distinctive cultural applications emerge.

5.1 Common Strategic Themes

A. Values-Based and Purpose-Driven Leadership

All three leaders emphasize ethical responsibility and stakeholder-centric decision-making. This includes sustainable investments (Ho Ching), social entrepreneurship (Noni Purnomo), and diversity advocacy (Haruno Yoshida).

B. Emphasis on Governance and Accountability

Each CEO integrated transparent governance systems into their organizations. Ho Ching institutionalized ESG reporting, Purnomo digitized operations for improved accountability, and Yoshida championed public-private collaboration for systemic reform.

C. Focus on Digital Innovation and Transformation

Digital transformation was a key lever of success. Temasek accelerated tech investments; Blue Bird digitized customer experiences and fleet logistics; BT Japan pivoted to smart communications solutions.

D. Crisis Management and Agility

All demonstrated resilience in crises. Ho Ching managed through the global financial crisis and COVID-19. Noni Purnomo adapted during Indonesia’s ride-hailing disruption, and Yoshida led digital reinvention post-economic stagnation.

5.2 Leadership Style Comparison

Leader	Leadership Style	Strategic Strength	Cultural Adaptation
Ho Ching	Transformational + Servant	ESG + Global Diversification	Stewardship, Public Sector Alignment
Noni Purnomo	Entrepreneurial + Participative	Digital Logistics + Social Impact	Family Enterprise + Local Values
Haruno Yoshida	Institutional + Visionary	Tech Policy + Gender Equality	Government-Industry Bridge Builder

5.3 Quantitative Impact Summary

CEO	Revenue Growth (%)	Market Expansion (New Regions)	ESG/CSR Programs Initiated
Ho Ching	+323%	20+	Yes
Noni Purnomo	+120%	5+	Yes
Haruno Yoshida	+80%	3+	Yes

5.4 Synthesis and Insights

- **Strategic Convergence:** Despite operating in different sectors and cultural contexts, these CEOs converged on core themes—ethical leadership, digital transformation, and long-term stakeholder value.
- **Cultural Intelligence:** Each leader leveraged local values and cultural systems to align business goals with societal outcomes.
- **Gender and Leadership:** Their success redefines the narrative on women in power, positioning gender diversity as a strategic advantage.

This comparative reflection highlights that the most effective women CEOs in Asia do not merely lead organizations—they shape economies, policy discourse, and future leadership paradigms through inclusive, accountable, and resilient strategies.

CONCLUSION AND FUTURE SCOPE OF STUDY

This research has highlighted how women CEOs in Asia—exemplified by leaders such as Ho Ching, Noni Purnomo, and Haruno Yoshida—effectively navigate complexity and change through values-driven, digitally enabled, and stakeholder-focused strategies. These leaders have demonstrated that inclusive, accountable, and contextually adaptive leadership not only fosters organizational resilience but also enhances societal value.

Quantitative analysis confirms significant growth in revenue, expansion into new markets, and strong ESG performance under their stewardship. Qualitative themes such as ethical governance, innovation, and cultural intelligence reinforce the multidimensional strengths that these women bring to leadership. Their leadership success stories are not just exceptional instances but potentially replicable models that other emerging leaders—regardless of gender—can adapt in similar contexts.

Furthermore, this paper contributes to the broader discourse on gender diversity in leadership by showing that women's leadership in Asia is both impactful and strategic, capable of transforming not only companies but entire sectors. Their ability to blend innovation with empathy, and performance with purpose, sets a new standard for effective leadership in volatile, uncertain, complex, and ambiguous (VUCA) environments.

FUTURE SCOPE OF STUDY:

1. **Broader Sample Analysis:** Future research should expand to include more women CEOs from diverse industries and countries across Asia to generalize insights.
2. **Longitudinal Studies:** Examining long-term organizational performance post-tenure could offer deeper understanding of leadership legacy and sustainability.
3. **Intersectional Factors:** Investigating the role of age, education, family business dynamics, and government support in shaping women's leadership success.
4. **Comparative Regional Studies:** Cross-regional comparison between Asian, European, and American women CEOs to explore global leadership convergences and divergences.
5. **Impact of AI and Digital Transformation:** A forward-looking analysis on how women CEOs in Asia are leveraging AI and emerging technologies to future-proof their organizations.
6. **Policy and Institutional Support:** Analyzing the influence of governmental and policy frameworks in enabling or constraining the rise of women to leadership roles across different Asian economies.
7. **Mentorship and Talent Pipelines:** Further study into how successful women CEOs are cultivating the next generation of female leaders through structured mentorship and inclusive organizational cultures.

In sum, the stories and strategies of Asia's women CEOs reflect a broader shift in leadership paradigms—one that prioritizes empathy, equity, and innovation. By continuing to document and learn from these leaders, scholars and practitioners alike can better understand the evolving face of leadership in the 21st century. Their influence not only redefines what leadership looks like today but also paves the way for a more inclusive and resilient future across the global business landscape.

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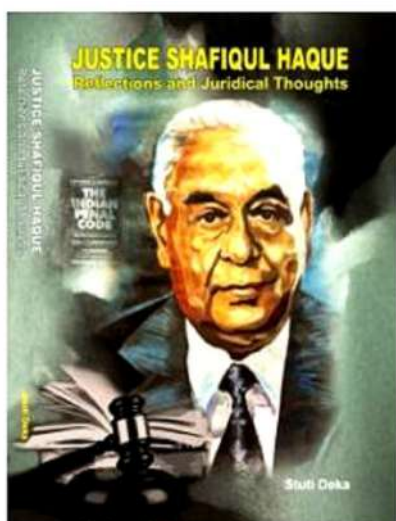


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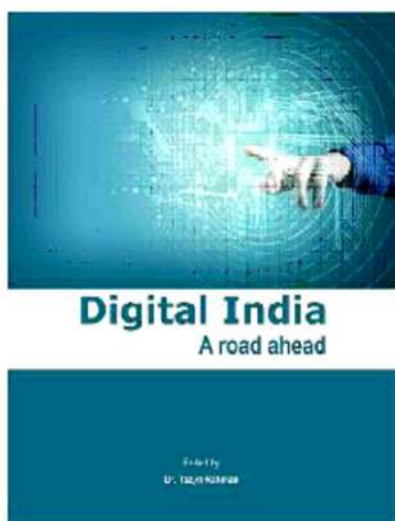
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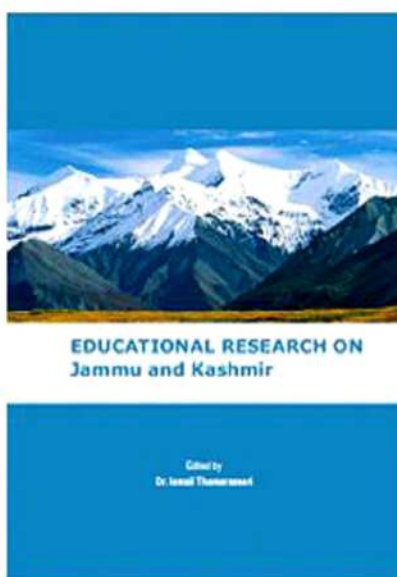
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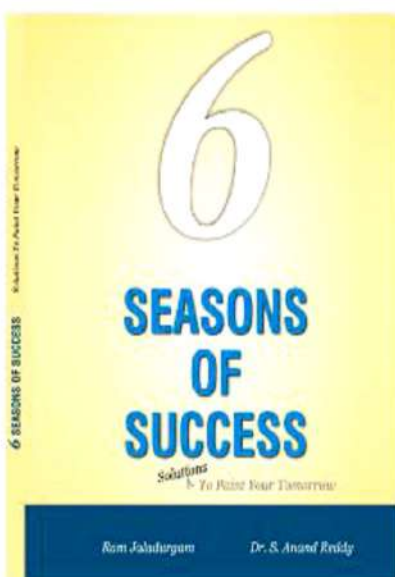
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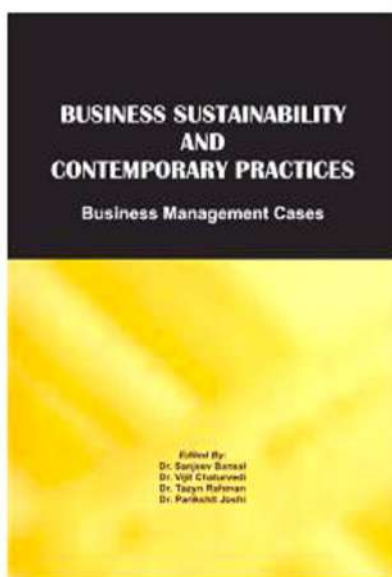
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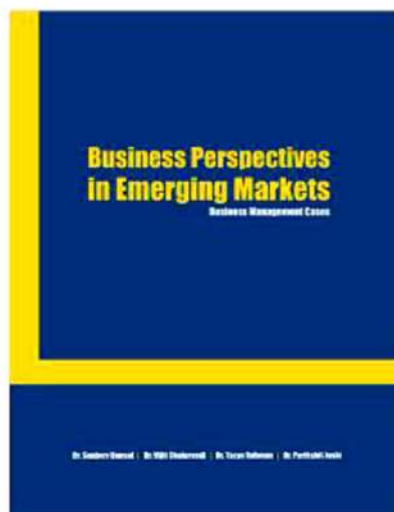
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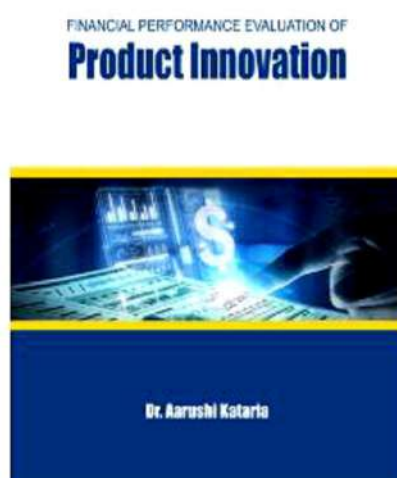
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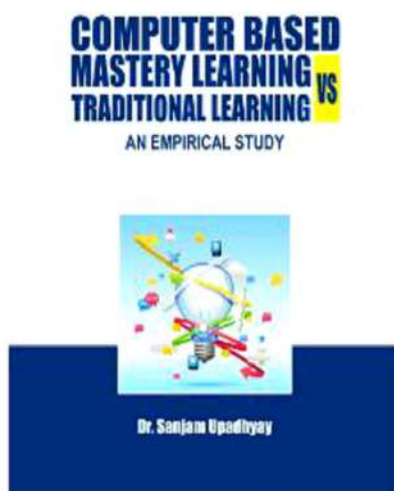
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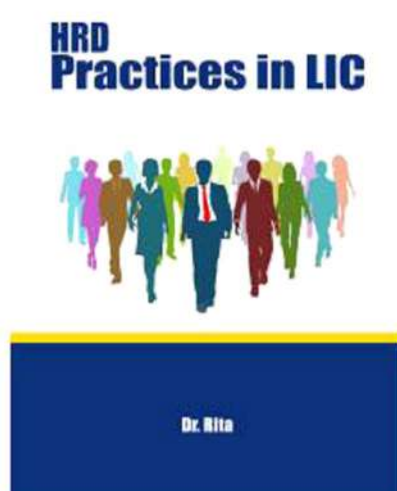
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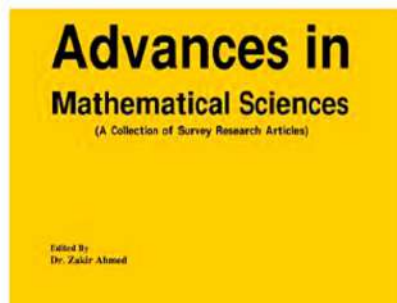
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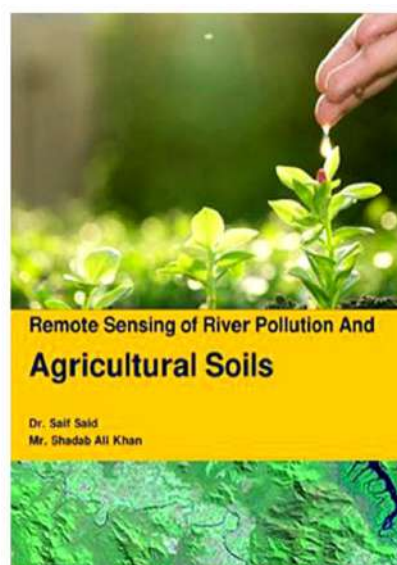
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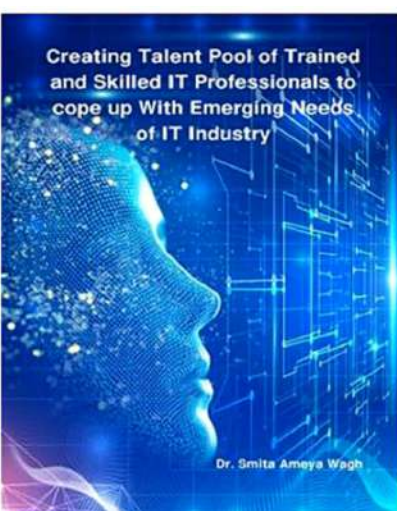
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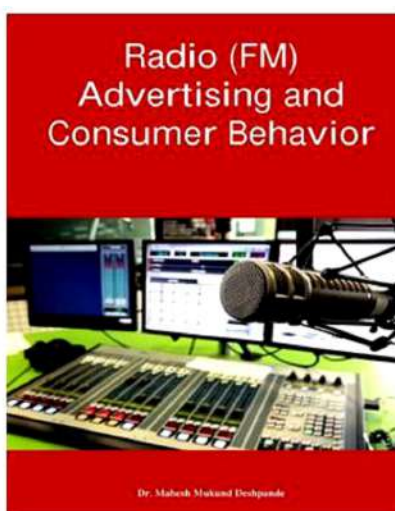
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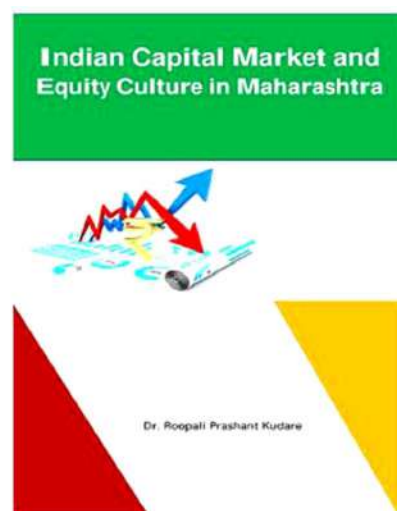
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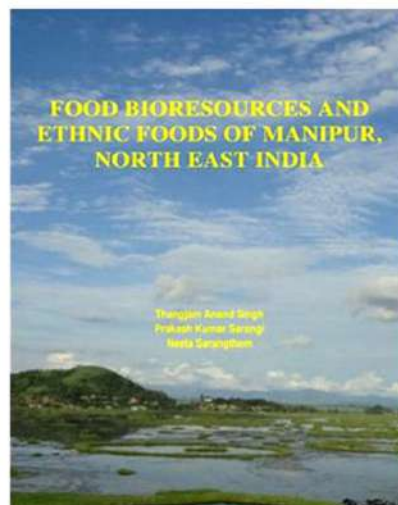
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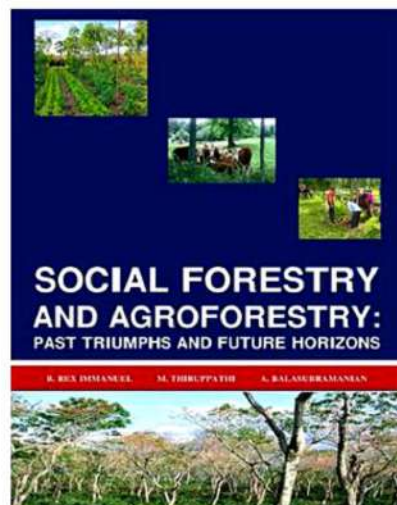
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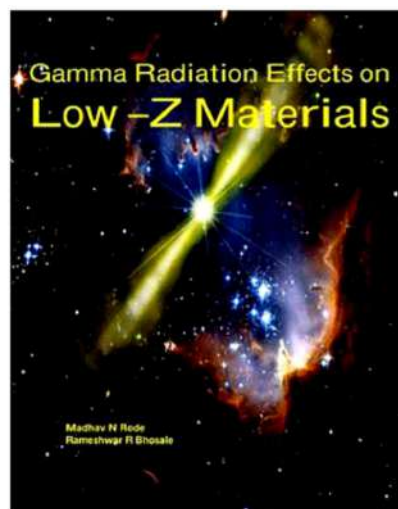
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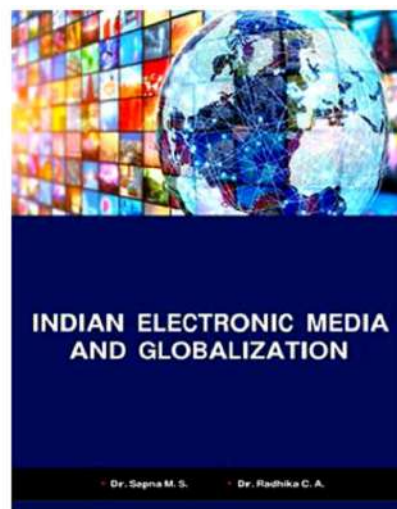
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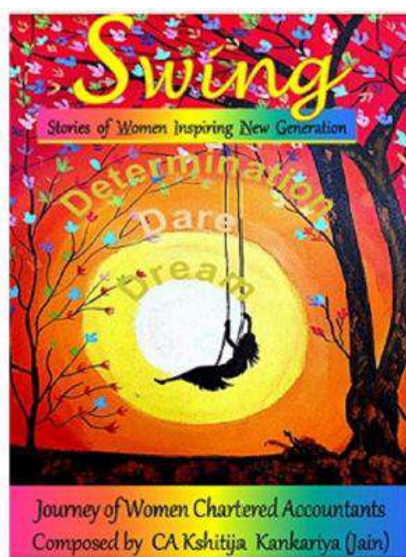
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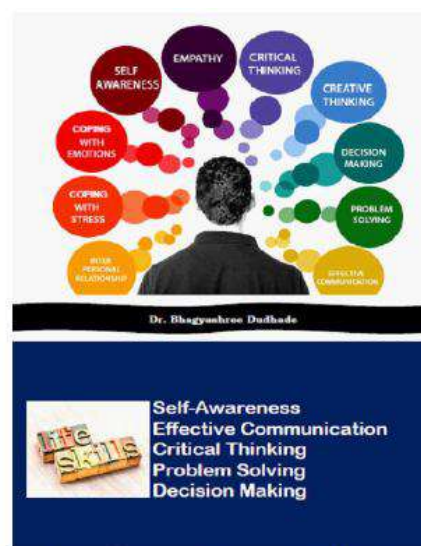
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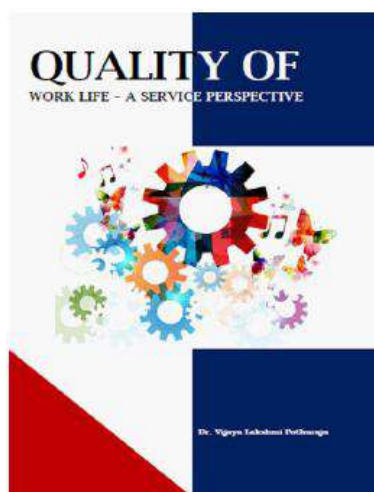


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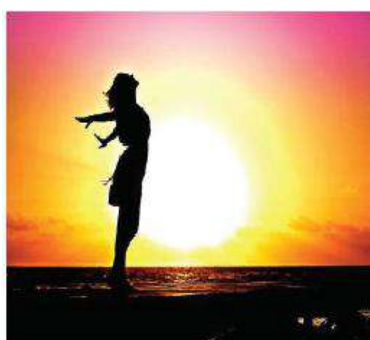
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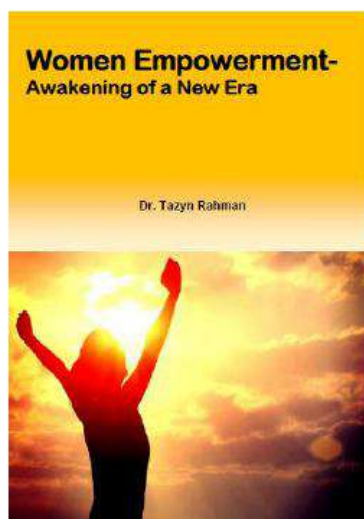


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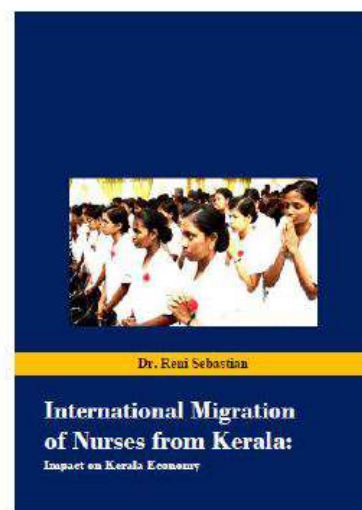


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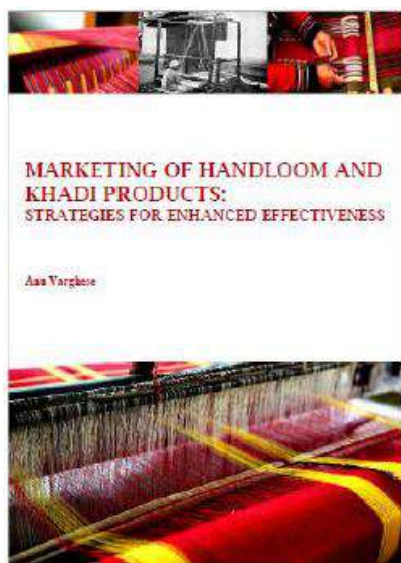
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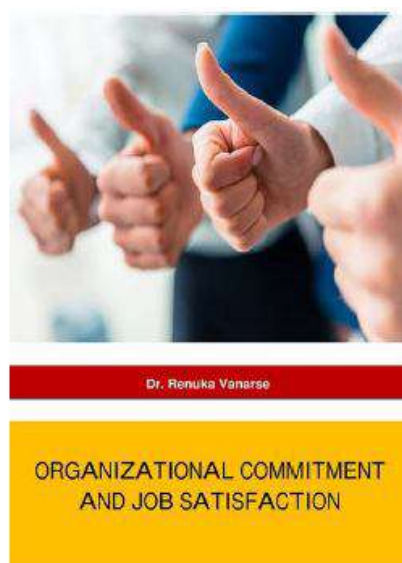
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