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Review

Editorial

Dear Stakeholders,

Agility is 'new normal'. All spectrums of society, including corporate are changing rapidly. Industry 4.0 is paving way for Industry 5.0. This change has resulted in many countries working on Society 5.0. The speed in which the environment is changing is indeed, mind boggling.

As all the functions of Management, HR is also changing very rapidly. In knowledge economy 'Human Resource' is the key. Keeping this development in mind, the theme of this issue (Volume 15, Issue 2) of AMBER is **'Agile HR Practices'**. This issue covers the concept, importance and application of 'Agility' in HR. Some papers are industry specific. This issue has conceptual and empirical articles, case study and book review on the topic. I congratulate all contributors. This issue of AMBER is edited by Dr. Anand Rao. He has taken complete responsibility of sourcing the articles, manuscript reading, reviewing and checking them for plagiarism. Professor, Thanks for your effort.

The theme for forthcoming 31st issue of AMBER (Volume 16, Issue 1) is **'Emerging Trends in Banking'**. Technology is all pervasive in industry. But, the way in which it has impacted Banking sector in unimaginable. It is heartening to know that countries like India are in forefront of digital banking. Many developed economies are far behind India, in this respect. Technology is sweeping Banking sectors in many ways. Physical bank branches are becoming less relevant. Inclusivity, CRM, cybercrime, efficiency of the sector, NBFCs are themes on which we have to ponder upon. The coming issue would address all these and related aspects. I invite articles from academicians, corporate, researchers and students.

Dr. H.R.Venkatesha,
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Issue Theme: Agile HR Practices

A Study on the Empirical analysis of how an Organization can Create an Agile Workforce

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Abstract

The fast-paced and ever-evolving business landscape demands that organizations adapt rapidly, pushing traditional workforce models to the brink of obsolescence. This empirical study delves into the strategic underpinnings of fostering an agile workforce capable of thriving amidst dynamic changes. Through a combination of quantitative data analysis and qualitative insights from leading organizations, the research identifies critical elements such as adaptive leadership, continuous learning frameworks, and cross-functional collaboration as cornerstones for building a resilient and responsive workforce. The findings reveal that agility is not merely a technical proficiency but a cultural paradigm, integrating flexibility, innovation, and employee empowerment. The study further proposes a novel "Agility Maturity Model," offering a structured approach for organizations to gauge and enhance workforce agility. With recommendations tailored for diverse industries, this research serves as a guide for businesses aiming to foster an agile mindset and unlock sustained competitive advantage in the face of volatility, uncertainty, complexity, and ambiguity (VUCA). By outlining actionable strategies, this study contributes significantly to the evolving discourse on workforce agility, offering a robust framework for scholars, practitioners, and business leaders.

Key words: *agile workforce, organization, Development.*

Introduction

The relentless pace of technological advancements, coupled with global market shifts and evolving consumer expectations, has transformed the modern business environment into a highly volatile and complex landscape. Traditional organizational structures, rooted in rigidity and predictability, are increasingly rendered ineffective in navigating the rapid disruptions brought about by these changes. As a result, businesses across industries are re-evaluating their human resource strategies to create a workforce that is not only equipped to handle uncertainty but also capable of leveraging it for innovation and growth. In this context, the concept of an "agile workforce" has emerged as a critical enabler of organizational resilience and adaptability. An agile workforce goes beyond possessing technical skills and operational efficiency. It embodies a dynamic blend of flexibility, responsiveness, and collaborative capabilities, enabling employees to anticipate, react, and even lead in periods of transformation. However, while the benefits of agility are widely acknowledged, there remains a gap in understanding the practical mechanisms through which organizations can cultivate such a workforce. This study aims to bridge this gap by offering an empirical analysis of the factors that contribute to creating an agile workforce and evaluating their impact on organizational outcomes.

Drawing from an extensive review of existing literature and primary data gathered through surveys and case

studies, this research explores key dimensions such as adaptive leadership, the integration of digital tools, and the role of continuous learning and development initiatives in fostering agility. The introduction of the Agility Maturity Model as part of this study provides organizations with a roadmap to assess their current agility levels and implement targeted strategies for enhancement. By identifying the interplay between cultural, structural, and technological elements, the research provides a holistic perspective on how organizations can effectively pivot from traditional workforce models to a future-ready, agile workforce framework.

The implications of this study are particularly relevant for organizations operating in high-stakes environments characterized by volatility, uncertainty, complexity, and ambiguity (VUCA). As businesses strive to remain competitive, the ability to build and sustain an agile workforce will be a defining factor in achieving long-term success and maintaining a proactive stance in a world where change is the only constant.

Objectives of the Study

- To identify and analyse the key factors that contribute to creating an agile workforce within organizations.

- To develop an "Agility Maturity Model" that helps organizations assess their current level of workforce agility and implement strategies for improvement.

- To examine the impact of an agile workforce on organizational performance, adaptability, and innovation in dynamic business environments.

- To explore the role of leadership, technology integration, and continuous learning in fostering an agile culture across various industry sectors.

- To provide actionable recommendations and a strategic framework for organizations to transition from traditional workforce models to an agile, future-ready workforce structure.

Factors that Driving Workforce Agility

a. **Rapid Technological Advancements:** Technological evolution is reshaping industries at an unprecedented pace, making agility critical for survival. The proliferation of artificial intelligence (AI), machine learning, and automation has shortened product life cycles and disrupted traditional business models. Organizations must ensure that their workforce can quickly adapt to new tools, platforms, and methodologies, necessitating continuous upskilling and an agile mindset.

b. **Changing Consumer Expectations:** Modern consumers are more informed, connected, and demanding than ever before. They expect instant gratification, personalized experiences, and seamless interactions across channels. As a result, businesses must remain flexible to respond to these changing preferences swiftly. An agile workforce, capable of rapidly rethinking strategies and realigning processes, is essential to meet these evolving consumer needs.

c. **Shift Toward Project-Based Work:** The traditional, hierarchical, and role-based structures are giving way to more fluid, project-based work. Agile methodologies, originally developed for software development, are now being applied across industries to manage complex, cross-functional projects. This approach demands a workforce that is adaptable, capable of collaborating across silos, and comfortable working in flexible, self-organizing teams.

d. **Increased Global Competition:** The globalized economy has intensified competition, compelling organizations to innovate and adapt faster to remain relevant. Agility enables businesses to experiment, iterate, and pivot in response to competitor movements, industry shifts, and emerging market opportunities. Without an agile workforce, companies risk being outmanoeuvred by more nimble players that can swiftly capitalize on new trends.

e. **Volatility, Uncertainty, Complexity, and Ambiguity (VUCA) Environment:** The business environment is increasingly characterized by VUCA forces, which make long-term planning difficult. Organizations require employees who can thrive in ambiguity, respond creatively to unforeseen challenges, and remain resilient in the face of rapid changes. Agility becomes a critical survival skill, enabling quick decision-making and effective problem-solving in uncertain contexts.

f. **Evolving Workforce Demographics:** The modern workforce is increasingly diverse, with multigenerational teams bringing different values, expectations, and work styles. As Millennials and Gen Z become the dominant demographics in the workplace, they prioritize flexibility, learning opportunities, and purpose-driven work over rigid corporate structures. To attract and retain top talent, organizations need to build an agile work environment that aligns with these new employee expectations.

g. **Demand for Continuous Innovation:** The pressure to innovate has never been greater, with disruptive start-ups and emerging technologies constantly challenging established players. Organizations need employees who can think creatively, embrace change, and proactively contribute to new ideas and solutions. An agile workforce is key to fostering a culture of experimentation, where innovation can flourish, and risk-taking is encouraged.

h. **Regulatory Changes and Compliance Requirements:** Regulatory landscapes are evolving rapidly, often requiring organizations to alter operations, processes, and even business models to stay compliant. An agile workforce, capable of understanding and implementing these changes without significant disruptions, is essential for navigating complex legal and compliance environments.

Agile Workers: Who Are They and Why?

Agile workers are employees or professionals who operate under the **Agile methodology**, a project management and software development approach that emphasizes flexibility, collaboration, and rapid delivery of small, incremental work. Agile is rooted in the Agile Manifesto (2001) and is widely used in various sectors such as technology, HR, finance, and marketing.

Why Agile Workers Are Important

a. **Faster Time to Market**: Agile workers contribute to shorter development cycles, allowing businesses to release products and services more quickly.

b. **Increased Customer Satisfaction**: Agile methods prioritize customer feedback, leading to products that better meet market needs.

c. **Enhanced Team Collaboration**: By working in smaller, cross-functional teams, Agile workers break down silos and promote collaboration between departments.

d. **Greater Adaptability**: In industries with rapidly changing demands, such as tech and marketing, Agile workers help organizations stay competitive by pivoting quickly based on market feedback.

Agile Adoption and Workforce Impact:

1. **Agile Adoption Rates**:
   - **95% of organizations** report that they practice Agile methodologies, according to a recent study by Digital. Ai's "State of Agile Report" (2023).
   - **Industries**: Although Agile started in software development, **54% of financial services** and **40% of marketing teams** now use Agile practices, indicating a broadening appeal across sectors.

2. **Impact on Productivity**:
   - A study by McKinsey found that **teams practicing Agile methods** report a **20-30% increase in productivity**, with a corresponding decrease in time to market for new products and services.

- Organizations using Agile have a **50% higher success rate** in delivering projects on time and within budget compared to traditional approaches (PMI's "Pulse of the Profession" report).

3. **Employee Engagement**:

- **70% of employees** working in Agile environments report higher engagement and job satisfaction due to the collaborative and autonomous nature of the work, according to a Gallup survey on Agile workforce transformation.

- Agile teams often show a **25% reduction in burnout**, attributed to the iterative and team-driven workload distribution.

4. **Cost Efficiency**:

- Companies that fully embrace Agile methodologies can achieve **15-25% cost reductions**, as identified by the Boston Consulting Group in their research on Agile transformations in Fortune 500 companies.

Table:1 Descriptive statistics for the variable "Top priority as agile task force".

The respondents were asked using 5-point Likert scale (1= Not at all important, 2= Not important, 3=Neutral, 4=Important, 5=Very Important)

Top Priority as Agile Task Force

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	71	11.2	11.2	11.2
	Low Important	69	11	11	22.2
	Neutral	70	11.1	11.1	33.3
	Important	293	38.6	38.6	72
	Very Important	207	28	28	100
	Total	710	100	100	

Chart Title
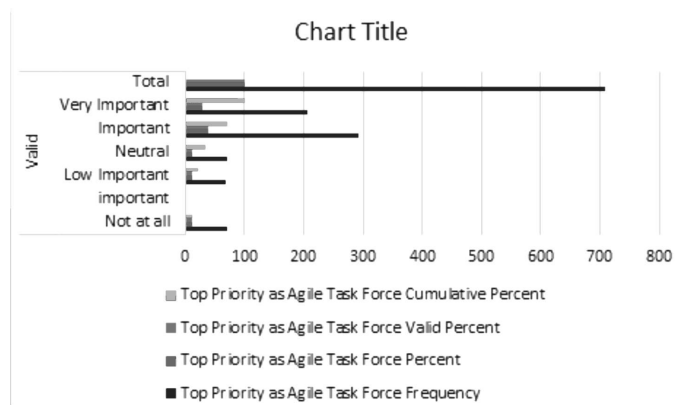
Interpretation: The table illustrates the distribution of perceptions regarding the priority level assigned to an Agile Task Force within an organization. **High Priority**: The majority of respondents, totalling **293 (38.6%)**, perceive the Agile Task Force as "Important," and **207 (28%)** consider it "Very Important." This indicates that **66.6%** of the respondents view the Agile Task Force as a high-priority initiative. **Moderate to Low Priority**: A smaller segment of the population views the Agile Task Force as either having no significant importance or being less of a priority. Specifically: **71 respondents (11.2%)** consider it "Not at all Important." **69 respondents (11%)** regard it as having "Low Importance." **70 respondents (11.1%)** maintain a "Neutral" stance, indicating neither positive nor negative sentiment.

Implications: The data suggests that the Agile Task Force is widely recognized as a priority within the organization. The relatively low percentage of respondents who see it as having minimal importance indicates strong backing for its strategic role.

Table:2 Descriptive statistics for the variable "Top priority as Automation".

The respondents were asked using 5-point Likert scale (1= Not at all important, 2= Not important, 3=Neutral, 4=Important, 5=Very Important)

Top Priority as Automation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	73	11.5	11.5	11.5
	Low Important	98	14.6	14.6	26
	Neutral	73	11.5	11.5	37.5
	Important	270	35.8	35.8	73.3
	Very Important	196	26.7	26.7	100
	Total	710	100	100	
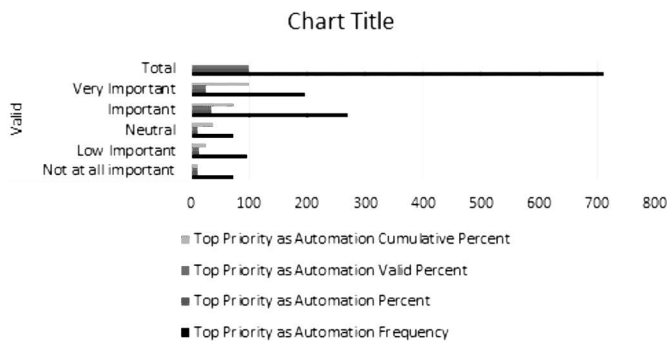
Chart Title

■ Top Priority as Automation Cumulative Percent
■ Top Priority as Automation Valid Percent
■ Top Priority as Automation Percent
■ Top Priority as Automation Frequency

Interpretation: The table illustrates the distribution of responses regarding the priority assigned to automation within an organization. **High Priority**: The majority of respondents, **270 (35.8%)**, consider automation as "Important," while **196 (26.7%)** perceive it as "Very Important." This indicates that a combined **62.5%** of the respondents view automation as a high-priority initiative. **Moderate to Low Priority**: A smaller segment expresses a more cautious stance on automation: **73 respondents (11.5%)** view automation as "Not at all Important." **98 respondents (14.6%)** consider it to be of "Low Importance." **73 respondents (11.5%)** maintain a "Neutral" position, indicating that these respondents neither strongly support nor oppose automation as a priority.

Implications: The data signifies broad support for automation as a strategic initiative, with the majority acknowledging its importance in driving efficiency and operational improvement. However, the presence of a significant minority who view it as less important or neutral suggests the need for better communication, training, and change management to address concerns and build consensus on automation's role in the organization.

Table:3 Descriptive statistics for the variable "Top priority as artificial intelligence".

The respondents were asked using 5-point Likert scale (1= Not at all important, 2= Not important, 3=Neutral, 4=Important, 5=Very Important)

Top Priority as Artificial Intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	44	7.9	7.9	7.9
	Low Important	413	53.5	53.5	61.4
	Neutral	23	5.3	5.3	66.7
	Important	148	20.7	20.7	87.4
	Very Important	82	12.6	12.6	100
	Total	710	100	100	

Chart Title

■ Top Priority as Artificial Intelligence Cumulative Percent
■ Top Priority as Artificial Intelligence Valid Percent
■ Top Priority as Artificial Intelligence Percent
■ Top Priority as Artificial Intelligence Frequency
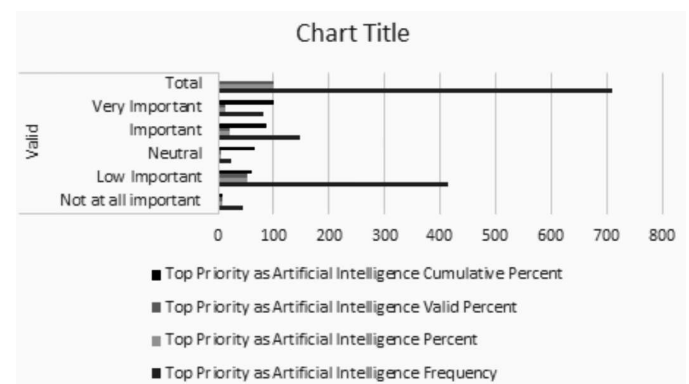
Interpretation: The table presents the distribution of responses regarding the priority assigned to Artificial Intelligence (AI) within an organization. **Low Priority**: A significant portion of respondents, **413 (53.5%)**, consider AI to have "Low Importance," while **44 respondents (7.9%)** view it as "Not at all Important." This combined **61.4%** of responses indicates that a majority of participants do not currently see AI as a

top priority within their organization. **Moderate Priority**: A small group of **23 respondents (5.3%)** reported a "Neutral" stance toward AI, indicating indifference or uncertainty. **High Priority**: Despite the large proportion of respondents considering AI a low priority, a notable group sees it as important: **148 respondents (20.7%)** view AI as "Important." **82 respondents (12.6%)** see AI as "Very Important."

Implications: The data implies that AI is not yet widely seen as a critical initiative within the organization, possibly due to barriers such as high implementation costs, lack of expertise, or uncertainty about its applicability.

Table:4 Descriptive statistics for the variable "Formal development program ".

The respondents were asked using 5-point Likert scale (1= Strongly Disagree ,2= Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)

Perception regarding formal development Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	27	5.8	5.8	5.8
	Disagree	99	14.7	14.7	20.5
	Neither Agree Nor Disagree	28	5.9	5.9	26.4
	Agree	295	38.9	38.9	65.3
	Strongly Agree	261	34.7	34.7	100
	Total	710	100	100	

Chart Title

- Perception regarding formal development Program Cumulative Percent
- Perception regarding formal development Program Valid Percent
- Perception regarding formal development Program Percent
- Perception regarding formal development Program Frequency
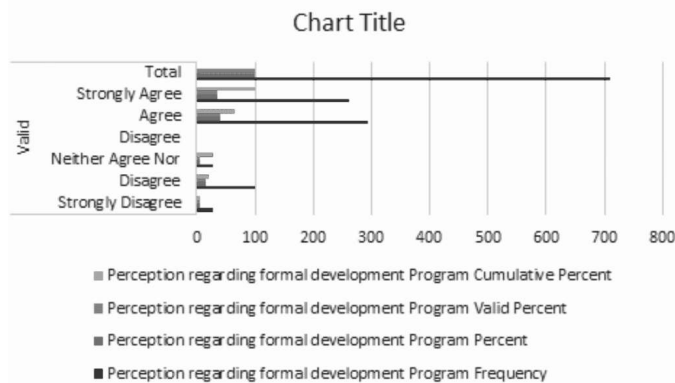
Interpretation: The table presents survey data on respondents' perceptions of formal development programs in an organization. **Positive Perception**: A significant majority of respondents have a favourable view of formal development programs. Specifically: **295 respondents (38.9%)** "Agree" that these programs are beneficial. **261 respondents (34.7%)** "Strongly Agree." **Negative Perception**: A smaller proportion of respondents view formal development programs negatively: **27 respondents (5.8%)** "Strongly Disagree." **99 respondents (14.7%)** "Disagree." · The cumulative percentage reveals that **65.3%** of respondents view formal development programs positively, while only a small proportion (20.5%) hold a negative perception.

Implications:

The data suggests that the majority of the workforce values formal development initiatives and sees them as a priority. The small proportion of negative responses indicates potential areas for improvement. For example, the organization could gather feedback from those who disagree to identify specific concerns, such as program content, delivery, or accessibility.

Table:5 Descriptive statistics for the variable "In-Formal development program ".

The respondents were asked using 5-point Likert scale (1= Strongly Disagree ,2= Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)

Perception regarding Informal Development Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	374	48.6	48.6	48.6
	Disagree	40	7.4	7.4	56
	Neither Agree Nor Disagree	23	5.3	5.3	61.4
	Agree	175	24.1	24.1	85.4
	Strongly Agree	98	14.6	14.6	100
	Total	710	100	100	

Chart Title

- Perception regarding Informal Development Program Cumulative Percent
- Perception regarding Informal Development Program Valid Percent
- Perception regarding Informal Development Program Percent
- Perception regarding Informal Development Program Frequency
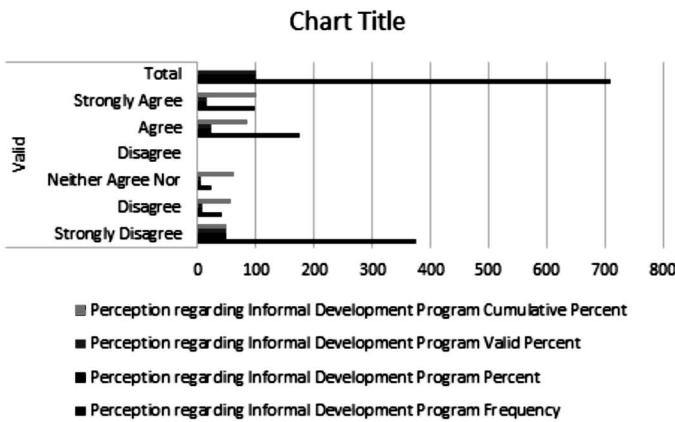
Interpretation: The table summarizes respondents' perceptions of informal development programs in an organization. **Strong Negative Perception**: The majority of respondents, **374 (48.6%)**, "Strongly Disagree" with the effectiveness or value of informal development programs, and **40 respondents (7.4%)** "Disagree." **Moderate to Neutral Perception**: **23 respondents (5.3%)** are in the "Neither Agree Nor Disagree" category, indicating a neutral stance. This small proportion suggests that only a few respondents are undecided or indifferent about the effectiveness of informal development programs. **Positive Perception**: A significant portion of respondents have a positive perception of informal development programs: **175 respondents (24.1%)** "Agree." **98 respondents (14.6%)** "Strongly Agree."

Implications: The overwhelmingly high percentage of disagreement may reflect concerns regarding the lack of structure, goals, or recognition associated with informal development programs. It could also indicate that these programs are not well communicated or integrated into the overall development strategy.

Strategic Recommendations**:**

The survey results reveal a general alignment with some organizational priorities, such as Agile and formal development programs, while indicating room for improvement in areas like AI adoption and informal learning. To enhance employee buy-in and optimize the impact of these initiatives, organizations should:

1. **Increase Engagement and Awareness**: Develop targeted communication and engagement strategies that highlight the benefits and success stories of initiatives like AI and informal development, making their value more tangible to employees.

2. **Tailor Programs to Employee Needs**: Revise informal development programs to better align with employee preferences, incorporating more structured mentorship, peer learning, and recognition elements.

3. **Address Scepticism**: Conduct deeper analyses to understand the reasons behind negative perceptions, particularly for AI and informal development, and address these through tailored interventions, feedback mechanisms, and pilot projects that showcase real-world impact.

Overall, the survey reflects diverse perceptions across various strategic areas, emphasizing the need for organizations to continuously align their developmental and technological initiatives with employee expectations to drive sustained engagement and growth.

Conclusion:

Organizational Priorities and Perceptions Toward Development Programs The survey data offers a comprehensive insight into employee perceptions regarding various organizational initiatives, such as Agile Task Forces, automation, Artificial Intelligence (AI), and both formal and informal development programs. The findings highlight differing levels of support and perceived priority for these initiatives, indicate Agile Task Force: A clear majority of respondents (66.6%) view the Agile Task Force as a high-priority initiative, reflecting strong support for its role in driving organizational agility and efficiency. This positive perception underscores the importance of maintaining and expanding agile practices across teams to foster adaptability and innovation.ng

where organizations should focus their efforts to align employee sentiment with strategic goals. Automation: A notable 62.5% of respondents see automation as a high-priority area, with the remaining participants expressing mixed views. This suggests that while there is broad recognition of its benefits, the organization must address the concerns of those who perceive it as a low priority by emphasizing its role in process optimization and future readiness. Artificial Intelligence (AI): The perception of AI is more polarized, with 61.4% considering it a low-priority initiative. Although a significant minority (33.3%) views it as important, the lack of widespread support indicates a need for further education and communication about AI's transformative potential. This would help bridge the gap between current perceptions and the strategic direction of the organization.

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Agile Work Practices and Employee Proactivity: A Multilevel Study

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Abstract

Despite the paucity of theory and practical study on agile working, over the past few years, a number of significant firms have undergone processes of agile transformation. The current study creates a novel multilevel model of agile working by drawing on the proactivity literature and the taskwork–teamwork divide. We put our methodology to the test on 114 teams (N = 476) that were going through an agile transition at a sizable IT and ITES company in India. In terms of agile work habits, proactivity norms, and team performance, teams who had completed the agile transformation outperformed teams that had just started it. Multigroup structural equation modelling results showed that agile taskwork positively correlated with proactivity norms, which in turn correlated with team performance. It was not the case that proactivity norms mediated the beneficial association between agile teamwork and team performance as was previously thought. Lastly, we discovered that agile taskwork raised the possibility that proactive behaviour, more especially, employee intrapreneurship—would benefit individual workers in terms of in-role performance, or cross-level contact. The reason for this was probably the agile taskwork teams' positive proactivity norms (mediated moderation). We talk about how our results affect the body of knowledge on proactive behaviour in teams.

Keywords: *agile practices, agile transformation, proactive behaviour, team performance.*

Introduction

In today's dynamic and competitive business environment, agile methodologies are becoming the backbone of organizational transformation. As organizations strive to adapt quickly to changing market demands, agility is no longer a buzzword but a strategic necessity. Despite its growing adoption, the underlying processes and mechanisms of agile transformations, especially in large-scale IT and ITES organizations, remain underexplored. The present study bridges this knowledge gap by developing a novel multilevel model of agile working, drawing on proactivity theories and the critical taskwork–teamwork framework. By examining 114 teams undergoing agile transitions at a major ITES firm in India, this research sheds light on how agile work habits and proactivity norms foster higher team performance. The findings reveal a compelling narrative: teams that have embraced agile transformations not only display heightened proactivity norms but also achieve superior performance outcomes compared to teams in the early stages of this transition. Numerous sizable companies have invested significant financial resources in implementing agile transformation processes, such the US-based online retailer Zappos (Bernstein et al., 2016) and the Finnish consumer electronics company Nokia (Laanti et al., 2011). The key purpose of an agile transformation is to embrace agile modes of working (Rigby et al., 2020), which requires that employees operate in teams rather than hierarchically overseen

departments (Tripp et al., 2016). Additionally, personnel that practice agile working must be self-starting and future-focused (Grass et al., 2020); this is sometimes referred to as proactivity (Parker et al., 2019).

The study's nuanced insights challenge the conventional wisdom that agile teamwork is the sole driver of team success. Instead, it positions agile taskwork—where individuals actively contribute to team goals—as the true catalyst of proactivity and performance at both team and individual levels. These insights pave the way for redefining the relationship between agile frameworks, proactive behaviour, and organizational success, thus contributing to a deeper understanding of agile transformations in high-stakes, technology-driven sectors. Furthermore, there is no particular agile method like Scrum (Schwaber and Sutherland, 2017), Kanban (Anderson, 2010), or Design Thinking (Plattner et al., 2012) that is associated with the concept of agile work practices. Stated differently, our suggestion is that diverse teams can employ agile work methods subtly, without necessarily following the prescribed criteria or "rules" of a particular agile approach.

Theory and Hypotheses

The difference between task and team work and agile work practices

The current study focuses on the most popular agile methods as stated by agile practitioners in extensive industry surveys (VersionOne, 2018). An extensive US software development company called VersionOne conducts these annual polls, which have participants from a broad spectrum of companies that have embraced agile methods of working.
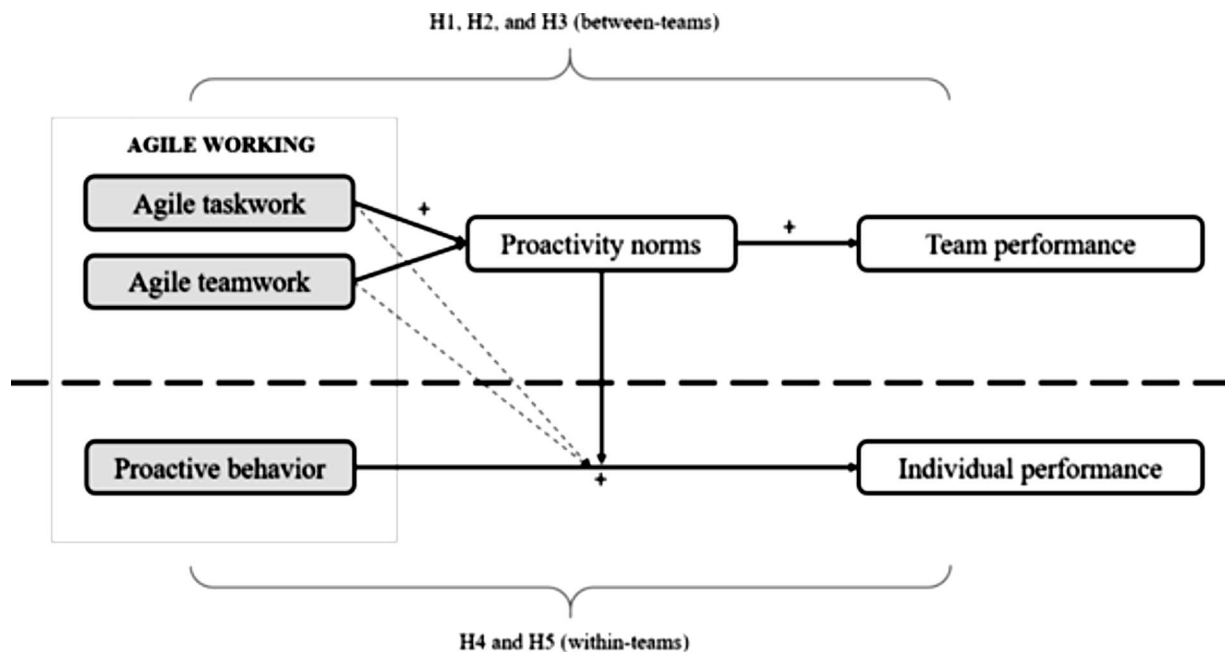
Figure 1. Multilevel model of agile working.

We suggest that agile working is best understood as a layered construct (also known as the "grey box"), where proactive behaviour is the individual-level application of agile working and agile work practices (such as agile taskwork and agile teamwork) are the team-level manifestation.

The provided figure illustrates a comprehensive multilevel model of agile working and its impact on team and individual performance. The model integrates key components of agile frameworks, such as agile taskwork and agile teamwork, and explores how these elements interact to shape proactivity norms, thereby influencing both team and individual performance outcomes. Let's break down the figure's elements and the hypothesized relationships in detail.

Components and Relationships in the Model

Agile Working (Left Section)

- This section represents the core elements of agile working, namely agile taskwork and agile teamwork.

- Agile Taskwork refers to the specific tasks and responsibilities that individuals undertake within an agile framework. This includes activities like sprint planning, task prioritization, and iterative development.

- Agile Teamwork encompasses collaborative efforts, team cohesion, and shared responsibilities. It focuses on how effectively team members work together, communicate, and leverage each other's skills to achieve common goals.

Proactivity Norms (Middle Section)

- Proactivity norms are central to the model and function as the key mediating variable. These norms capture the extent to which teams embrace and reinforce proactive behaviours, such as initiative-taking, problem-solving, and adaptability.

- The model suggests that both agile taskwork and agile teamwork positively influence proactivity norms. However, the pathways differ:

- Agile Taskwork '! Proactivity Norms: This direct relationship suggests that when individuals engage in structured, goal-oriented taskwork, it sets expectations for proactive behaviour, as individuals seek out opportunities to optimize their tasks.

- Agile Teamwork '! Proactivity Norms: Though agile teamwork is expected to support proactivity norms, the figure indicates a weaker or non-significant direct relationship. This is represented by the dashed line in the figure, implying a debated or less robust pathway.

Team Performance (Top Right Section)

- The model posits that proactivity norms directly and positively impact team performance.

- This indicates that teams that establish strong norms for taking initiative, anticipating challenges, and responding effectively are likely to perform better overall.

Proactive Behaviour (Bottom Section)

- Proactive behaviour operates at the individual level and reflects how individual members within agile teams go beyond their formal roles. Examples include employee intrapreneurship, cross-functional collaboration, and taking initiative to improve processes.

- The figure suggests that agile taskwork positively influences proactive behaviour through proactivity norms. The dashed arrows imply moderated or conditional relationships, where the effect of agile taskwork on proactive behaviour depends on the strength of the team's proactivity norms.

Individual Performance (Bottom Right Section)

- Individual performance is influenced by proactive behaviour, indicating that employees who display higher levels of proactivity tend to achieve superior in-role and extra-role performance outcomes.

- The model suggests a cross-level interaction (denoted by the dashed horizontal line) between team-level norms and individual-level outcomes. When proactivity norms are strong at the team level, they enhance the impact of proactive behaviour on individual performance.

Hypotheses Breakdown

The hypotheses in the figure are labelled as H1, H2, and H3 (between-teams) and H4 and H5 (within-teams), indicating multilevel interactions:

H1, H2, and H3 (Between-Teams): These hypotheses explore how team-level factors (agile taskwork and teamwork) influence proactivity norms and, subsequently, team performance.

H1: Agile taskwork positively influences proactivity norms.

H2: Agile teamwork influences proactivity norms (weaker relationship).

H3: Proactivity norms positively influence team performance.

H4 and H5 (Within-Teams): These hypotheses address individual-level factors and their interactions with team-level norms.

H4: Proactive behaviour influences individual performance.

H5: Proactivity norms moderate the relationship between proactive behaviour and individual performance, creating a cross-level mediation effect.

Method and Procedure

Step 1: Identifying Variables for the Study

Given that the research focuses on agile working, proactivity norms, team performance, and individual performance, the variables can be grouped as follows:

1.1   Team-Level Variables

• Agile Taskwork: Measures the extent to which team members engage in structured and goal-oriented tasks.

• Agile Teamwork: Captures collaborative efforts and cohesion within the team.

• Proactivity Norms: Represents the shared expectations for taking initiative and engaging in proactive behaviours.

• Team Performance: Assesses overall team outcomes and goal achievement.

1.2 Individual-Level Variables

• Proactive Behaviour: Measures the extent to which individuals go beyond their formal roles to take initiative and engage in problem-solving.

• Individual Performance: Captures both in-role (task completion) and extra-role (innovative behaviours) performance metrics.

Step 2: Generating Descriptive Statistics

• For each variable, calculate the following:

• Mean: Represents the average score for each variable.

• Standard Deviation (SD): Measures the dispersion or variability of the scores.

• Minimum and Maximum Values: Indicate the range of scores for each variable.

• **Step 3: Calculating Intraclass Correlations (ICCs)**

• Intraclass correlations will help assess the proportion of variance attributable to team membership (between-team variance) versus individual differences (within-team variance). The two key ICCs to calculate are:

1. ICC(1): Proportion of variance explained by team membership.

2. ICC(2): Reliability of the group means, indicating the degree to which the group-level variable can differentiate between teams.

Variables to calculate ICCs for:

• Agile Taskwork.

• Agile Teamwork.

• Proactivity Norms.

• Team Performance.

• Proactive Behaviour.

• Individual Performance.

Step 4: Within-Team Agreement (Rwg)

Within-team agreement (Rwg) measures the extent to which members of a team perceive the same construct in a similar manner. This is particularly relevant for variables like:

- roactivity Norms.
- Team Performance.
- Calculating Rwg involves comparing the observed variance to an expected random variance. Higher values indicate stronger within-team agreement.

Step 5: Alpha Reliabilities (Cronbach's Alpha)

Alpha reliabilities measure the internal consistency of the scale items used to assess each construct. An alpha value greater than 0.70 is considered acceptable. Calculate alpha for:

- Agile Taskwork.
- Agile Teamwork.
- Proactivity Norms.
- Team Performance.
- Proactive Behaviour.
- Individual Performance.

Table:1 Illustrating the structure of the analysis, with hypothetical values filled in for clarity

Variable	Mean	SD	Min	Max	Alpha	ICC (1)	ICC (2)	Rwg
Agile Taskwork	3.85	0.65	2.1	4.9	0.84	0.15	0.72	0.8
Agile Teamwork	3.7	0.75	1.9	5	0.88	0.12	0.68	0.78
Proactivity Norms	4.1	0.55	2.5	5	0.81	0.18	0.76	0.85
Team Performance	3.95	0.8	2	5	0.91	0.2	0.78	0.82
Proactive Behaviour	4.2	0.6	2.8	5	0.86	0.1	0.65	NA
Individual Performance	4.05	0.7	2.5	5	0.89	0.11	0.69	NA

Key Interpretations

Descriptive Statistics: Mean values around 3.85–4.20 suggest a relatively high level of engagement in agile practices and performance outcomes across teams. The standard deviations indicate moderate variability, with some teams scoring lower or higher than average.

Alpha Reliabilities: All variables show strong internal consistency (alphas > 0.80), indicating reliable measures.

Intraclass Correlations (ICCs):

ICC(1) values between 0.10 and 0.20 suggest a moderate proportion of variance explained by team membership.

ICC(2) values indicate high reliability in differentiating between teams, especially for proactivity norms and team performance (values > 0.70).

Within-Team Agreement (Rwg): High Rwg values (0.78–0.85) for proactivity norms and team performance suggest strong within-team agreement, validating the aggregation of these measures to the team level.

Conclusion

The combination of descriptive statistics, ICCs, within-team agreement, and alpha reliabilities demonstrates that the selected variables are fit for examining the impact of agile taskwork and teamwork on proactivity norms, team performance, and individual outcomes. Further analysis can focus on testing the hypothesized relationships and exploring cross-level interactions.

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A study on Creation and Implementation of an Industrial Agile Working Maturity Model

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Abstract

A number of businesses have turned to agile working methods in recent years to strengthen their business's resiliency. Because of the rising acceptance of technology that enable remote control of production systems, agile work has begun to expand to the manufacturing sector as well. However, in order to ensure the successful implementation of agile working in the industry, namely Industrial Agile Working (IAW), organizational changes and investments in technical innovations are needed. This paper's primary goal is to identify the most important factors that influence how applicable agile working approaches are in industrial settings. The creation of an Industrial Agile Working Maturity Model (IAWMM) to gauge a company's level of adoption of IAW techniques is the second goal. Beginning with a set of dimensions determined by scientific literature analysis, multiple manufacturing businesses were involved in the testing of the IAWMM. At last, the improved IAWMM was implemented on a limited number of businesses. The findings show that while the organizations are well-prepared in terms of their understanding and use of the major enabling technologies, they are still not as willing to adopt flexible workforce management methods and alter their organizational structures. On the other hand, the IAW seems like a viable approach to enhancing employee well-being and businesses' productivity and adaptability.

Keywords: *Industrial Agile Working, Working Maturity Model, Employee Well-Being*

Introduction

The industrial landscape is undergoing a transformative shift as businesses strive to maintain competitiveness in an era defined by rapid technological advancements and dynamic market conditions. Agile methodologies, once synonymous with software development, are now making their way into manufacturing and production sectors, heralding a new era of organizational flexibility and responsiveness. This emerging concept, referred to as Industrial Agile Working (IAW), holds the promise of revolutionizing traditional manufacturing paradigms by fostering greater resilience, innovation, and employee engagement. The move towards IAW is being driven by the growing adoption of digital technologies that enable remote monitoring and real-time control of production processes. As industries grapple with global supply chain disruptions and fluctuating demands, the integration of agile principles into manufacturing operations is increasingly seen as a strategic imperative. However, the successful implementation of IAW is far from straightforward. It demands not only investment in cutting-edge technical innovations but also significant organizational restructuring and a shift in workforce management practices.

This paper delves into the critical success factors for the effective application of agile methodologies in industrial settings. It introduces the Industrial Agile Working Maturity Model (IAWMM), a comprehensive framework designed to evaluate a company's preparedness and maturity in adopting IAW

techniques. By leveraging insights from extensive literature reviews and empirical testing across multiple manufacturing firms, this study offers a nuanced understanding of the current state of IAW adoption and highlights key areas for improvement. The findings reveal that while industries are equipped with the necessary technological tools, they often face challenges in embracing flexible management approaches and reconfiguring organizational structures to support agile practices. Nevertheless, the potential benefits of IAW—enhanced employee well-being, increased productivity, and greater adaptability—underscore its viability as a path forward for industrial enterprises seeking to thrive in an increasingly complex environment.

As of right now, only a small number of businesses have embraced the idea of Industrial Agile Working (IAW), which is generally understood to be the implementation of agile working methods in manufacturing and logistics operations (Cimini and Cavalieri, 2022). However, the recent limitations put in place by numerous national governments to combat the COVID pandemic and reduce the risk of infection in the workplace have advanced the discussion about the possibility of implementing similar flexible work arrangements in "blue collar" roles as well, in order to prevent production disruption and guarantee business continuity. Furthermore, it has been noted that in the wake of the relaxation of COVID-19 distance regulations, many businesses are considering carrying on in the tradition of the past, allowing specific job profiles to establish flexible work schedules and locations (Schmidtner et al., 2021). The shift to an agile work model, which is tailored to the needs of the organization and the employees, is extremely difficult in a number of ways. Traditional work models are thought to be based on preset and standardized work schedules and workplaces across multiple job profiles. First, it demands a change in human resource management from an organisational and managerial perspective (Raguseo et al., 2016). Second, it necessitates a culture shift in the ways that higher management and lower-level employees lead and exercise autonomy (Iannotta et al., 2020). Last but not least, it has already been mentioned how important technology is to the viability of various remote and agile working practises (Russell and Grant, 2020).

Phase-A Development of the IAW maturity model	Stage-1 Knowledge Acquisition	Stage-2 Diagnosis	Stage-3 Criteria
Role	Assessing the value of the maturity model and leading to the identification of its factors	Collecting and systematizing the judgement on the different classifications	Definition of mellowness levels
Methods	Scientific Literature Review	Unanimity Judgement	Consensus decision Making
Outputs	Existing Maturity Models refer to Agile Working	Maturity Model Dimensions and sub dimensions	Level of Maturity and questions
Phase-B Application of the IAW maturity model	**Stage-4 Implementation Design**	**Stage-5 Testing**	**Stage-6 Application**
Role	Selecting the test and defining the questions to be asked	Executing the test of the IAWMM	Applying the IAWMM to the selected companies
Methods	Questionnaire	Semi-structured Interview	structured Interview
Outputs	Companies to involve in the IAWMM testing with first draft of Questions	Semi-structured Interview with Final version of Questionnaire	Planned Interview of the IAW in the selected organizations

Research Questions

RQ1: What are the most important aspects of the business that influence how well agile working practices perform in industrial settings?

RQ2: What is a good way to gauge how mature a corporation is at implementing Industrial Agile Working practices?

In order to address the study problems at hand, a comprehensive evaluation of the literature was conducted. Based on Cimini and Cavalieri's (2022) recommendations, the fundamental characteristics of IAW were recognized and categorized along three primary dimensions: human, technological, and organizational. Then, working with industry stakeholders, an industrial agile working maturity model (IAWMM) was created and refined. It was then used to measure the maturity level of seven manufacturing organizations. Relevant insights into the present obstacles to IAW adoption in manufacturing contexts were obtained from the application.

Research Methodology

The research methodology used is based on an adaptation of the two-stage approach put forth by Gastaldi et al. (2018) and Rafael et al. (2020). The maturity model-building methodologies that had previously been provided and used by De Bruin et al. (2005), Becker et al. (2009), and Maier et al. (2012). A number of scholars (Becker et al., 2009; Mettler and Rohner, 2009) assert that the creation of maturity models is a type of scientific research design and the goal is to produce novel facts that aid in addressing organizational and human difficulties (Hevner et al., 2004).

Stage A: Development of the IAW maturity model

Phase 1: Acquiring knowledge

A thorough analysis of the literature was conducted in order to identify the maturity models that are currently in use in the fields of AW and Industry 4.0. The findings of this review are presented in Section 3.2. By evaluating the maturity model and finding plausible grouping logics for these metrics, this literature review attempted to comprehend the standards that were applied in order to define and choose the dimensions and levels (Gastaldi et al., 2018). We compared and determined which of these elements should be employed in the creation of the IAWMM by analysing the features, dimensions, levels, strengths, weaknesses, purpose, and target audience for each of the reviewed MM.

Phase 2: Diagnosis

Using an iterative consensus decision-making process, we determined the dimensions and subdimensions that would be presented to the corporations in this phase, starting with the models that had been analysed in the literature. Consensus decision-making, according to Rafael et al. (2020), is a very helpful technique for determining the best answer to a problem since it enables a group to weigh the benefits and drawbacks of each option. In our instance, we conducted three two-hour virtual consensus meetings with a panel of experts made.

Phase 3: Setting of Criteria

The maturity levels of the dimensions and sub-dimensions established in phase 2 have been established in this phase. In order to decide on the maturity levels to be taken into account for each subdimension, we have once more used consensus decision-making. There have been two one-hour consensus meetings with just the writers present.

Stage B: Using the IAW Maturity Model

Phase 4: Design for Implementation

Because the model was theoretical only, industry participants had to validate it. As a result, sixteen businesses were chosen based on their size and industry. Only medium-sized and large enterprises, with an equal proportion between them, have been chosen due to the socio-technical complexity of the IAW. Then, businesses operating in the manufacturing and process industries have been chosen; these businesses span the most representative industries within the Indian industrial landscape. We have also

established the question to be asked while evaluating the maturity of the companies at this phase. They were made to address all of the dimensions and subdimensions, to clearly indicate the maturity level of the responding company, and to get input regarding the relative value of each dimension to the IAW.

Phase 5: Examination

Using a semi-structured interview technique, we conducted interviews with the 16 chosen organizations in order to test the IAWMM. The testing phase is typically carried out with a single firm (Akdil et al., 2018; Rafael et al., 2020) or with a very small number of companies (Colli et al., 2019; Santos and Martinho, 2020) in the majority of studies that establish a maturity model for the study of a new artifact or model. As a result, we don't think that its authenticity was jeopardized by the initial 16-company testing. On the other hand, it is a feature that raises the value of the conducted research in comparison to worthwhile publications that have previously been published.

Phase 6: Application

We went on to the MM's pilot application after testing and revising the queries. Specifically, out of the sixteen companies in the testing phase, five sizable companies (companies A, B, L, M, and O) were chosen, and two more companies that are partners of Company M were included in the sample. The other two businesses are sizable enterprises operating in the same industry as company M and linked to it through a reliable partnership. The limited number of participants in this final stage of the study is a result of the meticulous selection procedure that took into account a number of variables. To make sure the companies were genuinely interested in learning more about this topic, their level of interest in the IAW topic was first evaluated. Additionally, it was vital to identify whether the organizations had previously launched internal discussions with their human resources department and employee representatives regarding the likelihood of implementing IAW procedures.

Smart Working Maturity Model
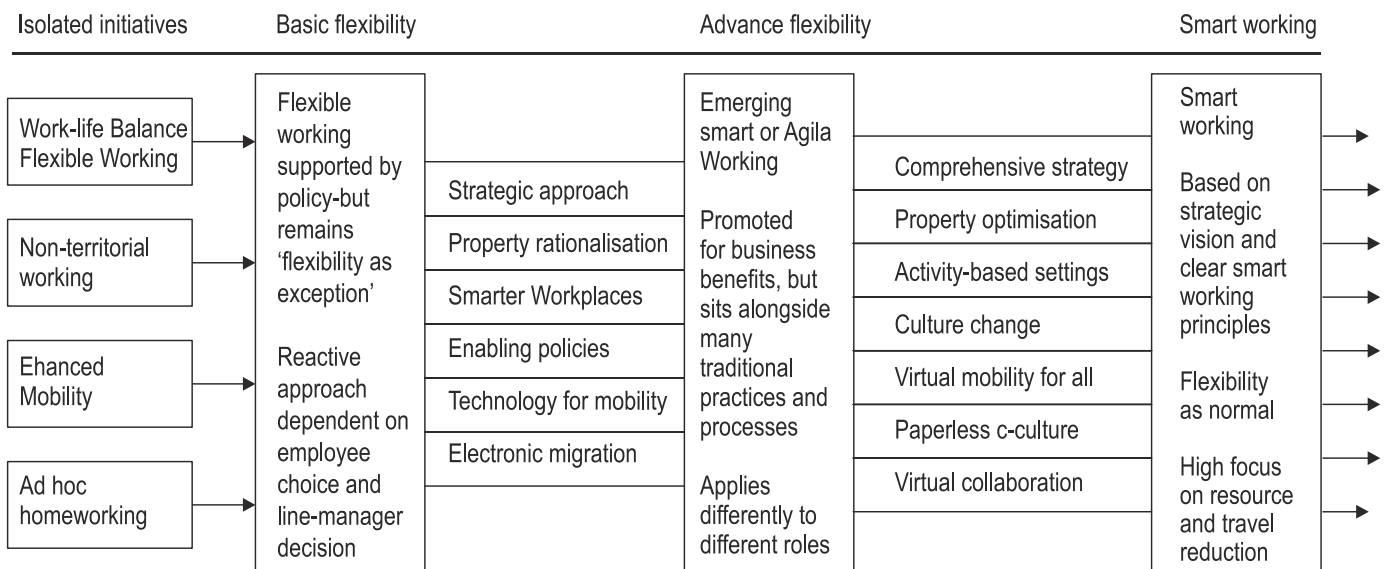
Source: Lake and Dwelly 2014

	Subdimension	Level 1	Level 2	Level 3	Level 4
Organization	Organizational structure	Rigid, hierarchical and bureaucratic organization characterized by a closed system (i.e., isolated from the external environment) and low resilience.	Organization that is formally vertical but operationally horizontal, characterized by an open system (i.e., interacting with the outside world) and a reasonable degree of resilience.	Formally and operationally horizontal organization, characterized by an open system and a high degree of resilience.	–
	Temporal flexibility Spatial flexibility	Rigid and imposed working hours. Management and execution of activities in presence.	Time slot flexibility for the start and end of the working day. Remote task management and execution in presence.	Flexibility of the length of the working day. Remote task management and execution.	Flexibility and autonomy in managing and executing tasks in-person or remotely.
	Leadership	Within the organization , the hierarchical structure prevails. Workers receive orders and instructions not motivated by the manager or management; therefore, there is no communication between workers and managers. Workers do not enjoy autonomy and work under the close supervision of the leader.	The leadership style is based on the motivation of workers, albeit always subject to orders and instructions. The organization's command structure is still strongly hierarchical; however, at this stage, a first form of communication and relationship with the workers can be glimpsed.	The leader offers help and support to workers, communicating with them and involving them directly before making a decision. The manager begins to experiment with forms of remote supervision, leaving workers more autonomy.	Workers enjoy complete autonomy and are evaluated solely on their performance. The leader trusts the workers and delegates them as many tasks as possible.
	Strategy	IAW is not considered in the corporate strategy.	IAW is seen in the background of the corporate strategy.	IAW is largely considered in the corporate strategy.	IAW is an integral part of the business strategy.
Technology	Process characteristics	Workstations are strongly coupled to each other. The production rhythm of the downstream stages is highly dependent on the rhythm of the upstream stages (e.g., assembly lines with defined cycle time).	The workstations are interdependent, although there is the possibility of creating inter - operational buffers (e.g., semi - automatic lines with small intermediate buffers, departmental production systems or manufacturing cells).	Workstations are decoupled from each other and work at different production rates (e.g., manual assembly islands and stand - alone manufacturing systems).	–
	Logistics systems	Handling systems that are extremely constrained in their routes (e.g., rigid conveyors, such as roller conveyors, belt conveyors, chain conveyors, etc.).	Handling systems constrained to pre - defined routes that can be changed by re-planning transport (e.g., front - end forklift trucks, reach trucks, pallet trucks, etc.).	Handling systems not bound to pre - defined routes can also be highly reconfigured automatically (e.g., AGVs).	–
	I4.0 technologies ' adoption	No technology adopted.	At least 3 technologies adopted.	At least 6 technologies adopted.	–
	Information digitization	Most documents are in paper format and are organized in physical archives.	Documents are partly in paper format and partly in digital format, but there is no cloud - based sharing system.	Documents are largely digitized and are accessible by the company's workers through the use of internal servers.	Data and information are all digitized , accessible and sharable from inside and outside the company, thanks to cloud systems.
	Cybersecurity	Cybersecurity policies are partially written and limited to certain areas of interest.	Cybersecurity policies are partially written for all the areas of interest. Presence of a Chief Information Security Officer (CISO).	Cybersecurity policies completely developed. Presence of a CISO and cybersecurity IT infrastructures.	–
	Process automation	Processes are all manual.	Manual processes with the support of automated systems (collaborative robots).	Automated processes, remotely controllable and programmable machines, remote maintenance, testing and monitoring.	Autonomously, intelligently and adaptively managed processes.
Human	Responsibility	The achievement of company goals and results is the responsibility of the management figures.	The work team (workers only) is responsible for achieving the set goals.	Workers are free to manage and organize their work and responsible for achieving their own goals.	–
	Tasks ' content	Physical and practical work content and closely related to product processing.	Physical work content, with more cognitive tasks related to data collection, processing and analysis.	Practical tasks are mainly performed by machinery, while the cognitive content of the operator increases.	–
	Polyvalence	Low level of autonomy and polyvalent skills of the operators.	Limited autonomy and diversified skills in the workforce enable job enlargement strategies. Information sharing and	Experienced workforce with a medium level of autonomy and recognized operators' skills at the company level.	Complete workers' autonomy and structured job enlargement and enrichment strategies.
	Teamworking	No inclination to work in a team and each employee carries out their task individually.	collaboration between employees take place purely face-to-face.	Information sharing and collaboration between employees occur purely in person, with the possibility of working remotely.	Employees can work both in presence and remotely. Good inclination to use platforms for remote communication and collaboration.
	Performance assessment	Difficulty in measuring all performance indicators at a distance.	Difficulty in measuring only some remote performance indicators.	No difficulty in measuring all remote performance indicators.	–

Industrial Agile Working Maturity model subdimensions

Dimensions and sub-dimensions max scores and relevance's.

	Dimension and sub-dimensions	R_i	L_{max}	S_{max}
1.	Organization	2	3	**34,3**
1.1	Organizational structure	3	3	5,7
1.2	Time flexibility	3	4	8,6
1.3	Workspace flexibility	2	4	8,6
1.4	Leadership	2	4	5,7
1.5	Strategy			5,7
2.	Technology	3	3	**31,4**
2.1	Process characteristics	1	3	8,6
2.2	Logistics systems	2	3	2,9
2.3	Technologies' adoption of 4.0	2	4	5,7
2.4	Information digitization	2	3	5,7
2.5	Cybersecurity	1	4	5,7
2.6	Process automation			2,9
3.	Human Resource	2	3	**34,3**
3.1	Responsibility	3	3	5,7
3.2	Tasks' content	3	4	8,6
3.3	Polyvalence	2	4	8,6
3.4	Teamworking	2	3	5,7
3.5	Performance assessment	2	3	5,7
	Total			100

$$S_i = \frac{S_{max}}{L_{max}} \times L_i$$

Where Li is the company's level attained after analysis for the sub-dimension I need to assess. The literature and the results of the testing phase with industry stakeholders determined the various values allocated to the relevance Ri. Furthermore, the relevance Ri was selected with the requirement that the total of the maximum points for each sub dimension be at least 100 in mind. After that, we used consensus decision-making to decide which distinct value Ri should be taken into account for each subdimension. There has only been a single, one-hour consensus gathering that has just involved the writers. The many dimensions and the scores given to each sub-dimension are displayed in the above Table.

Regarding the selection of the relevance metric, a number of industry participants indicated during the testing stage that, from their vantage point, the industrial application of AW necessitates greater organizational and

human resources, which have subsequently been judged to be more relevant than the technological ones. Specifically, they argued that the decision to implement flexible working models is not significantly influenced by automation in logistics and process systems (Ri = 1), but they did support the idea that flexible work arrangements, including scheduling and workspace flexibility, operator polyvalence, and task content, are essential to facilitating the adoption of AW. The total IAW maturity index (IAWMI) reached by the company analysed is finally given by:

$$IAWMI = \sum_{i=1}^{N} S_i$$

Industrial Agile Working Maturity Levels.

Maturity Level	IAWMI	Definition
Beginners	30 < IAWMI < 47.5	The organization is bureaucratic, hierarchical, and inflexible. Employees who are compelled to work from their workstation within the plant due to factors relating to the nature of their jobs and the degree of process automation are not granted any flexibility in terms of timing or location.
Early Adaptors	47.6 < IAWMI < 65	The organisation is less rigid and less vertical. The space in the plant, as well as the technological level of the machines, allow an initial flexibility of time, but the type of tasks is still closely linked to work at the workstation. Workers possess good digital skills; they are stillevaluated according to the hours worked and not based on results, but they begin to be given more responsibility.
Intermediate	65.1 < IAWMI < 82.5	The organisation begins to be less and less rigid and vertical. The spaces in the plant, as well as the technological level of the machines, allow good flexibility of time and a beginning of space flexibility because workers' tasks do not depend entirely on whether or not they are at their workstations. The concept of evaluation by objectives begins to be introduced within the company due to the greater autonomy and empowerment of workers with good digital skills.
Champions	82.6 < IAWMI < 100	The organisation is completely horizontal and characterised by an open system. Thanks to the automation of processes and the use of Industry 4.0 technologies, workers can also work effectively outside their workstations, deciding on their own time and space. Workers arecharacterised by excellent digital skills and act completely autonomously as they are evaluated solely based on the results achieved individually and by the work team.

The Above Model Application

To test the model's applicability, a pilot application of the IAW maturity model was developed by involving seven manufacturing companies located in the North of Italy. Significant improvements are needed in the

organizational structure, time and workspace flexibility, and workers' responsibility. The only sub-dimension in which they achieved the highest level is information digitization. Three companies positioned at the "Beginner" level: B, D and F. Again, the sub-dimensions in which the companies scored lowest are time and workspace flexibility as well as tasks' content. Instead, the levels in which they scored higher are information, digitization and teamworking. The "Intermediate" level contains company E. The company placed at this level despite scoring low for the

sub-dimension employee responsibility, which is one of the factors considered most relevant for IAW practices. Nevertheless, the company ranked high for several dimensions, such as leadership, 4.0 technologies' adoption, and cybersecurity. Only Company A could rank in the highest position of the pyramid, at the "Champion" level. This was possible by achieving the highest levels in strategy, information digitization, 4.0 technologies' adoption, cybersecurity, responsibility and team working. Interviews showed that, currently, the most difficult subdimensions to implement are those related to time and workspace flexibility and organizational structure, which struggles to overcome the classic model of a rigid, hierarchical and bureaucratic organization characterized by a closed system and low resilience. At the same time, it is one of the factors in which all surveyed companies seek to improve with the minimum goal of having a formally vertical but operationally horizontal organization characterized by an open system and a good degree of resilience.

Results of the IAW maturity model application

Company	Organisation	Technologies	Human	IAWMI	Maturity level
A	22.7	25.5	28.5	76.7	Champion
B	15.2	20.2	20.7	56.1	Beginners
C	10.4	16.6	13.5	40.5	Early adaptor
D	7.6	22.1	22.7	52.4	Beginners
E	19	23.3	18.5	60.8	Intermediate
F	13.1	25.2	18	56.3	Beginners
G	10.4	16.6	13.5	40.5	Early adaptor
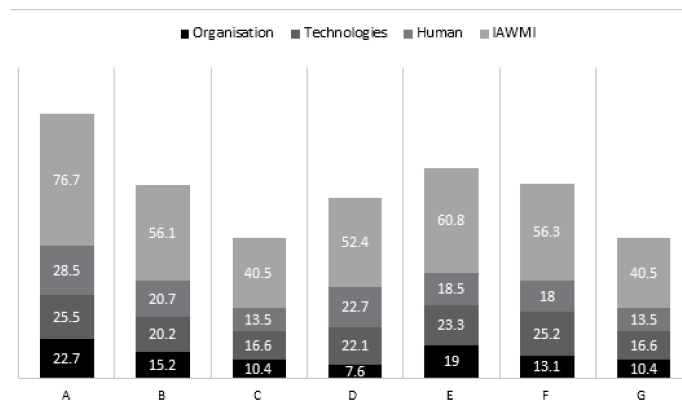
- **Interpretation:**

1. **Company A**:
   - Highest Maturity Level: Champion
   - Strong Scores: High values in Organisation (22.7), Technologies (25.5), and Human factors (28.5).
   - IAWMI score is exceptionally high at 76.7, indicating an integrated and mature approach in managing technology and workforce innovation.

2. **Company B**:
   - Maturity Level: Beginners
   - Moderate Scores: Organisation (15.2) and Technologies (20.2).
   - Human score is lower (20.7), resulting in a relatively low IAWMI score of 56.1. The company is in the early stages of integration and needs improvement in workforce and innovation management.

3. **Company C**:
   - Maturity Level: Early Adaptor
   - Low Scores: Organisation (10.4), Technologies (16.6), and Human (13.5).
   - IAWMI score of 40.5 reflects a nascent stage in adapting new technologies and managing the workforce, showing room for growth.

4. **Company D**:
   - Maturity Level: Beginners
   - Discrepancies: Although the Technologies (22.1) and Human (22.7) scores are relatively strong, the Organisation score (7.6) is low.
   - IAWMI score (52.4) indicates that organisational structure needs improvement to achieve a balanced integration.

5. **Company E**:
   - Maturity Level: Intermediate

- Well-Balanced Scores: Organisation (19), Technologies (23.3), and Human (18.5) show a consistent level of competency.
- IAWMI score of 60.8 suggests that the company has a balanced integration of organisational and technological factors, placing it in an intermediate maturity level.

6. **Company F**:
   - Maturity Level: Beginners
   - High Technologies Score: Strong performance in Technologies (25.2) but weaker in Organisation (13.1) and Human (18).
   - IAWMI score of 56.3 reflects a good start in technology adoption but requires better integration of organisational and human factors.

7. **Company G**:
   - Maturity Level: Early Adaptor
   - Low Scores Across the Board: Similar to Company C, with Organisation (10.4), Technologies (16.6), and Human (13.5).
   - IAWMI score of 40.5 indicates that the company is still in an early stage of adopting an integrated approach, with significant potential for maturity improvement.

Summary:

- Companies like A are industry leaders with high maturity levels, showcasing excellent integration and technology adoption.

- Companies like B, D, and F fall into the Beginners category, indicating they have good technology scores but need to develop organisational and human factors further.

- Companies C and G are Early Adaptors, reflecting initial efforts in technology adoption but still needing improvement to move toward higher maturity levels.

- Company E, as an Intermediate, demonstrates a balanced yet growing capacity to integrate these factors effectively.

Discussion and conclusions

One example of a shift in strategy for job management and execution is IAW. These days, the word "AW" is applied incorrectly to describe the ability to complete work from home that is supposed to be completed in a factory. The term "IAW" refers to the application of agile and flexible working techniques that enable workers in factories to operate remotely and flexibly, as revealed by the phenomenon under study. As a result, they are able to independently decide how much and where to work while taking on more accountability for the team's collective and individual accomplishments. As a result, it is imperative that employees have access to all the technology tools required to support remote work, particularly those that facilitate remote communication and data and information exchange among team members. This idea suggests that in order to use these tools efficiently, the worker must also have the digital abilities required. The two primary research topics addressed by this study were how to assess a company's maturity in implementing IAW practices and what factors are most important in determining whether AW practices can be applied in an industrial setting. Regarding RQ1, a literature research yielded 19 aspects, which were further debated with industry stakeholders to determine a final set of 16 dimensions that fall into three categories: workforce, technologies, and organization. In addition, in order to address RQ2, a maturity model that evaluates how mature an industrial organization is in adopting Agile Working practices has been developed and tested on a sample made up of seven manufacturing firms.

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Agile Human Resource Management: An Organized Mapping Investigation

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Abstract

Agile HR is a well-established practice that has gained interest in the previous four years as a promising field of study. Nevertheless, no thorough analysis of the literature on this topic has been done. This study aims to map the present status of research on agile HR. After doing a thorough mapping investigation, we located 86 pertinent primary studies. Our research is categorized into two main themes: HR for Agile, which focuses on how the HR function supports an agile organization, and Agile for HR, which examines how the HR function embraces agile methods. With a greater number of research papers, models, and frameworks provided, the HR for Agile theme is increasingly developed. We also examine the different kinds of publications, locations, and study techniques. The corpus of work is dispersed and varied, with the majority of the articles appearing in multidisciplinary journals and published after 2019 and combining both theoretical and empirical methods. The study adds a new definition of agile HR, research gaps in the literature, a comparison of traditional and agile HR practices, a thematic analysis of research issues, and an agenda for future research. The practice has benefited from the discoveries that agile talent acquisition promotes organizational agility, agile HR practices are advantageous to organizations, and HR may become more agile by implementing little adjustments to current procedures as opposed to implementing drastic ones. In order to enhance conceptual clarity, theory development, business value and benefit understanding, issue identification, contextual factor comprehension, and outcome critical exploration, more scholarly work on agile HR is required.

Introduction

Businesses must respond to the ever-increasing demands in their business environment while operating in unpredictable times (Nijssen and Paauwe, 2012; Shahsavari-Pour et al., 2021). Agility is the capacity to quickly perceive and react to unforeseen possibilities and risks through effective adaptation (Asfahani, 2021; Munteanu et al., 2020). Tseng and Lin (2011) elucidate three interconnected facets of attaining organizational agility. First, there are "agility drivers," such as heightened competition and quick changes in dynamic environments; second, there are "organizational capabilities," such as adaptability, flexibility, and responsiveness, which enable responding to changes and benefiting from them; and third, there are "providers," such as businesses, individuals, technology, and innovation, who support these capabilities. This demonstrates that embracing agility "does not just happen," but requires intentional pursuit and can be accomplished through providers as well as organizational capabilities (Nijssen and Paauwe, 2012; Shafer et al., 2001). Given the current climate, it is not unexpected that a large number of organizations are adopting the agile paradigm (Revutska, 2021). The IT department's successful and broad adoption of agile methodologies within organizations has contributed to this in part.

It's interesting to note that scholars are just beginning to pay attention to agile HRM as a developing field. Agile HRM is seen in the profusion of practitioner-

written textbooks and blogs, training sessions, and the agile HR manifesto (https://www.agilehrmanifesto.org /). The idea behind the notion is the change of HRM processes, structures, and roles through the application of agile values, principles, and attitude. It's gaining traction as a tactic to push HRM to become more rapid, adaptable, and durable rather to adhere to more stringent guidelines, regulations, and controls (McMackin and Heffernan, 2021; Thani et al., 2022). According to a recent industry poll (Peters et al., 2022) on the state of agile HR, 42% of HR respondents have developed HRM strategies that directly lead to agile HRM practices and concepts. According to their analysis, the HRM practices most impacted by the agile approach include performance management, strategic workforce planning, and recruitment.

Enhancing comprehension of the motivations, practical consequences, and issues posed by this emerging phenomena can be achieved through an agile HRM mapping research. Unlike systematic literature reviews (SLRs), which summarize research findings for a specific research issue that has been the focus of multiple studies, mapping studies are meta-studies that map out research activity in a given area (Kitchenham et al., 2011; Petersen et al., 2008, 2015). The majority of innovation in agile HRM is realized in practice, but in order to provide deep understandings, models, and theories that synthesize and clarify crucial aspects of practice, academic research is required. A SMS into agile HR is timely because the topic is being discussed frequently in practice and there is increasing research being done in the field, even though SLRs have been used to study comparable phenomena. In addition to identifying potential future research and practice development topics, this study will assist in educating scholars and practitioners on the state of the art at the moment. This work offers four key contributions:

1. To define Agile HR.

2. To map the existing status of agile HRM research into a thematic framework in order to provide a thorough overview of it.

3. To organize and categorize the body of current research according to the quantity of papers released, the year of release, the publication venues, the nation of origin, the research techniques, the theories, and the models employed.

4. To determine areas in need of inquiry and suggest a course of study.

Research Questions and Motivations

Q1. What is the present status of Agile HR Research?

To classify agile HR research by grouping, evaluating, and compiling pertinent studies.

Q2. How Many research papers have published so far?

To illustrate how research and publication tendencies have changed throughout time, as well as newly popular or dropped subjects.

Q3. What Research methods have been used?

To determine which regions require additional research

Q4. What research topics have been studied?

To ascertain and evaluate the research subjects that are most commonly addressed.

Q5. Which underlying models are applied and what Fresh frame works are created?

To investigate the theoretical framework being established to advance research on agile human resources.

Research Methodology

Identifying and defining the scope

We iteratively planned, discussed, and refined our research protocol in order to provide a thorough "overview of the state-of-the-art" through our investigation of the agile HRM literature. Ultimately, we decided on the following research question, which has been broken down into more specific sub-questions along with their justification.

Data sources and search methodology

Nine popular databases—AB/INFORM, Business Source Complete, Science Direct, Scopus, Sage Premier Journals Online, Taylor and Francis Journals, Wiley Online Library, ACM Digital Library, and Web of Science—were searched in an effort to find as many publications as possible. Using terms from the HRM and agile literature, author conversations, and trial searches, we developed our search string iteratively (Kitchenham, 2004: 7–8). The following important phrases formed the foundation of the final search string: HRM, Agile HR. Criterion for inclusion and exclusion. To help with the selection of the studies, we created a set of inclusion and exclusion criteria (Petersen et al., 2015). Despite the growing significance of grey literature for agile HR, we have chosen to concentrate on scholarly research in the area.

Requirements for inclusion:

- Peer-reviewed literature (pieces in journals, proceedings from conferences.
- Composed in the English language.
- Agile HRM is discussed in articles (related to the search keyword).
- There are appropriate goals, research questions, and research techniques.
- Accessible in its entirety.

The exclusion criteria:

- Grey literature.
- Non-English papers.
- Articles unrelated to agile HRM.
- Articles missing objectives and research questions.
- If the entire text is not available and duplicates.

Research Carrying out

- **Identifying the Research Problem**
  - Define the Problem: Start by pinpointing a specific issue or topic you wish to investigate. Ensure the problem is researchable and aligns with your objectives.

- Establish the Scope: Clarify the boundaries of your research. This includes the population, variables, and context.

- **Literature Review**
  - Gather Existing Knowledge: Study previous research to understand the background and identify gaps.
  - Formulate Hypotheses: Based on your understanding of existing studies, create hypotheses that your research will aim to test.

The authors' approval of the search method, producing a total of 4103 articles. Certain databases permit the filtering of results according to certain criteria, such as "full-text availability," "non-English," "source type," "document type," and "duplicates." Filters were applied, resulting in 1553 studies as the total number of returned publications.
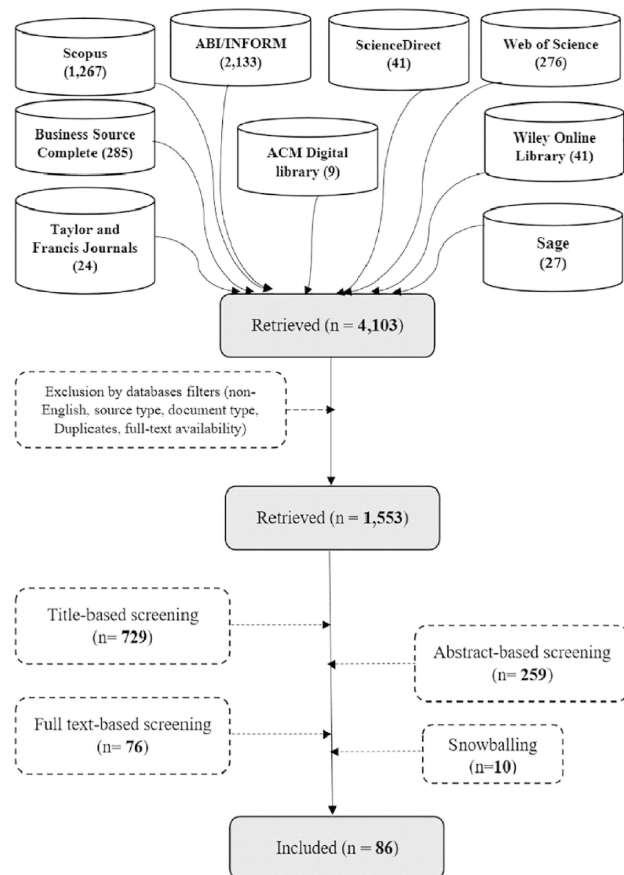
Figure 1. Research paper selection process

Every study was uploaded for screening to Rayyan (http://rayyan.qcri.org). According to Ouzzani et al. (2016), Rayyan is a free web tool and mobile application that facilitates search filtering and helps researchers manage the study selection process in systematic reviews. To locate relevant publications, two researchers employed an iterative selection process (Figure 1) that involved looking at the title, abstract, and full text first. We performed a blind pilot screening at the beginning of each step, wherein the first and second authors viewed the same collection of papers. Following that, we contrasted and examined the outcomes of every screening separately (Olofsson et al., 2017). We also examined the first 50 papers for the title-based screening approach, and the first 10 studies for the abstract and full-text screening. Even though the two screeners' agreement rate was over 75%, further meetings were arranged to resolve disagreements, clarify our decisions, and ensure that the remaining portion of the data set would be consistent with our selections (Polanin et al., 2019).

Extraction and analysis of data

To address our research questions, information on 86 primary studies title, year, publishing location, purpose or research question, research methodology, nation, and study sample was taken (Dataset, Appendix 1). To identify the themes in the investigation, we employed an inductive thematic coding technique (Braun and Clarke, 2006). The first author coded the selected papers using keywords and the study field. Initial codes offered were, for instance, agile HRM practices, HRM shift, agile HRM assessment and measurement, advantages, and HRM and agile or agility. Next, we talked about these codes and separated them into seven smaller themes (Figure 2). Following additional deliberation and multiple revisions, these were then categorized into two elevated themes, designated as Agile for HR and HR for Agile. Both names are shorthand for the two primary areas of research activity and are frequently used in practitioner literature (McMackin and Heffernan, 2021).
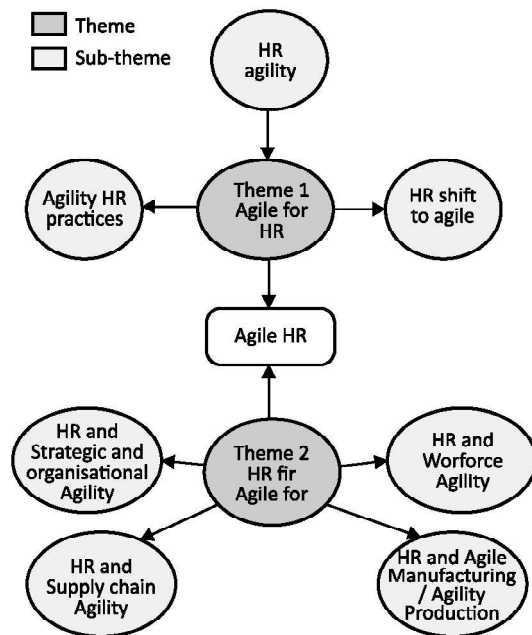
Figure 2. Investigated areas and emergent themes and subthemes.

Details on the primary studies that are descriptive

The descriptive data regarding the primary studies that were examined for this study is summed up in this section. This information includes the number of papers published, the year of publication, the publication venues, the country of origin, and the research methodologies, theories, and models that were used.
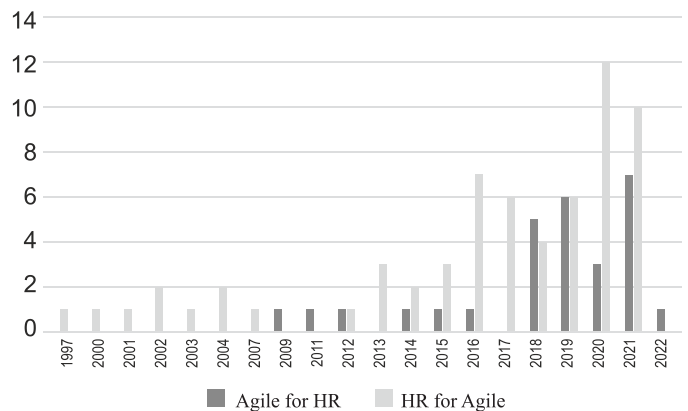
Figure 3. Temporal distribution of primary studies.

The above figure shows that over time, the HR for Agile sub-themes seem to have taken centre stage. There

has been a discernible rise in the quantity of agile studies for HR from 2015 to 2022, with 2021 being the most active and productive year. This suggests that agile for HR is becoming increasingly well-known and a frequent topic of research investigations. A number of technological and societal developments, including as the gig economy, the COVID-19 pandemic, and artificial intelligence, have brought about new forms of labour and made organizations more flexible and responsive, which may help to explain some of this. As a result, we expect the rate of publications in the topic of agile HR to expand significantly in the upcoming years.

Research subjects have been looked into

This study distinguishes between two aspects of HRM that are agile. The first is using agile practices for HR operations, also known as "HR being agile" or "agile for HR." This is about HR embracing agile methods and being agile through teamwork, incremental delivery, and ongoing improvement. This is how the phrase "agile HRM" is most frequently understood. The second is "HR building an agile workforce," or "HR for Agile," which refers to HR's assistance in assembling the ideal staff for an agile company. This has to do with identifying, training, and keeping the proper agile talent. HR must collaborate with the company to create the procedures and systems needed to enable the development of an agile workforce.

Seldom is agile HR defined in scholarly works. "Agile HR seeks to mini-mise waste and optimize the flow of value to its customers by organizing the HR unit into multidisciplinary, empowered teams that continuously align with changing business requirements by sensing and adapting through open communication while operating in short cycles," according to the only definition of the term that we could find (McMackin and Heffernan, 2021). All facets of the HR department, including roles, responsibilities, procedures, and tools, as well as the abilities and attitudes of HR managers and staff, are influenced by agile concepts (p. 4). But the scope of this notion is limited to agile in HR. It is

based on strong theoretical foundations, such as the resource-based view (Barney, 1991), the transaction cost perspective (Yin et al., 2019), the dynamic capabilities perspective (Chadwick and Flinchbaugh, 2021; Eisenhardt and Martin, 2000), and the sociotechnical systems theory (Trist and Bamforth, 1951). It primarily describes operational strategy (Reid and Sanders, 2010; Slack and Lewis, 2002).

Agility in HR and workforce

The relationship between workforce agility and HRM has been the subject of numerous research, making it the second most common sub-theme. For long-term business advantage, work-force agility describes "how employees handle and respond to change by adapting to changes and new conditions and using the capabilities of the firm" (Alavi et al., 2014: 6274). Interestingly, multiple terms are used by writers to refer to workforce agility: agile workforce (Ajgaonkar et al., 2022; Martin, 2015; Plonka, 1997), employee agility (Doeze Jager-van Vliet et al., 2019), and labor agility (Munteanu et al., 2020). Based on the perspectives of personorganion fit theory, dynamic capability, resource-based view, and job characteristics model, a group of studies asserts that HRM practices and competence management are predominate for developing agility behaviours and creating agile human capital characteristics (Almeida and Simões, 2021; Dorairaj et al., 2013; Martin, 2015; Van Assen, 2000). For example, Ajgaonkar et al. (2021) represent a heuristic model of HRM practices that specifically includes selection and recruitment, training and development, remuneration, and rewards as key drivers of workforce agility. They do this by using the micro-foundations of dynamic capabilities, such as "sensing," "seizing," and "continuous renewal."

HR as well as flexible production and manufacturing

According to a few studies, organizations interested in implementing agile approaches to manufacturing and production should concentrate on creating agile HR practices, such as agile-based competence management (Van Assen, 2000) and appropriate

training and skills development, empowerment, involvement, and teamwork (Sánchez et al., 2019; Vázquez-Bustelo et al., 2007). Alavi and Aghakhani (2023) are the only ones who offer a set of green HRM practices that integrate HRM and environmental management system principles for agile manufacturing. Examples of these activities include green development, green performance evaluation, and green reward management.

Consequences for practice

For HR professionals, our report offers some helpful insights. Since 2010, a significant portion of the academic literature has argued that HRM departments or functions would benefit from becoming more agile in order to respond to the complex changes in the workplace brought about by the gig economy, talent shortage, diverse workforce demographics, increased use of technology, disruptive innovation, and the competitive global marketplace. In particular, HR must build human capital throughout the entire organization to boost customer value and preserve competitive advantage. Our article highlights the advantages of agile HR for workers' performance, learning, flexibility, decision-making, and collaborative behaviour. Numerous organizational benefits of agile HR and agile approaches in HRM have been identified by existing research. These benefits include enhanced employee retention (through Scrum, for example), professional agency, and innovation, all of which contribute to an organization's capacity to handle unpredictability.

Threats to and constraints on validity

Bias concerns are a major problem for mapping studies, especially when it comes to paper selection and inaccurate data extraction. Despite our best efforts to thoroughly analyse the literature, there are still several issues that could compromise its validity.

Construct validity: it is likely that some relevant research was overlooked because of the possible bias in study selection (Ampatzoglou et al., 2019) and the restricted list of keywords utilized in the search string (some databases only allow search strings to contain eight words). In addition, the terms "human resources," "human capital management," and "people operations" are replacing HRM. We designed an inclusive search string with appropriate terms, ran pilot searches across nine databases, and then carried out follow-up searches on Google Scholar, reference lists, and snowballing in order to reduce this risk. Although our study's goal was not to investigate causal linkages, internal validity is important in this context. Thus, this threat does not affect our job in any way. External validity is the degree to which research findings can be applied to a larger population. In compliance with the standards provided by Petersen et al. (2008, 2015), we conducted thorough research to ensure that the study protocol is inclusive and the selected papers are representative.

Conclusion

This report offers a methodical mapping analysis of the literature on agile human resources. We conclude that, despite being practice-led, academic researchers are beginning to recognize agile HR, as evidenced by the increase in attention in recent years. Seven sub-themes are identified in this study, which exposes two main themes: HR for Agile (HR and organizational and strategic agility, workforce agility, supply chain agility, and agile production or manufacturing) and Agile for HR (transition to agile, agile HR practices, HR agility). This document provides researchers with easy access to a thorough and methodical research framework for agile HR, which includes the state-of-the-art at the moment, its development over time, and obvious research gaps. Furthermore, it is one of the first to provide a thorough explanation of agile HR by combining HR for Agile and Agile for HR, based on practitioner experience and scholarly research. From a practical standpoint, the growing interest in agile HR suggests that more agility is urgently needed to better address the dynamic demands of business. Therefore, by assisting practitioners in comprehending and analysing how academic agile HR frameworks and models may be utilized to enhance corporate agility practices, this study closes the gap between theory and practice.

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Integrating Big Data Analytics and Decision-Making Processes to Drive Project Success

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Abstract

Big Data Analytics has emerged as a crucial factor in enhancing the success of projects across various industries. This study explores the role of Big Data Analytics in the success of projects, with a particular focus on how decision-making, viewed through the lens of the resource-based view (RBV), moderates this relationship. By examining data collected from 135 professionals working in the IT and telecommunications sectors in Pakistan, this research aims to uncover the extent to which Big Data Analytics contributes to project success. The study's findings reveal a significant positive impact of Big Data Analytics on project outcomes. Additionally, the interaction between effective decision-making and Big Data Analytics further strengthens this relationship, particularly across the three key dimensions of project success: time, cost, and quality. These insights underscore the importance of integrating advanced analytics and robust decision-making processes in project management to achieve superior results. The implications of this study highlight the need for organizations to invest in Big Data Analytics capabilities and enhance their decision-making frameworks to maximize project success.

Keywords: *Big Data Analytics, Project Success, Decision-Making, Resource-Based View (RBV), IT Sector, Telecommunications.*

1. Introduction

In the modern era, the exponential growth of data has transformed how organizations operate, compete, and grow. This phenomenon, often referred to as the "Big Data revolution," is characterized by the vast amounts of data generated by businesses, consumers, and digital devices daily. Big Data Analytics (BDA) has emerged as a powerful tool, enabling organizations to extract valuable insights from these massive datasets. By leveraging advanced analytics, machine learning, and artificial intelligence (AI) techniques, businesses can make informed decisions that drive efficiency, innovation, and competitive advantage. Big Data Analytics involves the process of examining large and complex datasets to uncover hidden patterns, correlations, market trends, customer preferences, and other valuable business information. The importance of BDA cannot be overstated, as it provides the foundation for data-driven decision-making, enabling organizations to optimize processes, reduce costs, enhance customer satisfaction, and ultimately achieve project success.

2. The Evolution of Big Data Analytics

The concept of Big Data has been around for decades, but it is only in recent years that it has gained significant traction due to the advent of advanced computing technologies and the proliferation of data sources. The evolution of Big Data Analytics has been fueled by several key developments:

- Technological Advancements: The rise of cloud computing, distributed computing frameworks like Hadoop and Spark, and powerful data processing

tools have made it possible to analyze massive datasets efficiently.

- Increased Data Generation: The explosion of data from social media, IoT devices, mobile apps, and e-commerce platforms has created a need for sophisticated analytics tools that can handle the volume, velocity, and variety of data.
- Machine Learning and AI: The integration of machine learning algorithms and AI in Big Data Analytics has enhanced the ability to predict outcomes, automate decision-making, and provide real-time insights.
- Data Democratization: With the availability of user-friendly analytics platforms, organizations of all sizes can now access and leverage Big Data, democratizing the power of analytics across industries.

These developments have made Big Data Analytics an indispensable tool for organizations striving to achieve project success in an increasingly complex and competitive business environment.

The Evolution of Big Data

Year	Event/Development
1983	Acres Player Tracking introduced
1995-2005	Rapid expansion of tribal gaming
1997	Harrah's Total Rewards released
2000	SQL Server 2000 released
2000-2010	Rise of carded play
2005	Harrah's acquires Caesar's Entertainment and integrates reward programs across properties
2005	Hadoop framework for processing and storing extremely large datasets released
2009-2018	"Big Data" lexicon emerges
2010	Microsoft, Amazon, and Google introduce new tools to store and compute data on machines in the cloud
2014-2018	Upgrades of casino management systems
2015-2017	Democratization of data science with the rise of open-source tools (e.g., Python)
2015-2018	Microsoft, Amazon, and Google release AI and machine learning technologies to predict outcomes

3. Big Data Analytics and Project Success

Project success is a critical metric for organizations, reflecting their ability to meet predefined objectives within scope, time, and budget constraints. Traditional project management practices, while effective, often fall short in today's data-rich environment. This is where Big Data Analytics plays a pivotal role. By providing data-driven insights, BDA enhances project planning, execution, monitoring, and control processes, leading to better decision-making and, ultimately, project success.

Key Contributions of Big Data Analytics to Project Success:

a. **Improved Decision-Making**: Big Data Analytics enables project managers to make informed decisions based on real-time data, historical trends, and predictive models. This reduces the likelihood of errors and increases the chances of project success.

b. **Enhanced Risk Management**: By analyzing large datasets, BDA can identify potential risks early in the project lifecycle, allowing for proactive risk mitigation strategies. This is particularly valuable in complex projects where unforeseen challenges can derail progress.

c. **Optimized Resource Allocation**: Big Data Analytics helps in optimizing resource allocation by analyzing patterns and predicting future needs. This ensures that the right resources are available at the right time, reducing delays and cost overruns.

d. **Increased Efficiency**: Through process optimization and automation, BDA can streamline project workflows, reduce redundancies, and enhance overall efficiency. This leads to faster project completion and better use of resources.

e. **Enhanced Stakeholder Communication**: Big Data Analytics facilitates better communication with stakeholders by providing clear, data-driven reports and visualizations. This ensures transparency and keeps all parties informed about project progress and challenges.

4. The Resource-Based View (RBV) Perspective

The Resource-Based View (RBV) is a strategic management framework that emphasizes the importance of an organization's internal resources in achieving competitive advantage and success. According to the RBV, organizations that possess valuable, rare, inimitable, and non-substitutable (VRIN) resources are more likely to achieve sustained competitive advantage. In the context of Big Data Analytics, the RBV perspective highlights the importance of data and analytics capabilities as critical resources that can drive project success. Organizations that can effectively harness Big Data and integrate it into their decision-making processes are better positioned to achieve their project goals and maintain a competitive edge.

Key Components of RBV in Big Data Analytics:

a. **Valuable Resources**: Data itself is a valuable resource, but its value is realized only when it is processed and analyzed to generate actionable insights. The ability to leverage BDA effectively is a valuable resource that can enhance project success.

b. **Rare Capabilities**: Not all organizations have the expertise or infrastructure to fully utilize Big Data Analytics. Those that do possess these rare capabilities can differentiate themselves and achieve superior project outcomes.

c. **Inimitable Processes**: The processes and methodologies used to analyze Big Data can be complex and difficult to replicate. Organizations that develop unique BDA processes can create a sustainable competitive advantage.

d. **Non-Substitutable Insights**: The insights generated from Big Data Analytics are often unique and cannot be easily substituted by other forms of analysis. This makes BDA an indispensable tool for driving project success.

5. The Role of Decision-Making in Project Success

Decision-making is a critical aspect of project management that directly impacts the success of a project. In the context of Big Data Analytics, decision-making becomes even more crucial, as it involves interpreting complex data, identifying trends, and making strategic choices that align with project objectives.

The Interplay Between Big Data Analytics and Decision-Making:

a. **Data-Driven Decisions**: Big Data Analytics provides project managers with the data and insights needed to make informed decisions. These data-driven decisions are often more accurate and effective than decisions based on intuition or incomplete information.

b. **Strategic Alignment**: BDA helps ensure that decisions made during the project align with the overall strategic goals of the organization. This alignment is critical for achieving long-term project success.

c. **Adaptive Decision-Making**: In dynamic project environments, the ability to adapt and make quick decisions is essential. BDA provides real-time insights that enable adaptive decision-making, allowing projects to stay on track despite changing conditions.

d. **Feedback Loops**: BDA facilitates the creation of feedback loops, where data from ongoing project activities is continuously analysed to inform future decisions. This iterative process helps in refining strategies and improving project outcomes.

6. The Impact of Big Data Analytics on Project Success: A Study in Pakistan

To further understand the impact of Big Data Analytics on project success, this study focuses on the IT and telecommunications sector in Pakistan. These industries are known for their rapid growth and high reliance on data, making them ideal candidates for examining the role of BDA in project management.

The study surveyed 135 professionals engaged in Big Data Analytics in the IT and telecommunications

sector. The findings provide valuable insights into how BDA contributes to project success in these industries. Specifically, the study highlights the positive impact of BDA on key project success dimensions, including time, cost, and quality.

Review of Literature:

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II. Sheshadri Chatterjee [a], Ranjan Chaudhuri (2023) this study aims at examining the impacts of BDA on the process of decision-making, forecasting, as well as firm performance. Using resource-based view (RBV) as well as dynamic capability view (DCV) and related research studies, a research model was proposed conceptually. This conceptual model was validated taking help of PLS-SEM approach considering 366 respondents from Indian firms, Technological Forecasting and Social Change Volume 196, November 2023, https://doi.org/10.1016/j.techfore.2023.122824

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V. Simone Gressel, Tilburg University (2020) this article focused on Management Decision-Making, Big Data and Analytics in the current generation, international journal of data science, volume 2 issue 7, in the year 2020.

VI. Rakesh D. Raut , Vinay Surendra Yadav (2021) the present study, twelve significant barriers against BDA implementation are identified and assessed in the context of Indian manufacturing Supply Chains (SC). These barriers are modelled using an integrated two-stage approach, consisting of Interpretive Structural Modelling (ISM) in the first stage and Decision-Making Trial and Evaluation Laboratory (DEMATEL) in the second stage. The approach developed provides the interrelationships between the identified constructs and their intensities. Computers in Industry, Volume 125, February 2021, 103368, https://doi.org/10.1016/j.compind.2020.103368

VII. Chunquan Li [a], Yaqiong Chen(2021) This paper provides a theoretical analysis basis for big data-driven technology to guide decision-making in intelligent manufacturing, fully demonstrating the practicability of big data-driven technology in the intelligent manufacturing industry, including key advantages and internal motivation. A conceptual framework of intelligent decision-making based on industrial big data-driven technology is proposed in this study.

Research Gap: The research gaps include cross-industry applicability of BDA, sector-specific challenges, lack of empirical validation, and the need for industry-specific models. Future studies should explore diverse contexts, provide empirical evidence, and address specific challenges across different sectors and decision-making frameworks.

Statement of the problem: The problem lies in the limited understanding of how Big Data Analytics (BDA) influences decision-making across various industries,

with a need for empirical validation, sector-specific insights, and effective integration of BDA into diverse organizational decision-making processes.

Objectives of the study:

1. To study Leverage big data analytics to enhance project decision-making accuracy and efficiency.

2. To analyse Integrate analytical insights into project planning to improve outcomes and success rates.

3. To evaluate Develop strategies to effectively utilize big data for optimizing project management and execution.

Hypotheses formulation and development of a conceptual model

Taking support of theories and literature, it was possible to establish the nexus between adoption of BDA and overall firm performance by improving some identified endogenous intermediate contextual constructs. Here, the constructs used in this study will be discussed and efforts will be made to develop a few hypotheses to propose a model conceptually.

H1: There is a significant relationship between big data analytics and project efficiency.

H2: There is a significant relationship between big data analytics and the project's impact on the customer.

H3: There is a significant relationship between big data analytics and the project's impact on the team.

H4: There is a significant relationship between big data analytics and the project's direct organizational and business success.

H5: There is a significant relationship between big data analytics and how the project helps to prepare for the future.

Questionnaire preparation

The set of questions has been developed with the help of existing literature on the concerned research problem. The dimensions have been measured on 5-point Likert scale having anchors spanning from SD (Strongly Disagree) [marking as 1] to SA (Strongly Agree) [marking as 5]. The questions prepared have been pre-tested with due consultation from nine experts to simplify the recitals of the questions. Out of these nine experts, five experts belong to the industrial sector with each having professional experience for more than ten years in the related field. The other experts were academicians, each having more than fifteen years of experience in research in the field of this study. Their inputs help to rectify the questions through enhancement of their readability. After completion of the pre-test, pilot test was conducted with analysis of responses of 25 respondents selected through the approach of convenience sampling technique. It is pertinent to mention here that these 25 respondents are mostly leaders and managers of those firms which have adopted BDA or have been contemplating adopting BDA. The inputs of 25 respondents could help to enhance the understandability and the comprehensiveness of the questionnaire.

Sample Method

The study employed a survey-based research method to test the hypothesized relationships and validate the proposed conceptual model. This approach is particularly well-suited for research that involves hypothesis testing, population analysis, and the development of theoretical models. A structured questionnaire was designed and distributed to collect data from the targeted respondents. The questionnaire was developed based on established measures from the literature, ensuring that it adequately captures the constructs of interest.

Sample Collection

An online survey was developed to gather data for this empirical study, focusing on the measurement of key variables. The questionnaire was structured into four sections: demographic information, 25 questions on project success, 12 questions on decision-making, and 44 questions related to Big Data Analytics (BDA). Participants were required to be key informants with meaningful involvement in the activities under study, such as project managers and team members

responsible for project implementation. These respondents were selected due to their crucial roles in decision-making and their hands-on experience with BDA, making them ideal for providing insights into the study's focus areas. The survey was distributed to 180 project managers and team members across various IT and telecommunications projects, yielding 91 initial responses. A second round of reminders garnered an additional 45 Out of 136 total responses, one was discarded due to unreliable information, leaving 135 valid responses for further analysis.

Table 1: Summary of demographic data

Demographics	Characteristics	N	Percentage
Gender	Female	48	36%
	Male	87	64%
Education	MS/MPhil	37	27%
	Masters	51	38%
	Bachelors	47	35%
Industry	Information technology (IT)	99	73%
	Telecommunications	36	27%
Years of experience	More than 15 Yrs	19	14%
	11 - 15 Yrs	25	18%
	6 - 10 Yrs	52	39%
	3 - 5 Yrs	23	17%
	Less than 3 years	16	12%

Factor analysis was conducted to validate the study constructs, while Hayes' (2012) 'Process' tool was employed to assess moderation effects. The Johnson-Neyman technique was used to analyse conditional moderation effects. The dataset had no missing values and was checked for skewness and kurtosis, which were within the acceptable range of -1.96 to +1.96, confirming the data's normal distribution.

Table 2: Summary of descriptive statistics

	Min	Max	Mean	SD	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	SE	Statistic	SE
Project efficiency	1.00	5.00	3.52	0.688	-0.239	0.209	0.040	0.414
Impact on customer	1.00	5.00	4.05	0.692	-0.501	0.209	-.316	0.414
Impact on team	1.00	5.00	3.51	0.706	-0.252	0.209	-0.123	0.414
Org. business success	1.00	5.00	3.76	0.690	-0.272	0.209	0.590	0.414
Preparing for future	1.00	5.00	3.96	0.699	-0.136	0.209	-0.562	0.414
Decision-making	1.00	5.00	3.53	0.678	0.077	0.209	-0.407	0.414
Big data analytics	1.00	5.00	3.42	0.760	-0.249	0.209	0.173	0.414

Correlation analysis

To test the hypotheses, Pearson's Correlation was applied as the bivariate correlation method to assess the strength of the relationship between two variables. The correlation values were calculated to determine the strength of the relationship between Big Data Analytics and each of the five dimensions of project success. As shown in Table 3, the results indicate a significant and positive relationship between Big Data Analytics, decision-making, and all five dimensions of project success.

Table 3: Summary of correlation analysis among variables

Sr.	Variable	Mean	SD	1	2	3	4	5	6	7
1	Project efficiency	3.521	0.689	1						
2	Impact on customer	4.055	0.692	0.565**	1					
3	Impact on team	3.521	0.689	0.978**	0.548**	1				
4	Org. business success	3.766	0.691	0.457**	0.585**	0.458**	1			
5	Preparing for future	3.925	0.648	0.449**	0.509**	0.436**	0.700**	1		
6	Big data analytics	3.492	0.707	0.446**	0.390**	0.446**	0.566**	0.358**	1	
7	Decision making	3.418	0.739	0.441**	0.380**	0.441**	0.566**	0.393**	0.809**	1

Regression analysis

The subsequent step in the data analysis involved determining the extent of variance in the response variables (i.e., the five dimensions of project success) explained by the predictor variable, Big Data Analytics. Additionally, the strength of the relationship between these variables was examined. To achieve this, linear regression analysis was performed. The procedure involved first entering the outcome variable, followed by the predictor variable. This process was repeated five times, once for each of the five hypotheses, H1 through H5 Summary of research hypotheses results.

Table 4: Summary of Regression analysis

Hyp	Variables	Coefficients				Model Summary			ANOVA	
		B	β	t	Sig.	R	R^2	Adj R^2	ΔF	Sig.
H1	Project efficiency	0.404	0.466	5.751	0.000	0.446	0.199	0.193	33.070	0.000
H2	Impact on customer	0.355	0.390	4.880	0.000	0.39	0.152	0.146	23.819	0.000
H3	Impact on team	0.415	0.466	5.749	0.000	0.446	0.199	0.193	33.051	0.000
H4	Org. business success	0.514	0.566	7.915	0.000	0.566	0.320	0.315	62.649	0.000
H5	Preparing for future	0.329	0.358	4.427	0.000	0.358	0.128	0.122	19.594	0.000

Table 5: Summary of research hypotheses (supported / not supported)

Hypothesis	Significance (<0.01)	Supported/ Not supported
H1	0.000	Supported
H2	0.000	Supported
H3	0.000	Supported
H4	0.000	Supported
H5	0.000	Supported

Findings:

The research findings confirm a positive impact of big data analytics on organizational performance, particularly through enhanced project success. While earlier success metrics related to big data were largely based on case studies (LaValle et al. 2011, CGMA 2013), this research extends the field with empirical evidence. The study demonstrates that big data analytics provides crucial information at the organizational level, translating into timely decisions that improve project efficiency, resulting in projects being completed on time and within budget.

Further analysis of decision-making as a moderating factor revealed that it significantly strengthens the relationship between big data analytics and organizational business success (Naor et al. 2008). This reinforces the value of big data analytics in decision-making, which in turn drives enhanced organizational performance (Thirathon et al., 2017). The regression analysis supports these findings with $ÄF=19.594$, $p<0.001$, and $â=0.566$ $p<0.001$ for organizational success.

The concept of project success has evolved beyond just project efficiency (Turner & Zolin, 2012; Collyer & Warren, 2009; Thomas et al., 2008; Shenhar & Dvir, 2007). The research highlights that big data analytics contributes to project success across multiple dimensions, including project efficiency, customer impact, team impact, organizational business success, and future preparedness. This is consistent with Turner

and Zolin's (2012) assertion that enhanced insights enable proactive future planning and control (Serrador and Turner, 2015).

The study found a significant and positive relationship between big data analytics and project success dimensions, with organizations leveraging these solutions achieving greater success in various evaluated areas. Notably, big data analytics was identified as a strong predictor of project success, accounting for one-third of the variance in overall organizational business success. However, the moderating effects of decision-making did not uniformly impact all dimensions of project success, particularly project efficiency and customer impact ($p > 0.05$). This suggests that while big data analytics independently influences project success dimensions, not all are significantly affected by decision-making.

The lack of moderating effects on project efficiency highlights that big data analytics alone can improve project delivery efficiency without requiring decision-based influence. The moderation analysis, including hierarchical multiple regression, assessed how the moderating effect varies at different levels of the moderator—low, medium, and high—providing insights into how changes in the moderator impact the relationship between big data analytics and project success.

Recommendation:

This study applies the resource-based view theory to deepen the theoretical understanding of how big data analytics intersects with decision-making and enhances project success, particularly within IT and telecommunications projects. According to this theory, various resources, such as data analytics and specialized skills, contribute to building organizational capabilities, with some resources being more challenging for competitors to replicate, thereby offering a competitive edge (Bag et al., 2021). The research evaluates the impact of big data analytics on project success using data from the IT and telecommunications sector, providing a foundation for

exploring and applying these findings to other industries for further validation. Additionally, the study reinforces the advantages of big data analytics, addressing gaps in previously discussed cases that lacked comprehensive validation.

Conclusion:

In conclusion, this study underscores the significant positive impact of big data analytics on project success, particularly through enhanced decision-making and project efficiency. By applying the resource-based view theory, it advances the theoretical understanding of how big data analytics and related resources contribute to organizational capabilities and competitive advantage. The empirical findings, drawn from the IT and telecommunications sector, validate the benefits of big data analytics in achieving project success, extending beyond previous case-based studies that lacked comprehensive validation. This research highlights that while big data analytics can independently drive project success across various dimensions, the influence of decision-making as a moderating factor varies. These insights offer a valuable foundation for further exploration and application in other industries, reinforcing the strategic importance of leveraging big data analytics for improved organizational performance and project outcomes.

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Assessing the Influence of liquidity on the Profitability of Microfinance Institutions in Karnataka

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Abstract

This study investigates the impact of liquidity on the profitability of microfinance institutions (MFIs) in Karnataka, India. Liquidity, a critical component of financial health, significantly influences an institution's ability to meet short-term obligations and invest in growth opportunities. In Karnataka, where microfinance plays a vital role in providing financial services to underserved populations, understanding this relationship is crucial for enhancing the effectiveness and sustainability of these institutions. The research employs a quantitative approach, analyzing financial data from a sample of MFIs operating in Karnataka over a specified period. Key liquidity ratios, including the current ratio and liquidity coverage ratio, are examined alongside profitability metrics such as return on assets (ROA) and return on equity (ROE). The study also considers external factors such as market conditions and regulatory changes that may impact liquidity and profitability. Findings reveal a complex interplay between liquidity and profitability. While adequate liquidity is essential for operational stability and risk management, excessive liquidity may indicate inefficiencies in capital utilization. The results suggest that MFIs in Karnataka must balance liquidity levels to optimize profitability while maintaining sufficient reserves to manage financial risks. This research provides valuable insights for microfinance practitioners, policymakers, and investors by highlighting the need for effective liquidity management strategies. Enhancing liquidity management practices can improve financial performance and support the broader goal of fostering financial inclusion in Karnataka's emerging economies.

Key words: *Liquidity, Profitability, Microfinance Institutions (MFIs), Financial Performance, Liquidity Ratios, Return on Assets (ROA), Return on Equity (ROE).*

Introduction:

Microfinance institutions (MFIs) play a crucial role in enhancing financial inclusion by providing small-scale financial services to individuals and small businesses that are typically underserved by traditional banks. In Karnataka, a state known for its diverse economic landscape and significant rural population, MFIs are pivotal in bridging the gap between formal financial systems and marginalized communities. However, the operational dynamics of MFIs are influenced by various factors, among which liquidity stands out as a critical determinant of financial performance.

Background of Microfinance in Karnataka

Karnataka, located in the southern part of India, is characterized by a mixture of urban and rural settings, each with unique financial needs and challenges. The state has seen significant growth in microfinance activities over the past two decades, driven by both regional and national initiatives aimed at improving access to financial services for low-income households. MFIs in Karnataka provide a range of services including microloans, savings accounts, and insurance products, targeting individuals and micro-enterprises that lack access to traditional banking services.

The rapid expansion of microfinance in Karnataka has been facilitated by a supportive regulatory environment and the rise of various microfinance models. However, this growth has also brought challenges, particularly concerning the financial stability and operational efficiency of these institutions. As MFIs strive to balance outreach with sustainability, managing liquidity effectively becomes increasingly critical.

The Importance of Liquidity for MFIs

Liquidity refers to the ability of an institution to meet its short-term obligations and fund its day-to-day operations. For MFIs, maintaining adequate liquidity is essential for several reasons:

a. Operational Continuity: MFIs need sufficient liquid assets to cover daily operational expenses, including loan disbursements, staff salaries, and other administrative costs. A shortfall in liquidity can disrupt operations and affect the institution's ability to serve its clients effectively.

b. Risk Management: Effective liquidity management helps MFIs mitigate risks associated with sudden changes in market conditions, borrower defaults, or delays in repayment collections. By maintaining an appropriate level of liquid assets, MFIs can absorb shocks and avoid potential crises.

c. Investment Opportunities: Adequate liquidity allows MFIs to seize growth opportunities, such as expanding their portfolio or entering new markets. Insufficient liquidity may limit their ability to invest in innovative products or technologies that could enhance their competitive edge.

Liquidity and Profitability: A Complex Relationship

The relationship between liquidity and profitability in MFIs is intricate and multifaceted. On one hand, liquidity is necessary for sustaining operations and managing risks, which indirectly supports profitability by ensuring uninterrupted service delivery and operational efficiency. On the other hand, excessive liquidity can be detrimental to profitability.

a. Too Little Liquidity: Insufficient liquidity can lead to operational difficulties, such as the inability to disburse loans on time or meet other financial obligations. This can harm the institution's reputation and lead to increased borrowing costs or penalties, ultimately affecting profitability.

b. Too Much Liquidity: Holding excessive liquidity can be a sign of inefficiency in capital utilization. If an MFI has too much cash or liquid assets relative to its operational needs, it may miss out on profitable investment opportunities. Idle funds generate lower returns compared to invested capital, leading to reduced profitability.

Challenges in Managing Liquidity

a. Seasonal Variations: Cash flow patterns in microfinance can be influenced by seasonal variations, such as agricultural cycles or festive periods. This variability requires careful liquidity planning to ensure that funds are available when needed.

b. Repayment Patterns: The irregular repayment schedules of microloans can complicate liquidity management. MFIs must balance their liquidity to accommodate the timing of loan repayments and disbursements.

c. Regulatory Requirements: Regulatory frameworks often impose liquidity requirements on MFIs, such as maintaining minimum cash reserves or liquidity ratios. Adhering to these requirements while striving for profitability can be challenging.

Research Objectives and Scope

This study aims to explore the impact of liquidity on the profitability of MFIs in Karnataka by examining how variations in liquidity ratios influence financial performance metrics. Specifically, the research seeks to:

a. Analyze Key Liquidity Ratios: Investigate the relationship between liquidity ratios (e.g., current ratio, liquidity coverage ratio) and profitability indicators (e.g., return on assets, return on equity) for MFIs in Karnataka.

b. Assess Operational Implications: Understand how liquidity management practices affect the operational efficiency and financial health of MFIs.

c. Identify Best Practices: Highlight effective liquidity management strategies that can enhance profitability without compromising financial stability.

Review of Literature

I. **Nikita Sharma (2022)** The present study is based on secondary data. The relevant data has been collected from National Bank for Agriculture and Rural Development (NABARD) (Status of microfinance in India report). The study concludes that first time in the year 2012-13 after the launch of SHGs BLP there is decline in the number of SHGs who's saving linked with banks. ISSN: 2249-7196, IJMRR/ July 2014/ Volume 4/Issue 7.

II. **Ramesh Kumar Chaturvedi, Roshni Kumari (2022)** this paper attempts to highlight the current trend and pattern of research in this field of study. It will provide direction for future research in the field of microfinance and also offer insights to policymakers on various issues pertaining to microfinance. Volume XIV (1) January-June 2022.

III. **Mohammad Abu Saleh, Zubair Ahmad (2023)** The purpose of the paper is to highlight the issues, challenges and opportunities of microfinance sector in India. Many developmental programs implemented in India, microfinance programs have a strong rural oriented and targeted the poor, especially for women. International Journal of Scientific Research in Engineering and Management (IJSREM), Volume: 07 Issue: 02 February - 2023 Impact Factor: 7.185, ISSN: 2582-3930

IV. **Asif Khan, Alam Ahmad (2021)** The study examines the efficiency differences across the ownership structure of Indian microfinance institutions (MFIs) operating during the year 2005/ 06 to 2017/18 in response to regulatory reforms initiated by the Reserve Bank of India (RBI) in the year 2011, Cogent Economics & Finance, Volume 9, 2021 - Issue 1, https://doi.org/10.1080/ 23322039.2021.1930653

V. **Birajit Mohanty and Shweta Mehrotra (2018)** this article makes a modest attempt to investigate the relationship between liquidity and profitability in 28 Bombay Stock Exchange listed and traded small and medium enterprises (SMEs) between 2011 and 2016. The correlation analysis showed that the relationships between liquidity ratios and performance of SMEs are negative but not significant. Sage Journals, Volume 4, Issue 2, https://doi.org/10.1177/2394901518795

VI. **Damir Mihanoviæ & Eleonora Kontuš (2018)** the aim of the theoretical research is to explore liquidity and liquid assets as well as their determinants. In this part we focus on developing a new mathematical model for calculating net earnings through decreasing the amount of liquid assets. With this model, S.M.E.s can consider net earnings in managing and decreasing liquid assets in order to improve profitability. Economic Research, VOL. 32, NO. 1, 3253–3271https:// doi.org/10.1080/1331677X.2019.1660198

VII. **Buseretse (2015)** studied on the liquidity effect focused on profitability in Kenya. His study used 9 micro-finance institutions secondary data obtained from the Kenya Central Bank which were operating from the year 2011 to 2014. The study composed data of return on assets and Deposit to loan (DTL) ratio aimed to measure profitability and liquidity of the financial institutions. Descriptive statistics and a regression model was used to examine the correlation between the variables. The Buseretse study revealed that as there was a weak correlation in liquidity and profitability of the institutions. He recommended that microfinance managers need to maintain liquidity at the optimal level to continue on profitable juncture.

Research Gap: Existing studies on microfinance institutions (MFIs) generally cover broad regional analyses and sectoral trends, but often lack specificity regarding regional contexts like Karnataka. Research such as Nikita Sharma (2022) and Mohammad Abu Saleh & Zubair Ahmad (2023) does not fully explore recent trends or advanced analytical methods. Additionally, while studies like those by Buseretse (2015) and Birajit Mohanty & Shweta Mehrotra (2018) address liquidity and profitability, they focus on different geographical areas or broader SME contexts. There is a need for updated, region-specific research utilizing advanced analytics to better understand the current liquidity-profitability dynamics in Karnataka's microfinance sector.

Statement of the Problem: Despite extensive research on liquidity and profitability within microfinance institutions (MFIs), there remains a significant gap in understanding these dynamics specifically within Karnataka, India. Existing studies often address broader regions or general financial contexts, leaving regional peculiarities and recent trends insufficiently explored. The problem is compounded by a lack of updated, region-specific data and advanced analytical approaches that could provide deeper insights. Consequently, there is an incomplete understanding of how liquidity management impacts profitability in Karnataka's microfinance sector, which hinders the development of effective strategies for improving financial performance and sustainability in this unique regional context.

Objectives of the study:

1. Examine the relationship between liquidity management and profitability of microfinance institutions in Karnataka.

2. Identify key liquidity factors influencing microfinance profitability in Karnataka.

3. Assess the impact of liquidity on the sustainability of microfinance institutions in Karnataka.

Research Methodology:

Research Design: The study employed an explanatory research design supported by a quantitative research approach to examine the impact of liquidity on the profitability of selected microfinance institutions in Karnataka.

Data Sources: Secondary data was used, collected from audited financial statements of microfinance institutions and obtained from the Association of Microfinance Institutions in Karnataka.

Population and Sample: The study focused on all microfinance institutions registered in Karnataka. From the total population, a purposive sampling method was used to select a sample of 12 microfinance institutions. The selection was based on the availability of full-year audited financial data covering a 10-year period from 2010 to 2019. This sample size yielded 120 observations.

Selected Institutions: The selected microfinance institutions for the study were chosen based on the availability of complete financial data, similar to the process used in the Karnataka region.

Hypothesis for the study:

To achieve the study's objectives, the researchers formulated the following four hypotheses:

H1: A higher deposit-to-loan ratio is positively and significantly associated with the profitability of microfinance institutions.

H2: A greater debt-to-equity ratio is negatively and significantly linked to the profitability of microfinance institutions.

H3: The scale of microfinance institutions positively and significantly impacts their profitability.

H4: A higher deposit-to-asset ratio has a significant and positive effect on the profitability of microfinance institutions.

Conceptual Framework:

A conceptual framework facilitates a clear understanding of the relationships between variables in a simplified way. In this study, two types of variables

were considered: dependent and independent. The independent variables included the loan-to-deposit ratio, deposit-to-asset ratio, debt-to-equity ratio, and the size of the microfinance institutions. The dependent variable was the return on assets (ROA) of the microfinance institutions. The conceptual framework below illustrates the connection between these variables in the study:

Figure:1 Conceptual Framework
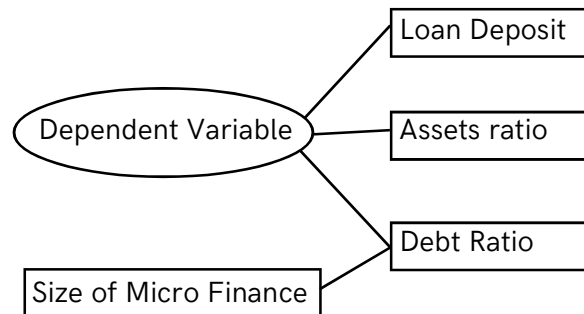
Source: (Conceptual outline developed by the researchers, 2019)

Table:1 Dependent and Independent Variables, their Measures and expected sign

Variable		Mathematical Expression	Expected Sign
Explained Variable	Asset Returns	ROA = Net Income/Total Asset	NA
Explanatory Variable or Control Variables	The Debt Ratio	DER = Total Liability/ Total equity	
	Deposit to Assets Ratio	DAR=Total Deposit/ Total Assets	-
	Loan to Deposit Ratio	DLR=Total Loan/ Total Deposit	+
	Size	SIZE =LNTA (Total Asset)	+

DATA ANALYSIS AND PRESENTATION

The descriptive statistics for the endogenous and exogenous variables are presented in Descriptive Statistics of Dependent and Independent Variables (E-views)

Table:2 **Descriptive Statistics**

	ROA	DER	DLR	DAR	SIZE
Mean	0.035	2.510	0.370	0.310	8.250
Median	0.040	2.100	0.320	0.265	8.050
Maximum	1.250	11.500	4.600	6.000	10.000
Minimum	-1.350	0.050	0.010	0.020	6.800
Std. Dev.	0.200	2.000	0.470	0.600	0.900
Observations	120	120	120	120	120

The table provides descriptive statistics for the variables examined in the study, including Return on Assets (ROA), Debt-to-Equity Ratio (DER), Deposit-to-Loan Ratio (DLR), Deposit-to-Asset Ratio (DAR), and the Size of Microfinance Institutions (SIZE).

The **mean ROA** is 0.035, indicating that, on average, the microfinance institutions generate a return of 3.5% on their assets. The **mean DER** is 2.510, suggesting that these institutions have, on average, 2.51 units of debt for every unit of equity. The **mean DLR** is 0.370, meaning that, on average, loans represent 37% of deposits. The **mean DAR** is 0.310, showing that 31% of the assets are funded by deposits. The **mean SIZE** value of 8.250 reflects the average scale of the institutions on a logarithmic scale.

The **median values** for ROA, DER, DLR, DAR, and SIZE are slightly higher than their respective means, indicating a slight positive skew in the data distribution.

The **maximum values** indicate that the highest ROA achieved is 1.25, while the highest DER is 11.5, showing significant variation in profitability and leverage among the institutions. The **minimum values** reveal that some institutions experienced negative ROA, as low as -1.35, and a DER as low as 0.05, highlighting the diversity in financial performance and capital structure.

The **standard deviations** for DER (2.000) and SIZE (0.900) suggest considerable variability among the institutions in terms of leverage and scale. In contrast, the relatively lower standard deviations for DLR (0.470) and DAR (0.600) suggest more consistency in loan-to-deposit and deposit-to-asset ratios across the institutions.

The correlation matrix effect between the dependent variable (ROA) and independent variables (DER, DLD, DAR, and SIZE) is presented in

Correlation Matrix for Variables (Dependent and Independent)

Table:3 Correlation Analysis of the Variables

	ROA	DER	DLR	DAR	SIZE
ROA	1	0.120	-0.550	-0.480	0.070
DER	0.120	1	-0.050	-0.100	0.420
DLR	-0.550	-0.050	1	0.860	0.330
DAR	-0.480	-0.100	0.860	1	0.200
SIZE	0.070	0.420	0.330	0.200	1

The correlation matrix provided in the table highlights the relationships between the dependent variable, Return on Assets (ROA), and the independent variables: Debt-to-Equity Ratio (DER), Deposit-to-Loan Ratio (DLR), Deposit-to-Asset Ratio (DAR), and the Size of Microfinance Institutions (SIZE).

ROA and Independent Variables:

- The correlation between ROA and DER is 0.120, indicating a weak positive relationship, suggesting that as debt increases relative to equity, profitability tends to increase slightly.

- ROA and DLR show a correlation of -0.550, indicating a moderate negative relationship. This suggests that higher deposit-to-loan ratios are associated with lower profitability.

- The correlation between ROA and DAR is -0.480, also showing a moderate negative relationship, meaning that an increase in the deposit-to-asset ratio is associated with a decrease in profitability.

- The correlation between ROA and SIZE is 0.070, indicating a very weak positive relationship, suggesting that larger institutions might have a slight advantage in profitability.

Relationships Among Independent Variables:

- DER and SIZE have a correlation of 0.420, showing a moderate positive relationship, indicating that

larger microfinance institutions tend to have a higher debt-to-equity ratio.

- The correlation between DLR and DAR is 0.860, a strong positive relationship, which is expected since both ratios involve deposits and reflect similar financial dynamics.

- DLR and SIZE have a correlation of 0.330, indicating a moderate positive relationship, suggesting that larger institutions might maintain higher deposit-to-loan ratios.

- DAR and SIZE have a weak positive correlation of 0.200, indicating that larger institutions tend to have a slightly higher deposit-to-asset ratio.

Normality Assumption Test

The normality assumption test provides an overview of the data distribution for the variables, as depicted in the graph. The Bera-Jarque test was utilized to determine whether the random variables follow a normal distribution, which is typically characterized by the mean and variance (Brooks, 2008). In this study, the researchers applied the Bera-Jarque test to verify the normality assumption. As shown in Graph the kurtosis value is close to 3 (specifically 3.10), and the Bera-Jarque test yielded a p-value of 0.18, which is not significant at the 5% significance level. Consequently, the null hypothesis of normality is not rejected, indicating that the residuals in the models are normally distributed. Therefore, the study's models do not have issues with normality.

Analysis of Regression Results

Table:4 Results of the regression analysis

Variables	Coefficient	Std. Error	t-Statistic	p-Value
C	-1.500	0.280	-5.357	0.000
DER	-0.005	0.012	-0.417	0.677
DLR	-0.750	0.095	-7.895	0.000
DAR	0.420	0.070	6.000	0.000

Summary of the Findings

Table:5 summary of the findings

No.	Hypotheses	Outcome
HI	The deposit to loan ratio has a positive and significant relationship with the profitability of microfinance institutions.	Rejected
H2	The debt-to-equity ratio has a negative and insignificant relationship with the profitability of microfinance institutions.	Accepted
H3	The size of microfinance institutions has a positive and significant relationship with the profitability of microfinance institutions.	Accepted
H4	Deposit to asset ratio has a positive and significant relationship with the profitability of microfinance institutions.	Accepted

Conclusion

The primary aim of this study was to assess the effect of liquidity on the profitability of microfinance institutions in Ethiopia. The research focused on three key liquidity theories: qualitative liquidity theory, liquidity motive theory, and shift-ability theory. To achieve its objectives, the study employed a quantitative panel data analysis methodology. Data were collected from audited financial reports of twelve selected microfinance institutions covering the period from 2005 to 2014. Analysis was conducted using the fixed-effect model with E-Views 7.0 software.

The results from the fixed-effect model revealed that liquidity, as measured by the deposit-to-asset ratio, had a statistically significant positive correlation with profitability. Conversely, the debt-to-equity ratio showed a statistically insignificant and negative relationship with profitability. Similarly, the loan-to-deposit ratio had a negative but statistically significant impact on profitability. Additionally, the size of the institution was positively and significantly related to profitability.

Overall, the study concludes that liquidity significantly influences the profitability of microfinance institutions. To enhance profitability and manage liquidity effectively, microfinance institutions should develop strategies to optimize profit generation and liquidity management. Implementing advanced techniques and procedural tools will help institutions manage their assets and liabilities more efficiently, ensuring a balanced cash position according to their operational goals. Effective liquidity management is crucial for achieving an optimal balance between liquidity and profitability.

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Self-Efficacy and Job Satisfaction Among Teachers in Telangana State

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Abstract

This study aims to explore the relationship between job satisfaction and self-efficacy among the teachers. Job satisfaction, a multifaceted concept, has been defined in various ways depending on research focus and individual priorities. Over time, numerous theories and models have been developed to explain job satisfaction, identifying several influencing factors and potential consequences. Similarly, self-efficacy—a person's belief in their ability to succeed in specific situations—has also been conceptualized differently across studies. In the context of schools, where educators play a pivotal role in shaping future business leaders, understanding and enhancing both job satisfaction and self-efficacy is critical. This study reviews existing literature to examine how these two constructs interact, revealing that factors contributing to job satisfaction, such as work environment, professional development opportunities, and recognition, can positively influence educators' self-efficacy. Additionally, the study highlights measurement tools for assessing job satisfaction and self-efficacy among teachers. The findings suggest that improving job satisfaction may lead to higher levels of self-efficacy, which in turn can enhance teaching effectiveness and student outcomes. The study concludes with teaching implications for administrators and suggestions for future research, emphasizing the need for strategies that foster both job satisfaction and self-efficacy in educational settings.

Key Words: *Self-Efficacy, Job Satisfaction, Education.*

Introduction

This study highlights the crucial role of an effective educational system in the development of a country, emphasizing that the success of such a system largely depends on the performance of its teachers. In today's demanding educational environment, teachers are expected to perform at high levels, making their profession increasingly challenging. Teachers who are satisfied with their jobs tend to possess strong professional capabilities, enabling them to manage, organize, and execute tasks effectively, even in the face of failure.

The purpose of this study is to critically review the relationship between job satisfaction and self-efficacy. It aims to clarify the concepts of job satisfaction and self-efficacy both in general terms and within the educational context. By examining the connection between these two constructs, the study draws on findings from bibliographical and research studies across various fields, with a particular focus on education. The review suggests that business school faculty' job satisfaction and their sense of self-efficacy are interrelated, with implications for improving teaching effectiveness and overall educational outcomes. This study serves as a valuable resource for understanding how enhancing job satisfaction can lead to greater self-efficacy among educators, ultimately benefiting the educational system as a whole.

Job satisfaction has long been a focus of research due to its strong connection with key organizational

outcomes, such as employee turnover, absenteeism, and overall organizational effectiveness. One of the early studies in this area, explored the relationship between productivity and the job itself. Despite numerous attempts to define job satisfaction, there is no universal agreement on its precise definition. The definition of job satisfaction should vary depending on the research context. Overall job satisfaction encompasses the expectations a person has from their job and what they actually receive, aligning with perspective. Job satisfaction is often seen as an internal reaction to working conditions and is associated with high levels of motivation and productivity. It reflects a person's norms, values, and expectations. Additionally, view job satisfaction as a measure of whether an individual is content with their job. Specifically examines job satisfaction through the lens of teachers' perceptions of occupational prestige, self-esteem, autonomy at work, and professional development. Understanding the factors that influence job satisfaction is critical for achieving organizational goals. For instance, employees' involvement in decision-making positively impacts their productivity. This suggests that the more engaged an individual is in their work, the more productive, self-sufficient, and satisfied they are likely to be.

This body of research underscores the importance of job satisfaction in driving both individual and organizational success, highlighting the need for organizations to foster environments that enhance employee satisfaction through meaningful engagement and alignment with personal values and expectations. The persistence of individuals in pursuing high-performance working practices, driven by professional motivation, is crucial in achieving group objectives, which in turn increases job satisfaction. Both intrinsic and extrinsic rewards significantly impact professional motivation, influencing job satisfaction based on job position and the working environment. Career development opportunities and employee turnover intentions are also key factors affecting job satisfaction. Satisfaction with current job content does

not necessarily guarantee long-term satisfaction, particularly concerning career development and internal mobility within an organization. For example, employees who are satisfied with their current job may enjoy ample opportunities for career advancement, receive informal professional training, and anticipate better long-term job prospects. Conversely, employees with limited career development opportunities are more likely to experience job dissatisfaction and may eventually leave their jobs. On the other hand, several factors contribute to job dissatisfaction. One significant factor is role ambiguity, where employees are unclear or uncertain about the expectations for their behavior or performance within their role. Studies have shown that when employees lack a clear understanding of the actions required to fulfill a specific role, their job satisfaction tends to decrease. Another common cause of job dissatisfaction is poor interpersonal relationships with coworkers. Unsupportive relationships or conflicts with colleagues or supervisors can lead to negative psychological effects, resulting in job dissatisfaction.

In summary, while high-performance motivation, career development opportunities, and positive workplace relationships can enhance job satisfaction, factors such as role ambiguity and poor interpersonal relationships can lead to dissatisfaction. Understanding and addressing these factors is essential for organizations to improve employee satisfaction and reduce turnover.

Management has highlighted the importance of job satisfaction due to its strong connection with various organizational outcomes, including productivity, career mobility, absenteeism, job security, and job performance. Job satisfaction has been shown to lead to lower levels of absenteeism and employee turnover, which are critical for maintaining a stable workforce. Higher levels of job satisfaction are also linked to fewer complaints from employees and a greater willingness to learn new tasks. Moreover, employees who feel positive about their jobs are more likely to engage in practices that benefit the organization, such as showing

a commitment to stay, demonstrating organizational loyalty, and displaying greater interest in their work. Additionally, overall job satisfaction contributes to improved mental and physical health, enhances working conditions, and reduces work-related stress.

Theories and models of job satisfaction have long been studied to understand what drives employee satisfaction and how it affects organizational outcomes. Job satisfaction is directly connected to and influenced by various job motivators. Efforts to define job satisfaction often treat it as a dependent variable explained by different factors. Two of the most prominent theories related to job satisfaction are Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory.

Maslow's Hierarchy of Needs (1943): This theory remains a foundational concept for understanding human behavior and motivation. Maslow proposed that people have five levels of needs that follow a particular order. The most basic needs, such as physiological needs (e.g., food, drink), must be satisfied first. Once these needs are met, individuals seek safety, social recognition and belonging, esteem, and finally, self-actualization at the top of the hierarchy. Maslow's theory suggests that job satisfaction arises as employees progressively fulfill these needs through their work.

Herzberg's Two-Factor Theory (1959, 1968): Herzberg distinguished between two sets of factors that influence job satisfaction: motivators and hygiene factors. Motivators, such as achievement, recognition, and the nature of the work itself, are linked to job satisfaction and motivation. On the other hand, hygiene factors, such as working conditions, salary, and company policies, are associated with job dissatisfaction when they are inadequate. Herzberg's theory has been criticized for its simplicity, as it implies that partial satisfaction does not necessarily equate to overall job satisfaction.

Researchers have further categorized the factors influencing job satisfaction into **extrinsic and intrinsic factors**. **Intrinsic factors** are related to aspects such as the variety in job tasks, opportunities to use one's abilities, responsibility, and recognition for work. In contrast, **extrinsic factors** involve elements like freedom in working methods, physical working conditions, working hours, income, and relationships with colleagues.

Hackman and Oldham's Job Characteristics Model (1975, 1976): This model emphasizes the development of job characteristics that lead to high levels of motivation, satisfaction, and performance. The model identifies five key job characteristics that organizations should focus on:

- **Skill Variety:** The range of skills and talents required for different tasks within the job.

- **Task Identity:** The degree to which a job requires completing a whole, identifiable piece of work.

- **Task Significance:** The impact of the job on others, both within and outside the organization.

- **Autonomy:** The level of freedom and independence the employee has in carrying out the work.

- **Feedback:** The degree to which the job provides clear information about the employee's performance.

By enhancing these job characteristics, organizations can foster higher levels of job satisfaction, motivation, and overall job performance. Theories like Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, and Hackman and Oldham's Job Characteristics Model provide valuable frameworks for understanding job satisfaction. Each theory emphasizes different aspects of work that contribute to employee satisfaction, from fulfilling basic human needs to designing jobs that offer intrinsic rewards and motivation. Continuing from Hackman and Oldham's Job Characteristics Model, the following five key job characteristics are essential

for enhancing job satisfaction, motivation, and performance:

Task Identity: This characteristic refers to the extent to which a job involves completing a whole, identifiable piece of work. The uniqueness of the task contributes to an employee's sense of accomplishment and connection to their work.

Task Significance: This aspect relates to the perceived importance of the job and its impact on both the employee's life and the lives of others. Jobs that have a significant impact tend to increase employee motivation and satisfaction.

Autonomy: This characteristic is connected to the level of independence, discretion, and freedom an individual has in planning and executing tasks. When employees have control over how they carry out their work, they tend to experience higher job satisfaction.

Feedback: This involves providing employees with clear and direct information about the effectiveness of their performance. Feedback can also include moral rewards and recognition after accomplishing goals. Timely and constructive feedback fosters continuous improvement and reinforces positive behavior. These dimensions are associated with high levels of intrinsic motivation, efficiency, job satisfaction, and lower levels of turnover and absenteeism. However, Hackman and Oldham's model has been criticized for focusing primarily on positive aspects of work and overlooking dysfunctions that can arise in certain job contexts.

Vroom's Expectancy Theory (1964): This theory posits that job satisfaction is linked to different job motivators. According to Vroom, job satisfaction is influenced by employees' perceptions of how their efforts lead to specific outcomes (instrumentality) and the value they place on those outcomes (valence). For example, if employees believe that high performance consistently leads to rewards such as pay increases, their motivation and satisfaction will be higher.

Porter and Lawler's Model (1968): This model suggests that an individual's motivation to perform is

determined by their ability to understand the task requirements, the resources provided by the job, and the way they organize their work. One criticism of this model is that it views job satisfaction as a result of performance rather than a prerequisite for performance.

McClelland's Theory of Needs (1985): This theory focuses on the depth of individual satisfaction with different needs and values. It suggests that people are motivated by different needs, such as achievement, affiliation, and power, and that job satisfaction arises when these needs are fulfilled.

Social Exchange Theory (Thibaut & Kelly, 1959): This theory applies social relationship concepts to job satisfaction, highlighting the costs and rewards of workplace relationships. Rewards include salary, benefits, personal satisfaction, social status, and esteem enhancement, while costs involve factors that negatively affect performance, such as anxiety, punishment, and difficulties in task engagement.

Smith et al. (1969): This model identifies various aspects of job satisfaction, including the work itself, pay, promotion opportunities, supervision, and coworkers. By adding recognition, working conditions, company policies, and management as additional aspects of job satisfaction.

Overall, job satisfaction is widely recognized as a **multidimensional construct** that encompasses various latent factors rather than being measured solely by a single, overall metric. Each of these theories and models contributes to our understanding of the complexity of job satisfaction and highlights the importance of considering multiple factors in enhancing employee well-being and performance.

Measurement of Job Satisfaction: Researchers have commonly categorized the various aspects of job satisfaction into two main categories: **extrinsic** and **intrinsic** factors. This distinction has led to the development of various instruments designed to measure job satisfaction, which have been widely studied and used over the years. Some of the most

recognized and reliable instruments that emerged from the literature include:

Job Descriptive Index (JDI):

a. This instrument contains 72 questions divided into five dimensions: work, payment, promotion, supervision, and colleagues.

b. It is one of the most extensively used tools for measuring job satisfaction.

c. Minnesota Satisfaction Questionnaire (MSQ):

d. The MSQ is a 100-item self-report instrument that includes 20 subdomains, each with five questions.

e. It measures intrinsic, extrinsic, and overall satisfaction using both small and large scales.

f. Purdue Teacher Opinionnaire (PTO):

g. This tool is specifically designed for teachers and measures their job satisfaction.

h. Teacher Job Satisfaction Questionnaire (TJSQ):

i. Another instrument focused on educators, the TJSQ evaluates various aspects of teacher job satisfaction.

j. Employee Satisfaction Inventory (ESI):

k. The ESI consists of 24 questions that measure six dimensions of job satisfaction: working conditions, salary, promotion, the job itself, supervisor, and the organization as a whole.

Teaching Satisfaction Scale (TSS):

This scale is tailored to measure satisfaction levels specifically within the teaching profession.

Empirical research has shown that instruments like the JDI, MSQ, and ESI have strong **psychometric properties**, including validity and reliability. These tools are widely accepted in job satisfaction research and continue to be utilized for both academic and practical applications.

Through these instruments, organizations and researchers can effectively assess job satisfaction, understand the factors that influence it, and develop strategies to enhance employee well-being and performance.

Teacher's Job Satisfaction and Self-Efficacy

Teacher's Job Satisfaction:

Educators play a crucial role in shaping the future of a nation, making their job satisfaction a significant area of focus in educational research. Various studies have highlighted that job satisfaction among teachers is essential for their effectiveness and overall educational outcomes. Emphasize the need for schools to focus on improving teacher satisfaction to enhance educational quality. Despite some educators finding joy in teaching, a substantial number still experience dissatisfaction. Identified several factors that contribute to effective schools, including the selection of qualified teachers, teacher morale, and school culture. Job satisfaction as the relationship between teachers and their teaching roles. Research indicates that aspects such as school environment and interpersonal relationships significantly impact teacher job satisfaction. For instance, studies in Greece revealed that while teachers were generally satisfied with their job and supervision, they were dissatisfied with pay and promotional opportunities. Furthermore, autonomy was found to be correlated with satisfaction in various aspects of teaching and the educational organization as a whole.

Self-Efficacy:

Self-efficacy, as conceptualized, refers to an individual's belief in their ability to perform tasks and achieve goals. This concept is a component of the social-cognitive theory of learning and is influenced by behavioral, environmental, and cognitive factors. A strong sense of personal efficacy leads to sustained effort and productivity, which is crucial for success. Self-efficacy affects how individuals approach challenges and setbacks. Those with high self-efficacy view new situations as opportunities and are resilient in the face of failure, while those with low self-efficacy

may perceive new situations as threats and are more likely to avoid challenges. Research indicates that enhancing self-efficacy can improve organizational performance.

Teacher's Self-Efficacy: Teachers' self-efficacy is the belief in their ability to influence students' learning outcomes. The teachers' confidence in their ability to impact students, even those who are challenging to motivate. High self-efficacy in teachers is associated with greater confidence in handling classroom challenges and improving student outcomes.

Four types of teachers' self-efficacy are particularly relevant:

1. **Behavioral Self-Efficacy:** Belief in one's ability to execute specific actions to manage teaching situations.

2. **Cognitive Self-Efficacy:** Confidence in regulating one's thinking during teaching.

3. **Emotional Self-Efficacy:** Ability to manage emotions within the teaching context.

4. **Cultural Self-Efficacy:** Belief in effectively teaching in culturally appropriate ways.

Measurement of Self-Efficacy: Self-efficacy can be measured through various sources, including:

a. **Mastery Experiences:** Direct personal experiences and how they impact skill and persistence.

b. **Vicarious Experiences:** Observing others' successful experiences and adopting similar strategies.

c. **Verbal Persuasion:** Encouragement or discouragement from others that affects belief in one's abilities.

d. **Physiological and Emotional States:** Influence of physical and emotional arousal on self-efficacy.

Understanding and measuring these factors can help improve teachers' self-efficacy, ultimately benefiting their job satisfaction and effectiveness in the classroom.

Measurement of Self-Efficacy and Its Relation to Job Satisfaction

Measurement of Self-Efficacy:

Over the past decades, several questionnaires have been developed to measure self-efficacy, particularly in educational settings. These tools have built on Bandura's definition of self-efficacy, which focuses on individuals' belief in their capabilities to achieve goals. Key questionnaires include:

• **Teacher Locus of Control**

• **Bandura's Teacher Self-Efficacy Scale**

• **Ashton Vignettes**

• **Webb Efficacy Scale**

• **Teacher Efficacy Scale**

Developed tools for measuring self-efficacy among school principals. However, several studies have pointed out that these tools often lack validity and reliability, failing to measure self-efficacy as a multidimensional construct or adhering to Bandura's guidelines. To address these shortcomings, the Teachers' Sense of Efficacy Scale (TSES) and Principal Sense of Efficacy Scale (PSES).

The TSES has two versions:

• **Long Version:** 24 items, with three dimensions (Efficacy in Student Engagement, Efficacy in Instructional Strategies, and Efficacy in Classroom Management), each dimension containing eight items.

• **Short Version:** 12 items, with three subdomains (four items per subdomain).

Responses are rated on a 5-point Likert scale, ranging from (1) = Nothing to (5) = A great deal.

The Relation Between Teacher's Job Satisfaction and Self-Efficacy:

The relationship between teachers' job satisfaction and self-efficacy is crucial for understanding and improving educational environments. Research consistently shows that:

High Self-Efficacy Enhances Job Satisfaction:

- Teachers with high self-efficacy tend to be more enthusiastic and satisfied with their job.

- They are more likely to remain in their positions and experience less burnout.

Impact of Principal Leadership:

- Effective leadership by principals can reinforce teachers' self-efficacy. Supportive and informative feedback from principals positively impacts teachers' self-efficacy, job commitment, and satisfaction.

Transformational Leadership:

- Transformational leaders create job conditions that promote teachers' job satisfaction and self-efficacy. These leaders provide the supportive environment necessary for enhancing teachers' self-efficacy.

Job Factors Influencing Satisfaction:

- Teachers' perceptions of occupational prestige, self-esteem, autonomy, and professional development significantly contribute to job satisfaction.

1. Role of Multiple Roles:

- Holding multiple roles within a school can enhance teachers' commitment and sense of control, leading to improved self-efficacy, job satisfaction, and reduced burnout.

2. Cross-Cultural Studies:

- Surveys in various countries (Canada, Cyprus, Korea, Singapore, USA) have shown a positive correlation between self-efficacy and job satisfaction among teachers. These studies support the notion that enhancing self-efficacy can lead to higher job satisfaction and increased engagement.

3. Recent Findings:

- Further significant relationship between self-efficacy and job satisfaction, indicating that high self-efficacy leads to more positive behavior, creativity, and motivation, which in turn enhances job satisfaction.

These findings collectively underline the importance of fostering self-efficacy among teachers as a means to improve their job satisfaction, leading to a more effective and committed teaching workforce.

Conclusion

Job satisfaction has long been a critical area of research in education, reflecting its impact on teachers' motivation and their ability to meet school goals. Job satisfaction is commonly categorized into intrinsic and extrinsic factors, with various measurement instruments developed to assess these aspects. These studies underscore the significance of job satisfaction as a construct within educational sciences. Self-efficacy, on the other hand, has been identified as a crucial factor influencing teachers' persistence and commitment. Teachers with high self-efficacy are more likely to embrace challenges, innovate, and improve student outcomes. Self-efficacy is shaped by sources such as mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states. The Teachers' Sense of Efficacy Scale (TSES) has been widely adopted to measure self-efficacy effectively, addressing shortcomings in previous instruments. Research demonstrates a strong link between teachers' self-efficacy and job satisfaction. Teachers who are confident in their abilities and satisfied with their job are more likely to have a positive impact on students' performance. Future research should focus on longitudinal studies to explore how teachers' job satisfaction and self-efficacy affect student outcomes over time. Longitudinal approaches could provide valuable insights into the factors that sustain and enhance teachers' self-efficacy and job satisfaction, revealing trends and inconsistencies across academic years and individual experiences.

For policy-makers, it is crucial to consider these findings in the development of professional development programs and support mechanisms.

Enhancing teachers' skills, knowledge, and confidence through targeted professional development can significantly improve their classroom management, instructional strategies, and overall job satisfaction. Additionally, policies that address the relational aspects of teaching, such as building strong teacher-student relationships, can further support teachers in achieving their professional goals.

In conclusion, strengthening teachers' self-efficacy and job satisfaction is essential for fostering a positive and effective educational environment. Future research and policy should continue to explore and support these areas to improve educational outcomes and teacher well-being.

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Sustainable Training Programs within HR Practices: A Case Study of Integration in the Automobile and Telecommunication Sectors

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Abstract

This study investigates the integration of sustainability principles into training programs within the HR practices of the automobile and telecommunication sectors. With a focus on tailoring training initiatives to address industry-specific challenges and opportunities, the research adopts a mixed-methods approach, combining quantitative surveys and qualitative in-depth interviews. The quantitative phase involves the distribution of structured surveys to HR professionals and employees across a diverse sample of organizations in both sectors, aiming to quantitatively assess the prevalence, characteristics, and perceived effectiveness of sustainable training programs. Simultaneously, the qualitative phase entails in-depth interviews with key stakeholders, including HR leaders and decision-makers, providing a nuanced understanding of the challenges, opportunities, and contextual factors associated with sustainability integration. The findings underscore the importance of leadership commitment, employee involvement, and the incorporation of sustainability metrics in training evaluations for effective integration. Continuous feedback mechanisms and collaborations with industry peers are recommended to ensure the ongoing relevance of training initiatives. The study highlights the dynamic interplay between sustainability and training programs, emphasizing the need for organizations to align their initiatives with evolving industry standards. Additionally, the research recommends incorporating technology for scalability and accessibility, as well as emphasizing inclusion and diversity in sustainability training to foster a more sustainable and diverse workforce. In conclusion, the study contributes valuable insights for organizations seeking to embed sustainability into their HR practices. The conclusions drawn emphasize the necessity of agility and strategic alignment to industry-specific challenges. This research not only informs decision-making within the automobile and telecommunication sectors but also contributes to the broader discourse on sustainable HR practices. The recommendations provided aim to guide organizations toward cultivating a workforce that actively contributes to environmental responsibility and societal well-being, fostering a more sustainable future for these pivotal industries.

Keywords: *Sustainability Integration, Training Programs, Human Resource Management, Automobile Sector, Telecommunication Industry.*

Introduction:

In the contemporary business landscape, the imperative for organizations to integrate sustainability into their operations has extended beyond mere corporate rhetoric to encompass fundamental aspects of Human Resource Management (HRM). This study explores the intersection of sustainability and HR practices with a specific focus on training programs, delving into the integration of sustainable training initiatives within the dynamic contexts of the automobile and telecommunication sectors. As industries at the forefront of technological innovation and global connectivity, the automobile and telecommunication sectors are confronted with unique challenges and opportunities in aligning HR practices with broader environmental and social responsibility goals. By zeroing in on training programs as a key component of HRM, this research aims to unravel the

intricacies of sustainable training integration, assessing the extent of adoption, identifying best practices, and elucidating the contextual factors shaping the implementation within organizations operating in these pivotal sectors.

Through an in-depth examination grounded in a case study methodology, this research contributes to both academic discourse and practical implications for organizations seeking to navigate the complex terrain of sustainability integration within HR practices, specifically through the lens of training programs in the selected industries. As we embark on this exploration, the study endeavours to shed light on innovative approaches and potential challenges, ultimately offering insights that can inform strategic decision-making and foster a more sustainable and resilient workforce in the automobile and telecommunication sectors.

Background of the Study

The evolving global landscape underscores the imperative for organizations to embrace sustainability as a core facet of their corporate ethos. This paradigm shift is particularly pronounced in industries at the nexus of technological advancement and economic development, such as the automobile and telecommunication sectors. These industries play pivotal roles in shaping contemporary lifestyles, yet their operations often entail significant environmental impacts. Against this backdrop, Human Resource Management (HRM) emerges as a critical lever for organizations to enact change and align with broader sustainability goals. Sustainable HRM practices, characterized by their focus on environmental, social, and economic considerations, have gained traction as organizations recognize the interconnectedness between workforce management and corporate responsibility. Within the realm of HRM, training programs stand out as strategic interventions that not only shape employee skills but also influence organizational culture. However, the integration of sustainability principles into training initiatives remains a relatively unexplored terrain, especially within the distinct and dynamic contexts of the automobile and

telecommunication sectors. The automobile industry, marked by its intricate supply chains and environmental implications, faces the challenge of fostering sustainable practices from production to end-of-life vehicle management. Similarly, the telecommunication sector, driven by rapid technological advancements, grapples with the environmental footprint of electronic waste and energy-intensive infrastructure. Both industries, while contributing significantly to societal progress, encounter unique challenges in harmonizing growth with environmental stewardship. The need for sustainable training programs within HR practices is underscored by the recognition that organizational success is inherently tied to the skills, values, and perspectives of its workforce. This study delves into the integration of sustainable training programs, aiming to bridge the existing gap in understanding how these initiatives are conceptualized, implemented, and navigated within the complex organizational structures of the automobile and telecommunication sectors. By exploring this critical intersection, the research seeks to contribute not only to the academic discourse on sustainable HRM but also to provide practical insights that can inform strategic decision-making, promote innovation, and foster a culture of sustainability within these industries. As organizations strive to balance economic growth with environmental and social responsibility, the role of sustainable training programs within HR practices emerges as a key driver in shaping the workforce of the future.

The Problem Statement

While the integration of sustainability into organizational practices gains prominence across industries, the specific incorporation of sustainability principles into training programs within Human Resource Management (HRM) remains an understudied domain, particularly within the intricate operational contexts of the automobile and telecommunication sectors. As these industries grapple with the imperative to balance technological innovation and economic growth with environmental responsibility, the efficacy and extent of integration of sustainable training programs in HR practices

become pressing concerns. Despite the recognized significance of training initiatives in shaping employee skills and fostering a culture of continuous learning, there is a notable gap in understanding how sustainability principles are embedded in training programs, and the challenges and opportunities organizations encounter in this integration process. This study seeks to address this gap by investigating the implementation, strategies, and outcomes of sustainable training programs in the HRM frameworks of the automobile and telecommunication sectors, aiming to offer insights that can inform future practices, enhance organizational sustainability, and contribute to the broader discourse on responsible and effective HRM strategies in these pivotal industries.

Significance of the Study

This study holds substantial significance within the evolving landscape of Human Resource Management (HRM) and sustainability, particularly in the specific domains of the automobile and telecommunication sectors. The integration of sustainability principles into training programs represents a crucial intersection, influencing not only the skills and competencies of the workforce but also contributing to the overall environmental and social responsibility of organizations. By delving into this relatively unexplored territory, the research contributes to both academic understanding and practical implications. For academia, the study enriches the existing literature on sustainable HRM practices, offering empirical insights into the nuanced implementation of sustainability within training frameworks. Additionally, the findings of this research can serve as a foundation for future scholarly exploration of the dynamic interplay between training programs and sustainability in diverse industrial contexts.

On a practical level, the study provides valuable guidance for HR professionals, organizational leaders, and policymakers within the automobile and telecommunication sectors. Insights into the challenges, best practices, and outcomes of integrating sustainability into training programs offer a roadmap for organizations striving to align workforce development with environmental responsibility.

Research Objectives

1. To examine the current status and effectiveness of sustainable training initiatives within the HR practices of the automobile and telecommunication sectors.

2. To investigate the barriers and opportunities associated with integrating sustainability principles into training programs, aiming to unveil strategies that enhance successful implementation.

3. To Measure the influence of sustainable training programs on organizational performance, employee behaviour, and overall corporate sustainability within the automobile and telecommunication sectors.

Literature Review

A significant number of young workers are enthusiastic about the idea. The recruiting and selection process for green jobs is something that organizations need to keep in mind. According to Kim et al. (2019[1]), firms will be able to rapidly implement the GHRM idea inside their company if they ensure that green training and development is adequately implemented. The employees will be aware of how to put green principles into reality. Workers need to be motivated to take green initiatives, and training and development are important to raise their depth of knowledge about doing so (Chaudhary, 2020[2]). Green performance evaluation will drive workers to take measures to reduce their environmental impact. There is a correlation between performance reviews and recognition and the motivation of employees. Workers' environmentally conscious conduct will be reinforced if their employers recognize and reward those workers who have made contributions to the improvement of the environment.

According to Pham and Paillé's (2020[3]), businesses should use green recruiting and selection practices in order to attract people who, by their very nature, are environmentally conscious. There is a significant impact that green remuneration and incentive systems that are designed by firms have on the green behavior of their personnel. The environmental performance

of the organization will be affected if workers adhere to the notion of becoming green.

According to Aiswarya and Ramasundaram's research (2020[4]), human resources are the engine that propels a company. Every company has to have a competitive edge in order to be successful. For example, Fernando and Bandara (2020[5]) and Khan and Iqbal (2020[6]) have conducted a substantial amount of study on the multiple factors, dimensions, and causes of the performance of organizations. All of this research has been done with a significant focus. (Posthuma, Campion, Masimova, & Campion, 2013[7]) There is a lack of consensus among researchers on the method that is the most efficient approach to quantifying performance. In most cases, it is measured in either monetary terms or non-monetary terms. Both of these methods are often used. The authors Khan and Iqbal (2020) argue that the relevance of a firm might be increased by using performance criteria that are not related to finances or the economy.

Green Training and Development

Environmental training is a key approach used by HRM to foster support for EM projects (Jabbour, 2013[8]). Furthermore, in the 1990s, there were early studies that concentrated on the relationship between human resources and environmental sustainability. Teixeira et al. (2012[9]) examined the correlation between environmental training and environmental management in Brazilian enterprises. The authors disclosed that these two constructs are interconnected since they develop simultaneously inside the organization. Opatha and Arulrajah (2014[10]) said that environmental training has the greatest influence on increasing employee knowledge of the environment. According to the authors, this training is responsible for cultivating a culture that promotes environmentally-friendly practices in businesses. In a similar vein, Arulrajah et al. (2015[11]) examined the significance of incorporating green education and staff training to provide them with the essential knowledge and skills for effective environmental performance. Incorporating social and environmental concerns into employee training and development programs is

essential at every organizational level (Mandip, 2012; Mehta and Chugan, 2015[12]). Cherian and Jacob (2012[13]) argue that in order to maximize the environmental advantages of training, it is crucial to construct environmental training programs that align with the specific training demands. In their quantitative study, Daily et al. (2012[14]) examined the relationship between environmental empowerment, environmental training, and environmental performance (EP) in 220 manufacturing organizations in Mexico. They found that environmental training had a greater impact on EP compared to environmental empowerment. Thus, training, development, and learning strategies should include programs, seminars, and sessions to facilitate workers' growth and acquisition of knowledge in EM (Prasad, 2013[15]). Renwick et al. (2013) propose specific green training and development techniques, including educating employees to do green assessments of their workspaces, improve energy efficiency, manage waste, promote recycling, and build green personal skills. Furthermore, firms should provide chances for workers to participate in environmental problem-solving initiatives. In order to accomplish this objective, the principles of work rotation should be used in green assignments as a crucial component of the training and career development plans for promising green managers of the future.

Theoretical frameworks of GHRM

Green Training and Development

The research conducted by Perron et al. (2006[16]) investigated the significance of environmental training in enhancing the economic worth of businesses. This research used a multiple case study methodology to examine the efficacy of a newly established environmental training programme in two distinct firms. One firm implemented a comprehensive training programme for all of its workers, whereas the other company functioned as a control group and did not provide any training. The research revealed that, despite receiving training, the staff from both firms had a comparable degree of understanding about the environment management system. This is in spite of

the substantial effort made in providing green training to staff of a particular organisation. The authors assert that it is crucial to create tailored and individualised environmental training programmes that align with the organization's requirements. They also highlight the need of developing validated tools to assess the effectiveness of the training.

The research conducted by Unnikrishnan and Hedge (2007[17]) examined the significance of environmental training and its correlation with cleaner manufacturing practices. The authors of the report classify several organisational training methodologies used in Indian industry. This study conducted empirical research on eight enterprises located in two distinct industrialised states in India. The findings indicated that there was a significant emphasis on environment management training, however the learning processes were not very robust. The study identified three main areas that Indian manufacturers should prioritise in order to enhance their green training programmes: insufficient commitment from top management, limited availability of suppliers offering cleaner technologies, and a disconnect between academic institutions and industries in implementing green training policies.

One key aspect of green HRM is to provide environmental training to all members of the organisation, including non-managerial staff and managers, in order to build the necessary skills and knowledge. This will facilitate the implementation of the company's corporate environmental management programmes. Implementing training programmes to promote recycling and waste management, facilitating flexible work hours and telecommuting, and minimising long-distance business travel (Jackson et al, 2011[18]) are very effective strategies for mitigating the adverse environmental effects of organisations. It is crucial to foster environmental consciousness among employees by organising seminars and workshops at the organisational level in order to get commendable environmental performance. Organisations also need environmental education that will lead to a transformation in the attitudes and behaviours of both managers and non-managerial staff. At Fuji Xerox Singapore, all employees get eco awareness training,

while the sales team also receives instruction on the environmentally friendly features of the company's products and supplies. In addition to these activities, several organisations commemorate an annual "environmental day" at the business or organisation level. This event involves the organisation of various competitive programmes for non-managerial workers, managers, and the children of employees. It is also beneficial to instil certain essential ecological principles among both employees and their family members.

Renwick et al. (2013[19]) propose several green training and development practices. These include training employees to conduct green analysis of their workspace, implementing job rotation to train future green managers, providing specialised training on environmental management aspects such as safety, energy efficiency, waste management, and recycling, fostering the development of green personal skills, and offering re-training programmes for employees who are losing their jobs in industries that contribute to pollution. Education, training, and development connected to the environment are crucial components of green HRM inside an organisation. Attaining the desired environmental performance of a company is challenging without adequate education, training, and growth. Hence, it seems that certain organisations have indeed recognised the need of including green education, training, and development inside their organisational framework.

Methodology of the Study

For this study, a comprehensive mixed-methods research approach will be employed to investigate the integration of sustainability principles into training programs within the HR practices of the automobile and telecommunication sectors. The quantitative phase will involve the distribution of structured surveys to HR professionals and employees across a diverse sample of organizations in both industries. These surveys will gather quantitative data on the prevalence, characteristics, and perceived effectiveness of sustainable training programs. Additionally, the qualitative phase will entail in-depth interviews with key stakeholders, including HR leaders and

organizational decision-makers. The qualitative component aims to provide a nuanced understanding of the challenges and opportunities associated with embedding sustainability into training initiatives. The combination of both quantitative and qualitative data will facilitate a holistic exploration of the research objectives, offering insights into the current state of sustainable training programs, factors influencing successful integration, and the impact of these initiatives on organizational outcomes. The research design enables a triangulated analysis, enhancing the robustness and validity of the findings. Ethical considerations, including informed consent and confidentiality, will be rigorously adhered to throughout the data collection process. The methodology, incorporating both quantitative and qualitative perspectives, is poised to provide a comprehensive and insightful examination of the intricate relationship between sustainability, training programs, and HR practices within the selected industries.

Research Design

This study will adopt an explanatory sequential mixed-methods research design to holistically investigate the integration of sustainability principles into training programs within the HR practices of the automobile and telecommunication sectors. The research will commence with a quantitative phase, where structured surveys will be administered to HR professionals and employees across a diverse sample of organizations in both industries. This phase aims to quantitatively assess the prevalence, characteristics, and perceived effectiveness of sustainable training initiatives. The qualitative phase will follow, involving in-depth interviews with key organizational stakeholders, including HR leaders and decision-makers. These interviews will provide deeper insights into the challenges, opportunities, and contextual factors influencing the integration of sustainability into training programs. The integration of both quantitative and qualitative data will occur during the interpretation and analysis phase, allowing for a comprehensive understanding of the research objectives. This mixed-methods approach not only enables triangulation of

findings for increased validity but also provides a richer and more nuanced exploration of the complexities surrounding sustainable training programs in these specific sectors. Ethical considerations, including confidentiality and voluntary participation will be rigorously observed throughout the research process, ensuring the study's integrity and adherence to ethical standards.

Data Collection Methods

Data for this study will be collected through a combination of quantitative surveys and qualitative in-depth interviews. The quantitative data collection will involve distributing structured surveys to HR professionals and employees within a diverse sample of organizations in the automobile and telecommunication sectors. The surveys will focus on capturing quantitative information related to the prevalence, characteristics, and perceived effectiveness of sustainable training programs. Simultaneously, the qualitative data collection will include in-depth interviews with key stakeholders, such as HR leaders and decision-makers. These interviews will provide a deeper understanding of the contextual factors, challenges, and opportunities associated with integrating sustainability into training initiatives. The dual-method approach aims to triangulate the findings, offering a comprehensive and nuanced perspective on the complex interplay between sustainability and training programs within HR practices in the selected industries. Ethical considerations, including informed consent and confidentiality, will be diligently observed throughout the data collection process to ensure the responsible and ethical conduct of the research.

Data Analysis Procedures

The data analysis procedure for this study will involve a systematic and iterative approach, considering both quantitative and qualitative data. Quantitative data collected from surveys will be subjected to statistical analysis using relevant software to derive descriptive statistics, such as frequencies and percentages, and inferential statistics, such as correlations and regression analyses. This analysis aims to quantify the

prevalence and perceived effectiveness of sustainable training programs within the HR practices of the automobile and telecommunication sectors. Simultaneously, qualitative data obtained from in-depth interviews will undergo thematic analysis, identifying recurring themes, patterns, and insights related to the challenges, opportunities, and contextual factors surrounding the integration of sustainability into training initiatives. The integration of both quantitative and qualitative findings will occur during the interpretation phase, allowing for a comprehensive understanding of the research objectives and facilitating a triangulated analysis. This mixed-methods approach aims to provide a robust, well-rounded, and contextually rich exploration of the complex relationship between sustainability and training programs within HR practices in the specified industries.

Empirical Findings:

Table 1: Data analysis using Pearson Correlation analysis to identify relationships between employee perceptions and Training Programs in selected Industries.

Training Program Variables		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10
TP1	Pearson Correlation	1	.284**	.524**	.380**	.438**	.294**	.353**	.619**	.636**	.216**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000
TP2	Pearson Correlation	.284**	1	.368**	.374**	.314**	.264**	.285**	.315**	.260**	.251**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000
TP3	Pearson Correlation	.524**	.368**	1	.366**	.552**	.567**	.412**	.547**	.465**	.078**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.001
TP4	Pearson Correlation	.380**	.374**	.366**	1	.523**	.504**	.427**	.495**	.403**	.245**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000
TP5	Pearson Correlation	.438**	.314**	.552**	.523**	1	.575**	.444**	.517**	.490**	.110**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000
TP6	Pearson Correlation	.294**	.264**	.567**	.504**	.575**	1	.460**	.451**	.393**	.134**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000
TP7	Pearson Correlation	.353**	.285**	.412**	.427**	.444**	.460**	1	.483**	.377**	.189**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
TP8	Pearson Correlation	.619**	.315**	.547**	.495**	.517**	.451**	.483**	1	.698**	.215**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
TP9	Pearson Correlation	.636**	.260**	.465**	.403**	.490**	.393**	.377**	.698**	1	.313**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000
TP10	Pearson Correlation	.216**	.251**	.078**	.245**	.110**	.134**	.189**	.215**	.313**	1
	Sig. (2-tailed)	.000	.000	.001	.000	.000	.000	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).											
b. List wise N=1836											

Table:1 illustrates the outcomes of a Pearson Correlation analysis, aiming to uncover the associations between Employee Perceptions on Green Initiatives (EPGI) and Training Programs (TP) across the automobile and telecommunication industries. The correlation coefficients demonstrate statistically significant relationships

(p < 0.01) between various dimensions of employee perceptions and training programs. Notably, positive correlations are observed, highlighting the interconnectedness between employees' perceptions and the effectiveness of training initiatives. For instance, a robust positive correlation is identified between employees' perceptions of the organization's commitment to green initiatives (EPGI1) and the different aspects of training programs (TP1 through TP10). This suggests that organizations fostering a positive perception of their green initiatives are more likely to have comprehensive and impactful training programs. Similarly, other dimensions of employee perceptions also exhibit significant positive correlations with various aspects of training programs, emphasizing the importance of training initiatives in reinforcing a culture of environmental responsibility within these industries. These findings underscore the role of training programs in shaping and sustaining employee perceptions regarding organizational green initiatives.

Table:2 Data analysis using Chi-square test to evaluate impact of training programmes on employee performance in the selected industries

Training Programmes	Chi-Square	df	Asymp. Sig.
The organization provides regular training on green HRM practices for all employees.	1968.014[a]	4	0.000
Employees have access to resources and materials that promote environmental awareness.	691.121[b]	2	0.000
Training programs effectively communicate the link between individual actions and environmental impact.	1362.949[a]	4	0.000
Employees feel that training programs enhance their understanding of the organization's green goals.	780.597[c]	3	0.000
There are opportunities for skill development related to environmental sustainability.	1266.102[a]	4	0.000
The organization measures the effectiveness of its green training programs.	1821.669[a]	4	0.000
Training programs include case studies and examples of successful green initiatives.	1833.069[a]	4	0.000
Employees have the flexibility to participate in green training programs based on their schedules.	1725.901[a]	4	0.000
The organization encourages continuous learning and improvement in environmental practices.	1693.352[a]	4	0.000
Employees believe that training programs positively contribute to the organization's overall green efforts.	1490.422[b]	2	0.000

The Chi-square test was conducted to assess the impact of training programs on employee performance in the selected industries, as presented in Table 2. Each statement related to different aspects of training programs in the context of environmental sustainability was evaluated, and the results are as follows:

Regular training on green HRM practices (Chi-Square = 1968.014, df = 4, p = 0.000):

The high Chi-square value and the associated p-value of 0.000 indicate a significant relationship between organizations providing regular training on green HRM practices for all employees, emphasizing the importance of such training programs.

Access to resources promoting environmental awareness (Chi-Square = 691.121, df = 2, p = 0.000):

The analysis reveals a significant association between employees having access to resources and materials that promote environmental awareness and the effectiveness of training programs in this regard.

Communication of the link between individual actions and environmental impact (Chi-Square = 1362.949, df = 4, p = 0.000):

The Chi-square test shows a significant relationship, indicating that training programs effectively communicate the link between individual actions and their impact on the environment.

Enhancement of understanding of the organization's green goals (Chi-Square = 780.597, df = 3, p = 0.000):

There is a statistically significant association between employees feeling that training programs enhance their understanding of the organization's green goals, emphasizing the positive impact of such programs on employee awareness.

Opportunities for skill development related to environmental sustainability (Chi-Square = 1266.102, df = 4, p = 0.000):

The results suggest a significant correlation, indicating that organizations providing opportunities for skill development related to environmental sustainability through training programs are associated with positive outcomes.

Measurement of the effectiveness of green training programs (Chi-Square = 1821.669, df = 4, p = 0.000):

The Chi-square analysis indicates a significant relationship, emphasizing the importance of organizations measuring the effectiveness of their green training programs.

Inclusion of case studies and examples of successful green initiatives (Chi-Square = 1833.069, df = 4, p = 0.000):

There is a significant association between training programs that include case studies and examples of successful green initiatives, highlighting the impact of practical examples on employee learning.

Flexibility for employee participation in green training programs (Chi-Square = 1725.901, df = 4, p = 0.000):

The analysis reveals a significant relationship, indicating that organizations providing flexibility for employees to participate in green training programs based on their schedules are more likely to have positive outcomes.

Encouragement of continuous learning in environmental practices (Chi-Square = 1693.352, df = 4, p = 0.000):

The Chi-square test shows a significant association, signifying that organizations encouraging continuous learning and improvement in environmental practices through training programs are associated with positive employee perceptions.

Employee belief in the positive contribution of training programs to green efforts (Chi-Square = 1490.422, df = 2, p = 0.000):

The results indicate a statistically significant association between employees believing that training programs positively contribute to the organization's overall green efforts, emphasizing the positive impact of training on employee perceptions.

In summary, the Chi-square results consistently demonstrate strong associations between various aspects of training programs and positive employee perceptions in the context of environmental sustainability in the surveyed industries. These findings underscore the importance of well-designed and

effective training programs in fostering environmental awareness and sustainable practices among employees.

Recommendations for improving GHRM practices

Based on the findings of this study, several key recommendations emerge to guide organizations in the automobile and telecommunication sectors in integrating sustainability into their training programs and HR practices:

- Organizations should design **training modules that are specifically tailored** to address the unique challenges and opportunities within the automobile and telecommunication sectors. These modules should encompass industry-specific sustainability principles, ensuring relevance and applicability to the workforce.

- **Leadership commitment to sustainability initiatives** is crucial. Organizations should foster a culture of environmental responsibility at all levels, with leaders actively promoting and participating in sustainable training programs. Additionally, involving employees in the development and implementation of these programs can enhance engagement and effectiveness.

- Include **sustainability metrics in the evaluation of training programs** to quantitatively assess their impact on organizational outcomes. This may involve measuring changes in employee behavior, performance, and contributions to corporate sustainability goals as a result of the training initiatives.

- Implement regular **feedback mechanisms to capture employee perspectives** on the effectiveness of sustainable training programs. This feedback can inform continuous improvement efforts, ensuring that training initiatives remain aligned with evolving organizational and industry needs.

- Encourage **collaboration and knowledge-sharing** with industry peers and stakeholders to collectively address sustainability challenges. By fostering partnerships, organizations can benefit from shared best practices, innovative approaches, and industry-wide initiatives that contribute to a more sustainable workforce.

- Stay abreast of evolving **sustainability standards and industry best practices**. Regularly update training programs to align with emerging standards, ensuring that organizations remain at the forefront of sustainability practices within the rapidly changing landscape of the automobile and telecommunication sectors.

- Ensure that sustainability training programs are **inclusive and address diversity considerations** within the workforce. Incorporate diverse perspectives, experiences, and values to foster a holistic approach to sustainability that reflects the varied demographics within these industries.

- Leverage **technology to enhance the scalability and accessibility** of sustainable training initiatives. Incorporate e-learning platforms, webinars, and other digital tools to reach a broader audience and accommodate the diverse learning preferences of employees.

By implementing these recommendations, organizations in the automobile and telecommunication sectors can cultivate a workforce that is not only well-equipped with sustainability knowledge and skills but is also actively contributing to the broader environmental and social responsibility objectives of the organization.

Conclusion

In conclusion, this study provides a comprehensive exploration of the integration of sustainability principles into training programs within the HR practices of the automobile and telecommunication sectors. The findings underscore the importance of

tailored and industry-specific training modules that address the unique challenges and opportunities within these sectors. Leadership commitment, employee involvement, and the inclusion of sustainability metrics in training evaluations emerge as critical factors for success. Continuous feedback mechanisms and collaborations with industry partners are recommended to ensure the ongoing relevance and effectiveness of sustainable training initiatives. The study highlights the dynamic interplay between sustainability and training programs, emphasizing the need for organizations to stay agile and align their initiatives with evolving industry standards. By incorporating technology for scalability and accessibility and emphasizing inclusion and diversity in sustainability training, organizations can foster a more sustainable workforce that actively contributes to environmental responsibility and societal well-being. Ultimately, the conclusions drawn from this study provide actionable insights that can inform strategic decision-making, drive continuous improvement, and contribute to the broader discourse on embedding sustainability within HR practices in these pivotal industries.

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A Critical Review of Lars Schmidt's "Redefining HR : Transforming People Teams to Drive Business Performance"

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Abstract

This article presents a comprehensive review of *"Redefining HR: Transforming People Teams to Drive Business Performance"* by Lars Schmidt. The book, published in 2021, serves as a playbook for modern human resources (HR) practitioners, emphasizing a shift from traditional, compliance-driven HR models to progressive, people-centric strategies that align with today's agile and technology-driven business environments. Drawing on insights from leading HR innovators, Schmidt redefines the role of HR as a strategic partner that drives business outcomes through culture, employee experience, and data-driven decision-making. This review critically examines the key themes of the book, evaluates its contribution to the HR profession, and discusses its practical relevance for HR leaders seeking to adapt to the rapidly changing world of work.

Keywords: Transforming People, HR innovators, Data-Driven Decision-Making

Introduction

Lars Schmidt's "*Redefining HR: Transforming People Teams to Drive Business Performance*" emerges at a pivotal time when the HR function is undergoing a major transformation. Traditionally viewed as a support function focused on compliance, payroll, and administrative duties, HR is now evolving into a strategic driver of organizational performance. Schmidt, a seasoned HR practitioner and founder of Amplify, a talent strategy firm, captures this shift by advocating for a reimagined HR model that prioritizes agility, technology, and employee experience. Through interviews with prominent HR leaders and case studies from top companies, Schmidt offers a roadmap for transforming HR from a transactional role to a dynamic, strategic partner within the business.

Major Themes and Concepts

Objectives of this Review Article are:

- Evaluate the Evolution of Modern HR Practices.
- Analyse Core HR Themes and Concepts.
- Critically Assess the Book's Practical Frameworks.
- Identify Limitations and Areas for Improvement.
- Explore the Book's Impact on the HR Profession.
- Provide Guidance for HR Practitioners and Leaders.

The Evolution of HR into a Strategic Function

One of the central themes of Schmidt's book is the evolution of HR from a function that merely manages employee relations and compliance to one that actively contributes to business strategy. Schmidt argues that HR's role is no longer limited to hiring, training, and managing benefits; instead, HR should work closely with business leaders to shape company culture, drive employee engagement, and support strategic initiatives.

The Rise of People Analytics

Schmidt emphasizes the importance of leveraging data and people analytics to make informed HR decisions. The book argues that data is a powerful tool for

understanding workforce trends, measuring employee engagement, and predicting future talent needs. By integrating analytics into the HR function, people teams can shift from being reactive to becoming proactive and predictive in their approach.

Agile HR Practices

Reflecting on the influence of agile methodologies from the technology sector, Schmidt discusses how HR teams can adopt agile practices to stay responsive and flexible in the face of constant change. Agile HR involves short planning cycles, iterative development of HR programs, and continuous feedback loops, making HR more adaptable to changing business needs.

Emphasis on Employee Experience

The book argues that the modern HR function should focus heavily on creating positive employee experiences. This includes designing work environments and benefits that promote well-being, supporting diversity, equity, and inclusion (DEI) initiatives, and fostering a strong sense of purpose and belonging. Schmidt's insights suggest that employee experience is not just about perks and benefits but about creating a workplace culture that aligns with employees' values and aspirations.

Reimagining HR Leadership

Schmidt challenges the traditional HR leadership model, advocating for HR leaders to be business-savvy, innovative, and empathetic. He calls for a new breed of HR leaders who can balance the dual roles of strategic advisor and employee advocate. By redefining HR leadership, Schmidt envisions people teams as influential agents of change who can navigate complex business landscapes and foster resilient, high-performing organizations.

Critical Analysis

Schmidt's *Redefining HR* succeeds in providing a comprehensive guide for HR professionals seeking to modernize their practices and align with the needs of today's workforce. The book's strengths lie in its practical insights, real-world case studies, and interviews with leading HR practitioners from organizations like Netflix, HubSpot, and Eventbrite. These examples serve as a valuable reference for HR leaders looking to benchmark their strategies and learn from industry pioneers.

Another notable strength is Schmidt's focus on actionable frameworks and tools. Unlike traditional HR books that tend to be theoretical, *Redefining HR* is highly pragmatic, offering step-by-step guides on implementing people analytics, building inclusive cultures, and adopting agile practices. This makes it a valuable resource for HR professionals at all levels—from aspiring HR leaders to seasoned CHROs.

However, the book also has some limitations. While Schmidt highlights the need for a data-driven approach to HR, the book offers limited guidance on the technical implementation of people analytics for HR teams lacking a data science background. Additionally, while the focus on agile HR is timely, the book assumes a level of organizational readiness and leadership support that may not be present in more traditional companies. As a result, some HR professionals may struggle to implement Schmidt's recommendations in rigid, hierarchical organizations.

Contribution to the HR Profession

Redefining HR contributes significantly to the discourse on the future of HR by positioning people teams as strategic business partners. The book reframes the HR function as one that goes beyond compliance and transactional tasks to focus on employee experience, talent management, and organizational performance. This paradigm shift is crucial for HR professionals seeking to add value in a world where attracting, retaining, and developing talent is a key differentiator for business success.

Furthermore, Schmidt's emphasis on agile practices and data-driven decision-making aligns with the growing trend of integrating technology and analytics into HR. By advocating for a more scientific and experimental approach to people management, the

book equips HR leaders with the mindset and tools needed to lead in a rapidly changing environment.

Practical Relevance for HR Leaders

For HR leaders navigating the complexities of the post-pandemic world of work, *Redefining HR* offers relevant strategies to build resilient, adaptable, and high-performing teams. Schmidt's frameworks for reimagining recruitment, enhancing employee engagement, and fostering a culture of continuous learning provide a roadmap for organizations seeking to stay competitive in a volatile talent market.

Additionally, the book's focus on employee experience is particularly pertinent in the context of hybrid and remote work models. Schmidt's insights on how to design meaningful employee experiences and support well-being in dispersed teams offer practical guidance for HR leaders grappling with the challenges of a distributed workforce.

Conclusion

Lars *Schmidt's" Redefining HR: Transforming People Teams to Drive Business Performance" is* a timely and essential read for HR professionals and business leaders seeking to redefine the role of HR in a dynamic business environment. The book's strength lies in its practical frameworks, real-world case studies, and emphasis on modern HR practices like people analytics, agile methodologies, and employee experience design. While it assumes a certain level of organizational readiness, Schmidt's vision for a redefined HR function offers a compelling roadmap for HR leaders who aspire to be at the forefront of business transformation.

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A Study on Impact of Agile HR in Organizations through Cultural Change Program

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Abstract

In the moving world of modern technologies and corporates today agility is a key factor that applies not only to software development but also to human resources practices as well. During the subsequent global lockdowns businesses faced challenges, in staying afloat. Businesses began adapting their workflow and surroundings to navigate uncertain situations. The implementation of methodologies and tools typically involves HR spearheading the company's shift, towards an Agile approach. The key factor, in bringing about this transformation was the management of talent and the selection of top performers. Implementing strategies that enhance efficiency while steering clear of overly strict procedures and taking alternative approaches into account. They are not very effective in time management and can lead to inefficiencies, in the workplace. Other approaches may have consequences. The concept of Agile HR represents a departure from traditional HR approaches and is gaining traction as companies acknowledge the significance of adaptability in navigating the complexities of a shifting business landscape. This research delves into the application of Agile HR in driving change, within organizations. This research investigates the impact of Agile HR practices on businesses adapting to changes, through enhancing employee involvement boosting communication effectiveness and fostering ongoing feedback mechanisms. The research approach employed includes analyzing literature and referring case studies in this area with a descriptive method to explore the critical success factors and obstacles in implementing Agile HR strategies amid cultural transformation efforts. The results indicate that Agile HR fosters an organizational culture that is more robust and adaptive while simultaneously quickening the pace of cultural change. Recommendations for HR professionals looking to use Agile approaches to spearhead effective culture change initiatives are provided in the study's conclusion.

Keywords: Agile HR, Organizational change, Cultural change, Employee involvement, HR strategies.

Introduction

Agility emphasizes the adaptability, formation of cross-functional teams, speed, and continuous learning. Key principle of Agile HR is the potentiality to respond quickly to the changes in the business organization. Over the past few decades, there has been a dramatic upheaval in the Information Technology (IT), changing from hierarchal, traditional organizational structures to flexible, and dimensional work cultures. In today's fast-paced and constantly changing environment, the capacity to negotiate uncertainty, grasp opportunities, and achieve long-term success is crucial for individuals, teams and organizations. HR departments may improve employee engagement and happiness, attract, develop, retain talent and contribute to overall organizational performance by adopting agility. Human Resources (HR) have become essential in coordinating the agile transformation, with a focus on creating an innovative supply chain that makes use of talent management. Organizational learning as well as an innovative culture. To sum up, the agile movement in

IT work cultures signifies a paradigm change towards more adaptability, creativity, and customer-focusedness. HR is essential in helping with this shift because of talent management, advocating for agile values, and building an atmosphere that encourages innovation is crucial for long-term success and competitiveness in this digital era.

Review of literature

I. **Funmilayo Aribidesi Ajayi (2024).** The review underscores HR's pivotal role in shaping agile IT work cultures that are conducive to innovation and adaptability. Key insights include the importance of HR in facilitating cross-functional teams, developing agile leadership competencies, and promoting a culture of continuous improvement and psychological safety. These factors are instrumental in enabling IT organizations to respond rapidly to market changes and drive technological innovation. The future of agile work cultures in IT is poised to face both challenges and opportunities as digital transformation accelerates. By leveraging data analytics and innovative HR technologies, organizations can enhance decision-making, tailor employee experiences, and foster a more agile workforce.

II. **Maria Paula Novakoski Perides (2024).** Although agile approaches to project management were originally developed for use by small software development teams, agile methods quickly began to be used by entire department processes and, in some cases, to the entire organization. Despite this quick adoption, there is a lack of studies seeking a better understanding of the changes that an organization needs to carry out for agile implementation at the organizational level.

III. **Hema Mirji (2023).** Agile HR presents a transformative approach to enhance organizational effectiveness through agile practices. By embracing collaboration, flexibility, and continuous improvement, HR departments can create an environment that supports employee engagement, talent acquisition, performance management,

learning and development, and organizational design. However, it is important to address challenges and ensure proper change management for successful implementation.

IV. **Paula Caligiuri (2022).** Global professionals need to understand the demands of the cultural context in which they are working and respond effectively within it. Building on existing literature highlighting the importance of cross-cultural competencies and international experience for global work, this study expands knowledge by examining whether employees with cross-cultural competencies and international experience are better able to vary their cross-cultural responses to effectively match the cultural demands of the work environment. First, organizations should assess for cross-cultural competencies to select for roles requiring an understanding of the cultural context. Second, organizations should provide international experiences as part of a global leadership or global talent development program.

V. **Michael Greineder (2022).** "Agility" and the "Agile Work Organization" are on everyone's lips right now. This applies to practice and research, which highlight the potential for innovation, sustainability and profitability. The concept of the Agile Work Organization (AO) with increased speed and flexibility is reflected in inconsistencies, overlapping and contradictory definitions, and different and heterogeneous mindsets. The structured literature review showed three research dimensions: Strategic Agility, Functional Agility and Operational Agility and four proposition within our presented framework.

Key Principles of Agile HR

a. **Concentrate on results and value instead of method:** The Agile methodology is a way of arranging and managing a project that concentrates on getting instant results by improving the processes. HR can use this methodology to focus on results and value rather than the process by looking at what they want to achieve and then

creating a plan for achieve it. The foremost step is to identify what are the objectives of your initiative and to cut short those objectives into more attainable steps, for example, maybe you want to cut turnover by 15%, you may concentrate on enhancing the onboarding process for new hires for this.

b. **Continue to provide customers with incessant value:** The Agile methodology is a way for HR to work with customers to provide continual value by prioritizing and delivering value in small bunch. The reason being there are 3 phases, backlog, sprints and retrospectives. In the backlog phase, you get to know what all tasks to do and where do they fit in the overall product roadmap. Some rough estimates for each task can also be included at this phase. In the sprint phase, you work on one particular task at a time until they are complete. In the retrospective phase, everyone in the meeting talks about what all they completed and went well and sees whether any task requires improvement.

c. **Develop initiatives centered on driven people:** The Agile methodology is a style of building projects around driven individuals by implementing incremental, repeated processes and stressing communication and collaboration with every team mates. The reason being, this methodology is completely being focused on people who does the work, rather than on managers or executives whose main role is to oversee and coordinate the whole project. Which means that every team member of a project has an equal amount of authority and influence over how to complete a task. For HR professionals, this is advantageous since it frees them up to concentrate on problem-solving with their teams rather than just carrying out directives.

d. **Permit a steady tempo:** The Agile methodology is specifically useful for allowing HR to permit a steady tempo as it allows greater flexibility in managing staff. Agile projects are usually carried for a short period by reviewing things so that teams can make necessary changes. It will be helpful for HR departments to change their approach when it becomes clear that more or less staff is required.

Because the Agile technique greatly depends on input from both the team and the customers, the project manager can take this into consideration for projects that are identical if one of these groups signals that they require more or fewer resources.

e. **Adapt to change by sticking to your plan:** The Agile methodology helps HR actively respond to change by following a plan as it allows them to make minor, incremental changes whenever to stay flexible. It includes creating a backlog of tasks, based on the overall impact and importance need to prioritize them, and lastly to implement those tasks in order of significance. For example, if an HR manager wishes to alter the benefits policy for the company, for instance, they can develop a backlog of all potential modifications, rank them according to significance and overall impact, and then carry out the activities in the priority sequence.

f. **Accept requirements that change, especially if they do so toward the end of development:** Agile methodology has several advantages that can help HR to cope up with changing requirements. This is because it places a strong focus on communication, which guarantees that everyone in the team is aware of developments from the start and can adapt as needed. Client feedback is also regular part of it, allowing team to modify goals as needed. In an Agile setting there are two primary approaches to addressing this-iteration and collaboration. Iteration is the process of making changes over the course of a project rather than implementing them all at once. Collaboration is the process by which team members work together to solve problems and make choices.

g. **Collecting input in real time from customers and stakeholders:** Using Agile technique to conduct meetings is one way HR may use it to get real-time feedback. For instance, you may use the Agile technique to allow individuals to provide feedback while they are viewing the presentation or reading the report, rather than asking them to do so in a meeting. Shareholders or customers can respond by writing down their thoughts on paper or by using a clicker that only accepts yes or no answers.

Table:1 A Comparative Analysis of Traditional HR Practices with Agile HR

Dimensions	Agile HR	Traditional HR
1. **Shift in perspective**	Agile is best characterized by a particular mindset. It is embracing an Agile mindset involved both acquiring new behaviors and letting go of old ones. Ex: shifting the focus from individual accountability to team accountability.	Traditional HR practices were reluctant to change, both in terms of mindset as well as implementing new changes. Ex: opposition to implementing flexible work schedules or remote employment.
2. **Prioritizing needs of humans first**	Restoring human nature to HR and moving away from treating employees like resources have been a major step up in this methodology.Ex: making career development plan mandatory for everyone in organization.	Rather than being viewed as mature individuals who share responsibility for the company's development, employees are viewed as just another controllable input.Ex: following traditional top-down hierarchical chart.
3. **Co-creation**	Agile approaches such as Scrum & Kanban are applied directly to HR work in agile HR practices, enabling employees to co-create solutions. Co-creation within diversified HR team and with the individuals within the company, who are HR's clients. Ex: Implementing and experimenting changes in employees to know what works well and what does not.	Co-creation was minimal or not at all existing in traditional HR practices. Upper management usually made decisions about policies, procedures and systems and employees were rarely involved in these decision-making processes.Ex: lack of employee input in design and implementation of performance management systems.
4. **Experience of Employees**	HR teams put a strong emphasis on employee experience and concentrate on developing work conditions where competent people want to work. Ex: HR employs design thinking approaches to rethink processes from the view point of user by viewing employees as customers.	The focus was less on the feelings and experiences of people in the workplace and more on compliance, administration and efficiency.Ex: Annual surveys were commonly used to gauge employee engagement, and slow feedback loops sometimes resulted in inadequate or delayed answers to employee concerns.
5. **Experience of User**	The goal of user experience is to create HR services and procedures that satisfy employees demands as well as HR's. this strategy guarantees that workplace procedures are meaningful and easy to use. Ex: Agile HR encouraging experiment instead of imposing an unpopular feedback app, which showed that teams actually required a supportive atmosphere for candid communication rather than additional technology.	In this approach, user experience was overlooked which hindered user-friendly processes. The simplicity of use of HR systems and technologies was prioritized over that of the employees, resulting in cumbersome and inflexible procedures that may cause employee frustration. Ex: Systems for managing performance were frequently intricate and designed more for gathering data than for improving worker performance.

6.	**An approach that is not universally applicable**	Nowadays personalization is key and this mindset has extended to how we manage employees. Although best practices are beneficial, tailored solutions are becoming more and more important because what functions well for one department or firm might not be appropriate for another because of differences in needs, beliefs, and culture. Ex: One company revamped their performance methodology for Agile teams in the technology sector, emphasizing team-based incentives and real-time feedback.	Standardized policies and processes were applied consistently throughout the organization in a one-size-fits-all manner. This method made the assumption that, notwithstanding the unique requirements and contexts of each employee group, what worked for one area of the company or for that group would also work for the others. Ex: Benefits and training programs were frequently standardized, failing to take into consideration the wide range of demands and preferences among employees. Because the programs did not take into account the particular difficulties or goals of various employees, they might end up being less successful or interesting for particular groups of people.
7.	**Decision making based on Evidence**	Agile HR places a strong emphasis on using data and experimentation to challenge assumptions rather than depending just on conventional methods or gut feeling when making decisions. Ex: Mandatory diversity training, for instance, may appear to be a good strategy to address diversity-related concerns, but research indicates it may not always work & may even have the opposite effect. The data-driven framework of Agile HR minimizes the risks associated with unproven assumptions by relying on evidence and ongoing input at every stage, from task prioritization to solution creation.	In this practice, HR professionals frequently made judgments based on their experience and prior accomplishments, presuming that what had previously worked would continue to do so. Even if some data-like performance indicators or staff surveys- were used, they weren't always thoroughly examined or applied in a methodical way to help with decision-making. Ex: Conventional HR may introduce a new policy without fully evaluating its effects on the company or its workers, depending on leadership preferences or industry trends. This strategy might produce less-than-ideal results and result in opportunities to implement more specialized, evidence-based solutions that work better.
8.	**Organizational transformation & Agile leadership**	Starting an Agile transformation calls for a fundamental change in approach & methods of operation, not merely the adoption of the world. Agile is largely a team-based methodology that should only be scaled when necessary. It works best for difficult challenges needing quick, creative solutions. Ex: It is not necessary for every department to adopt Agile methodologies just because a firm decided to implement them in its IT department in order to react swiftly to changes in the market.	The Agile framework was less compatible with the traditional approach to organizational transformation and leadership because it was less flexible and less sensitive to the changing demands of contemporary enterprises. Ex: putting in place a new performance management system for the entire business. The highest leadership may make the choice, with HR building the system in accordance with accepted best practices and workers would be expected to adjust.

Case study

Ambidexterity in Software Development (ASD) PROJECTS

Stumbling block:

An organization in the software development industry aims to enhance their understanding of the tensions between exploitation (continuity) and exploration (change) within Agile software development (ASD) project teams. They seek to identify and implement ambidextrous strategies to effectively balance these two aspects.

How it was quick fixed?

- Promoting cross-functional collaboration: Collaboration between team members involved in both aspects was facilitated, allowing for cross-pollination of ideas and insights.

- Fostering a culture of ambidexterity: The organization created a culture that values both stability and innovation, emphasizing the importance of balancing the two.

- Developing flexible processes: Agile practices that supported both stability and innovation, such as iterative development and adaptive planning, were adopted to ensure flexibility and responsiveness.

- Recognizing tensions: Teams were encouraged to understand and acknowledge the inherent tensions between exploitation and exploration in Agile projects.

- Balancing resource allocation: Resources were allocated between exploitation and exploration activities, ensuring a fair distribution to support both aspects effectively.

- Supporting knowledge sharing: Team members were encouraged to share their expertise and lessons learned from both exploitation and exploration, fostering a culture of continuous learning.

- Establishing feedback mechanisms: Feedback loops were implemented to evaluate the impact of exploitation and exploration efforts, enabling teams to make data-driven decisions and improvements.

- Providing leadership support: Leaders promoted and provided necessary resources for the adoption of agile practices, demonstrating their commitment to ambidexterity.

- Continuous improvement: Regular assessments and adaptations of agile practices were conducted based on feedback and evolving project needs, enabling teams to continuously improve their ambidextrous strategies.

- Encouraging experimentation: An environment that encouraged risk-taking and the exploration of new ideas was fostered, allowing teams to innovate and try new approaches.

- Transparency and goal focus at all levels: The people are focused to the common goals of the organization helps them to reach out the individual employees who can contribute to achieve them.

- Agile leadership team: Earlier known as Executive board meets twice a week for quick information and feedback.

Challenges in implementing Agile practices in HR

HR is becoming more and more involved in organizations where some departments have adopted Agile and others have not, which presents two challenges. Mainly HR is not utilizing the opportunities Agile presents to our industry. And next HR may discover it challenging to assist the company and may grow more disconnected from the demands of the organization and its capacity to address changing and intricate requirements. Organizations have to carefully traverse a particular set of hurdles when applying agile approaches in HR project management. One of the main obstacles is the natural reluctance to change that permeates HR departments, which are typically

organized around inflexible procedures and hierarchies. Agile places a strong emphasis on adaptability and flexibility, so HR professionals must adopt iterative procedures and change the way they think about work. Furthermore, it might be challenging to guarantee cross-functional teams collaborate and communicate effectively, particularly in companies with well-established silos. To overcome these challenges and establish an environment that supports agile techniques, leadership support, continuous training, and cultural change are essential. Furthermore, the requirement for consistent employee engagement and feedback systems frequently complicates the integration of Agile approaches into HR project management. Iteration and constant input are essential to an agile framework's success, but many HR teams find it difficult to establish formal feedback loops with staff members. Strong communication and an awareness of the many viewpoints held by employees are essential for ensuring that HR efforts are tailored to the changing demands of the workforce.

Conclusion

Although it is helpful in encouraging adaptability and teamwork, the Agile methodology has a number of drawbacks that draw attention to knowledge gaps. Among these include the unpredictable nature of time and resource estimation, which can cause annoyance and imprudent decision-making. Teams are additionally strained by the more time and effort needed for constant communication and cooperation, sometimes which may not be feasible to complete the task on time due to this. Furthermore, Agile requires complete dedication from all parties involved, and any lack of buy-in can have a detrimental impact on project results. The just-in-time nature of Agile procedures can lead to inadequate documentation, which can cause misconceptions, as all works are carried out with proper assignments and a structured documentation and lack of which might create some kind of confusions. Additionally, the less structured approach increases the likelihood of projects deviating from their initial scope. To solve these issues and improve the efficacy of Agile techniques, more study is required in the areas of a structured process of tasks with Agile methodology to be universally followed across all areas and departments, though each project requires unique set of actions and tasks, overall, a uniformity is to be attained.

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Guidelines for Paper Submission

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2. The paper must include the title, author's name, designation, mailing address, mobile number and e-mail address in the first page.

3. An abstract should not exceed more than 250 words. Along with the abstract, author(s) need to specify four to six key words in the second page.

4. Soft copy must be submitted in A4 size, MS-Word format only in Times New Roman with heading of 14 font size and remaining text size 12 with spacing 1.5 as a single line. There must be no tab for the first sentence of every paragraph.

5. Abstract and full paper should be sent as a word document only to:

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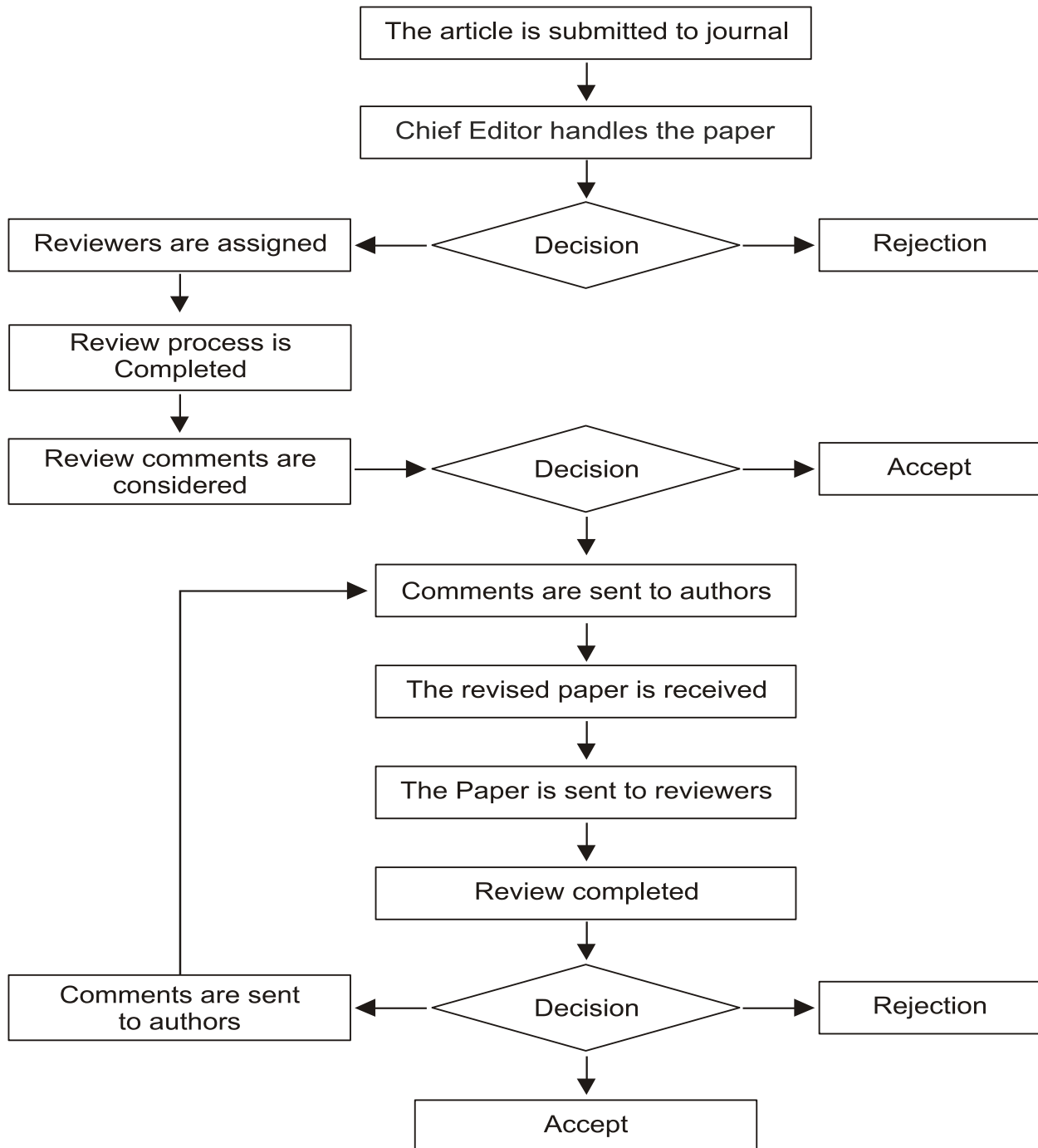
Theme for the Next Issue:

"Emerging Trends in Banking"

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The theme of volume 16 Issue 1 of AMBER is **"Emerging Trends in Banking"**. We seek submissions from academicians, industry experts, entrepreneurs, and research scholars. Submissions, if found eligible, will be put through two stages blind review process by external reviewers. All submissions must be sent to amber@abbs.edu.in

Emerging Trends in Banking

The theme for forthcoming 31st issue of AMBER (Volume 16, Issue 1) is **'Emerging Trends in Banking'**. Technology is all pervasive in industry. But, the way in which it has impacted Banking sector in unimaginable. It is heartening to know that countries like India are in forefront of digital banking. Many developed economies are far behind India, in this respect. Technology is sweeping Banking sectors in many ways. Physical bank branches are becoming less relevant. Inclusivity, CRM, cybercrime, efficiency of the sector, NBFCs are themes on which we have to ponder upon. The coming issue would address all these and related aspects.

We invite papers that are encouraged to explore and provide insights, practical implications, and actionable recommendations for HR professionals, managers, and leaders looking to implement or enhance agile practices in their organizations.

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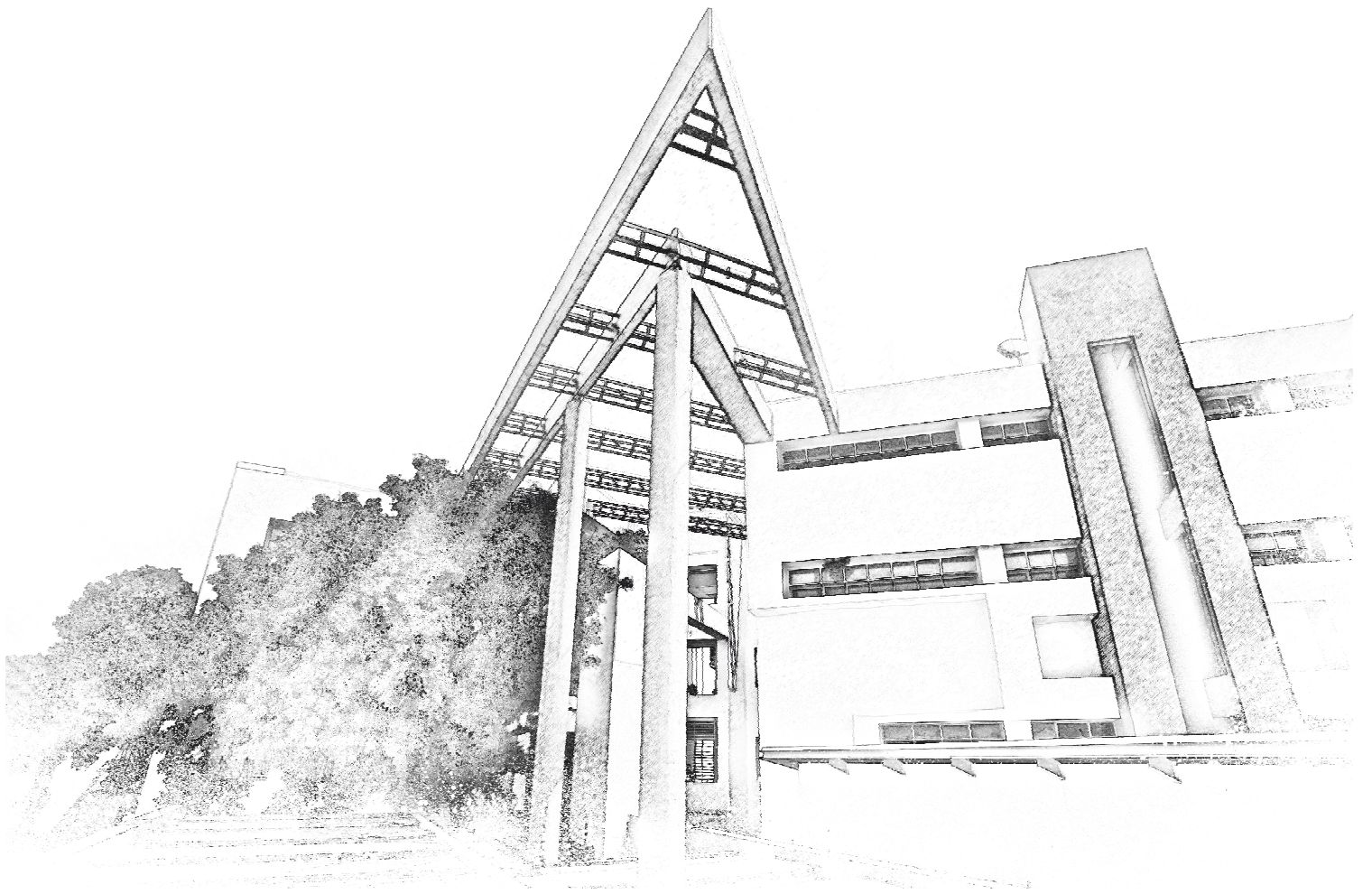
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