

Green Practices in Operations Management

Balancing Profitability and Sustainability

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Abstract: *In today's dynamic business environment, organizations are increasingly adopting green practices in operations management to balance profitability and sustainability. This paper explores the integration of environmentally responsible strategies into operational processes, emphasizing their impact on efficiency, cost reduction, and long-term value creation. Key areas of focus include sustainable supply chain management, energy-efficient production methods, waste reduction techniques, and the role of technology in fostering green operations. By analyzing real-world case studies and industry best practices, this study demonstrates how businesses can achieve economic gains while minimizing their environmental footprint. Additionally, the paper addresses the challenges organizations face in transitioning to sustainable operations and offers strategic recommendations to overcome these barriers. The findings underscore that sustainability and profitability are not mutually exclusive; rather, they can coexist to drive competitive advantage, foster innovation, and ensure long-term business success.*

Keywords: *Sustainable Operations Management, Green Practices, Profitability and Sustainability, Corporate Sustainability, Sustainable Business Strategy.*

I. INTRODUCTION

In an era marked by rapid industrialization and increasing environmental concerns, the need for sustainable business practices has never been more critical. Organizations across various sectors are recognizing that traditional operational methods, which often prioritize short-term profitability over long-term sustainability, are no longer viable in a world facing significant ecological challenges. The integration of green practices into operations management represents a paradigm shift in how businesses approach production, supply chain logistics, and resource utilization (Fikri et al., 2021). This transformation is driven by increasing environmental awareness, stricter regulatory frameworks, and evolving consumer expectations, compelling organizations to adopt sustainable strategies that minimize ecological impact while maintaining economic viability (Sarwar et al., 2020).

Moving further, we will explore the background and context of green operations management, focusing on its evolution, significance, and impact on modern businesses. In recent years, the increasing emphasis on environmental sustainability has led organizations worldwide to integrate green practices into their operational strategies. This shift has been driven by multiple factors, including rising regulatory pressures, consumer demand for sustainable products, and the need for resource efficiency.

Green operations management encompasses a broad spectrum of activities, including waste reduction, energy efficiency, pollution prevention, and the adoption of eco-friendly materials (Piercy & Rich, 2015). This holistic approach requires a fundamental rethinking of traditional operational processes, encouraging innovation in product design, manufacturing techniques, and supply chain management (Fikri et al., 2021). The implementation of green supply chain management practices, which integrates environmental considerations into every stage of the supply chain—from raw material sourcing to end-of-life product management—is particularly crucial (Fikri et al., 2021). By embracing green practices, companies can not only reduce their environmental footprint but also unlock new opportunities for cost savings, enhanced brand reputation, and competitive advantage (Fikri et al., 2021; Zhu & Sarkis, 2005). Sustainable supply chains play a vital role in promoting green economic growth and ensuring environmental sustainability (Khan et al., 2018).

The global landscape is undergoing a profound shift as stakeholders—including consumers, investors, and regulatory bodies—demand greater accountability regarding environmental impact. Climate change, resource depletion, and pollution are pressing issues that necessitate a re-evaluation of how businesses operate. According to recent studies, companies that adopt sustainable practices can reduce operational costs, improve efficiency, and enhance their brand reputation. This shift is further supported by advancements in technology, which enable organizations to implement innovative solutions that align with sustainability goals. As a result, businesses are increasingly adopting green practices in their operations to not only comply with regulations but also to meet the evolving expectations of their stakeholders.

Artificial Intelligence in Healthcare Domain

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ABSTRACT

Artificial intelligence (AI) has emerged as a promising technology in healthcare research, with the potential to revolutionize the way healthcare is delivered. AI can be applied to various aspects of healthcare research, such as improving disease diagnosis, predicting patient outcomes, and developing personalized treatment plans. This research paper aims to provide an overview of the current state of AI in healthcare research and its potential impact on the industry. We explore the various applications of AI in healthcare research, including natural language processing, image recognition, and machine learning. We also discuss the challenges associated with the integration of AI into healthcare research, such as data privacy concerns, ethical considerations, and the need for rigorous validation and testing. Finally, we highlight some of the recent advances in AI-based health research and the potential for future developments in this area. Overall, this research paper demonstrates that AI has the potential to transform medical research and improve patient outcomes, but requires careful consideration of ethical and regulatory issues to ensure its safe and effective integration into clinical practice.

KEY WORDS

Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing,

INTRODUCTION

Artificial Intelligence (AI) has the potential to revolutionize healthcare by improving patient outcomes, reducing costs and increasing efficiencies. The use of AI in medical research has become increasingly popular in recent years thanks to advances in computing power, big data analysis, and machine learning algorithms. These tools allow researchers to analyze large amounts of patient data, spot patterns, and generate prior insights to win cannot be achieved with traditional methods. In this article we will examine how AI is used in issues to consider. Our goal is to provide a comprehensive overview of the current state of AI in medical research and to highlight some of the most promising areas for future research. By understanding the potential of AI in healthcare, we can work to design more effective and efficient healthcare systems that improve the quality of life for patients around the world.

Artificial intelligence in healthcare is an umbrella term used to describe the use of machine learning or artificial intelligence (AI) algorithms and software to mimic human cognition in the analysis, presentation, and understanding of complex healthcare and medical data. Specifically, artificial intelligence is the ability of computer algorithms to make approximate conclusions based solely on input data. The primary goal of health related AI applications is to analyze the relationships between clinical techniques and patient outcomes. AI programs are being used in practices such as diagnosis, development of treatment protocols, drug development, personalized medicine, and patient monitoring and care. What sets AI technology apart from traditional healthcare technologies is its ability to collect data, process it, and generate well-defined outcomes for the end user. Artificial intelligence uses machine learning and deep learning algorithms for this. These processes can recognize behavioral patterns and generate their own logic. Machine learning models must be trained with large amounts of input to provide actionable insights and predictions.

AI algorithms behave differently than humans in two ways:

- (1) algorithms are literal: once they set a goal, the algorithm only learns from inputs and can only figure out what it was programmed to do,
- (2) and about deep- Learning algorithms are black boxes; Algorithms can make predictions with extreme accuracy, but apart from the data and the type of algorithm used, they offer little or no understandable explanation of the logic behind their decisions.

Since the widespread use of AI in healthcare is relatively new, research is being conducted into its application in various areas of medicine and industry. Additionally, heightened attention is paid to unprecedented ethical issues related to its practices, such as privacy, workplace automation, and representative bias.

LITERATURE SURVEY :

Meskó ,et al. (2018). There is a huge crisis of healthcare workforce because of doctors shortage worldwide , aging and burnout physicians and more demand for chronic health care. There is over 17 million shortage of healthcare workers globally in addition to aging work-force. Because of increasing number of patients and shortage of physicians , we can see sleep disorder and burnout of healthcare workers can be seen these problems and gaps in society can be solved by the use of technology and artificial intelligence very easily. Artificial intelligence could help diagnose illnesses much faster than a doctor, and it can also ease administrative work by relieving staff. Deep genomics can help identify disease associations in genetic information sets and medical records. Supercomputers could help find new ways to treat diseases and facilitate clinical trials. AI could be used to reduce virus infectivity in less than a day instead of years. Technology will not only reduce the cost of care, but also make it faster and more efficient, and solve healthcare crises.

Lin, S.Y., Mahoney, MR, et al.(2019). As the shift from per-service fees to value-based payments is expected to grow the population of the healthcare management industry, many companies are exploring the role of artificial intelligence to enhance their ability to identify and optimize their performance with population-based healthcare tools for physicians. . Many companies are developing AI-assisted physicians who can give health advice directly to patients with joint problems, reducing the workload for more complex treatments. As technology advances, many people carry devices that detect early signs of disease. Doctors may be able to use data from these devices to treat diseases at an earlier stage. AI- powered machines diagnose diseases with greater precision than doctors in treating skin cancer³, breast cancer, colon cancer, brain tumors³ and cardiac arrhythmias. These tools in the hands of GPs can bring measurable benefits to patients. AI can be used to automate parts of primary care more efficiently and quickly for patients and physicians.

Ganapathy, K., Abdul, S.S. et al. (2018).The human brain is very complex to understand and perform operations. The human brain is a very active part of our body, so human error can occur during an operation. Applying artificial intelligence to neuroscience will help us understand how the brain works intelligently. AI aims to mimic human cognitive functions. AI can help doctors stay informed by sharing the latest research on specific diseases and help them better care for their patients. The AI outperformed many doctors by predicting surgeries active layouts. Patients suffering from mental health issues can be helped by using AI , it may also reduce risk of suicide. Machine learning algorithms could help in medication therapies and curing for many mental Diseases. Accurate prediction of tremor can be achieved by using machine learning but prediction accuracy is dependent on the quality of the clinical measurements. AI will be adopted in neurological treatments only when there is evidence that AI leads to better outcomes, efficiency and reduces costs. Hopefully, the AI enabled clinician will now spend more time with his patient for the wellbeing of patient mentally rather than struggling with the data.

Etienne, H., Hamdi , S., (2020) et al. Thoracic surgeries are showing significant improvements thanks to recent advances in artificial intelligence technologies. Advances in fields such as radiology, pathology, and pulmonology have helped surgeons treat patients effectively. Great advances have been made in the field of radiology thanks to deep learning.

Essential Factors and How they Affect Demographic Variables in the Corporate Environment to Maintain Work-Life Balance

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Abstract: *Work-life balance (WLB) remains a significant concern for industries, with research highlighting the consequences of imbalance between work and family life. In today's competitive global landscape, companies supporting WLB practices gain a competitive edge. This study aims to explore the impact of demographic variables on WLB factors in Haryana, India. A sample of 300 employees from various private and public banking and insurance branches was analyzed using one-way ANOVA. The study finds that technological advancements have facilitated the implementation of WLB practices, blurring the boundaries between work and personal life. However, despite family-friendly policies, many employees still perceive negative consequences. Normative attitudes and values continue to influence gender roles, affecting women's career prospects. Supervisors' awareness of WLB practices varies, influencing their ability to support employees. Organizations are increasingly focused on fostering a supportive workplace culture to accommodate employees' expectations regarding both family and professional life*

Keywords: Work-life balance, demographic variables, Haryana, India, banking, insurance, technological advancements, gender roles, supervisor awareness, organizational culture

I. INTRODUCTION

Despite extensive research on work-life balance (WLB), it remains a challenging area for industries to address and manage effectively. The consequences of an imbalance between work and family life are well-documented, highlighting the need for companies to prioritize practices that support WLB in today's competitive global landscape. There's a noticeable shift in employee interests from extrinsic to intrinsic rewards, driving the demand for organizations to introduce work-life practices. This study aims to explore the impact of various demographic variables on critical factors of work-life balance. The research sample comprises 300 employees from different levels and sectors in Haryana, including top, middle, and lower-level employees from private and public banks and insurance branches. Demographic factors such as gender, experience, and management level are considered alongside critical factors like trade union presence, government involvement, and employee location. Statistical analysis, utilizing the one-way ANOVA method with the SPSS tool, is employed to achieve the study's objectives effectively. Advancements in technology have facilitated the implementation of work-life balance practices by making work more accessible anytime, anywhere. However, this omnipresence of work creates increased demand and pressure on the workforce in a service-oriented economy, leading to heightened competition for both organizations and employees' time. Despite the availability of family-friendly policies, many employees still perceive negative consequences associated with utilizing them. The evolving nature of jobs and organizational structures adds further complexity, often resulting in conflicts between professional responsibilities and personal needs.

Normative attitudes and values continue to influence gender roles, impacting women's career prospects and contributing to higher personal role-overload. Despite efforts to accommodate work-life balance, managerial awareness and training regarding related policies remain variable. Research indicates that the best employers prioritize organizational culture and policies that promote meaningful work and a supportive workplace environment. Flexibility in work schedules, such as flexitime, has been linked to increased job satisfaction and other positive outcomes, particularly among women. Moving forward, institutionalizing work-life balance initiatives requires a cultural shift within organizations, involving

senior leaders, line managers, and employees in effective career decision-making. The role of work-life professionals must evolve into that of cultural change agents, equipped with skills in organization development and facilitating cultural change efforts in complex organizational settings. Positive associations have been found between the use of Flexible Work Arrangements (FWAs) and career advancement, particularly for men.

II. RESEARCH METHODOLOGY

The primary objective of this study is to assess the impact of various demographic factors on critical aspects of work-life balance. The following hypotheses have been formulated:

H0 (1): Gender does not have a significant relationship with critical factors of Work-life Balance.

H0 (2): Level of Management does not have a significant relationship with critical factors of Work-life Balance.

H0 (3): Experience does not have a significant relationship with critical factors of Work-life Balance.

Sample and Sample Profile

The study's sample was drawn from various locations in Haryana, comprising 300 employees from different organizational levels. This included 107 top-level, 98 middle-level, and 95 lower-level employees from private and public banks and insurance branches in Haryana. The sample encompassed 77 private banking branches, 69 private insurance branches, 80 public banking branches, and 74 public insurance branches.

The objective was to investigate the impact of demographic factors, such as gender, experience, and management level, on critical aspects of Work-life Balance. The selected area was stratified into different zones, and crucial organizational factors, including trade union presence, government involvement, and employee considerations, were considered.

Two districts were randomly selected using a lottery system, and respondents were chosen from each district in Haryana. Statistical analysis was conducted using the one-way ANOVA method with the SPSS tool to ensure the study's alignment with its objectives and enhance its purposefulness.

Table 1.1: Demographic Variables

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	233	63.1	77.7	77.7
Female	67	18.2	22.3	100.0
Total	300	100.0	100.0	

Experience	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 5	7	20.6	25.3	25.3
6-11	6	18.7	23.0	48.3
12-17	5	17.6	21.7	70.0
18-23	7	20.6	25.0	79.0
More than 23	3	8.1	9.0	100.0
Total	300	100.0	100.0	
Level of Management	Frequency	Percent	Valid Percent	Cumulative Percent
Top level	107	29.0	35.7	35.7
Middle level	98	26.6	32.7	68.3
Lower level	95	25.7	31.7	100.0
Total	300	100.0	100.0	

Table 1.2: Zones of Haryana

Zone	Districts
Zone I	Ambala, Panchkula, Kaithal, Karnal, Kurukshetra, Yamunanagar
Zone II	Jind, Jhajjar, Panipat, Rohtak, Sonipat
Zone III	Bhiwani, Fatehabad, Hisar, Sirsa
Zone IV	Faridabad, Gurgaon, Mohindergarh, Rewari

Multi-Hazard Susceptibility Assessment in the Mountainous Regions Using Machine Learning Techniques: A Review

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Abstract

Mountainous regions of the world are sites of multiple and overlapping natural hazards that often lead to loss of life, property, and environment. An accurate and timely prediction and assessment of hazardous events can save lives and reduce economic losses in these regions. Multi-hazard susceptibility assessment of mountainous regions may provide holistic valuable insights for effective risk mitigation strategies for future disasters. Currently, Machine learning modeling techniques have enabled novel advances for multi-hazard susceptibility evaluation of natural hazards owing to the availability of the various types of data pertaining to earth observation from multiple sources. Though machine learning modeling techniques have been applied by researchers to provide multi-hazard susceptibility maps for the mountainous regions, building generalized learning techniques of susceptibility and risk evaluation is still a challenge due to the high level of complexity of hazards in these regions. This article contributes a systematic review of machine learning techniques applied by the researchers, especially in the past 10 years for multi-hazard susceptibility assessment in the mountainous regions with adequate contextual information.

Keywords: Multi-hazard, Machine Learning, Susceptibility, Mountainous Regions, Disaster Management

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1. Introduction

Climate change is upon the world and continued unsustainable practices by humans are paving the way to many imbalances. There is an increase in the frequency of natural extreme events worldwide causing great human and environmental losses (Barthel and Neumayer, 2012; Zschau, 2017; GAR, 2022). Over the last 20 years, medium to higher disasters have increased five times higher than disasters reported in the previous three decades and this rapid rise in the frequency of disasters can be attributed to climate change and inadequate risk management (GAR, 2022). Mountainous regions are highly hazardous and natural hazards strike the regions independently, simultaneously, or in a series of cascading events causing huge losses of life (Khatakho et al., 2021; Rusk et al., 2022). UNISDR (2015) report states that between 2005 and 2014, over 70% of the more than seven lac disaster-related deaths occurred in mountainous countries (Rusk et al., 2022). Further, the IPCC report's sixth assessment prediction proclaims multiple changes in many regions due to the changing climate and the incidence of compound hazards may increase multi-hazard risk in mountainous environments (IPCC, 2021).

Since it is difficult to predict coexisting multiple natural hazards, most of the previous studies have focused on assessing individual hazards (Pourghasemi et al., 2017; Javidan et al., 2021). These studies have also neglected the human impacts and the exposure component of natural hazards (Kalantari et al., 2019). Exposure pertains to the situation of people, housing, infrastructure, production capacities, and other tangible human assets located in hazard-prone areas (GAR, 2022). The exposure of communities to hazards can be reduced through an accurate predictive model based on expert analysis, a thorough understanding of influencing factors, and the implementation of mitigation and preparedness measures (Yousefi et al., 2020). Additionally, the effects of hazards can be minimized by adopting new approaches and providing data-driven support for decision-making processes (Michielsen et al., 2016). A wide range of methods namely Opinion driven models, physical-based models, statistical models, and ML models have been applied for hazard susceptibility mapping with advantages and limitations of each of these methods over the other methods (He Qian et al., 2021). Susceptibility is related to spatial aspects of hazard and refers probability of hazard incidences within a selected type during a given location (Azemeraw, 2021). Although single hazard assessments yield insights, they can also lead to ambiguous interactions

Unlocking Opportunities: A Data-Driven Study on Microfinance and Women Entrepreneurs in India's Small and Medium Enterprises

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Abstract: *In India, microfinance has been crucial in encouraging women to start their own businesses, particularly in the small and medium-sized business (SME) sector, where it is still difficult for them to have access to traditional financial institutions. By examining its effects on company expansion, financial independence, and general empowerment, this study seeks to evaluate the effects of microfinance on female entrepreneurs. Data has been gathered from a wide range of women-led SMEs in various Indian regions using a quantitative research methodology. The study looks into important topics such loan availability, microfinance money utilisation, financial literacy, business growth, and the socioeconomic advantages of entrepreneurship for women.*

The results indicate that microfinance plays a vital role in company growth by helping women launch and grow their businesses, which enhances financial security and creates more job opportunities. However, obstacles including exorbitant interest rates, pressure to repay loans, and a lack of financial literacy still prevent microfinance efforts from reaching their full potential. Furthermore, the study investigates how microfinance institutions (MFIs) and self-help groups (SHGs) promote financial inclusion and looks at how government regulations and assistance initiatives might increase their efficacy.

The purpose of this project is to test and examine the effects of microfinance, a crucial tool for female entrepreneurs. A "standard questionnaire," which was developed using a five-point interval scale, yielded a sample of 145 respondents.

Keywords: Microfinance, Women Entrepreneurship, Small and Medium Enterprises, Women Entrepreneurs

I. INTRODUCTION

Microfinance for female entrepreneurs is becoming a more effective instrument for creating jobs in rural areas in the current economy. Most financial services and microfinance programs have created a number of related services to reduce poverty and empower women in society. Amita Vijay, Pragya Kasana, Yogendra Jain (2021). Women entrepreneurs operate a large percentage of micro businesses in developing countries and make a substantial contribution to local economy. Rural women are typically mostly in charge of agricultural output in addition to caring for the home and the children. Dr. Ajay Sharma; Ms. Sapna Dua Mr. Vinod Hatwal (2012). In developing countries like India, where women's economic status is terrible, especially in rural areas, and there are few opportunities for earning money, Self Help Groups (SHGs) have enabled rural women to become economically independent. The microfinance program aims to increase the economic empowerment of poor women by providing financial services. It is expected that the program will break the cycle of "low investment - low income - low investment," which will enable low-income households to escape poverty. The current study shows, based on firsthand and secondary data, that although the microfinance program might have helped these women beyond their usual credit limits, it hasn't helped them get past project limitations Neha Shah (2009). In addition to playing a crucial role in their homes, women also make a substantial economic contribution to their communities. However, a number of obstacles have made it difficult for them to perform this role successfully, including as poverty, family responsibilities, unemployment, discrimination in society,



and insufficient income. Dr. Shalini Devi (2023). Micro finance is a relatively new phrase, with the word "micro" meaning "small," that deals with poverty alleviation concerns by giving money to businesses, primarily in rural areas, so they can raise their income levels and improve their quality of life. Self Help Groups (SHGs) are a crucial tool for offering a range of financial services and plans to women throughout India, where they dominate the microfinance market (Archana, 2013). The women of all over the world are actively participating in their local economy which is helping them to get a well-developed understanding of the specific markets and customers (Tien, et.al, 2019). The current study will be very helpful in understanding how small and medium-sized women entrepreneurs contribute to economic development and how microfinance contributes to the emergence of entrepreneurship. Through this, we will also talk about how the main goal of microfinance is to empower women, who historically haven't been able to engage in economic activities. In order to analyse the influence of both financial and non-financial services, this study explores the mediating role of microfinance services on the survival and expansion of female entrepreneurs (Akpan & Nneji, 2015).

II. LITERATURE REVIEW

Microfinance is the act of giving low-income and impoverished households and their microbusinesses a small range of loans as well as financial support in the form of deposits, loans, payment services, money transfers, or insurance (Singh & Yadav, 2012). Much research has been done in a number of areas to determine how microfinance affects women entrepreneurs running small and medium-sized businesses. This characteristic functions similarly to a development tool for reducing vulnerability and poverty. Despite this, one of the key elements influencing women's success in capital and financial services has been microfinance, particularly for small and medium-sized business owners. Women make up over half of the global population and are regarded as the superior members of our society. As a result, this encourages women's growth and small- and medium-sized business ownership among rural women. Through quick and noticeable results for many impoverished people, particularly women who are confined to their homes to conduct household chores, microfinance has also been a developmental instrument for reducing poverty in several countries (Sigalla & Carney, 2012). Small and medium-sized business owners now have more control over household decisions pertaining to resource allocation, savings, and investments thanks to access to microfinance, which specifically helps them live better lives and raise living standards. The days when women from all walks of life planned to die inside a chamber are long gone because, like their male counterparts, women are contributing to the economy and writing new tales of extraordinary success through their wit and hard work. They have started to venture into the very competitive realm of economic independence and entrepreneurship. The expansion of small and medium-sized business owners is essential for creating large job possibilities and has emerged as an exceptionally strong and vibrant sector of the Indian economy. These small and medium-sized business owners influence the economy by creating new jobs and money through the development of novel goods and services. India has at all times been a land of entrepreneurs and they have also inhabited a strategic position in the Indian economy (Kumar, 2014). Furthermore, microfinance supports these female entrepreneurs by providing loans to assist them hone their entrepreneurial abilities and launch their own microbusinesses (Swapna, 2017). By increasing their social power, it also helps them become more independent. These women are now seen as workers, shoppers, and entrepreneurs who will replace the global economy. These days, these microfinance initiatives play a significant role in producing high-level employment possibilities and revenue to support social well-being.

(Usman, & Tasmin, 2016). These financial services significantly improve the performance of firms owned and operated by women. They give these business owners the chance to make money and have a beneficial impact on their success. These women have achieved enormous success over the last two or three decades by leaving their mark in various spheres of life through their service in high-ranking public positions. By guaranteeing that they become financially independent by managing their own households, the nation authorises or permits an increasing number of women from the traditional or conventional level onwards (Nayak & Mahanta, 2012). In the rural and semi-rural areas of the overall economy, the burden of creating jobs for many rural women is largely being carried out by female-led small and medium-sized businesses. More importantly, though, they are using their own achievements to help and empower other women by giving themselves jobs, professional training, and basic financial literacy, among other things. With one



The Impact of Change Agents on HR Process Reengineering in the Service Industry of Delhi NCR

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Abstract: *This research paper dives into the pivotal role that change agents play in transforming Human Resource (HR) processes within the service industry of the Delhi National Capital Region (NCR). It examines how these change agents facilitate organizational transformation, the challenges they encounter, and the outcomes of their initiatives. By reviewing existing literature and analyzing regional case studies, the paper highlights the essential skills required for effective change management and offers recommendations on leveraging change agents to enhance HR functions in the service sector. In the rapidly evolving service sector of Delhi NCR, organizations are increasingly rethinking their HR processes to remain agile, efficient, and competitive. Change agents—individuals or teams who spearhead, manage, and sustain change within an organization—play a significant role in this transformation. This study investigates the impact and contributions of change agents in successfully revamping HR processes across various service industries, including hospitality, IT, and banking. Employing a mixed-methods research approach that combines surveys and in-depth interviews with HR professionals and management staff, the research uncovers how change agents facilitate smoother transitions, reduce employee resistance, foster innovation, and align HR strategies with organizational goals. The findings indicate that effective change agents are crucial to the success of HR redesigns, acting as catalysts for cultural and operational change. This paper offers valuable insights into the human elements of HR transformation and underscores the importance of leadership and strategic communication in the reengineering process within service-oriented organizations in the Delhi NCR region..*

Keywords: Change Agents, HR Process Reengineering, Service Industry, Delhi NCR, Organizational Change, Human Resource Management

I. INTRODUCTION

In today's fast-paced business environment, companies need to be agile to keep up with the competition. The service sector, particularly in vibrant regions like Delhi NCR, faces unique challenges that demand continuous adjustments to their internal processes. Human Resource (HR) departments play a vital role in this adaptation, often stepping up as change agents to spearhead efforts in refining these processes. This paper delves into the impact of these change agents on HR process reengineering within the service industry of Delhi NCR.

In our dynamic and competitive business landscape, the service industry has rapidly emerged as one of the most thriving sectors, especially in bustling areas like the Delhi National Capital Region (NCR). With the swift pace of globalization, technological advancements, and evolving customer expectations, companies must frequently reassess and revamp their internal processes to remain efficient and relevant. A key focus during these transformations is Human Resource (HR) management. Once primarily viewed as an administrative function, HR has now evolved into a crucial player in driving organizational success. One significant way to enhance HR functions is through HR process reengineering, which involves rethinking and redesigning HR processes to achieve substantial improvements in performance, costs, and service delivery.



However, implementing HR process reengineering goes beyond just technical adjustments; it also encompasses the human side of organizational change. This is where change agents come into play. Change agents are individuals or groups, whether from within the organization or external, who facilitate the change process by influencing, guiding, and supporting employees and stakeholders throughout the transformation. These change agents can be HR professionals, line managers, consultants, or even informal leaders who have the knack for promoting change by raising awareness, building commitment, and managing resistance. In the context of HR process reengineering, change agents are essential in bridging the gap between strategic goals and practical implementation.

The service industry, particularly in a bustling area like Delhi NCR, creates a unique backdrop for this kind of research. This region is home to a diverse range of service-oriented businesses, including hospitality, IT services, retail, healthcare, banking, and education. These sectors thrive on employee interactions, rely heavily on customer engagement, and must adapt quickly to shifting business demands. This dynamic environment calls for HR practices that are both flexible and responsive. Moreover, the rich demographic and cultural diversity of the workforce in this area adds another layer of complexity to any change initiatives. Therefore, it's crucial to understand how change agents function in such a vibrant setting and their impact on HR process reengineering, which is fascinating for both practical applications and academic exploration.

The concept of process reengineering isn't exactly new. It was brought to light in the 1990s by Michael Hammer and James Champy, who emphasized the need to rethink work processes to better align with an organization's objectives and reduce costs. When we apply this idea to HR, it means taking a fresh look at everything from hiring and onboarding to performance management and employee engagement. However, many organizations find it challenging to meet their reengineering goals due to resistance to change, ineffective communication, or weak leadership during the transition. This is where change agents come into play. They act as facilitators, motivators, and problem solvers throughout the reengineering journey.

Despite the growing importance of HR process reengineering and change agents, there's a noticeable gap in research regarding their connection, especially within India's service sector.

Most existing studies tend to either take a broad view of organizational change or focus on the technological aspects of HR transformation, often overlooking the human elements at play. There's a scarcity of research that specifically investigates how change agents can either support or obstruct HR process reengineering efforts, particularly in the Delhi NCR region and its various sectors.

This study is set to fill a gap by exploring how change agents influence HR process reengineering within the service industry of Delhi NCR. It aims to delve into the roles these change agents play, the strategies they employ, the challenges they face, and the outcomes they achieve. By doing so, this research will provide valuable insights for HR professionals, change managers, and organizational leaders who are looking to navigate the complexities of HR transformation in a rapidly evolving service-driven economy.

II. LITERATURE REVIEW

Introduction to Change Agents in HR Process Reengineering

Change agents play a crucial role in driving transformation within organizations, particularly in HR process reengineering. They facilitate change by aligning HR practices with business strategies, implementing technological advancements, and overcoming resistance to change (Ulrich, 1997). In the service industry of Delhi NCR, where competition and customer expectations are high, HR process reengineering is essential for organizational success.

The Role of HR as Change Agents

HR professionals act as change agents by ensuring smooth transitions during organizational transformations. They help in redesigning HR processes, adopting digital solutions, and managing workforce adaptation (Kumar & Kumar, 2018).

- Strategic Partner Role: HR is no longer just an administrative function but a strategic partner in business growth (Beer et al., 2015).
- Employee Advocacy and Engagement: HR professionals facilitate employee engagement, ensuring a positive organizational culture during change (Sharma & Kaur, 2020).



Effectiveness of Random Forest Model for Flash Flood Susceptibility in the Himalayan Region

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ABSTRACT

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Machine learning (ML) approach is being increasingly recognized as vital tool for disaster risk reduction owing to its ability to address both the scale and the impact of a disaster. Risk of flash floods is currently a major problem across the Himalayan region. In present study we evaluated effectiveness of Random Forest (RF) model for flash flood susceptibility, based on real-world data in the Indian Central Himalaya Region (ICHR), where recurrent flash floods are being experienced every year. A geospatial dataset including 200 flash flood locations and eight conditioning factors namely elevation, slope, aspect, profile curvature, distance from river, annual rainfall, land use land cover (LULC) and lithology was used for performance evaluation of Random Forest model for flash flood susceptibility assessment. The effectiveness of the model is evaluated using area under the ROC curve (0.922), accuracy (0.925), precision (0.903), recall (0.921) and F-score (0.911) metrics. The results show that random forest could be an effective tool for flash flood susceptibility assessment in the Indian Central Himalayan Region. Furthermore, by considering optimum conditioning factors based on topographical, geological and hydrological conditions, the model can be used by managers and planners for flash flood management and sustainable conservation of the human society in the other Himalayan regions.

Keywords: Ensemble machine learning, Geospatial dataset, Conditioning Factors, Mountainous Region

1. INTRODUCTION

Flash flooding, a specific type of flooding that occurs when large amount of water is discharged within a few minutes or hours (three to six hours) of excessive rain fall, the collapse of natural ice or dam failure (Wang et al., 2019) is responsible for more than 5000 deaths annually on global basis (Modrick & Georgakakos 2015). Flash floods strike Himalayan Region, predominantly during monsoon period resulting in huge loss of life, property, environment, infrastructure, agriculture land and other facilities (NIDM, 2015). One of the major flash floods incidences of the region on 16-17 June 2013 resulted in a major tragedy in which human death toll surpassed 4000 and was a major setback for the economy of the region (Rautela, 2016). Flash floods of the region are often associated with cloudbursts, landslide dam outbursts and glacial lake outbursts. Flash flood susceptibility assessment is essential for mitigation measures and risk management strategies to reduce future losses (Youssef et al., 2016). Flood susceptibility is qualitative or quantitative assessment delineating spatial distribution of the probability of likely flood events in the region (Rehaman et al., 2019). It measures the likelihood of future flood events depending on the meteorological conditions (Quinn et al., 2011).

With continuous development of geographic information system (GIS) and machine learning (ML) approach, researchers have been applying different Machine Learning models for flash flood susceptibility in mountainous regions of the world. Also, few studies have been conducted by researchers in the ICHR using ML techniques. Singh and Pandey (2022) applied weighted sum approach (WSA), principal component analysis (PCA) and integrated

approach (IA) for morphometric characterization and subsequent sub-watersheds vulnerability zonation in the upper Ganga catchment area of ICHR. Using hydrologic and demographic data, Vishwanath and Tomaszewski (2018) have employed analytical hierarchy process for flash flood hazard, vulnerability and risk assessment in the region. Rana and Mahanta (2022) have applied ensemble approaches to bivariate statistical model and machine learning techniques such as artificial neural network, support vector machine and K- nearest neighbor models for flash flood susceptibility modeling in the region. Sachdeva et al. (2017) used SVM and particle swarm optimization ML techniques for flood susceptibility assessment in Chamoli district of Uttarakhand. In present study effectiveness of ensemble ML algorithm Random Forest is assessed for flash flood susceptibility assessment in the ICHR. Random Forest algorithm is chosen for modeling as it is a versatile and powerful machine learning algorithm with a number of advantages; ability to learn non-linear decision boundary, high accuracy, flexibility and robustness, feature importance, Scalability and parallel processing.

2. STUDY AREA

Indian Central Himalayan Region located between $28^{\circ} 44' - 31^{\circ} 28' N$ latitude and $77^{\circ} 35' - 81^{\circ} 01'E$ longitudes, includes 320 km long stretch of mountains between Tons-Pabbar valleys forming the eastern border of the Himachal Pradesh in the west and Kali River forming Indo-Nepal border in the east (Figure 1). It covers 53,483 Sq. km area of Uttarakhand state and is also known as Uttarakhand Himalaya. The region having 93% mountainous region comprises of two distinct geographical entities namely Garhwal and Kumaon Himalayas with 13 districts, 78 tehsils and 95 community development blocks. The population of the region is 101 million as per 2011 census. The region shares boundary with Indian state of Himanchal Pradesh in NW, Utter Pradesh in SW and a short boundary with Haryana in west. It is bordered by autonomous region of Tibet (China) in North and by Nepal in East. Topographically the region is characterized by glaciers, large number of perennial rivers, rugged mountainous terrain and dense forests. The region is birth place of several perennial rivers and is dominated by three river systems; The Ganga System, Yamuna-Tons River System and Kali River System. Tectonically the region is delineated by Main Central Thrust (MCT), Main Boundary Fault (MBT) and Main Frontal Thrust (MFT) dividing it into Great Himalaya, Lesser Himalaya and Outer Himalaya. The elevation of the region varies between 300 to 8000 meters. The region is covered by evergreen forests (68.4%), and mountains (85%) (Bhambri et al., 2016). The region is conferred with relatively average annual rainfall of 1229 mm² and average temperature of the region varies from 1.7°C to 42°C (NIDM, 2015).

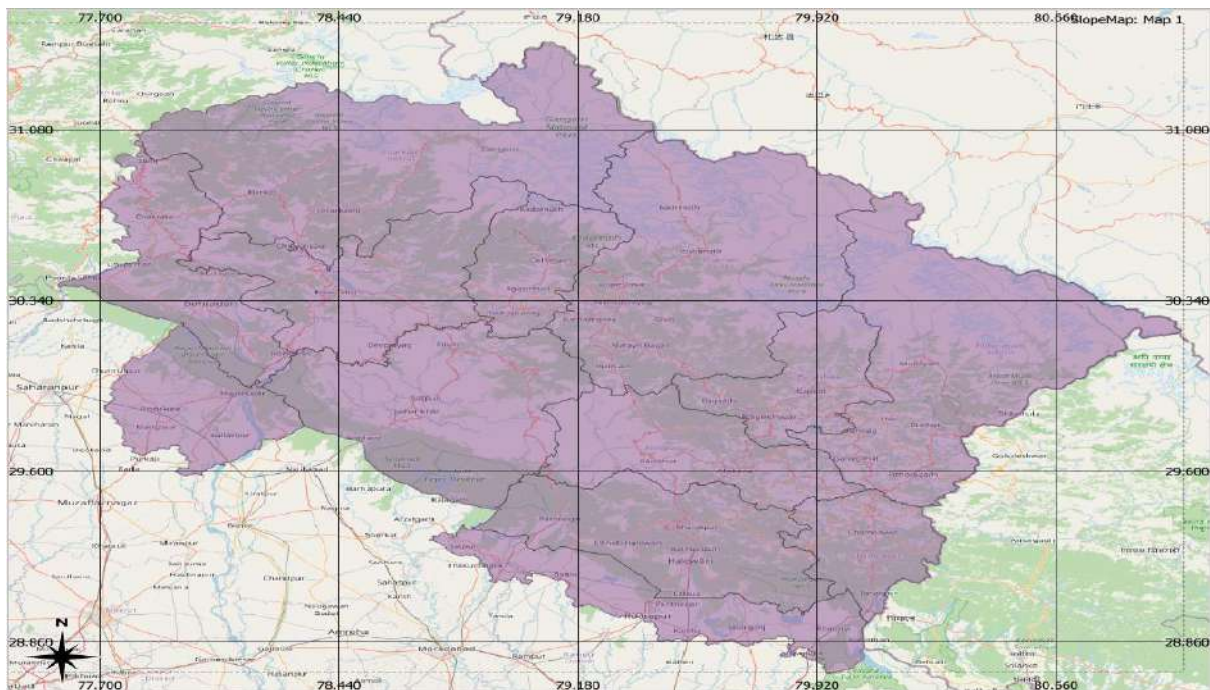


Figure 1. Location map of study area

Automated Grading and Feedback Systems for Programming in Higher Education Using Machine Learning.

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ABSTRACT:

Evaluating programming tasks in higher education is difficult, sometimes characterised by inconsistency and insufficient feedback, hence constraining student development. This study introduces an automated grading and feedback system powered by machine learning to tackle these difficulties. The system utilises supervised learning to forecast grades with 98.5% precision, including test case analysis, structural validation, and natural language processing for feedback production. The suggested methodology offers enhanced precision (97.8%) and recall (98.3%) relative to existing methods, guaranteeing grading accuracy and constructive feedback. The results indicate its efficacy in managing extensive submissions with minimal interruption, providing scalability and stability. The research considerably improves the grading process in higher education by mitigating the drawbacks of previous techniques, including prejudice and inefficiency, hence promoting superior learning results. Future initiatives involve enhancing support for multi-language programming and improving feedback mechanisms to provide

adaptation across various educational environments.

Keywords: Automated grading, Feedback generation, Supervised Learning, Natural Language Processing, AI-based grading systems, Deep Learning, Code Feedback systems.

I.INTRODUCTION

Assessing programming assignments is an important yet resource-demanding section of computer science education, frequently limited by subjectivity and inefficiency. The rapid increase in student enrolment has intensified pressure on conventional grading methods, highlighting the necessity for automated solutions. This study deals with these issues by developing a machine learning system that automates the grading and feedback process for programming assignments. The system utilises supervised learning for grading and natural language processing for feedback, ensuring consistent, accurate, and rapid evaluation. This method improves learning outcomes, decreases teacher workload, and fosters a scalable, equitable, and efficient grading process by transcending the constraints of manual grading. Automated feedback systems [1] improve education by delivering individualised, data-informed feedback. Research indicates distribution across several domains and applications, underscoring the necessity for integrated frameworks and more individualised, student-centric solutions. No specific measurements were supplied for evaluating system efficacy. The automated evaluation of paper-based examinations [2] provides efficiency and equality. A system attained a 99.89% success rate for multiple-choice responses and a 95.40% success rate for short replies. The study's generalisability to other question forms is limited, which can be addressed by enhancing AI evaluation skills. CODE, an automated grading system [3], was beneficial in programming classes, resulting in improved learning outcomes from 3,300 student submissions. Limitations encompass difficulties in first usage and diverse programming competence, in contrast to systems that dynamically adjust to user requirements and competence. Computer vision-based grading systems [4] enhance efficiency in agricultural post-production activities. Despite progress, obstacles remain in precision and scalability. This is different from AI grading systems that can manage diverse datasets and provide uniform performance across applications. GRAD-AI utilises artificial intelligence to deliver precise and prompt feedback for programming projects, including techniques such as TF-IDF and K-means clustering [5]. Strengths included real-time feedback and gap detection, although scalability and adaptation to other areas are still insufficiently examined. Automated assessment of class diagrams guarantees equity and uniformity [6]. Results underscored the necessity of tailoring grading methodologies to student proficiency and integrating alternative solutions. Challenges in integrating many models differ between AI systems employing dynamic clustering for varied solutions. AI-driven grading methods for open book examinations [7] demonstrate significant consistency with human evaluation, improving objectivity and efficiency. However, scalability across different examination formats and adaption to various educational frameworks remains inadequately investigated, requiring more enhancement. Automated text-based grading systems [8] utilising NLP and machine learning concentrate on essay evaluations, showcasing rapid and efficient evaluation. The research fails to investigate adaptive grading for various question kinds and its wider educational scalability. Automated short answer grading systems [9] utilise machine learning for accurate and quick assessment, crucial for MOOCs. Limitations encompass dataset standardisation and inadequate personalisation, in contrast to more flexible, scalable systems that respond to diverse student requirements. Deep learning models [10] attain equal accuracy across users in evaluating histological images, facilitating automation in experimental research. Still, problems encompass domain-specific applicability and inadequate study of cross-domain scalability, highlighting the necessity for enhanced model adaptability. Automated peer

assessment grading systems with reliability detection [11] improve data quality and precision (0.89 accuracy). Still, the capacity to adapt to smaller datasets and varied educational environments

Predictive Stress Management for Employees Using Cloud Computing and Machine Learning

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ABSTRACT:

Currently, workplace stress is a prevalent occurrence among employees in organisations. Management must assess the mental state and physical capabilities of personnel prior to task assignment. The constantly evolving demands of the operational environment might elevate stress levels, particularly for individuals who continually operate under pressure. While pressure can enhance performance, excessive pressure may induce stress, adversely affecting the workforce. Workplace stress is an escalating issue within businesses, as it adversely impacts both employees' professional and familial lives. Work stress denotes the pressure or tension individuals experience in their lives. This is seen as a significant factor affecting organisational welfare and personnel health. It influences employee behaviour in organisations. It significantly influences employee motivation and satisfaction. Employee productivity and the overall productivity of the company are influenced by stress and motivation levels. Occupational stress induces a range of psychological issues, including anger, despair, anxiety, impatience, and tension. These factors significantly influence employee motivation.

Keywords— Cloud Computing (CC), Stress Management (SM), Deep Neural Network (DNN), Artificial Neural Network (ANN), Machine Learning (ML), Decision Tree (DT).

I. INTRODUCTION

In contrast to reactive approaches, this innovative approach to stress management is proactive and evidence-based. In this paper, we present a novel approach to stress management prediction modeling using cloud computing. Because of the increasing demands put on stress personnel, there is a pressing need to monitor and support their mental health. Our technology integrates data from multiple sources, including surveys, social media, EHRs, and wearable's, and stores it for study. Maintaining workforce stability and organizational effectiveness requires accurate predictions of staff turnover in high-stress sectors. Targeted actions to improve employee retention are made possible by the valuable predictive insights provided by ML applications [1]. To reduce the likelihood of employee turnover, it is crucial to address job pressures, enhance working environment, and encourage strong relationships among coworkers. Integrating advanced predictive models and thorough retention strategies will be critical for organizations to retain performance as high-stress sectors continue to grow. There is a correlation between the high stress levels in some industries and higher turnover rates, which in turn can have a detrimental impact on service delivery and operations. For instance, because of the tremendous expectations placed on medical experts, the healthcare sector often faces high turnover rates.

Employees in the banking sector, which is notorious for its high-pressure atmosphere, also leave in droves. Because of its widespread use and creative applications, cloud computing is quickly becoming an essential component of the education community [2]. Using TAM as a theoretical foundation, this research theorizes students' stress performance is enhanced by the adoption of cloud computing, focusing on their personal qualities and the stress management paradigm. With cloud computing, students may work together in a virtual classroom, exchange and access course materials, and communicate with one another and their instructors in real time all from anywhere with an internet connection [3]. Consequently, the academic achievement of students may be impacted by such activities. By utilizing a shared pool of configurable computing resources (such as networks, servers, storage, applications, and services), which can be quickly provisioned and released with minimal management effort or interaction with service providers, cloud computing allows users to conveniently access these resources on demand [4]. With its five core features, three service models, and four deployment options, this cloud model prioritizes availability. An economic advantage that reduces costs for current applications is the primary motivator for this broad adoption. Cost savings, scalability, and flexibility, access to pooled resources, and automatic updates and upgrades are all benefits that organizations can reap from cloud computing. However, cloud computing is not without its share of possible hazards and challenges, including but not limited to: security, performance, subscription model costs that are higher than on-premise implementation, integration difficulties with on-premise applications, limited customization options, and so on.

II. LITERATURE SURVEY

Organizations may analyze complicated data sets, identify early symptoms of burnout, and prescribe targeted solutions with the help of ML which offers a powerful toolkit for predictive stress management. Data such as work schedules, communication patterns, productivity indicators, and sentiment analysis from employee feedback can be processed by ML algorithms [5]. This allows organizations to acquire actionable insights for workload optimization. Another benefit ML its ability to monitor and adapt in real-time, which helps to address potential stressors before they get worse [6]. The art of recognizing and addressing uncomfortable emotions, dissatisfaction, or disinterest in conversation. To better understand how stressed out employees are NLP methods can categories their attitudes. There are both immediate and long-term expenses associated with resignations, such as advertising for new hires and replacing departing workers with less

Robust Color Image Watermarking Using Denoising Autoencoders: A Novel Approach for Digital Rights Management

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Abstract

In this paper, a unique method for colour image watermarking through Denoising Autoencoders (DAEs) is proposed. In this paper, we propose a deep learning-based watermarking solution to enable secure embedding and extraction of watermarks in colour images that achieves robustness against image quality preservation attack. Our approach employs a specially designed DAE structure to acquire lossy embedding and extraction that is both imperceptible and robust, respectively. We conduct extensive experiments with a large dataset containing 5000 diverse colour images to show the superiority of our method over traditional watermarking techniques and other deep learning-based approaches. Experimental results prove that the proposed scheme has a superior robustness in parallel with common image processing and geometric attacks, rendering it suitable for real-world DRM applications.

1. Introduction

The digital era has created a huge problem for our generation by making it difficult to protect intellectual property against content producers and media companies. In order to solve these problems, digital watermarking has grown as an indispensable method for hiding identifying information in multimedia content without the possibility of complete elimination or modification [1]. Of all the styles of advertising materials, digital colour images pose a special problem for watermarking since discernment and response to distortions in colours are essentially higher than those to other kinds of changes [2].

Conventional watermarking approaches in general have suffered from the basic trade-offs among three critical factors: imperceptibility, robustness and capacity [3]. Imperceptibility — the watermark is to be made undetectable by a human eye, image quality of host cover should not decrease against non-watermarked images. The robustness of a watermark refers to how resilient the watermark is against myriad types of manipulation or attacks (e.g. compression, filtering, and geometric transformation). Capacity: Capacity describes the information that can be hidden into host image. It has been a long-standing challenge in the area of digital watermarking to balance these often-conflicting requirements.

To solve these challenges, many methods have been proposed during the years. Despite their simplicity, spatial domain techniques (e.g. Least Significant Bit modification [4]) lack robustness. The transform domain approaches like discrete cosine transformation (DCT) based [5], and discrete wavelet transformation (DWT) based methods [6] as well have proven enhancement in the robustness but might sometimes offer lesser imperceptibility or capacity reductions on cost. However, the increasing complexity of attacks and the desire for better watermarking have required a fresh look at this domain.

In the recent past, digital watermarking has emerged into newer dimensions thanks to deep learning in image processing and computer vision. Convolutional Neural Networks (CNNs) are a powerful tool to learn hierarchical representations of patterns and structures in images [2]. Based on this, CNN-based watermarking schemes have been designed to

automatically learn the embedding and extraction functions for optimal performance [9]. GANs, such as Generative Adversarial Network (GAN) [10], has had the most recent success in generating visually imperceptible watermarks. Existing watermark embedding methods are unfortunately not effective for the complex colour image watermarks as maintaining both visual perception of colours and robustness against attacks is a nontrivial task convincing many systems.

Denoising autoencoders (DAEs) are arguably one of the most successful deep learning architectures for image representation [11]. DAEs were first introduced to image denoising, and it has since shown a unexpectedly high capacity for automatic learning important features of images with auto-encoders being resistant against various kinds of noise/corruption. Since DAEs are built to preserve information, they serve as a fantastic candidate for watermarks — hiding some sort of data in the input that is hopefully sensibly-resistant to various types of distortion.

This article improves upon these advancements and introduces a new colour image watermarking algorithm based on the use of denoising autoencoders. In this paper, we work to compensate the aforementioned drawback where current methods either suffers imperceptibility, robustness or capacity by providing a solution that yields better trade-off in between. This algorithm uses a DAE architecture designed for the task of colour image watermarking. We designed an end-to-end architecture to learn appropriate embedding and extraction functions, so that they have capability in the complex domain of colour images.

The major contributions of the paper are:

1. A novel deep autoencoder design targeted for colour image watermarking: We propose an original architecture that can appropriately model the complexity of colour information yet retain the generalizability nature from using DAEs. The architecture learns to embed watermarks so as to withstand a variety of attacks while ensuring that the visual quality of the host image is preserved.
2. A mathematical account of embedding and extraction processes we propose: We describe a principled foundation supporting our method which reveals some intuition behind the operation of our watermarking scheme. This encompassed the encode and decode, watermark embed and extract blocks.
3. Dynamic Loss Function for Imperceptible, Robust Digital Watermarking: A novel loss function in which imperceptibility will be a direct opposition to robustness and the capacity of watermark. Our approach is adaptive, which enables our model to perform well on different types of images and watermarks by adjusting its behaviour for the processed input.

Empirical Experiments on a Big Dataset of 5000 colour images: To justify the work, we perform an extensive experimentation on wide and large dataset with different nature to specific characteristics. Extensive experimental results show the effectiveness of our approach on multiple metrics and attack scenarios compared to the existing methods.

In this section, we first discuss the traditional methods for watermarking, followed by deep learning-based approaches and backgrounds regarding denoising autoencoders. In Sec 3, we detail our proposed approach which consists of the architecture and embedding procedures (Section A), loss functions (Section B), training procedure (Section C). Experimental setup performed for the results as well as analysis of these outputs are described in Section 4, with our technique compared against state-of-the-art techniques across multiple performance metrics. The last section (Section 5) closes the paper with a reprint of our central ideas and by pointing out possible new research avenues.

2. Related Work

The field of digital image watermarking has grown considerably in the past few decades, with various approaches investigated by researchers to tackle the imperceptibility, robustness, and capacity issues. This section describes the related work, offering a comprehensive review, including traditional watermarking techniques, deep learning approaches, and the building blocks of denoising autoencoders.