Decade Wise Evolution of HR Digitization and its effect on Work Culture: A Comprehensive Analysis

Surbhi Suman[1], Dr. Md. Alamgir[2]

[1]Research Scholar, Department of Applied Economics and Commerce, Patna University
[2]Associate Professor, Department of Applied Economics and Commerce, Patna University

ABSTRACT

The term Digitization refers to the procedures for converting something into digital form. For example when a document in paper form is transformed in a digital document with the use of technology can be referred to as Digitization. In business context, Digital transformation is referred to as adaptation of digital technology, a digital work culture or a digital workplace. Human Resource (HR) Digitization is known as the most pivotal transformation impacting organizations and has evolved over the passing years. The HR Digitization has lead to dynamic shifts in the work culture pattern of the organization. Human Resources (HR) has undergone tremendous transformation due to advancements in digital technology over the past decades. The aim of this study is to analyse the transformation and evolution phases of HR Digitization along with its impact on work culture over the years. The evolution of HR Digitization is studied in distinct phases, each phase comprises of the characteristics of specifiying technological developments and their effects on the work culture. The research methodology adopted for the study is based on the comprehensive analysis of previous published journals, articles and online sources. The transformation phases of HR digitization over the years have been driven by important technological developments that have re shaped the work culture of the organisation over the years. Since there are substantial benefits of HR Digitization, efforts are essentially required in order to address the challenges and ensure that digitization leads to improvement and development rather than acting as distracting medium for humans in their aspects of work culture.

Keywords: Human Resource (HR) Digitization, Digitization, Work Culture, Human Resources, Transformation, Evolution

INTRODUCTION

"Technology is nothing.
 What's important is that you have faith in People,
 That they are basically good & smart, and if you give them Tools,
 *They'll do wonderful things with them."- Steve Jobs.*

The Human Resources (HR) Digitization evolution journey reflects the rapid growth of technology and the rapid combination of technology and workforce into the workplace. From the early days of basic computerised record keeping to the well-developed era, AI enabled systems of present day, HR

Digitization has been continuously moulding the ways in which organisations have been managing their most valuable resources i.e., their people working in the organisation.

The term Digitization refers to the creation of digital illustration of material objects or variables. Digitization is the foundation, as it represents the connection between the real world and the software. Since the year 1960s, this has been into practice. Currently HR Digitization is governing the human resources as a whole, which is mostly dependent on the developments observed in data collection and analysis and also various other technological advancements.

The year of 1990s known as the beginning era of personal computers and the early stage of HR Software marked the start of the period of digital transformation in HR. The era of 1990s is known to observe the change from manual, file and paper based processes to the more developed digital systems, building the foundation for innovations in future. With the passage of time as the technology advancement took place, the era of 2000s can be said to be bringing about the development of Comprehensive Human Resource Management Systems (HRMS), combining the various functions of HR into one unified platform and moreover introducing the self-service potentialities of employees.

Similarly, the era of 2010s can be said to certify the rise of cloud computing and mobile HR solutions, presenting unwanted flexibility and accessibility. The emergence of data analytics, enabling HR professionals was also observed in this decade to take data driven decisions and gain deep insights into the dynamics of workforce. The era of 2020s saw the combination of Artificial Intelligence (AI), automation and people analytics which began revolutionising the practices of HR, making the processes more efficient and customised.

Source: https://media.licdn.com/dms/image/v2
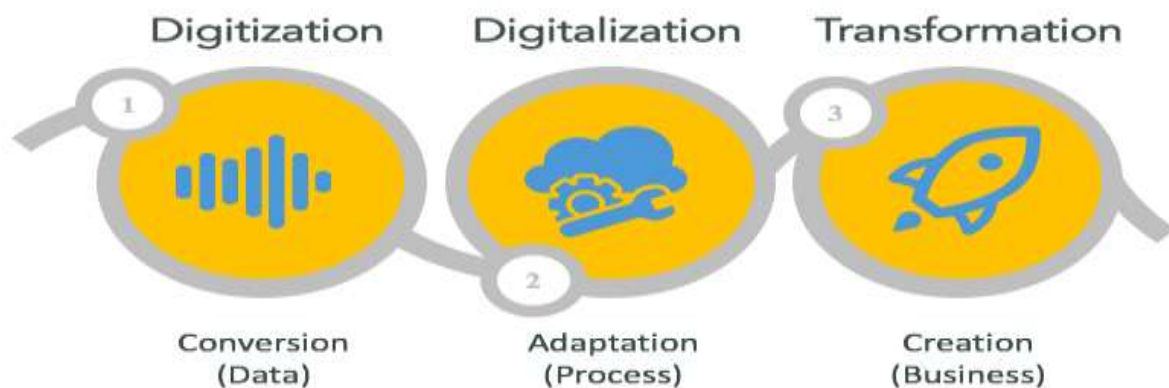
The decade wise transformation of HR Digitization over the years, have most importantly affected the work culture of the organisation. HR Digitization have transformed traditional HR roles, employees were empowered with self-service tools and facilitated a shift towards strategic HR management. The increasing dependency of human resources on technology has brought challenges with it in terms of ensuring data security, management of ethics and maintaining a balance between automation and human intelligence.

The future of the ongoing HR digitization evolution ensures that there will be availability of much more advanced technologies, such as Virtual Reality (VR), Augmented Reality (AR) and block chain, that further redefines the whole of HR landscape. The continuous interaction between the technology and

human resource management will help in creation of the work culture which is more dynamic, inclusive and responsive to the needs of both employees and organisations as well.

The study is focused on the analysis of evolutionary phases of HR Digitization over the years from the period of 1990s to 2020s. The paper will give an idea about the journey and development of technology over the years and how these technological advancements have impacted the organization's work culture of that specific era.

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LITERATURE REVIEW

(Ardelin, 2020) Mentioned in his study that Third Industrial Revolution is also known as "Digital Revolution" which marks the transformation from mechanical and analogue technology to digital technology form.

(Aggarwal, 2017) Suggested that the other half of 20th century, the transformation from analogue to digital form began with the widespread adaptation of digital computers along with digital record keeping system which continues to give the shape to the present world. The HR Technology implementation in the organizations is considered to be one of the most important factors of adopting the Digitization mode at workplace.

(Ale Ebrahim, 2009) In his study mentioned the meaning of Digitalization that represents the use of digital form of technologies which transforms and changes the models of business, helps in the creation of revenue opportunities and offers possibilities that adds value. As the progress is observed in the process of digitalization, the change in methods and tools is observed in HR work processes which ultimately results in creating the combination of technology and data in order to improve the efficiency and automation part. The transformation of Human Resource Management by addition of new digital knowledge and change the process of doing work is made possible through information and communication technology (ICT) which is the result of the introduction of digital tools. In order to implement the digital technology efficiently, there is the requirement of finding out the gaps in skills requirements of personnel, the identified gaps shall be addressed by providing the requisite training in order to make sure that employees are willing and well prepared to adopt the new technologies at workplace. The required transformation among employees can be developed with inheriting and developing the digital skills that adds to the value addition of both individuals and the organisations as a whole the era of digitization.

(Saragih, 2015) Suggested that the transformation in Human Resource (HR) can be observed as the technological advancements have enabled the creation of virtual teams that has made possible for them to work across the geographical boundaries and beyond the regular fixed working hours. The developments in the technological tools have connected the individuals not only under one roof traditionally at workplace but we can say under one network which leads to the formation of teams virtually that can accomplish the task from distinct locations by forming the teams virtually and working together with the help of technological advancements.

(Galgali, 2017) In his study, he suggested that the digital advancement and collaboration have made remote work possible and also the formation of virtual teams. The virtual teams can easily access the required information, interact and can communicate in the digital world efficiently. In this era of Digitization, the technological adaptation has been made by the human resources, human resources are digitally skilled so that they can perform their work with the execution of innovative ideas, knowledge sharing and work with collaboration as a team. The digitally connected teams enable the employees to feel

a sense of freedom and self satisfaction that leads to increase in productivity and efficiency and skill improvement.

(Ale Ebrahim, 2009) In his study suggested that the term Digital Transformation involves the shift in the work culture with the advancement of technology, which requires organizations to maintain transparency and maintain clarity about the ongoing processes in order to gain the loyalty and trustworthiness of employees.

(Aggarwal, 2017) In his study recommended that the digital technology have provided benefits to all the departments which includes Human Resource Management in any organization. The Digitization of Human Resources will result in the transformation and overcoming various other obstacles of the work culture, reduction of manual work, and also enables the self operated information by employees.

(Ardelin, 2020) Suggested that the term Digitalization leads to necessary recommended changes in the functions of HR, demanding the expertise in digital skills to be in parallel with the age of Digitization. The transformation of human resources into digital human resource management can renovate, redesign and improve the organizational performance which enhances digital competency and increased output.

RESEARCH OBJECTIVES

The various objectives of this study are as follows:

- To analyse the decade wise evolution and development of HR Digitization from the year 1950s to current period.
- To observe the changes in work culture due to transformation and development of HR Digitization in each specific era.
- To identify the key achievements in each decade by the development of HR Digitization.

RESEARCH METHODOLOGY

The research methodology adopted to conduct the study of decade wise evolution of HR Digitization and its respective effect on work culture is entirely based on secondary data. The sources of secondary data will be published journals, research articles and previous papers and online sources.

COMPREHENSIVE ANALYSIS OF DECADE WISE EVOLUTION OF HR DIGITIZATION AND WORK CULTURE

The Human Resource world has undergone and is undergoing rapid developments and transformations due to the advent and advancement of technology over the past few decades. There are tremendous changes that can be observed in the work culture of the organisation due to the advancement of HR Digitisation over the past years. Each and every digital development has transformed the aspects of Human Resources, which is termed as HR Digitization over the years bringing the transformation in the work culture practices of the organization. The study comprehensively analyses the decade wise evolution of HR Digitization under five distinct stages representing the developments in the Digital Human Resources of the organization and its respective effects on the work culture scenario of the decades.

Table Showing Stages of Evolution of HR Digitization

EVOLUTION STAGES OF HR DIGITIZATION	
STAGES OF EVOLUTION	**NAME OF THE PHASE**

STAGE I	**Pre 1990s** - Era of Introduction of Computerised Systems
STAGE II	**1990s** - Era of Inception of World Wide Web and ERPs
STAGE III	**2000s** - Era of Intranet and Employee Support
STAGE IV	**2010s** - HR Portals and Live Chat Era
STAGE V	**2020s** - Era of Chat bots and Advances in Artificial Intelligence.

Source: (Self - generated)

STAGE I: PRE 1990s: ERA OF INTRODUCTION OF COMPUTERISED SYSTEMS

Since the arrival of Computerised Systems until 1970s, Human Resources were entirely paper based. In order to send the essential documents from one place to another, availability of one and only option was there: delivering it manually, is it either by courier or the postal services. In the year 1980, the fax machine was used in the mainstream office sector with the introduction for international standard that shall make it successful. The tremendous advancement of that time was considered as sending the facsimile from one machine to another, which might seem outdated idea for the time now. The advent of fax machines at workplace was one of the technological advancement at that time where we can say that digitization era began with the conversion of manual form of data into analogue form. Another mark able year of the decade was 1987, where the major development was observed in the ERP world with the introduction of PeopleSoft known to be the first ever Purpose built HR Management System. In the early 1990s, fax machines was quickly replaced by other several competitors that covers the functions of Human Resources, the basic functions of Human Resources was fully executed and covered by technological innovation and beginning of digitization evolution and there was no looking back.

Source: https://www.collegesearch.in/articles/history-of-computer

Key Achievements before 1990s:

- 1964 – LDX (Long Distance Xerography) was introduced by Xerox Corporation, which was widely considered as the first ever modern commercial fax machine.
- 1971 – Ray Tomlinson invented the Electronic mail.
- 1980 – In Japan an international standard for fax machines was established, prompting their adoption at wider level.
- 1987 – PeopleSoft, a purpose built management system of HR was introduced.

Effects on Work Culture:

The key effects of the HR Digitization on the work culture of organizations in the pre 1990s era are as follows:

- There was significant shift in the work culture of the organizations with the introduction of computerised system impacting automation and efficiency where it was observed increased level of efficiency.
- Computerised system enabled the adoption of enhanced communication and information management system of the organization.
- There was evolution in the job roles of the employees where the new system required new job roles with specific skill sets.
- There was a cultural shift noticed during this era as it demanded innovation and adaptation of computerised systems as organizations had to adapt to rapidly evolving technologies.

STAGE II: 1990s – ERA OF INCEPTION OF WORLD WIDE WEB AND ERPs.

Source: https://www.google.com/url

The advent of World Wide Web can be named as the wonderful network that enabled the computer system of all over the world to interact with each other creating a way for globalisation and the digital HR landscape that we are aware of today. If we talk about Human Resources, the websites transformed the recruitment landscape as it expanded the talent pool where applicants from across every corner could be attracted and recruited for the required post. There were no restrictions of Emails to internal networks but the websites enabled that the messages could reach to wide level. The interpersonal communication was made more flexible and easy accessible.

Key Achievements Of 1990s:

- 1991 – Among general public the world wide web was released
- 1993 – The National Centre for Supercomputing, Applications developed the Mosaic web browser.
- 1994 – The foremost and first ever database for online job searching was established by Monster.
- 1996 – Intranet Genie was released by Frontier Technologies known to be a bundle of applications for the creation of intranets.
- 1998 – Application Tracking Systems (ATS) enabled the pre – determined criteria to filter.
- 1999 – Worldwide, the internet has got 400 million users.

Effects on Work Culture :

The key effects with the release of World Wide Web on the work culture of employees in the era of 1990s are as follows:

- The World Wide Web release among the general public enhanced the communication and collaboration by providing global connectivity via Email and Instant Information Sharing.
- There was easy accessibility to information and enhanced knowledge management promoting the culture of research and development among employees by providing platform of online learning
- There was promotion of transparency and openness as employees has got greater information access and availability of feedback mechanism tools fostering more participative and inclusive work climate.

STAGE III: 2000s: INTRANET AND EMPLOYEE SUPPORT ERA

Source: https://media.licdn.com/dms/image/v2/
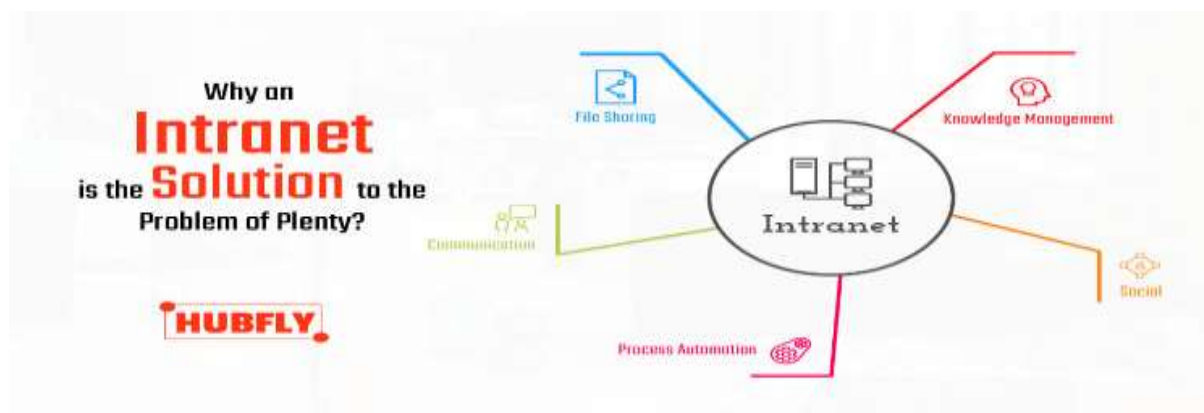
In the early 2000s, Internet was considered to be a wonderful medium for the interaction with the external stakeholders but it was really not in use for the purpose of internal communication. In order to make internal communication flexible, there was introduction of Intranet. This intranet enabled internal users of the organisations to share the more focused information i.e., company news, structural changes internally, and announcement of various important information.

Key Achievements of 2000s

- 2000 – Employee Self Service HR Technology was adopted by almost 15% of the organisation.
- 2003 – The first professional social media site i.e., LinkedIn was founded.

Effects on Work Culture

There was significant effect on Work Culture of organizations as observed in the era of 2000s with the arrival and wide level adoption of Intranets which are as follows:

- Intranet lead to enhanced and much improved information sharing platform inside an organisation that has lead to efficient and channelized communication.
- The availability of Collaboration Tools i.e., shared workspaces, discussion forums and document repositories motivated the workforce to collaborate and work no matter what their physical location is.
- The online training programs and resources were made possible with the advent of Intranet and it promoted continuous learning and skill development.

- The integration of corporate culture in large organizations with multiple locations was made possible with the help of Intranet.

STAGE IV: 2010s : HR PORTALS AND LIVE CHAT ERA

Source: www.radixweb.com

The Era of 2010s can be named as the dedicated HR Portals and live chat era. In the previous era we have observed the advent of intranets, which only facilitated the broadcasting of information to employees. In order to counter the challenge of employees where their messages and grievances can be answered, this 2010s era was dedicated to bringing down the HR Portals and HR Live Chat. This advancement of technological upliftment helped in facilitating employees in order to provide them with more specific required information on the basis of the employee's job role. The HR Portals served the purpose of facilitating flexible communication into the business world i.e., instant messaging.

Key Achievements of 2010s
- 2015 – Adoption of employee self-service HR Technology by almost 90% of the organizations.
- 2019 - Almost 92% of HR Leaders believed in the fact of facilitating future of excellent level of employee service that includes chat bots.

Effects on Work Culture:
There was significant effect on work culture of organizations observed in era of 2010s with the advent of HR portals and HR live chat tools. Few of the key aspects of transformative work culture are as follows:
- HR Portals and live chat tools Streamlined HR Processes by providing the platform of self service features and much more efficient HR functions where employees could manage to retrieve their own information and no deployment of extra workforce is required for this purpose.
- The other impact of portals and live chat on work culture of employees was that it enabled data-driven decision making which facilitated the analysis and collection of employee's data and overall performance management of employees.
- Live Chat Tools enhanced the real-time communication enabling the feature of instant messaging and virtual collaboration..

STAGE V: 2020s: ERA OF CHATBOTS AND ADVANCES IN ARTIFICIAL INTELLIGENCE

Source: https://www.google.com/

The era of 2020s began with the introduction of Chat bots that represents software application which is designed to converse the way human converse through the medium of text messages and voice interactions. The era of 2020s has seen and is experiencing the advances in Artificial Intelligences where the advent of chat bots enables the implementation of automation where machines can reply to queries in much faster speed and at a scale greater than any individual could do. The effect of Artificial Intelligence is enormous which is scaling up the Digitization process in human resource of any organisation. The era of 2020s is experiencing the technological advancements at wider level and the future of Artificial Intelligence in human resources is ample and a part of research and study.

Effects on Work Culture
The key effects of chat bots and emergence of Artificial Intelligence in the year 2020s are as follows
- The chat bots arrival provided enhanced customer services with the availability of 24/7 services and the quick response times.
- Chat bots also enabled HR Assistance by handling the routine HR queries and enabled IT Helpdesk which provided automation support for common IT issues.
- The emergence of Artificial Intelligence leads to Data Driven Decision Making with the help of Predictive Analytics and Performance Monitoring.
- Overall, the work culture was revolutionized by improving efficiency, efficient decision making task and promoting innovation and creativity at workplace.

Conclusion
On the basis of the in depth study of evolutionary phases of HR Digitization over the years, there is tremendous transformation observed in the workplace culture of the organisation over the years. The phases of evolution have been bifurcated into five distinct stages beginning with Stage I to Stage V.
There have been profound technological developments over the years where businesses adapted the new technologies in order to avail the long term benefits. The era of 1990s and pre era of 1990s where introduction of the World Wide Web was introduced that lead to access to online information. The era of 2000s facilitated arrival of intranets, self service HR portals and the automation of HR processes. The era of 2020s known to be the era of chat bots and emergence of Artificial Intelligence lead to overall efficiency

and productivity of employees as the artificial intelligence has got tremendous impact on the work culture of the organisation.

From this study, we can reach to the conclusion that the phase wise evolution of HR Digitization has tremendously transformed the work culture enabling organizations to be more efficient, connected and responsive to the employee's needs and desires.

With the leverage of digital tools and technologies, there is creation of organizations that is more transparent, agile and engaging workplaces setting the platform for future developments and continuous improvement in the world of work as the level of technological advancements and HR Digitization keeps on evolving.

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