Unveiling Digital HR Landscapes: Insights From Comparative Analysis And Market Trends

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ABSTRACT:
Objective: This study aims to investigate the current landscape of digital human resource (HR) services in Pakistan and other countries, focusing on their adoption by contemporary firms engaged in HR management. The research seeks to illuminate the digitization of HR management systems and promote scholarly engagement in further exploration of this dynamic field.

Methods: Employing a research methodology that encompasses the analysis of existing literature and online resources related to HR digitization, this study also involves an examination of popular HR management systems in the Pakistani market. A comparative analysis is conducted on three specific HR management systems: Success Factors, Moy Grafik, and Time TRACKER. Essential information gleaned from these sources is juxtaposed to derive insightful comparisons.

Results: The findings underscore a considerable demand for digital HR management resources. However, their practical implementation in contemporary firms appears to be inadequate. The study highlights a notable gap between the availability of digital HR solutions and their integration into real-world HR practices, suggesting potential areas for further research and development in this domain.

Conclusion: This research underscores the significance of exploring and leveraging digital HR management services in modern organizational contexts. Bridging the divide between demand and utilization of these resources is imperative for enhancing HR efficiency and effectiveness. The study calls for sustained scholarly attention and practical implementation efforts to advance digital HR solutions in alignment with evolving organizational needs.

KEYWORDS: Technology, human resource management, and digitization are some of the keywords.

INTRODUCTION:
The phenomena of digitalization as it pertains to the period of Industry 4.0
Information is one of the most essential resources in modern society (Dabić et al., 2023; Kambur & Yildirim, 2023). Humanity is responsible for transforming a massive amount of digital data daily, which requires storage space and assists businesses in conducting their operations.

Summary of Digitalization in Industry 4.0

Phenomenon	Description
Information as a vital resource	Information is crucial in modern society, requiring collection, organization, and understanding.
Emergence of digitalization	Digitalization, driven by technological advancements, blurs the lines between the real and virtual worlds.
Impact on various aspects of life	Digitalization has pervasive effects on daily life, education, work, and other areas.

Digitization of various processes	Processes such as human resource management are increasingly digitized, leading to automation and improved efficiency.
Importance for businesses	Digital technology is a priority for businesses due to its potential for productivity enhancement and personalized customer connections.
Ubiquitous presence in modern life	Digitalization is present in homes, workplaces, educational institutions, and public spaces, influencing every aspect of life.
Examples of digitalization	Social networks, online archives, search engines, e-learning, and HRM systems are examples of digitalization in various domains.
Enabling precision in industrial processes	Advanced digital tools enable precise assessment, planning, management, and prediction in industrial settings, reducing costs and improving efficiency.
Global integration and capacity development	Exponential growth in capacity and global service integration contribute to substantial growth for firms, impacting various aspects such as design, production, logistics, and customer support.

To begin, make the most of all the available options. When information is available, it is required to collect, organize, and understand it (Lumi, 2020). The emergence of new technology and advancements, also known as digitalization, naturally assists humanity. Because of the proliferation of cutting-edge technologies, the distinction between the real and virtual worlds is becoming increasingly difficult to discern. Digitalization is unavoidable and has already impacted every aspect of our lives, including our daily lives, studies, families, jobs, and many other elements (Serinikli, 2019). For instance, books are not just converted into electronic books; they offer various experiential opportunities involving interaction and multimedia (da Silva et al., 2022). Additionally, digitization has not been able to circumvent existing organizations working to improve and mobilize the efficiency of human activities and the organization. In the first place, this will impact human resource managers, who will be tasked with introducing new technology to improve workflow control and the ultimate product, which HRM systems will assist in tracking (Fedorova et al., 2019). To be more specific, human resource management (HRM) solutions are driving the field of personnel management toward digitization. Automation in human resources is gradually becoming more widespread, and the HRM systems already in place inside the organization are no longer considered innovative but rather something in line with the requirements of that era (Baykal, 2020). The use of digital technology has already emerged as a major priority for business managers and information technology organizations due to the considerable improvement in productivity and reach that it brings to the company. Around the world, digitalization technologies make it possible to organize the most personalized connection, which is chosen by most customers, employees, managers, and business owners since it allows for greater customization. Every day, a growing number of individuals write with a pen and notebook in their possession (Samson & Agrawal, 2020). A decreasing amount, and it is already challenging for a modern person to conceive of a life in which they do not have access to the advantages that digitization has provided for us. Because digitalization is present in every aspect of our lives, including our homes, places of employment, educational institutions, public areas, and so on, it is hard to overstate the scope of its influence (Kmecová et al., 2021). We are all familiar with examples of digitalization, such as social networks, online archives, search engines, payment systems, online stores, and e-learning. Additionally, the systems for human resources are the subject of this article, which is dedicated to discussing these systems.

Time to assess, plan, manage, and predict changes with the precision of one piece of equipment and a particular unit, client persona, and packing unit, and all of this on an industrial scale, with millions of accounting units. The possibility of lowering prices for the majority of transactions is seen in Thanks to the exponential development in capacity and the global integration of services (in design, management, production, logistics, finance, education, and customer support), the firm has experienced substantial growth. (Vardarlier, 2020).

THE USE OF DIGITAL TECHNOLOGY IN HUMAN RESOURCE MANAGEMENT: DIGITAL HRM SERVICE TYPES:

In human resource management (HR), digitalization introduces automated personnel management systems or HRM systems. In English, the term "management" is translated as "HRM," which stands for "human resource management." using human resources" The capability of this complete automated people management system has been expanded since its initial release. It conducts a significant volume of business processes, settlement operations, and analytical operations related to all elements of an employee's "life" within the organization, ranging from payroll to professional growth and development careers (Mosca, 2020). The terms "Human Resource Management" (HRM) and "Human Capital Management" (HCM) are both synonyms for "Workforce Management." The phrase "personnel management systems" is the standard way to refer to it in Pakistan. Within personnel management, digitization usually refers to organizing an accessible digital environment for employees. As a result, all parts of the actions carried out by the company have become more convenient. An employee, for instance, may use a virtual personal account to find out more information. Relevant factors are considered when determining his income, and he can also place orders for the necessary certificates, etc. (Berampu & Sari, 2020). On the other hand, the employer can acquire the required information whenever it is required without spending additional time and effort on the matter. Due to digitization, systems that perform all these activities, such as "Yaware. Time TRACKER, SuccessFactors, and MoyGrafik," are made available to the human resources sector. The following table presents a comparative examination of

digital human resource management systems (Strohmeier, 2020). A specialized service that provides straightforward and high-quality job planning personnel is known as MoyGrafik. It saves time on regular preparation, enhances your effort to control the schedule, makes it more transparent, and reduces absence and tardiness. Contributes to the organization of accounting things like vacations, delays, time off, sick leave, and transfers of working days (Mazurchenko & Maršíková, 2019). Because it encompasses fifteen different aspects of auxiliary operations, MoyGrafik is the most multipurpose system. It decreases losses suffered as a result of delays and incorrect accruals, as well as the loss of time for management and, The importance of motivating staff cannot be overstated either. Not only does MoyGrafik include a vast array of essential parts of work, but it is also quite easy to use. Accessing and editing the entire organisation is simple with this human resource management system. Additionally, a chatbot makes the work much simpler for even the most common users. Take note (Barišić et al., 2021).HRM software known as TimeTracker "Yaware. Time TRACKER" is a program designed to monitor how much time employees spend working on a personal computer and assess their productivity level. The accentuation: Take note. Specifically, TimeTracker is geared toward determining levels of productivity. The manager does not need to behave in a manner concealed from the employee. The purpose of the system is to ensure that the subordinate himself is aware of the amount of time he worked, as well as the websites and programs that prevented him from finishing duties and consumed a substantial percentage of his valuable working time. This provides the supervisor and the employee with vital knowledge; in conjunction with this, no conflicts or questions could be considered problematic. The utilization of this service has the potential to boost workers' productivity during the first week of its use. In addition, the manager can monitor the outcomes of the task from his mobile phone. The service provides the ability to carry out many sorts of analyses of work performed and evaluate staff, as well as to record and regulate employees who waste time, maintain discipline, and assess the firm's performance. The system was developed with the utmost emphasis placed on management. SuccessFactors is a suite of SAP solutions offering a cloud-based management solution for businesses of any size operating in more than 60 different industries. Its capabilities include business alignment, staff productivity, employee recruiting, centralized administration, and training activities. Although it is more difficult to use, SuccessFactors is also popular among reputable businesses, particularly those in other countries. However, this cutting-edge cloud system from SAP, which encompasses a comprehensive collection of solution systems applicable to human administration, is available. Everything is incorporated into the system's talent management procedures, including recruiting, adaption, goal setting and assessment, training, management continuity, development, competencies, and personnel administration (Core HR). Components can be used independently or coupled to one another. The capacity to host data in a variety of locations, including Pakistan, is the capability that SAP offers. A new data centre for the company was launched in Moscow. Employees can obtain the relevant data and work any time of day or night. Through mobile applications for iOS and Android, both in time and worldwide. Thanks to the extensive selection of tools available for creating detailed reporting and charting, you can undertake an automated online analysis of performance indicators, both on an individual level and across the entire corporate personnel system.

Table 1: The authors have conducted a comparative analysis of digital human resource management services (source: 2019).

Management of Human Resources	The description	Capabilities of the System
1. The factor of success	Provides a comprehensive set of cutting-edge cloud-based solutions for managing workers. These are all-encompassing universal products. Products with an appealing user interface enable employees to perform their jobs more effectively and provide high-quality educational preparation for professionals. SuccessFactors Solutions are built on the experience of SAP Corporation and are backed by a community of partners worldwide. We are actively utilizing best practices and information gained over the years of working with various clients to bring new products and technology to physical existence. Over four thousand customers and twenty-seven million consumers are currently included in our database. The services are offered in 37 different languages, and they are in demand in 177 other nations, both among major and minor businesses, and exceed the need in 60 different industries.	Fundamental HR system forecasting features Features of Recruitment Marketing job advertisements Performance management: collaborative efforts and reporting An LMS is a network with open content and a trading platform. Temporary Staffing Management thorough reward administration
.My-Graph	Assistance in keeping track of staff work schedules and recording working hours.	Company Schedule: Using the assistance online interface and chatbot, keep track of every

	Installing software Not necessary. 24/7 access to the service from any PC. It is employed to a) enhance labour discipline, b) lower payroll, c) lessen revenue losses from delays, and d) save managers' and accountants' working hours. It is ideal for retail chains employing shift workers in particular.	employee's work schedule in one location.Presenthere's always access to the timetable. Planning: Using standard schedules as a guide, automatically fill out the work schedule. Analytics: Examine labour discipline and provide payroll data. Attendance: Use facial recognition on a standard mobile smartphone to monitor working hours on an object. Approval of modifications: Workers can seek schedule changes, facilitate prompt coordination with the manager, search for a substitute, and schedule. Integrations: enables simple integration with any third-party program or service, such as your account management system. Accessible Schedule: Workers can note when they are available, and managers can consider these requests when creating schedules. Payroll: Compute the management wage all in one location, accounting for the real-time spent working. Key Performance Indicators, or KPIs for short, are metrics used to measure an enterprise's performance at the unit level. They assist organizations in accomplishing both tactical and strategic (or operational) objectives. Using key performance indicators, an organization can evaluate your situation and aid in assessing how well the plan is being implemented.) Notifications: In the standard messenger, quick and free. Regarding the itinerary adjustments and arrival delays. Status: Using a bot to check with the late person, managers can always see who is at work, who is running late, and when they will be. Working hours: Staff members have access to your work schedules, and they can also request and update modifications to your schedules. Employees have access to your statistics regarding tardiness and worked-out shifts. Reminders: The bot will notify coworkers when an employee is scheduled for vacation time or time off. Knowledge Base: Workers can register for sick leave and obtain regulations for vacation permission.
HRM programme "Aware. Time Observe	Automated online accounting system working hours and efficiency assessment of employee performance Computer. It allows you to see the whole picture of employees' workdays, improve employee productivity, and manage a business efficiently with little effort.	Control of working hours automatically Program and site monitoring, productivity analysis keeping track of the amount of time spent working offline screenshots from webcams and screens Management of infractions prompt notification Putting workers in departments Settings specific to a worker and the department as a whole Different degrees of access Extraordinary chance: Employees' access to private data Employee control over time, both covert and overt Management of jobs and projects Automation of timesheets Adding information to Google Data Studio

Digital HR system classification

A) according to level:

Typically, HRM systems are separated into three traditional tiers. The degree of process automation, complexity, and function scope can all be used to determine them:

Table 2: HRM systems' conditional levels (Source: own study, 2019)

HRM systems at each level	The content
Initial stage	They have developed solutions to calculate payroll automatically. This is an example of a product with restricted functionality, the inability to customize it further, and a minimal pool of potential customers.
Second tier	More advanced systems that enable you to automate personnel records are still being developed. They are provided with good functionality to ensure that a competent personnel policy is maintained. It is possible to expand software products at this level.
Lastly,	These are the most cutting-edge solutions that, in addition to accounting and payroll,
a level	The movement of staff, the ability to build specific training programs for specialists, the creation of "portraits," the planning of promotions, and the execution of certification are all included. The third level of programs can function as their standalone product, but They are probably a component of an integrated enterprise automation system (ERP).

B) according to the functional makeup of the following:
One further way to categorize human resource management systems is according to their functions. When seen from this perspective, software products can be classified into the following five categories: It was computed. Offer a computation of the salary, travel expenses, incentives, and other benefits. Deductions, including the issuance of work orders, etc. It is accounting. A few examples of this are the creation of staffing schedules, the reporting of personnel, the accounting of vacation time, business travels, sick leave, and the maintenance of personal files for employees. There is accounting and settlement. Arrangements that combine the first two categories. The functionality of HRM systems is not fully developed. In addition to accounting and settlement functions, the software products that belong to this group include the HR circuit, which consists of the following: management of motivation, analysis of personnel performance, certification and evaluation of the professional suitability of employees, planning of personnel changes, and ways to improve the personnel management system for the
organization as a whole. HRM systems that are fully operational. In addition to creating reports for control bodies or holding management, these human resource management systems belong to the fourth group. Additionally, they are responsible for preserving statistics.

HRM RESOURCES AVAILABLE IN THE PAKISTANI MARKET THAT ARE DIGITAL:
There is a presence in the Pakistani market for domestic and international products. Personnel management systems that are digital. In addition, these solutions have no significant distinctions regarding their technical capabilities; systems built in the United States are comparable to those developed in other countries. Dealt with the processing of data for fifteen to twenty thousand employees in a satisfactory manner and assisted geographically spread organizational structures. According to research on the human resource management (HRM) market that the Enterprise Institute carried out between November 2018 and January 2019, most organizations in the market have recognized the leaders among the HRM systems currently employed. Approximately one in seven Pakistani businesses, or 14% of all enterprises, are already utilizing human resource management (HRM) systems, as determined by specialists from IPP (Halid et al., 2020). This again demonstrates the importance of this subject in the context of contemporary realities. The market for human resource management systems in the Pakistani Federation is promising, considering that approximately forty per cent of the enterprises in Pakistan have more than fifty per cent of their employees working in areas equipped with computers. Based on the IPP study, it was determined which digital HRM systems are currently being adopted the most frequently. In the Pakistani human resource management system, the application of artificial intelligence (AI): During his session, Josh Bersie, the founder of Bersin by Deloitte, discusses the process of developing and testing coaching solutions that are powered by artificial intelligence. To "tune" themselves to the characteristics of people and teams, these systems used data from high-performance teams. Groups and organizations (Haque & Nishat, 2022). Through the use of tools for encouraging managers and managers when adopting successful actions, as well as the correlation of individual and team problem data with data from high-performance teams, they were able to assist employees in improving their performance by 25% within three months of using the system. According to the portal hh.ru, an analysis of the practice of using artificial intelligence in the Pakistani market reveals that as of 2018, 11% of employers in Pakistan already use artificial intelligence in their work staff, 49% do not do this yet, but are studying the topic, and 40% of respondents do not have any interest in this topic (Fenech, 2022). The majority of companies

make use of systems that contain elements of AI when selecting personnel. A survey conducted by hh.ru found that thirty-three per cent of human resources professionals are sure that artificial intelligence would one day entirely transform HR's role in the firm. Practitioners in the field of human resources emphasise the following benefits of utilising an artificial intelligence system: - liberating HR specialists from regular chores (81%) Seventy-five per cent of the candidate search process is optimised, and seventy-three per cent is automated. Examination of a substantial amount of data in a very short period (72%). - the use of additional sources of information about candidates in addition to resumes, 61 per cent - having the human resources manager serve as both an HR partner and an innovation coordinator (59%) A rise in the productivity of the labour force (65%). [3]: Although human resource management (HRM) systems are intended for personnel management, the capability of HRM systems is more extensive than that of HR operations automation systems (Fenech, 2022). You can operate with quantitative and qualitative indications of individuals when using the products available in this sector. One of their primary responsibilities is to recruit and keep valuable specialists working for the organization. Managing employees has become less complicated due to the implementation of HRM systems (Dolan et al., 2022).

CONCLUSION:

Consequently, in the context of the widespread adoption of digitalization in the human resources system in the Pakistani market, you need to be ready to adjust how you approach work to optimize its effectiveness. The introduction of digital technology presents businesses with opportunities that are so alluring that they are impossible to ignore. Regarding the company's development, this trend is comparable to intentionally impeding them. Adaptability and creative thinking are the most essential skills in a constantly evolving world. In today's environment, it is of the utmost importance to promptly react to emerging market trends and to offer potential technology; otherwise, competitors will be the ones to accomplish it first. It is essential to ensure that the human resource management system conforms to the needs of digitalization, a global trend involving the successful development of technologies.

Experts in this field must participate in drafting and implementing programs for introducing digitalization in modern people management systems, understand and prevent potential threats and hazards, and make the most of all its benefits. In addition, it is imperative to grasp what the modern generation of employees of an organization anticipates from the firm. They anticipate obtaining the same high and technological level of services that they are accustomed to receiving "outside" and then eating in their everyday life as regular consumers. First and foremost, digitalization in human resources refers to establishing a user-friendly digital environment for employees. The process of assigning tasks and evaluating the quality of their execution is made more automated, transparent, centralized, and efficient due to the advent of digitalization. Tools digitization, frequently used in human resources, interacts well with information systems because it lets you collect and aggregate all available information in one location. However, while working towards digitalization, we must not forget that almost every worker requires human resources to perform their jobs effectively. Attention, a friendly word, support, and involvement cannot be replaced by anything, not even the most cutting-edge and contemporary software. The digitalization of society is unavoidable, and the only way we can be prepared to embrace it and put it to good use is by being ready to accept it.

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