

Delhi Business Review Vol. 25, No. 2 (July - December 2024)

DELHI BUSINESS REVIEW

An International Journal of SHTR

Journal Homepage: <https://www.delhibusinessreview.org/Index.htm>
<https://www.journalpressindia.com/delhi-business-review>

Impact of Human Resource Information System (HRIS) on Employee Productivity in Service Sector: SmartPLS Based Analysis

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ARTICLE INFO

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Article history:

Received - 22 September 2023

Revised - 9 November 2023

24 February 2024

10 July 2024

5 August 2024

23 October 2024

Accepted - 28 November 2024

Keywords:

Human Resource Information Systems (HRIS),

Employee Productivity,

Artificial Intelligence,

SmartPLS, and

HRIS Adoption.

ABSTRACT

Purpose: This study explores the impact of Human Resource Information Systems (HRIS) on employee productivity in the service sector.

Design/Methodology/Approach: Data were gathered from 53 employees working in the service sector in India using a structured questionnaire. The validity of the model and hypotheses was tested using SmartPLS.

Findings: The results show a positive relationship between HRIS adoption and employee productivity. HRIS enhances HR processes, improves communication, and provides employees with access to relevant information.

Research Limitations: Future studies could delve into the lasting impact of implementing HRIS while also examining how emerging technologies, such as artificial intelligence and machine learning, might improve the system's functionality and potential.

Managerial Implications: It has practical implications for service sector organizations, helping them make informed decisions regarding HRIS adoption and customization to maximize their workforce's productivity.

Originality/Value: This study contributes to the growing body of knowledge on HRIS, offering empirical evidence of its influence on employee productivity in the service sector.

DOI: [10.51768/dbr.v25i2.252202407](https://doi.org/10.51768/dbr.v25i2.252202407)

Introduction

The service sector, which includes industries such as finance, healthcare, hospitality, and retail, is crucial for economic growth and global business success. Central to these industries is their workforce, as human resources play a key role in productivity and customer satisfaction. Recently, human resource management has advanced with the introduction of technological solutions designed to streamline and enhance various HR functions. One of the significant innovations is the Human Resource Information System. The HRIS automates and integrates human resource processes, including recruitment, training, performance management, and employee engagement, making it easy to manage data and make effective decisions (Marler & Fisher, 2013; Tansley et al., 2001).

The adoption of HRIS in service sector organizations marks a significant shift towards optimizing human resource management. It allows for access to essential employee data in real time and supports decision-making based on data, promoting strategic workforce management (Becker & Huselid, 2006). However, the impact of HRIS on the productivity of employees is a matter that requires further study. Employee productivity is considered an important performance measure of the service sector, closely related to organizational performance (Obeidat, 2016). So, understanding how HRIS adoption affects employee productivity will be of importance to both practitioners and academic researchers.

This study addresses gaps in the existing research by analyzing the impact of HRIS on employee productivity in the service sector using SmartPLS. It provides valuable insights into how HRIS enhances productivity and offers strategic recommendations for implementing HR technology to maximize outcomes.

Literature Review

For processing transactions, reporting, and tracking, an HRIS database keeps an inventory of the individuals, job functions, and positions it contains. The HRIS serves as a base for a collection of analytical tools that help managers in defining goals and assessing the human resources of the organization's performance programmes for resources (Chauhan et al., 2011).

Human Resource Information System (HRIS)

HRIS is a systematic approach for storing information and data about employees, aiding in planning, decision-making, and the submission of reports to external agencies. In essence, this can be concisely described as cohesive systems designed to collect, and analyse data concerning a human resource for an organization (Jahan, 2014). HRIS, a computer-based system, is utilized for acquiring, loading, analysing, retrieving, and distributing information related to HR. In addition to hardware and software components, it encompasses individuals, documents, policies, procedures, and data. In the present day, HRIS plays a pivotal role in automating many HR planning functions, transforming into a vital strategic tool by collecting, managing, and presenting data for decision-making purposes. A fully integrated HRIS should seamlessly interface with other systems, enabling communication between departments, like connecting payroll with accounting. Ensuring data security during these transfers is crucial due to the sensitive nature of employee information. An HRIS can identify trends, manage costs, benchmark against competitors, and produce reports. Emerging HRIS trends significantly influence HR planning by aligning new technology with organizational goals.

HRIS systems are divided into two types: "unsophisticated" and "sophisticated." The "unsophisticated" type includes functions like payroll, benefits administration, and tracking of employee absences electronically. On the other hand, the "sophisticated" type involves more advanced uses, such as recruitment, training, HR planning, and performance evaluation (Nagendra & Deshpande, 2014). HRIS has become crucial for effectively implementing corporate strategies and views it as a key strategic resource. However, HR strategies should be based on careful consideration of an organization's long-term goals, rather than relying solely on random inspiration. Aligning HR strategy with corporate and other relevant strategies enhances an organization's ability to achieve its objectives.

Human Resource Strategy, represents a

coordinated set of actions designed to integrate an organization's culture, structure, people, and systems. It is characterized by the cohesion and consistency of a unique behavioural trend. The effectiveness and success of HR strategy are intrinsically tied to its alignment with corporate strategy. Organizational systems include both manual and digital processes for task execution. Hence, an HR strategy should align with both the corporate business plan and the organization's Information Systems strategic plan (N. Kumar et al., 2019). Performance management is the cornerstone of human resource management, despite its effectiveness, it harbours several flaws that contribute to poorly designed performance management systems within organizations (P. Kumar, 2022; Pulakos, 2009). One prominent issue leading to subpar appraisals is the reluctance of both managers and employees to provide honest feedback, often due to concerns about damaging interpersonal relationships (Dimri et al., 2024). Additionally, the inherently bureaucratic and time-consuming nature of performance management systems can lead employees to perceive them as ineffective in terms of skill development. (P. Kumar & Rajanala, 2015). Recruitment can be described as the comprehensive and direct process of identifying potential employees and attracting valuable applicants. The primary objective of recruitment is to find the most suitable individual for a specific job based on objective criteria. According to (Schalk et al., 2013), the recruitment process typically begins with advertising job vacancies, which can be done both internally and externally, utilizing various media channels, including the use of HR information systems. The Recruitment Information Subsystem involves the company's online activities aimed at recognizing and attracting prospective employees.

In the realm of e-recruitment, there are two main categories of systems (Johnson et al., 2021). The first is a candidate monitoring system, which tracks demographic information and assesses applicants' skills and qualifications. The key distinction between this system and an applicant tracking system lies in the use of job boards and business websites to match candidates with job requirements.

When the system identifies a resume that aligns with the recruiter's needs, an email notification is sent to the business, expediting the interview process. This results in reduced hiring times, enabling potential employees to receive offers more swiftly, and ensuring that highly skilled applicants do not pursue opportunities with other organizations.

Organizations have increasingly relied on computer technology for their recruitment efforts. Electronic technology facilitates job advertisements, resume scanning and storage, skills assessments, and communication with qualified candidates, streamlining the recruitment process.

The HR Information System (HRIS) is a tool that organizations use to gather information related to people and jobs. It is primarily designed to serve as a comprehensive and ongoing information system that encompasses aspects related to people, jobs, and provides up-to-date information cost-effectively. Additionally, it offers data security and privacy (Beckers & Bsat, 2002). HRIS supports various services related to training and development programs for companies, such as Training Needs Analysis (TNA) and the assessment of development needs (Nagendra & Deshpande, 2014). It also aids in designing training plans aligned with corporate strategy, auditing the training function, developing customized learning and development programs, evaluating the effectiveness of training initiatives, allocating training budgets, and conducting corporate training surveys (Breugh & Starke, 2000; Johnson et al., 2021). Embedded model of a web-based TNA system, aimed at assisting companies in enhancing their competitive core competencies efficiently and effectively. This model underscores the utilization of internet technology's strengths by HR professionals and experts to facilitate organized and streamlined processes (Suleman et al., 2019)

Employee Productivity

Companies measure employee productivity to determine labour efficiency and effectiveness (Wang & Wang, 2024). Employee productivity is measured by output and performance, which might be goods, services, activities, or projects.

Prioritizing work, avoiding time-wasting and meeting deadlines boost productivity (Ahmad Khan et al., 2022). Efficiency also affects productivity since productive workers use resources and labour efficiently. Workers with skills are more efficient and generate better work. Workplaces that reduce distractions, give resources, and encourage cooperation to boost productivity (Leblebici, 2012; Powell et al., 2004). Access to contemporary technologies and equipment may boost productivity in the service sector. Work-life balance, stress management, and employee well-being boost team productivity (R et al., 2017). Employee productivity measurement and improvement vary by industry, job function, and corporate goals. High-performing companies have a culture that engages employees, improving performance and happiness. Silla et al., (2020) found that participative climates affect worker satisfaction more than decision-making. Goal setting does not seem to boost productivity, according to the research. Employee engagement policies encourage employee participation in decision-making, reward discretionary effort, and provide skill development opportunities (Dimri et al., 2024).

HRIS and Employee Productivity

The incorporation of HRIS into contemporary companies has therefore led to a great volume of study on the impacts of this technical progress. One major field of study involves the effects of HRIS on the productivity of employees. HRIS is simply an amalgamation of software programs designed specifically to better manage and optimize different human resource activities. This potential for HRIS in revolutionizing HR procedures has thus attracted a lot of attention. Tansley et al., (2001) assert that HRIS implementation can enhance the operational efficiency of an organization through the automation of administrative functions, data precision enhancement, and easy access to relevant HR data in real-time. It is also often believed that the implementation of HRIS can improve the application of data-driven decision-making in Human Resources (HR) areas and help firms effectively control their resources.

Numerous empirical Shahreki, (2019)

investigations have extensively examined the correlation between the use of HRIS and employee productivity, with diverse outcomes. This observation is consistent with the results reported by Marler & Boudreau, (2016) in their extensive meta-analysis, which revealed a favourable correlation between the utilization of HRIS and the achievement of productivity objectives across various sectors. Nevertheless, it is essential to recognize that the influence of Human Resource Information Systems (HRIS) on employee productivity is not always applicable. According to the findings of Al-Dmour et al., (2016) the successful adoption of HRIS is contingent upon several aspects, including the usability of the system and the level of assistance provided by the organization.

Moreover, it is essential to note that contextual variables have a significant impact on the dynamics of the link between HRIS and employee productivity. Organizations that tailored their HRIS to fit their specific needs and business operations saw greater improvements in productivity. Similarly, the size of the organization could be a critical determinant. Larger companies often have an edge in terms of scalability and the numerous functionalities provided by Human Resource Information Systems (HRIS) On the other hand, smaller companies may face challenges in maximizing the utilization of the functionalities of these systems.

In conclusion, the existing body of work highlights the intricate correlation between Human Resource Information Systems (HRIS) and employee production capacity, which is subject to the effect of many contextual circumstances. The potential benefits of adopting HRIS include the streamlining of HR operations and the enhancement of productivity. However, the efficacy of HRIS is contingent upon factors such as customisation, organizational support, and employee involvement.

Research Gap

Very little research has been conducted about the impact of Human Resource Information Systems on the service sector employees' productivity. Studies have grown, but few are inclusive and comprehensive in discussing HRIS adoption and

its relationships with employee productivity. Often the literature is not developed within the specific context of service attributes. The literature found is majorly qualitative in nature or case study and does not provide the kind of large-scale quantitative study measuring the impact and analysis of HRIS on employee productivity in service organizations. That is what would be marked by the gap through this piece of research by highlighting that a focused inquiry would use rigid quantitative methods to establish a causal relationship and understanding.

Hypothesis

This study explores the relationship between HRIS implementation and employee productivity in the service sector. It hypothesizes that HRIS adoption significantly enhances employee productivity by streamlining HR processes, automating administrative tasks, and providing real-time access to information, here is the hypothesis for the study as follows:

H1: There is a positive impact of HRIS implementation on employee productivity in the service sector

Research Methodology

The development of a research methodology for a study paper entails the delineation of the methodologies and techniques employed for the purpose of data collection and analysis. The methodology employed in a research study should possess the

qualities of clarity, reproducibility, and the ability to facilitate the evaluation of the research’s validity and reliability by other scholars. The following is a suggested framework to assist in the development of the research methods section for this study:

Data Sampling

Primary Data: Data sampling is a statistical method used to analyze a subset of data collected from a larger population. Researchers used simple random sampling from various sectors in India. Questionnaires were collected through an online platform, resulting in 53 suitable responses from the service sector for analysis (see Table 1) (Richter et al., 2016).

Secondary Data: The methodology comprised gathering secondary data on HRIS usage and productivity measures from papers published in the industry and literature. Reputable internet databases, books, and peer-reviewed journals served as the main sources of information.

1. Research Tool: Partial Least Squares Structural Equation Modelling, is a prominent tool for analysing complex variable relationships in fields like marketing, management, and social sciences. It handles small samples and non-normal data effectively, offering reliable estimations. With a user-friendly interface, it supports both confirmatory and exploratory research, aiding theory development and validation (Dimri et al., 2024).

Table 1: Demographic Profile

Demography	Description	No. of responses	%
Gender	Male	36	67.9
	Female	17	32.1
Age	20–35	40	75.5
	36–40	8	15.1
	41-45	2	3.8
	More than 46	3	5.7
Experience	0–5 years	23	43.4
	6–10 years	19	35.8
	11-15	6	11.3
	More than 16	5	9.4

2. Research Instruments: The initial segment is intended to capture the demographic profile of the respondents, and the second part is concerned with the employee's perception towards HRIS (Makkar & Sanjeev, 2016) and the third part, the measurement of employee productivity was conducted using a scale consisting of five items, as outlined by Farooq & Sultana, (2022). The scale utilised for collecting data was the 'Five Point Likert Scale' ranging from 5 meaning 'strongly agree' down to 1 meaning 'strongly disagree'.

Data Analysis and Finding

Measurement model

The study model was developed utilizing the Partial Least Squares Structural Equation Modelling (PLS-SEM) technique. PLS-SEM was chosen as it works well with basic and complicated frameworks. This method also works for data that deviates from normality and complexity throughout analysis. PLS-SEM is more accurate than CBS-SEM in evaluating and validating variables. This study used PLS-SEM to analyse the measurement model (Figure 2). The research used convergent and

discriminant validity approaches to examine the measurement model's accuracy (Hair et al., 2019). Table 3 illustrates that all elements in this research fulfil numerous academic requirements.

Common Method Bias

The issue of common method variance (CMV) arises when the same individual rates both the independent and dependent variables (Hair et al., 2012). Harman's single-factor analysis was conducted, revealing that only 45.8% of the total variance was accounted for in our dataset (insert Table 2). Two staff productivity measures, namely EP2 and EP4, were removed from the analysis due to their low loading.

Measurement Model

The study conducted by Leguina, (2015) established the convergent validity, composite reliability, and discriminant validity of the calculating model. The Cronbach's alpha results are presented in Table 3, indicating that all variables exhibit values over the threshold of 0.70, as suggested by (Fornell & Larcker, 1981). According to Leguina, (2015), composite reliability ratings within the range of 0.7 to

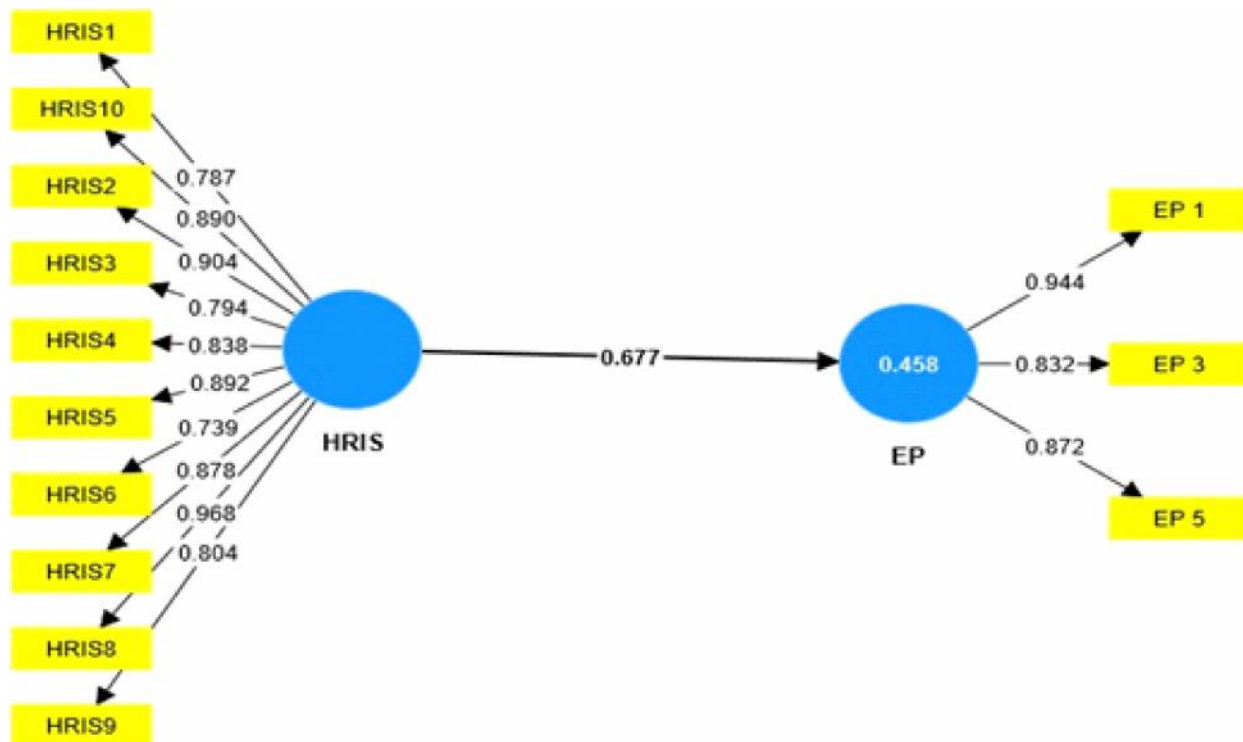


Figure 1: Measurement model (initial)

Table 2: Measurement Model for Constructs

Construct	Indicator	Factor loading
HRIS	HRIS1	0.787
HRIS2	0.890	
HRIS3	0.904	
HRIS4	0.794	
HRIS5	0.838	
HRIS6	0.892	
HRIS7	0.739	
HRIS8	0.878	
HRIS9	0.968	
HRIS10	0.804	
Employee Productivity	EP1	0.944
EP3	0.832	
EP5	0.872	

0.9 are indicative of good dependability. The measurement model’s composite reliability, as determined in our investigation, exhibited scores ranging from 0.7 to 0.9 for all variables (refer to Figure 3).

The evidence provided by the AVE values supports the convergent validity of the data. According to [Fornell & Larcker, \(1981\)](#), constructs demonstrate convergent validity when their AVE values exceed 0.5. As seen by the data presented in Table IV, the AVE values are above the threshold of 0.5, so confirming convergent validity.

Discriminant Validity

According to Henseler et al., (2014), it is recommended to utilize Heterotrait-Monotrait (HTMT) values. HTMT values below 0.85 indicate discriminant validity. Consequently, the model also attained the outcome, as seen in Table 4.

Model Fit and Path Coefficient

The researchers utilized the bootstrapping approach to investigate the postulated association between the components (insert Figure 2). The results presented in Table 5 indicate a significant positive association

Table 3: Constructs’ Reliability and Convergent Validity

	Cronbach’s alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
HRIS	0.915	0.918	0.914	0.781
Employee Productivity	0.963	0.966	0.963	0.726

Table 4: Discriminant validity Heterotrait-Monotrait ratio (HTMT)

	Employee Productivity
Employee Productivity	
HRIS	0.675

Table 5: Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
HRIS -> EP	0.637	0.632	0.111	5.754	0.000

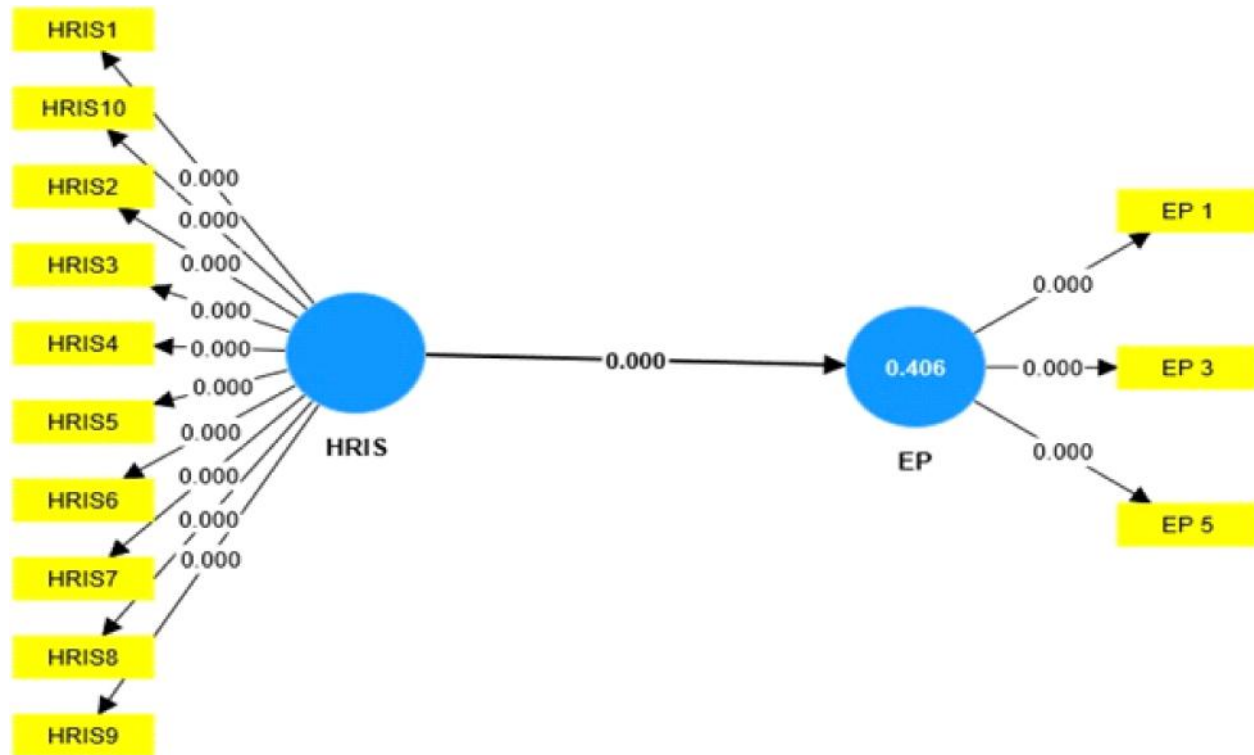


Figure 2: Measurement Model (Final)

between HRIS and employee productivity (H1 $t = 5.754, p = 0.000$).

Discussion

The hypothesis testing, which aimed to determine whether the implementation of HRIS has a significant positive impact on employee productivity, produced the following results:

On the other hand, the coefficient of determination R^2 is calculated as 0.406, indicating the validity of the model. To assess the significance of the relationship, the Bootstrap procedure within the SmartPLS software was employed. The results in Table 5 reveal that the t-statistic equals 5.754, which is greater than 1.96, confirming the significance of the relationship. This model proves to be statistically significant and accounts for 40.6% of the variance in the development of HR staff

production capacity. Consequently, hypothesis 1 is upheld.

Conclusion

This study's conclusion integrates insights from existing research and empirical data, highlighting the complex effects of Human Resource Information Systems (HRIS) on service sector employee productivity. HRIS has gained attention for its potential to transform HR practices. Earlier research by Tansley et al., (2001) noted HRIS's ability to boost operational efficiency through automation, better data quality, and instant HR information access.

Empirical studies show varied but generally positive outcomes regarding HRIS and employee productivity. Marler & Fisher, (2013) reported significant productivity improvements, especially

in recruitment and training access. However, Al-Dmour et al., (2016) stressed that HRIS success depends on system usability and organization. P. Kumar, (2023) noted that factors like system customization and organization size affect HRIS effectiveness.

HRIS can significantly improve employee productivity by optimizing HR processes and resource use. However, its effectiveness depends on factors such as system customization, organizational support, and employee engagement. Organizations should consider these contextual elements to maximize HRIS implementation benefits for productivity.

Implication

This study provides results that show the effectiveness of HRIS in enhancing productivity from the employees' side, within the service industry. The findings are of great significance from both the management practice point of view and the theoretical frame of reference. From the viewpoint of management, the given results highlight the strategic importance of implementing and integrating HRIS within service-oriented firms. The managers need to recognize the potential of HRIS as a powerful tool for enhancing employee productivity. As a result, managers should invest enough resources to ensure the effective use of HRIS within the organization. In addition, it is recommended that organizations invest resources in holistic training programs to make their employees proficient in using HRIS technologies. This strategic investment will further strengthen the benefits and positive impacts generated from the implementation of HRIS.

Furthermore, this study adds to the theoretical understanding of HRIS in the service sector, with an emphasis on its importance as a productivity facilitator. This observation is added to the growing body of academic literature on HRIS and widens its applicability to the service sector, giving a more integrated view of how technology-based HR practices affect the productivity of employees. Results are also based on the fact that data protection and customization of HRIS systems are considered important and present theoretical grounds concerning the determinants that may affect the efficiency of HRIS implementation. This study highlights the relationship between HRIS and the productivity

of employees in service-oriented industries. It provides a wealth of information for professionals and researchers on the topic of human resource management.

Limitations and Future Studies

This study discusses the limitation of the study on the impact of HRIS on employee productivity in the service sector. It mainly bases the data on self-report, which is prone to error and subjective. Future studies should consider using objective indicators of productivity, such as production measurements or performance ratings. The study's focus on a specific service sector might limit its ability to be representative of the service sector. A future study should be conducted on the impact of HRIS in various service industry subsectors to understand this field better.

Future studies could include longitudinal research on the long-term impacts of HRIS implementation on employee productivity, comparative studies of service sectors and organizational sizes, and the importance of certain features of HRIS. These areas would offer a more comprehensive and nuanced perspective on the effect of HRIS on the service sector.

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