



# The Role of Human Resource Information Systems (HRIS) in Decision-Making Effectiveness and Organizational Efficiency: Perceptual Analysis on Service Sector Employees

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**Abstract:** Human Resource Information Systems (HRIS) play a significant role in streamlining operational processes by automating routine HR tasks, resulting in substantial time and cost savings. Automation of functions such as payroll processing, employee record management, and compliance reporting allows HR professionals to focus more on strategic activities. Despite the universal adoption, existing research on the impacts of HRIS on decision-making effectiveness and organizational efficiency remains preliminary. The effectiveness of HRIS and enabling software on organizational performance lacks a comprehensive analysis. This study addresses the gap in comprehending how HRIS adoption specifically impacts organizations. The studies convey an understanding from the employees' perspectives, utilizing a quantitative approach. This paper focuses on the role of the HRIS in enhancing decision-making effectiveness and organizational efficiency, as perceived by employees in the service sector. A structured questionnaire was developed as a data collection tool to gather information from 102 service sector employees whose roles involve the use of HRIS. Descriptive analysis, Pearson's correlation, partial correlation, Spearman's rank order correlation, and Kendall's Tau-B correlations were used to analyse the data and explore the relationships between variables statistically. The results indicate that employees with better educational backgrounds and experience understand the importance of HRIS in the organizational context, irrespective of gender. Moreover, the use of HRIS is positively and strongly associated with improved organizational performance, underscoring the significance of implementing HRIS in enhancing efficiency. This study contributes to the literature by providing a direct empirical link to the strategic value of HRIS, rather than merely being an operational tool.

**Keywords:** Human Resource Information System (HRIS); Organizational efficiency; Decision making effectiveness; Service sector; Employee perception; Strategic HRM; Data-driven HR decisions; Workforce management

**JEL Classification:** M12, O33, J28, L84

## 1. Introduction

Human Resource Information Systems (HRIS) have become an integral part of effective workforce management, especially in the service sector, which is critical to organizational success. HRIS has emerged as an essential tool to support decision-making processes by providing timely, updated, and accurate data. The effectiveness of HRIS in today's business landscape has increased, particularly in light of the COVID-19 pandemic, which prompted organizations to adapt to remote work environments. HRIS became the cornerstone of business continuity, playing an integral role in managing a geographically dispersed workforce. Moreover, the recent shift towards artificial intelligence (AI) further underscores the need for robust HRIS systems (Siddique et al., 2025).

Despite widespread adoption and widely acknowledged benefits, limited research has examined how HRIS specifically influences operational efficiency, talent management, and data-driven decision-making from the perspective of service sector employees. A significant gap remains in the literature regarding employees' direct

perceptions of HRIS usage from an organizational standpoint. While previous studies have often focused on the perspectives of HR managers or the technical aspects of HRIS implementation, our research aims to provide a novel, bottom-up perspective.

This paper explores the strategic role of HRIS in the service sector, focusing on its influence on operational efficiency, talent management, and data-driven decision-making. Moreover, this paper also examines the role of HRIS in enhancing decision-making effectiveness within the service sector, focusing on its impact on data management, analytical capabilities, and strategic HR practices.

## **2. Literature Review**

### **2.1 The Emergence of HRIS as a Core Component of HR Practices: Evolution of HRIS**

Historically, HR Management was largely administrative, relying on manual processes for tasks such as record-keeping and payroll management. However, with the advancement of information technology, organizations began to adopt HRIS to automate these functions. The introduction of HRIS marked a shift from transactional HR practices to more strategic approaches, enabling HR professionals to focus on talent management and organizational development. Various factors, including globalization, regulatory compliance requirements, and the need for data-driven decision-making, have influenced the evolution of HRIS. The rise of cloud computing has further accelerated the adoption of HRIS, providing organizations with scalable and flexible solutions that can be tailored to their specific needs.

### **2.2 Automation of HR Processes**

One way HRIS contributes to time savings is by automating routine HR tasks. HRIS automates functions such as payroll, benefits administration, and employee record management. This automation reduces the administrative burden on HR staff, allowing them to focus on more strategic initiatives. Organizations employing HRIS report significant reductions in time spent on administrative tasks, which in turn leads to improved productivity.

Furthermore, the automation of recruitment processes is particularly impactful in the service sector, where timely hiring is critical. HRIS can streamline application tracking and candidate communication, significantly reducing the time required to fill vacancies. This efficiency not only speeds up the hiring process but also minimizes the potential loss of revenue associated with unfilled positions.

### **2.3 Integration of HRIS into HR Practices**

HRIS has been integrated into various HR practices, enhancing their effectiveness and efficiency. For recruitment, HRIS enables organizations to streamline the hiring process by automating job postings, applicant tracking, and candidate communications (Sparrow et al., 2016). This automation not only saves time but also improves the candidate experience, making it easier for organizations to attract top talent. Khashman & Khashman (2016) examined HRIS components (job analysis, recruitment, performance appraisal, communications) and finds employees in HR sections have positive attitudes toward HRIS components, and perceive these to positively influence organizational performance. Hossain et al. (2025) identified that, all five components of HRIS (Job analysis, e-recruitment & selection, e-compensation & benefit, e-performance appraisal, and e-communication) have positive relationships with operational efficiency, with the strongest relationships being e-recruitment & selection and e-communication.

In performance management, HRIS facilitates continuous feedback and real-time performance tracking. By centralizing performance data, HRIS allows managers to set clear objectives, monitor progress, and provide timely feedback, thereby fostering a culture of accountability and continuous improvement. A systematic literature review by Savitri et al. (2024) explored the impact of HRIS on employee performance management. The study highlighted that HRIS facilitates efficient performance appraisals, feedback mechanisms, and career development planning, thereby improving overall employee performance in service organizations. The integration of HRIS in performance management processes enables timely and data-driven decisions, fostering a culture of continuous improvement.

Moreover, HRIS supports employee engagement and retention strategies. HRIS can collect and analyze employee feedback through surveys and engagement metrics, enabling organizations to identify areas for improvement and implement targeted initiatives. This data-driven approach is crucial for enhancing employee satisfaction and reducing turnover rates.

Ingsih et al. (2024) investigated the role of digital competence in enhancing service quality and employee performance. Their findings suggest that HRIS platforms that promote digital literacy among employees lead to improved service delivery and higher employee performance. Training programs embedded within HRIS can bridge digital skill gaps, ensuring employees are well-equipped to meet the demands of the service sector.

## 2.4 HRIS and Operational Efficiency

Operational efficiency is a primary concern for organizations in the service sector, as effective resource management has a direct impact on customer satisfaction and profitability. HRIS automates routine HR tasks, such as payroll processing and employee record management, thereby reducing administrative burdens and allowing HR professionals to focus on strategic initiatives. This automation not only enhances productivity but also minimizes errors associated with manual processes. Abuhantash (2023) systematically reviewed literatures and found that HRIS supports efficiency, effectiveness, and competitive advantage by automating HR functions, reducing administrative burden, and enabling better decision making. The study by Siddique et al. (2025) found that high information quality, executives' innovativeness, and staff IT skills are significant predictors of HRIS effectiveness, which in turn contributes to efficiency, agility, cost optimization and strategic responsiveness. Parween (2025) explored that HRIS practices contribute positively both directly (via more efficient HR transactions, automated workflows) and indirectly (via increased job satisfaction) to workforce performance.

Moreover, HRIS can integrate various HR functions into a cohesive system, facilitating better coordination and information flow across departments. Sparrow et al. (2016) emphasized that such integration enables organizations to respond more rapidly to operational challenges, improving overall efficiency and service delivery.

## 2.5 Recent Trends in HRIS

Gupta & Mittal (2025) studied Indian companies, examining how perceived barriers and perceived benefits affect the extent of HRIS implementation. They find that HR practitioners' attitudes, training, involvement are critical. If employees see HRIS as strategic (not just administrative) and are involved in its selection/implementation, organizational efficiency outcomes (including decision making) are better. Conversely, barriers (resistance, lack of training, attitude) limit realization of HRIS potential. Sharma et al. (2025) found that HR Analytics and AI have a significant impact on HR functions, capabilities, and decision-making in the IT sector. Successful adoption requires HR professionals to possess technical skills such as data analysis, coding, and domain knowledge. The impact of HR Analytics and AI extends beyond traditional HR practices, revolutionizing the entire HR domain. Asfahani (2024) identified the shift from intuition-based to data-driven talent management, with a focus on advancements in AI and HRIS. Key findings indicate a significant move towards data-centric methodologies in talent management. HRIS plays a crucial role in merging diverse data types, enhancing sustainable HR practices, but also poses technical, legal, and ethical challenges. Sun & Jung (2024) found that technology has the most significant impact on organizational performance. The study identifies challenges to implementation but also provides best practices to overcome them, such as regular performance evaluations and robust security measures. The strategic utilization of technology and effective human resource management are crucial for enhancing organizational productivity, efficiency, and competitiveness. Alebiosu et al. (2023) revealed that manpower planning information, performance appraisal information, and succession planning information are significant predictors of employees' behavioral outcomes. Management apprehension, employee privacy concerns, internal organizational opposition, and conversion costs are substantial barriers to the effective implementation of HRIS. HRIS has a significant influence on employees' behavioral outcomes in selected manufacturing firms in Nigeria. Ibrahim et al. (2024) found that techno-stress is significantly associated with HRIS user satisfaction. Literacy support, technological support, and technological involvement facilities are correlated considerably with HRIS user satisfaction. Innovation support has an insignificant relationship with HRIS user satisfaction. Technology self-efficacy moderates the association between techno-stress and HRIS user satisfaction. Anupa (2021) showed how HRIS positively influences individual and organizational performance in selected software companies in India by automating key HR measures. The study emphasized the importance of sound and balanced HRIS practices to reduce paperwork and maintain privacy.

## 3. Research Questions

The following questions guide the study on the impact of HRIS on operational efficiency and decision-making effectiveness:

1. How does the implementation of HRIS affect the operational efficiency of HR departments in organizations?
2. In what ways does HRIS enhance the quality and speed of decision-making in HR-related activities?
3. What specific HRM functions show the greatest improvement in effectiveness after implementing HRIS?
4. To what extent does HRIS support the alignment of HRM practices with organizational strategic goals?
5. What challenges do organizations face in integrating HRIS with other business systems, and how do these challenges affect operational efficiency?
6. What lessons can be learned from organizations that have successfully implemented HRIS versus those that have faced challenges?

#### 4. Objective of the Study

The primary objective of this paper is to examine the strategic role of HRIS in the service sector, with a focus on its impact on operational efficiency and the effectiveness of data-driven decision-making.

However, this paper also has specific objectives to:

1. Evaluate the extent to which HRIS implementation improves operational efficiency in HR functions
2. Analyze how HRIS facilitates decision-making processes within HR departments by providing timely and accurate data analytics.
3. Investigate the challenges organizations face in integrating HRIS with existing systems and how these challenges affect operational efficiency.
4. Explore how HRIS aligns HR operations with overall organizational strategies and enhances strategic decision-making.

#### 5. Hypotheses Development

With a view to fulfilling the objectives, the following hypothesis has been developed based on the problem statement and research questions:

**H1:** The implementation of HRIS significantly reduces the time required for HR processes (e.g., recruitment, onboarding, and payroll).

**H2:** The use of HRIS is positively correlated with increased employee satisfaction regarding HR service delivery.

**H3:** Access to real-time data through HRIS enhances the speed of decision-making in HR management.

**H4:** There is a positive relationship between the extent of HRIS usage and the quality of decisions made by HR managers and executives.

#### 6. Research Methodology

The research employs a quantitative survey study approach, using surveys that are both quantitative and qualitative. We focused on companies of all sizes and industries that have used HRIS while choosing the sample. Likert-scale, closed-ended questionnaires were used to gather data. A sample size of 102 was chosen using a random sampling procedure. Employees in the service industry in the Sylhet area are included in the sample size. Both offline and online methods were used to gather data. The offline data collection was conducted using a physical copy of the questionnaire. Data was gathered online using a Google Form. The data analysis was conducted using SPSS 25 to enable both a statistical analysis and an understanding of individual experiences, a quantitative survey study was selected.

#### 7. Analysis and Findings

For the responding descriptive analysis as shown in Table 1, there are 77 (75.5 percent) male respondents and 25 (24.5 percent) female respondents. In terms of the age of respondents, 17 (16.7 percent) are in the age group less than 30. There are 42 (41.2 percent), 18 (17.6 percent), 21 (20.6 percent), and 4 (3.9 percent) in the age groups 30–35, 36–40, 41–45, and more than 45, respectively.

**Table 1.** Demographic information

|                 |                    | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------|--------------------|-----------|---------|---------------|--------------------|
| Gender          | Male               | 77        | 75.5    | 75.5          | 75.5               |
|                 | Female             | 25        | 24.5    | 24.5          | 100.0              |
|                 | Total              | 102       | 100.0   | 100.0         |                    |
| Age             | Less than 30 years | 17        | 16.7    | 16.7          | 16.7               |
|                 | 30–35 years        | 42        | 41.2    | 41.2          | 57.8               |
|                 | 36–40 years        | 18        | 17.6    | 17.6          | 75.5               |
|                 | 41–45 years        | 21        | 20.6    | 20.6          | 96.1               |
|                 | More than 45 years | 4         | 3.9     | 3.9           | 100.0              |
|                 | Total              | 102       | 100.0   | 100.0         |                    |
| Education       | Graduation         | 23        | 22.5    | 22.5          | 22.5               |
|                 | Post-Graduation    | 79        | 77.5    | 77.5          | 100.0              |
|                 | Total              | 102       | 100.0   | 100.0         |                    |
| Work Experience | Less than 2 years  | 20        | 19.6    | 19.6          | 19.6               |
|                 | Less than 5 years  | 26        | 25.5    | 25.5          | 45.1               |
|                 | Less than 8 years  | 31        | 30.4    | 30.4          | 75.5               |
|                 | 10 years or more   | 25        | 24.5    | 24.5          | 100.0              |
|                 | Total              | 102       | 100.0   | 100.0         |                    |

There are 20 respondents (19.6 percent) with less than 2 years of work experience, 26 respondents (25.5 percent) with less than 5 years of work experience, 31 respondents (30.4 percent) with less than 8 years of work experience, and 25 respondents (24.5 percent) with 10 years or more of experience. Regarding the field of education, 23 (22.5 percent) respondents are graduates, and 79 (77.5 percent) respondents are postgraduates.

## 7.1 Descriptive Results

Descriptive statistics show the narrative view of the contents included in a study. The study includes six constructs; HRIS, Human Resource Planning (HRP), Job Analysis (JA), Retention and Selection (RS), Compensation and Benefits (CB), and Organizational Performance (OP). As shown in Table 2, the number is sample is 102. There are no missing values for any of the constructs.

Rest of the table presents the mean, standard deviation, minimum, and maximum values for all variables in this study, providing a concise overview of the study.

**Table 2.** Descriptive analysis

|   |                | HRIS  | HRP   | JA    | RS    | CB    | OP    |
|---|----------------|-------|-------|-------|-------|-------|-------|
| N | Valid          | 102   | 102   | 102   | 102   | 102   | 102   |
|   | Missing        | 0     | 0     | 0     | 0     | 0     | 0     |
|   | Mean           | 22.46 | 25.33 | 20.95 | 21.12 | 26.54 | 25.01 |
|   | Median         | 23.00 | 25.00 | 21.00 | 22.00 | 27.00 | 25.00 |
|   | Mode           | 22.00 | 25.00 | 20.00 | 23.00 | 27.00 | 24.00 |
|   | Std. Deviation | 3.14  | 2.35  | 2.77  | 2.64  | 2.05  | 2.29  |
|   | Range          | 15.00 | 12.00 | 14.00 | 12.00 | 10.00 | 11.00 |
|   | Minimum        | 14.00 | 18.00 | 11.00 | 13.00 | 20.00 | 19.00 |
|   | Maximum        | 29.00 | 30.00 | 25.00 | 25.00 | 30.00 | 30.00 |

## 7.2 Pearson's Correlation

To assess the size and direction of the linear relationship among the scores of HRIS, HRP, JA, RS, CB, and OP, a bivariate Pearson's product-moment correlation coefficient ( $r$ ) was calculated. As shown in Table 3, the bivariate correlation result shows the relationship between:

**Table 3.** Pearson's correlation among HRIS, HRP, JA, RS, CB, and OP (n = 102)

|      | Variable            | HRIS   | HRP    | JA     | RS     | CB     | OP     |
|------|---------------------|--------|--------|--------|--------|--------|--------|
| HRIS | Pearson Correlation | 1      | 0.40** | 0.43** | 0.47** | 0.23*  | 0.53** |
|      | Sig. (2-tailed)     |        | 0.00   | 0.00   | 0.00   | 0.02   | 0.00   |
|      | N                   | 102    | 102    | 102    | 102    | 102    | 102    |
| HRP  | Pearson Correlation | 0.40** | 1      | 0.60** | 0.50** | 0.56** | 0.43** |
|      | Sig. (2-tailed)     | 0.00   |        | 0.00   | 0.00   | 0.00   | 0.00   |
|      | N                   | 102    | 102    | 102    | 102    | 102    | 102    |
| JA   | Pearson Correlation | 0.43** | 0.60** | 1      | 0.70** | 0.59** | 0.54** |
|      | Sig. (2-tailed)     | 0.00   | 0.00   |        | 0.00   | 0.00   | 0.00   |
|      | N                   | 102    | 102    | 102    | 102    | 102    | 102    |
| RS   | Pearson Correlation | 0.47** | 0.50** | 0.70** | 1      | 0.50** | 0.59** |
|      | Sig. (2-tailed)     | 0.00   | 0.00   | 0.00   |        | 0.00   | 0.00   |
|      | N                   | 102    | 102    | 102    | 102    | 102    | 102    |
| CB   | Pearson Correlation | 0.23*  | 0.56** | 0.59** | 0.50** | 1      | 0.52** |
|      | Sig. (2-tailed)     | 0.02   | 0.00   | 0.00   | 0.00   |        | 0.00   |
|      | N                   | 102    | 102    | 102    | 102    | 102    | 102    |
| OP   | Pearson Correlation | 0.53** | 0.43** | 0.54** | 0.59** | 0.52** | 1      |
|      | Sig. (2-tailed)     | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |        |
|      | N                   | 102    | 102    | 102    | 102    | 102    | 102    |

Note: Human Resource Information Systems (HRIS), Human Resource Planning (HRP), Job Analysis (JA), Retention and Selection (RS), Compensation and Benefits (CB), and Organizational Performance (OP). \*\* $p < 0.01$ , \* $p < 0.05$

HRIS and HRP were positive and have medium association,  $r = 0.40$ ,  $df = 100$ ,  $p < 0.001$ .

HRIS and JA were positive and have medium association,  $r = 0.43$ ,  $df = 100$ ,  $p < 0.001$ .

HRIS and RS were positive and have medium association,  $r = 0.47$ ,  $df = 100$ ,  $p < 0.001$ .

HRIS and CB were positive but have small to medium association,  $r = 0.23$ ,  $df = 100$ ,  $p = 0.021$ .

HRIS and OP were positive and strong,  $r = 0.53$ ,  $df = 100$ ,  $p < 0.001$ .

HRP and JA were positive and very strong,  $r = 0.60$ ,  $df = 100$ ,  $p < 0.001$ .

HRP and RS were positive and have large association,  $r = 0.50$ ,  $df = 100$ ,  $p < 0.001$ .  
 HRP and CB were positive and strong,  $r = 0.56$ ,  $df = 100$ ,  $p < 0.001$ .  
 HRP and OP were positive and have medium association,  $r = 0.43$ ,  $df = 100$ ,  $p < 0.001$ .  
 JA and RS were positive and very strong,  $r = 0.70$ ,  $df = 100$ ,  $p < 0.001$ .  
 JA and CB were positive and strong,  $r = 0.59$ ,  $df = 100$ ,  $p < 0.001$ .  
 JA and OP were positive and strong,  $r = 0.54$ ,  $df = 100$ ,  $p < 0.001$ .  
 RS and CB were positive and strong,  $r = 0.50$ ,  $df = 100$ ,  $p < 0.001$ .  
 RS and OP were positive and strong,  $r = 0.59$ ,  $df = 100$ ,  $p < 0.001$ .  
 CB and OP were positive and strong,  $r = 0.52$ ,  $df = 100$ ,  $p < 0.001$ .

Hence, the relationship between the application of a HRIS and HRP, JA, RS, and CB is positive but not strong. The relationship between the usage of HRIS and OP is both positive and strong.

Again, OP has a positive and strong relationship with JA, RS, and CB. But the relationship between OP and HRP is not strong, though positive.

### 7.3 Partial Correlation

(1) Partial correlation is used to explore the relationship between usage of HRIS and OP while controlling for scores of HRP.

As shown in Table 4, there was a positive and medium association partial correlation between HRIS and OP, controlling for HRP,  $r = 0.43$ ,  $df = 100$ ,  $p < 0.001$ , with higher application of HRIS associated with a high level of OP. Hence, the usage of HRIS will increase organizational performance to some extent. An inspection of the zero-order correlation ( $r = 0.53$ ) suggested that controlling for HRP had a significant effect on the strength of the relationship between these two variables.

**Table 4.** Partial correlation between HRIS and OP controlling for HRP (n = 102)

| Control Variable | Dependent Variable           | HRIS  | OP    | HRP  |
|------------------|------------------------------|-------|-------|------|
| None             | Correlation                  | 1.00  | 0.53  | 0.40 |
|                  | HRIS Significance (2-tailed) |       | 0.00  | 0.00 |
|                  | <i>df</i>                    | 0     | 100   | 100  |
|                  | Correlation                  | 0.53  | 1.00  | 0.43 |
|                  | OP Significance (2-tailed)   | 0.00  |       | 0.00 |
|                  | <i>df</i>                    | 100   | 0     | 100  |
|                  | Correlation                  | 0.40  | 0.43  | 1.00 |
|                  | HRP Significance (2-tailed)  | 0.000 | 0.000 |      |
|                  | <i>df</i>                    | 100   | 100   | 0    |
| HRP              | Correlation                  | 1.00  | 0.43  |      |
|                  | HRIS Significance (2-tailed) |       | 0.00  |      |
|                  | <i>df</i>                    | 0     | 99    |      |
|                  | Correlation                  | 0.43  | 1.00  |      |
|                  | OP Significance (2-tailed)   | 0.00  |       |      |
|                  | <i>df</i>                    | 99    | 0     |      |

Note: Human Resource Information Systems (HRIS), Organizational Performance (OP), Human Resource Planning (HRP). \*\* $p < 0.01$ ,  $p < 0.05$

**Table 5.** Partial correlation between HRIS and OP controlling for JA (n = 102)

| Control Variable | Dependent Variable           | HRIS | OP   | JA   |
|------------------|------------------------------|------|------|------|
| None             | Correlation                  | 1.00 | 0.53 | 0.43 |
|                  | HRIS Significance (2-tailed) |      | 0.00 | 0.00 |
|                  | <i>df</i>                    | 0    | 100  | 100  |
|                  | Correlation                  | 0.53 | 1.00 | 0.54 |
|                  | OP Significance (2-tailed)   | 0.00 |      | 0.00 |
|                  | <i>df</i>                    | 100  | 0    | 100  |
|                  | Correlation                  | 0.43 | 0.54 | 1.00 |
|                  | JA Significance (2-tailed)   | 0.00 | 0.00 |      |
|                  | <i>df</i>                    | 100  | 100  | 0    |
| JA               | Correlation                  | 1.00 | 0.39 |      |
|                  | HRIS Significance (2-tailed) |      | 0.00 |      |
|                  | <i>df</i>                    | 0    | 99   |      |
|                  | Correlation                  | 0.39 | 1.00 |      |
|                  | OP Significance (2-tailed)   | 0.00 |      |      |
|                  | <i>df</i>                    | 99   | 0    |      |

Note: Human Resource Information Systems (HRIS), Organizational Performance (OP), Job Analysis (JA). \*\* $p < 0.01$ ,  $p < 0.05$



(2) Partial correlation is used to explore the relationship between usage of HRIS and OP while controlling for scores of JA.

As reported in Table 5, there was a positive and medium association partial correlation between HRIS and OP, controlling for JA,  $r = 0.39$ ,  $df = 100$ ,  $p < 0.001$ , with high levels of HRIS associated with a high level of OP. Hence, the usage of HRIS will increase organizational performance to some extent. An inspection of the zero-order correlation ( $r = 0.53$ ) suggested that controlling for JA had a significant effect on the strength of the relationship between these two variables.

(3) Partial correlation is used to explore the relationship between usage of HRIS and OP while controlling for scores of RS.

As depicted in Table 6, there was a positive and medium association, partial correlation between HRIS usage and OP, controlling for RS,  $r = 0.35$ ,  $df = 100$ ,  $p < 0.001$ , with high levels of HRIS satisfaction associated with a high level of OP. An inspection of the zero-order correlation ( $r = 0.53$ ) suggested that controlling for RS had a significant effect on the strength of the relationship between these two variables.

**Table 6.** Partial correlation between HRIS and OP controlling for RS (n = 102)

| Control Variable | Dependent Variable | HRIS                    | OP   | RS        |
|------------------|--------------------|-------------------------|------|-----------|
| None             | HRIS               | Correlation             | 1.00 | 0.53 0.47 |
|                  |                    | Significance (2-tailed) |      | 0.00 0.00 |
|                  |                    | df                      | 0    | 100 100   |
|                  | OP                 | Correlation             | 0.53 | 1.00 0.59 |
|                  |                    | Significance (2-tailed) | 0.00 |           |
|                  |                    | df                      | 100  | 0 100     |
|                  | RS                 | Correlation             | 0.47 | 0.59 1.00 |
|                  |                    | Significance (2-tailed) | 0.00 | 0.00      |
|                  |                    | df                      | 100  | 100 0     |
| RS               | HRIS               | Correlation             | 1.00 | 0.35      |
|                  |                    | Significance (2-tailed) |      | 0.00      |
|                  |                    | df                      | 0    | 99        |
|                  | OP                 | Correlation             | 0.35 | 1.00      |
|                  |                    | Significance (2-tailed) | 0.00 |           |
|                  |                    | df                      | 99   | 0         |

Note: Human Resource Information Systems (HRIS), Organizational Performance (OP), Retention and Selection (RS).  $**p < 0.01$ ,  $p < 0.05$

(4) Partial correlation is used to explore the relationship between usage of HRIS and OP while controlling for scores of CB.

**Table 7.** Partial correlation between HRIS and OP controlling for CB (n = 102)

| Control Variable | Dependent Variable | HRIS                    | OP   | CB        |
|------------------|--------------------|-------------------------|------|-----------|
| None             | HRIS               | Correlation             | 1.00 | 0.53 0.23 |
|                  |                    | Significance (2-tailed) |      | 0.00 0.02 |
|                  |                    | df                      | 0    | 100 100   |
|                  | OP                 | Correlation             | 0.53 | 1.00 0.52 |
|                  |                    | Significance (2-tailed) | 0.00 |           |
|                  |                    | df                      | 100  | 0 100     |
|                  | CB                 | Correlation             | 0.23 | 0.52 1.00 |
|                  |                    | Significance (2-tailed) | 0.02 | 0.00      |
|                  |                    | df                      | 100  | 100 0     |
| CB               | HRIS               | Correlation             | 1.00 | 0.49      |
|                  |                    | Significance (2-tailed) |      | 0.00      |
|                  |                    | df                      | 0    | 99        |
|                  | OP                 | Correlation             | 0.49 | 1.00      |
|                  |                    | Significance (2-tailed) | 0.00 |           |
|                  |                    | df                      | 99   | 0         |

Note: Human Resource Information Systems (HRIS), Organizational Performance (OP), Compensation and Benefits (CB).  $**p < 0.01$ ,  $p < 0.05$

As shown in Table 7, there was a strong and positive, partial correlation between HRIS usage and OP, controlling for CB,  $r = 0.49$ ,  $df = 100$ ,  $p = 0.021$ , with high levels of HRIS satisfaction associated with a high level of OP. An inspection of the zero-order correlation ( $r = 0.53$ ) suggested that controlling for CB did not have a significant effect on the strength of the relationship between these two variables.

#### 7.4 Kendall's Tau and Spearman's Rho

Spearman's rank order correlation and Kendall's Tau-B correlations were used to explore the relationship between HRIS usage and Level of Education, HRIS usage and work experience, HRIS usage and age of respondents, and HRIS usage and gender of respondents.

(1) As illustrated in Table 8, for HRIS and Education, the rank order correlation was found to be positive and have medium association,  $r_s = 0.37$ ,  $df = 100$ ,  $p < 0.001$ , two-tailed. For HRIS and Education, the rank order correlation was found to be positive and have medium association,  $\tau = 0.31$ ,  $df = 100$ ,  $p < 0.001$ , two-tailed. The result shows that people with a higher level of educational background support the use of the human resource information system in the organization more.

(2) As shown in Table 9, for HRIS and work experience, the rank order correlation was found to be positive but have medium association,  $r_s = 0.31$ ,  $df = 100$ ,  $p = 0.001$ , two-tailed. For HRIS and work experience, the rank order correlation was found to be positive but have small to medium association,  $\tau = 0.24$ ,  $df = 100$ ,  $p = 0.002$ , two-tailed. It indicates that more experienced people understand the significance of the human resource information system better than the less experienced ones.

**Table 8.** Kendall's tau and Spearman's rho to test correlation between HRIS and level of education (n = 102)

|                 |                    | Education               | HRIS   |
|-----------------|--------------------|-------------------------|--------|
| Kendall's tau_b | Level of Education | Correlation Coefficient | 1.00   |
|                 |                    | Sig. (2-tailed)         | 0.31** |
|                 |                    | N                       | 102    |
|                 | HRIS               | Correlation Coefficient | 1.00   |
|                 |                    | Sig. (2-tailed)         | 0.31** |
|                 |                    | N                       | 102    |
| Spearman's rho  | Level of Education | Correlation Coefficient | 1.00   |
|                 |                    | Sig. (2-tailed)         | 0.37** |
|                 |                    | N                       | 102    |
|                 | HRIS               | Correlation Coefficient | 1.00   |
|                 |                    | Sig. (2-tailed)         | 0.37** |
|                 |                    | N                       | 102    |

**Table 9.** Kendall's tau and Spearman's rho to test correlation between HRIS and work experience (n = 102)

|                 |                 | HRIS                    | Work Experience |
|-----------------|-----------------|-------------------------|-----------------|
| Kendall's tau_b | HRIS            | Correlation Coefficient | 1.000           |
|                 |                 | Sig. (2-tailed)         | 0.240**         |
|                 |                 | N                       | 102             |
|                 | Work Experience | Correlation Coefficient | 1.000           |
|                 |                 | Sig. (2-tailed)         | 0.002           |
|                 |                 | N                       | 102             |
| Spearman's rho  | HRIS            | Correlation Coefficient | 1.000           |
|                 |                 | Sig. (2-tailed)         | 0.312**         |
|                 |                 | N                       | 102             |
|                 | Work Experience | Correlation Coefficient | 1.000           |
|                 |                 | Sig. (2-tailed)         | 0.001           |
|                 |                 | N                       | 102             |

**Table 10:** Kendall's tau and Spearman's rho to test correlation between HRIS and age of the respondents (n = 102)

|                 |                    | Age                     | HRIS    |
|-----------------|--------------------|-------------------------|---------|
| Kendall's tau_b | Age of Respondents | Correlation Coefficient | 1.000   |
|                 |                    | Sig. (2-tailed)         | 0.211** |
|                 |                    | N                       | 102     |
|                 | HRIS               | Correlation Coefficient | 1.000   |
|                 |                    | Sig. (2-tailed)         | 0.211** |
|                 |                    | N                       | 102     |
| Spearman's rho  | Age of Respondents | Correlation Coefficient | 1.000   |
|                 |                    | Sig. (2-tailed)         | 0.278** |
|                 |                    | N                       | 102     |
|                 | HRIS               | Correlation Coefficient | 1.000   |
|                 |                    | Sig. (2-tailed)         | 0.278** |
|                 |                    | N                       | 102     |



(3) As shown in Table 10, for HRIS and age, the rank order correlation was found to be positive but have small to medium association,  $r_s = 0.28$ ,  $df = 100$ ,  $p = 0.005$ , two-tailed. For HRIS and age, the rank order correlation was found to be positive but have small to medium association,  $\tau = 0.21$ ,  $df = 100$ ,  $p = 0.007$ , two-tailed. It shows that the people in the high age group have more positive reviews about the HRIS.

(4) As depicted in the Table 11, for HRIS and gender, the rank order correlation was found to be non-significant,  $r_s = -0.14$ ,  $df = 100$ ,  $p = 0.149$ , two-tailed. For HRIS and gender, the rank order correlation was found to be non-significant,  $\tau = -0.12$ ,  $df = 100$ ,  $p = 0.148$ , two-tailed. It indicates that the perception of the usage of the human resource information system does not depend on gender.

**Table 11.** Kendall's tau and Spearman's rho to test correlation between HRIS and gender of the respondents (n = 102)

|                 |                       |                         | Gender | HRIS   |
|-----------------|-----------------------|-------------------------|--------|--------|
| Kendall's tau_b | Gender of Respondents | Correlation Coefficient | 1.000  | -0.123 |
|                 |                       | Sig. (2-tailed)         |        | 0.148  |
|                 |                       | N                       | 102    | 102    |
|                 | HRIS                  | Correlation Coefficient | -0.123 | 1.000  |
|                 |                       | Sig. (2-tailed)         | 0.148  |        |
|                 |                       | N                       | 102    | 102    |
| Spearman's rho  | Gender of Respondents | Correlation Coefficient | 1.000  | -0.144 |
|                 |                       | Sig. (2-tailed)         |        | 0.149  |
|                 |                       | N                       | 102    | 102    |
|                 | HRIS                  | Correlation Coefficient | -0.144 | 1.000  |
|                 |                       | Sig. (2-tailed)         | 0.149  |        |
|                 |                       | N                       | 102    | 102    |

### Summary of the Findings

The key findings of the perceptual analysis show that the application of HRIS-related methods and technology has positively affected the decision-making process in the various sectors of the human resource department of an organization. Along with that, it streamlines the efficiency and overall organizational performance. Moreover, the study reveals that educational background and relevant experience have roles to play in experiencing the full-scale benefits of HRIS. However, the result cannot explain all the situations of such nature for sure, as the study has certain limitations. The findings of this study are mostly appropriate for private organizations of Sylhet that have qualified people to operate such systems. A larger sample size could illuminate a clearer depiction in this regard. Also, no correction for multiple testing was applied; therefore, results should be interpreted as exploratory. Yet, the result positively motivates the implementation of HRIS and pertinent technology in organizations for superior efficiency and effectiveness.

## 8. Discussion

Organizations that implemented HRIS reported a significant reduction in time spent on recruitment and onboarding processes. Automated workflows and self-service portals allowed HR staff to focus on strategic tasks rather than administrative duties. Studies by Tiwari et al. (2024) showed a positive relationship between HRIS adoption and employee productivity; indicates that HRIS improves communication and access to relevant information which supports employees in performing better. This implies better decision support for employees in their tasks. The standardized processes within HRIS minimized human error, ensuring more accurate data management and compliance with regulations. Fernando & Janadari (2024) confirmed HRIS supports strategic decision-making, improves access to HR data, and enables working standard improvements. Kumar & Jagadeesan (2024) assessed the effectiveness of HRIS practices in the IT sector. Their research emphasized the importance of accurate data management, real-time analytics, and employee feedback mechanisms in optimizing HRIS performance. Tailored learning paths and resource efficiency facilitated by HRIS contribute to improved employee performance and organizational success in the IT industry. Organizations utilizing predictive analytics features within HRIS reported improved talent management outcomes. For example, predictive models for employee turnover allowed proactive retention strategies, resulting in a decrease in turnover rates. Organizations that adopted HRIS exhibited a continuous improvement in key performance indicators (KPIs) such as employee productivity and retention rates compared to those without HRIS. Bony & Fatema (2024) conducted an empirical study on the impact of HRIS on the financial profitability of commercial banks in Bangladesh. The research indicated a positive correlation between HRIS adoption and key financial indicators such as revenue per employee and return on investment. Efficient HRIS utilization leads to streamlined operations and better resource allocation, contributing to enhanced profitability in the banking sector. The integration of HRIS into strategic planning facilitated better alignment between HR initiatives and overall business goals. Statistical analysis revealed a strong positive correlation between the extent of HRIS use and the quality of decisions made by HR managers. Moreover,

qualitative feedback emphasized that access to data-driven insights led to more informed and strategic HR decisions. Memon et al. (2022) claimed that HRIS supports management of knowledge and competence, which are important enablers for decision-making and efficiency; HRIS helps in sharing of knowledge, competencies, tracking learning etc. Imron et al. (2024) emphasized the role of HRIS in achieving efficiency & effectiveness in the context of sustainable or “green” business practices. Not just cost or operations, but aligning HRIS to sustainability strategy. Automation, reduction of administrative burden, process efficiency are commonly perceived benefits. (Parween, 2025; Tiwari et al., 2024)

## 9. Challenges and Limitations

While HRIS offers numerous benefits for decision-making, several challenges and limitations exist. For instance, the reliance on technology may lead to data overload, where decision-makers are inundated with information, making it difficult to discern what is most relevant. One significant issue is data security and privacy concerns, which can affect user trust and engagement with the system. Additionally, the effectiveness of HRIS is contingent upon user adoption and data accuracy. Without proper training and engagement, organizations may struggle to leverage HRIS effectively for decision-making. Organizations must address these challenges to fully realize the benefits of HRIS. Looking forward, the continued evolution of HRIS is likely to be shaped by advancements in artificial intelligence and machine learning. These technologies have the potential to further enhance HRIS capabilities, enabling predictive analytics and automated decision-making processes. Future research should explore the impact of these technologies on HR practices and organizational outcomes.

One significant limitation is the sample size and diversity of the organizations included in the study. If the sample is not representative of the broader population, the findings may not be generalizable. For example, focusing predominantly on large corporations may overlook the unique challenges and benefits faced by small and medium-sized enterprises (SMEs) in adopting HRIS. A more varied sample across different industries and organizational sizes would strengthen the findings. The study employs a cross-sectional design, which captures data at a single point in time. This limits the ability to establish causal relationships between HRIS implementation and observed outcomes. Longitudinal studies that track changes over time would provide deeper insights into how HRIS impacts operational efficiency and decision-making effectiveness in the long run. The reliance on self-reported data, particularly regarding employee satisfaction and perceived efficiency improvements, introduces potential biases. Participants may overstate positive outcomes due to social desirability or lack of awareness about actual changes. Incorporating objective performance metrics could provide a more accurate assessment of HRIS impacts. There is considerable variability in the functionality and sophistication of HRIS platforms across organizations. This study may not adequately account for how differences in HRIS capabilities influence operational efficiency and decision-making. Future research should examine specific features of HRIS and their varying impacts on organizational outcomes. The study primarily focuses on immediate outcomes of HRIS implementation, such as time savings and error reduction. However, it may overlook longer-term strategic impacts, such as changes in organizational culture or employee engagement. Future research should explore these broader implications to provide a more comprehensive understanding of HRIS effects. Various external factors, such as economic conditions or organizational culture, may influence the relationship between HRIS and the observed outcomes. The study may not fully control for these confounding variables, which could potentially skew the results. A more controlled study design could mitigate this limitation. The geographic scope of the study may also present a limitation. If the research is confined to a specific region or country, it may not capture the global perspectives and practices surrounding HRIS. Future studies should consider a more international approach to enhance the applicability of findings across different contexts. The study involved multiple correlation tests without adjustment for multiple comparisons, which may increase the risk of Type I error; future research should confirm these findings. While two constructs demonstrated acceptable internal consistency (Cronbach’s  $\alpha > 0.70$ ) and one construct was marginally acceptable ( $\alpha \approx 0.60$ ), the remaining constructs showed relatively low reliability ( $\alpha < 0.50$ ). This indicates that the items for these constructs may not fully capture the underlying concept, possibly due to sample size limitations, item wording, or contextual differences in the service sector. Consequently, the findings related to these constructs should be interpreted with caution. Future research should refine and validate these measurement scales, preferably with larger and more diverse samples, to improve reliability and generalizability.

## 10. Future Research Directions

Future research should consider adopting longitudinal designs to better understand the long-term impacts of HRIS on operational efficiency and decision-making effectiveness. By tracking changes over time, researchers can identify causal relationships and assess how the benefits of HRIS evolve as organizations adapt to new technologies. Longitudinal studies could also explore the sustained effects on employee engagement and organizational culture. To enhance generalizability, future studies should include a wider range of organizational

contexts, including small and medium-sized enterprises (SMEs) and non-profit organizations. Research indicates that the impact of HRIS may vary significantly across different types of organizations. By examining diverse sectors, researchers can identify best practices and challenges unique to various contexts. Further research should delve into the specific features of HRIS that contribute most significantly to operational efficiency and decision-making effectiveness. Different functionalities, such as predictive analytics, employee self-service modules, and integrated reporting tools, may have varying impacts on organizational outcomes. Understanding which features are most beneficial can guide organizations in selecting and optimizing their HRIS. Research should investigate the role of user training and competence in leveraging HRIS for improved outcomes. Effective training correlates with higher confidence and competence in using HRIS. Future studies could explore the relationship between training programs and the successful implementation of HRIS, as well as the subsequent impact on operational efficiency and decision-making. The influence of organizational culture and geographic location on HRIS effectiveness warrants further exploration. Different cultures may prioritize various HR practices, affecting how HRIS is implemented and utilized. Comparative studies across countries and cultures can provide insights into how contextual factors shape the impact of HRIS on efficiency and decision-making. Future research should examine how HRIS integrates with other emerging technologies, such as AI and machine learning. Understanding the synergy between HRIS and advanced technologies can provide insights into how organizations can maximize their data-driven decision-making capabilities. This integration may also enhance predictive analytics and automation within HR processes. Predictive HRIS has played a transformative role in forecasting strategic talent and optimizing the workforce (Hossain et al., 2025). The development of standardized metrics to assess the impact of HRIS on operational efficiency and decision-making is crucial. Future studies should focus on creating comprehensive evaluation frameworks that incorporate both qualitative and quantitative measures. This approach enables organizations to benchmark their HRIS performance and identify areas for improvement. Lastly, future research should consider incorporating employee perspectives on the effectiveness of HRIS. Employee satisfaction and engagement are critical components of successful HRM, and understanding how HRIS affects these factors can provide a holistic view of its impact. Qualitative studies involving employee interviews or focus groups could yield valuable insights into the user experience and the perceived value of HRIS.

## 11. Conclusion

The research identifies that HRIS plays a significant role in labor demand and supply analysis within the service sector. A multifaceted strategic influence is possible through HRIS. It enhances operational efficiency, talent management, data-driven decision-making, and employee engagement. By automating processes, providing analytical insights, and fostering effective communication, HRIS empowers organizations to align their human resource strategies with overall business objectives. By facilitating effective data management, forecasting, and recruitment strategies, HRIS enhances organizational efficiency and responsiveness to market changes. However, the successful implementation of HRIS demands a commitment to training and user engagement to gain its potential paybacks. Organizations must address challenges related to implementation and user engagement to maximize the benefits of HRIS. Future research should focus on longitudinal studies to assess the long-term impacts of HRIS on organizational efficiency and performance in the service sector. Also, research should focus on the strategic value of HRIS in diverse service sector contexts, providing deeper insights into its value in human resource management.

## Author Contributions

Conceptualization, M.A.M.C. and R.A.; methodology, M.A.M.C. and R.A.; software and formal analysis, R.A.; validation, R.A.; investigation and data curation, M.A.M.C. and R.A.; writing original draft preparation, M.A.M.C. and R.A.; writing review and editing, M.A.M.C. and R.A.; visualization, M.A.M.C. All authors have read and agreed to the published version of the manuscript.

## Data Availability

The data used to support the research findings are available from the corresponding author upon request.

## Conflicts of Interest

The authors declare no conflict of interest.

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## Appendix

**Appendix A1.** Internal consistency among the constructs

| Construct                  | Items | Sample Items  | Response Format                | Cronbach's $\alpha$ | M       | SD      |
|----------------------------|-------|---|--------------------------------|---------------------|---------|---------|
| HRIS                       | 6     | "Using the technology to simplify the processes has a positive impact on HRM effectiveness"; "Precise and up-to-date information can have a tremendous impact on HR function" | 1–5 Likert<br>(1 = SD, 5 = SA) | 0.630               | 22.4608 | 3.14240 |
| Human Resource Planning    | 6     | "Forecast of staff requirements is now comparatively better"; "Accuracy of Analyzing and matching the demand for human resources has been improved"                           | 1–5 Likert<br>(1 = SD, 5 = SA) | 0.517               | 25.3333 | 2.35188 |
| Job Analysis               | 5     | "Information is a vital element in preparing job description and job specification"; "Cost and time required in job analysis process has been reduced"                        | 1–5 Likert<br>(1 = SD, 5 = SA) | 0.731               | 20.9510 | 2.76963 |
| Recruitment & Selection    | 5     | "Effective recruitment and selection can be conducted based on the information generated"; "Cost and time required for proper recruitment & selection has been reduced"       | 1–5 Likert<br>(1 = SD, 5 = SA) | 0.774               | 21.1176 | 2.64498 |
| Compensation & Benefit     | 6     | "It is essential to record each employee's updated compensation & benefit information"; "Salary management system help in smooth function of payroll management"              | 1–5 Likert<br>(1 = SD, 5 = SA) | 0.490               | 26.5392 | 2.05215 |
| Organizational Performance | 6     | "Organizational efficiency is depends on the proper information"; "Paperwork is reduced by using information in organized way"  | 1–5 Likert<br>(1 = SD, 5 = SA) | 0.403               | 25.0098 | 2.28856 |

Note:  $\alpha = 0.853$