



# A Survey of Adoption Challenges and Barriers in Implementing Digital Payroll Management Systems in Across Organizations

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**Abstract** - Payroll management is a very critical organization task, it ensures employees receive payments in a fast and accurate manner. Previously, payroll was manual and time consuming, prone to errors, and not easy to scale up especially in large organizations. Digital technologies have changed the payroll management, with automation and cloud-based payroll management functionalities to be regarded as advantages because of the decrease in human error, enhanced data security, real-time access to data, and the ability to integrate with the human resource (HR) and enterprise resource planning (ERP) systems without disruption. Even though these have these benefits there still exist some major implementation hurdles with organizations that include high initial establishment costs, high maintenance costs over a longer period, integration with already existing systems and adherence to non-equal labor laws and taxation codes. Other barriers that pose as impediments to implementation are highlighted and these include employees who are afraid of change, lack of digital skills and fear of data privacy and cybersecurity. This paper covers the problem of adoption among different organizational forms including large businesses, small and medium-sized business (SMEs), state agencies and multinational corporations depending on the variations in financial capacity, technological readiness, and regulatory policies. The findings emphasize the fact that, though digital payroll solutions can significantly revamp HR management, only a right balance between technology, money, and culture can help organizations implement cost-effective and secure digital payroll solutions successfully.

**Keywords** - Payroll Management, Digital Payroll System, Automation, Adoption Challenges, Enterprise Integration, Employee Resistance.

## 1. Introduction

Payroll processing systems, as part of HRM too, are not an exception and are also experiencing a digital revolution due to the rapid pace of technological changes in the world. Automating the payroll process would save large organizations a lot of time, energy, and effort compared to the current method of manually calculating employee pay [1]. The concept of having the process under control by developing a computerized payroll system is desirable because it increases the level of competitiveness, data security against breaches and reduced human errors in calculations [2]. The extensive number of payroll system advancements has made it more essential to know whether it is patented or not. Automation of digital payroll management, however, is not done without difficulties. With the prospect of efficiency and accuracy, the technology is usually faced with problems of cost, infrastructure and employee readiness [3]. Actually, small and medium sized companies may get affected by the high initial capital investment and technical expertise required to effectively transition out of the traditional payroll systems to electronic systems [4]. Besides, the resistance to changes and insufficient training, as well as data privacy, make the process of adoption more complicated.

Implementation barriers in organizations are diverse based on the size, industry, and maturity of technology within organizations. Then in such a scenario, a large company will easily delegate resources to implement the system but might be burdened by the problem of integration of payroll software across different departments or different offices in other nations [5]. Small organizations, however, can focus on economicalness and scalability where it is limited by qualified personnel and regulation issues. Such disparities highlight the necessity of having a comparative enquiry which may be capable of identifying similarities and various challenges in various organizational setting. In this paper, a mapping of adoption obstacles and issues related to the adoption of digital payroll management systems to firms of different sizes and industries is performed extensively. This research tries to present an insight into the adoption of digital payroll systems, the most common challenges, and the ways of resolving the above-mentioned problems based on the examination of both technological and organizational aspects. This will

provide a platform of how digital payroll take-up can be enhanced in future such that organizations can enjoy the most out of the benefits of automation and the issue of embracing and adopting digital payroll take-up.

### **1.1. Structure of the Paper**

The paper is presented in the following manner: in Section II the paper introduces the Background of Digital Payroll Management Systems, then in Section III the paper introduces Adoption Challenges, and then in Section IV the paper introduces Barriers to Implementation. Section V implies the Comparative Analysis Across Organizations and Section VI is the Literature Review. Finally, Section VII concludes with key insights and suggests Future Work.

## **2. Background of Digital Payroll Management Systems**

A payroll system is a way for businesses to manage the payment of salaries to its employees. Disbursement of salary to employees, administration of retirement benefits, and calculation of salaries and tax deductions are all parts of the process. Payroll processing is an accounting function that handles the administration of salaries for employees in a company [6]. Salary administration is a complex process that requires close collaboration between the HR and accounts departments. Consequently, payroll accounting and payroll administration are two subprocesses inside the larger umbrella of payroll management. All of an employee's incomebase pay, overtime pay, bonuses, net pay, and deductionsare managed through the payroll system. It includes information such as the employee's ID, name, start date, daily attendance record, basic salary, allowances, overtime pay, bonus, commissions, incentives, holiday, vacation, and sick pay, meal and lodging values, and more.

Contributions to a retirement fund, taxes, payments on loans or advances made by an employee are all eligible for deductions. Alternatively, digital payroll management systems have revolutionized how organizations handle employee compensation by automating salary calculations, tax deductions, and compliance with labor regulations. These systems reduce manual errors, streamline the processing of pay slips, and provide real-time access to financial records for both employers and employees. By integrating features such as direct bank transfers, leave tracking, and benefits administration, they enhance operational efficiency and transparency. Management can make better decisions about workforce planning and cost optimization using the analytics and reporting tools included in digital payroll platforms. This leads to a more organized and responsive HR framework.

### **2.1. Payroll Management Processes**

Earnings tax deductions is a time-consuming and perhaps dangerous process. While some businesses still rely on time-honored manual processes, others have upgraded to state-of-the-art payroll processing software. A business can choose from a variety of payroll processing options:

#### **2.1.1. Manual System:**

The conventional method of processing payroll that predates the widespread use of computers, software, and other electronic assistance is known as a manual payroll system [7]. It makes use of tools like spreadsheets, adding machines, and pen and paper. When automated payroll systems were not yet available, the method enjoyed widespread used.

#### **2.1.2. Accountant:**

A certified public accountant is an individual with academic training in accounting and/or financial reporting. All tasks pertaining to payroll accounting fall under his or her purview. Payroll outsourcing must provide significant advantages for organizations with a large workforce, around 900 to 1000 employees.

The data is shared with the consulting and outsourcing companies. The following are examples of the many payroll tasks performed by outsourcing companies:

- Investigation of Payroll Data, Payroll Taxes
- Health insurance claim management
- Assistance in processing employee benefits and provident funds
- Methods and preparation for quality audits

### **2.2. Core functions and functionalities**

Automated payroll processing is a core feature of payroll software solutions. It involves the systematic calculation of employee wages, salaries, bonuses, and deductions in accordance with predefined rules and regulations [8]. By automating these tasks, payroll software reduces manual errors, ensures consistency, and saves time and effort in payroll administration in Figure 1. This automation also enables timely payroll processing, allowing organizations to meet payroll deadlines efficiently.



**Fig 1:Features in Payroll Software**

- Payroll software solutions contain tax computation features that precisely calculate the quantity of taxes to deduct from the employee's salaries. Payroll solutions consider federal, state, and local tax laws as well as applicable deductions and exemptions.
- Payroll software aids in conformity with tax laws and regulations and the avoidance of audits and penalties through automated tax computation [9]. The software also simplifies tax reporting by calculating reports and documents needed for filing.
- Payroll software facilitates the electronic disbursing of employee compensation into their bank accounts by direct deposit [10]. This eliminates the inconvenience of paper checks, reduces administrative costs, and gives employees timely access to their wages.
- Employee self-service portals are an integral part of payroll software solutions, allowing employees to access and manage their own personal information, pay stubs, tax statements, and benefit enrollment independently. Employee self-service portals give employees convenient access to fundamental HR and payroll services, which lessens the burden on HR teams while encouraging increased employee participation.
- The integration of payroll software with time and attendance monitoring systems allows for the automation of the recording of employees' work hours and attendance [11].
- By automating time and attendance management, organizations can maintain compliance with labor regulations, ensure precise wage calculations, and identify trends in employee productivity.
- In addition, payroll software incorporates employee database management features to centralize and organize critical information such as contact details, job history, compensation, and benefits.

### 2.3. Benefits of Attendance & Payroll Management System

- Using a biometric attendance system to clock in is a surefire way to put an end to buddy punching [12]. "Buddy clocking" another employee, a kind of time fraud is very difficult, if not impossible. There can be no more time theft because it is impossible to replicate a single coworker's biometric features.
- **Discontinuous consumable expenses:** Key fobs and cards depreciate over time and need replacement.
- **Reliable Information:** A biometric system for tracking time and attendance records current and precise information. Identifying workplace problems is as easy as looking at the data whenever want [13]. It lets make reports fast and lets know when something is wrong so can fix it right away.
- **Precise Payroll Records:** A biometric system accurately records the times of arrival and departure for employees, enabling them to be paid accordingly. A decrease in overpayments would be highly beneficial for the majority of businesses.
- **Rules Automation in the Workplace:** A biometric system can be easily set up to handle rule administration in the office. For instance, flex time eliminates the need for a company to manually record employee hours worked. Not only does the system handle everything for the company, but it also notifies employees of their account balance through reports.
- A biometric system can increase productivity by decreasing or eliminating the need for employees to manually record their attendance and time, which saves them time and ensures that payroll has accurate labor statistics [14]. Business operations become more streamlined because of this.
- **Improves Employee Accountability:** A biometric time clock makes time and attendance tracking in workforce management more responsible and accountable by creating verifiable audit trails. An employee can face consequences

for many instances of tardiness, absenteeism, and unscheduled breaks if this system accurately identifies them. Accountability and responsibility are more likely to be exhibited by employees who are biometrically tracked.

### 3. Adoption Challenges in Digital Payroll Systems

The implementation of digital payroll systems offers efficiency and accuracy, but organizations often face multiple barriers during adoption. Small and medium-sized businesses, in particular, may find the initial setup cost which includes license, integration, and training to be overwhelming. Data security and privacy issues remain rather significant, particularly when consider delicate information about employees that can be leaked by cybercriminals when accessed via payroll solutions [14]. In addition, resistance to change, lack of employee skills, and the dilemma of installing payroll systems on the existing HR, accounting, and ERP software are other obstacles. There are also the complexities involved in updating and observing the labor laws and tax regulations that are ever-changing to make adoption a difficult task. Table I demonstrates the key obstacles to the adoption and implementation of digital payroll systems in organizations.

- **High Costs:** The implementation and maintenance cost is high and might not be attractive to small firms to digitize payroll [15].
- **Data Security Risks:** The most important thing is the security of sensitive employee information in payroll systems against breaches, cyberattacks, and unauthorized access.
- **Employee Resistance:** The lack of digital skills or reluctance to leave manual processes may be a hindrance to a smooth adoption.
- **Integration Issues:** The integration needed between the existing HR, accounting, and ERP systems and their payroll can also be a technical challenge and can take some time.
- **Regulatory Compliance:** The complexity of the administration is enhanced by a necessity to update regularly to comply with moving taxation rules and workplace laws.
- **System Downtime and Reliability:** Payroll cycles may be frustrated by technical glitches or downtime, which results in dissatisfaction by employees and delays in operations.
- **Vendor Dependence:** The large-scale use of third-party service providers can reduce the opportunities of customization and flexibility and represent a risk of dependency.

**Table 1: Categories of Barriers in Digital Payroll System Implementation**

Category	Specific Barriers	Impact on Organizations
Financial	High costs of setup, licensing, integration, and ongoing maintenance.	Discourages adoption, especially in SMEs due to heavy investment needs.
Technological	Integration issues with HR, accounting, and ERP systems; system downtime and reliability concerns.	Leads to operational delays, payroll disruptions, and employee dissatisfaction.
Data & Security	Dangers of unauthorised access to confidential payroll information, data breaches, and cyberattacks.	Increases vulnerability to compliance violations and reputational damage.
Human Factors	Employee resistance due to lack of digital skills and reluctance to move from manual processes.	Slows down adoption and reduces efficiency gains.
Regulatory	Constantly evolving labor laws and tax regulations requiring frequent system updates.	Increases administrative complexity and compliance costs.
Operational/Vendor	Heavy dependence on third-party service providers limiting flexibility and customization.	Creates long-term dependency risks and reduces organizational control.

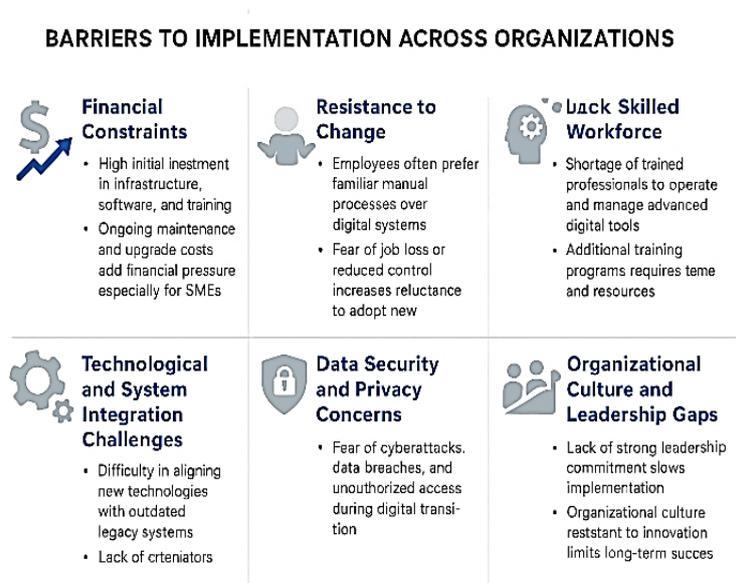
### 4. Barriers to Implementation across Organizations

Several organizational, human, financial, and regulatory factors make it hard for new systems to be adopted. Such roadblocks slow down digital uptake, which in turn slows down standardization and efficiency. See Figure 2 for a high-level overview of the following discussion of the organizational challenges associated with implementing digital payroll systems:

#### 4.1. Financial Constraints

Adopting new systems can be costly for organizations due to the significant upfront investments required for infrastructure, software, and personnel training. Second, the expenses of upkeep and improvements can be particularly detrimental to small and medium-sized enterprises (SMEs).

- **Resistance to Change:** Employees may be hesitant to adopt new methods because they prefer tried-and-true manual processes over computer systems. Concerns of losing one's work or having less control over one's life often make people less open to trying new things.
- **Lack of Skilled Workforce:** The most significant obstacle to adoption is the shortage of trained personnel capable of operating and managing complex digital resources. More training programs require a lot of time and energy to plan and execute.



**Fig 2: Barriers to implementation across organizations**

- **Technological and System Integration Challenges:** Complex and time-consuming integration of new technology with old, inefficient legacy systems is common. Inefficiencies and interruptions to processes stem from platforms' inability to communicate with one another.
- **Data Security and Privacy Concerns:** Organizations remain wary amidst digital shifts as a result of the possibilities of cyberattacks, breaches, and unauthorized access [16]. Hesitancy also arises as a result of preserving sensitive employee and financial information in centralized systems.
- **Regulatory and Compliance Issues:** The implementation is complicated by the existence of various labor laws, tax policies, and standards of various industries in different regions. Continuous monitoring is required to keep up with the resource-intensive process of maintaining compliance in operations spanning multiple geographies.
- **Organizational Culture and Leadership Gaps:** Implementing new systems and getting the organization ready are both slowed down by a lack of support from leaders. There is also a culture that doesn't accept new ideas, which makes it harder to make the digital transformation work in the long run.

## 5. Comparative Analysis across Organizations

Digital payroll systems are implemented in a variety of ways by various organizations, depending on their size, industry, operational environment, and resources. Comparative research shows that big businesses are more likely to use advanced payroll solutions because they have the money, the technical know-how, and the ability to connect all of their systems [17]. SMEs, on the other hand, can only use a smaller number of reasons, such as cost, training for employees, and system integration. The difference between them leads to different levels of adoption and shows how important it is to look at organizational traits in the context of their surroundings. Businesses with a lot of employees often use digital payroll systems that are integrated with their accounting, HR, and ERP systems to facilitate data flow and real-time analytics [18]. Economies of scale, IT staff, and working together with vendors are some of the benefits of these groups. They make implementation much easier and provide more help. Nevertheless, they frequently have issues when they need to enforce compliance across multiple jurisdictions, ensure data protection at scale, and maintain business operations when system upgrades are underway.

The startup cost involved in licensing, customizing and training employees is usually quite high when it comes to SMEs. Dependence on third parties and poor IT capacities compounds the situation with system administration as they are bound to suffer downtime or lose flexibility [19]. The smaller organizations are more resistant to change because manual processes are still deeply embedded into the organizational culture. However, when the leadership is committed to digital transformation, the SMEs can get faster decision-making and more dynamic changes. There is another group of particular barriers to the work of organizations of the public sector. Bureaucracies, high compliance levels and low budgetary allocations can slow down the process of digital payroll adoption [20]. In addition, opposition by the unions and employee associations can be a slowing point in the transition. However, digital payroll systems adopted in the government sector increase transparency, minimize errors, and facilitate financial management accountability, once in place.

Multinational corporations (MNCs) are faced with complicated regulatory environment because they have to ensure that their payroll systems are in tandem with various labor laws and taxation regulations in different regions. As their advantages are strong resources and unlimited partnership with vendors, compliance management and cross-border data security is still a

serious issue. On the whole, the comparative analysis highlights the idea that digital payroll implementation is not a consistent process, but rather is dependent on organizational size, organizational structure, and external environment. Large companies have better scalability, but can be complex at scale, SMEs have limited resources, and financial and technical capabilities, and public organizations are limited by bureaucracy and strict compliance systems. Their resolution needs tailored solutions to respond to these various issues that incorporate technology, money, and regulation issues in the organizational settings. Table II presents the comparison of the level of the digital payroll adoption by the type of the organization and shows the major advantages and difficulties.

**Table 2: Comparative Analysis of Digital Payroll Implementation Across Organizations**

Organization Type	Strengths in Implementation	Key Barriers/Challenges	Overall Impact
Large Enterprises	Strong financial resources, access to skilled IT teams, ability to integrate with ERP/HR tools.	High complexity in compliance across regions; managing large volumes of sensitive data; costly system upgrades.	Achieve scalability and efficiency, but face challenges in maintaining system reliability and compliance.
Small & Medium Enterprises (SMEs)	Flexible decision-making, faster adaptation once leadership commits.	High setup and maintenance costs; lack of skilled workforce; dependence on vendors; resistance to change.	Adoption remains slow; benefits are limited unless financial and technical barriers are addressed.
Public Sector Organizations	Strong emphasis on transparency, accountability, and error reduction in payroll processing.	Budgetary constraints, bureaucratic decision-making, resistance from unions/employee associations.	Implementation is delayed, but once adopted, improves transparency and reduces fraud.
Multinational Corporations (MNCs)	Access to global vendor support, advanced infrastructure, and robust IT resources.	Complex regulatory compliance across multiple countries; cross-border data security concerns.	Gain global integration and efficiency but face continuous compliance and security challenges.

## 6. Literature Review

The existing literature on this area has mainly been conducted on finding the barriers to adoption and conceptual and statistical analysis has been utilized but this paper goes a notch further to look at the organizational distinctions and draws a comparative profile in Table III:

Soegoto (2019) purpose is to create an information system in organizations that already have integrated payroll and presence processes, but continue to rely on manual systems. Using the object-oriented system approach and prototype system development method, the study aims to improve efficiency, reduce errors, and automate processes like RFID recording and input data attendance [21].

Rusly et al (2019) analyzed worldwide payroll patent advances and research from the last half-century, with a focus on trends and patterns in the evolution of payroll systems. According to Scopus statistics up until 2018, there has been an uptick in payroll system patents but a significant decrease in the number of empirical studies published; this highlights the necessity for additional empirical research in this area [22].

Palladan and Palladan (2018) investigated the effects of payroll computerization on productivity from the perspective of employees. Accurate incentive computation, work enrichment, and timely benefit payout all lead to increased productivity, according to the research that used qualitative methodologies and grounded theory [23].

Eko and Mahardika (2018) developed a PHP, Codeigniter Framework, and MySQL-based payroll information system for use at Universitas Proklamasi 45 Yogyakarta. Chosen for Extreme Programming because of its straightforward approach and focus on communication. The system improves efficiency and accuracy in payroll processing, reducing time spent on calculations. The system involves various actors in data management and processing [24].

S et al (2018) A web-based program that organizations use for employee payroll management is a tool for keeping track of employee data, allowances, and deductions. It provides unique IDs for each employee, calculates basic pay based on job and department, and tracks salary creation dates [25].

Chavan et al (2017) offered a solution for managing payroll on the cloud that could be used by administrators, HR, and employees. Employee information such as salary, allowances, deductions, and taxes can be stored in the system, which also logs working hours and permits numerous users to view the data. It provides a safe space, is easy to use, and reduces the likelihood of human mistake in calculations [26].

In this literature review, the studies are systematically analyzed with respect to their objectives, key findings, challenges, and future directions. Table III presents a structured summary of these aspects for clarity and comparison. This approach highlights research trends in digital payroll system adoption.

**Table 3: Comparative Analysis of Payroll System Management**

References	Study On	Objectives	Findings	Challenges	Future Directions
Soegoto (2019)	Desktop-based payroll information system integrated with presence (RFID)	To design and build an integrated payroll and presence system using object-oriented and prototype approaches.	Developed a desktop payroll system that automated manual processes, reduced errors, and improved efficiency.	Manual processes were still dominant before integration; transition to RFID required adaptation.	Broader integration with other HR modules and expansion beyond desktop-based systems.
Rusly et al. (2019)	Global payroll research and patent innovations (bibliometric study, 50 years)	To explore global patterns, trends, and innovations in payroll research and patents.	Found increasing patent development but low number of empirical studies; mapped publication trends and geography.	Lack of empirical payroll studies in academic literature.	Call for more empirical and applied studies in payroll systems research.
Palladan & Palladan (2018)	Employees' perspectives on the effects of payroll automation on productivity	To investigate how payroll computerization affects employee productivity.	Payroll accuracy, timely payments, and enriched jobs improved productivity and employee satisfaction.	Limited sample size (11 employees across 3 institutions).	Expand research across industries with larger samples; explore long-term impacts.
Eko & Mahardika (2018)	Web-based payroll system using PHP, CodeIgniter, and MySQL at Universitas Proklamasi 45 Yogyakarta	To develop a payroll system using Extreme Programming (XP) for improved collaboration and responsiveness.	Designed an effective web-based payroll system with high data accuracy, efficiency, and client-developer feedback.	Frequent system updates and potential errors required constant communication.	Expand XP-based systems to other universities/organizations; integrate with mobile apps.
S et al. (2018)	Web-based employee payroll management system	To manage employee records, allowances, deductions, and salaries using a web application.	Created a payroll system with unique employee IDs, attendance tracking, and automated salary calculations.	Dependence on accurate input data; limited scope of functions beyond payroll.	Incorporate analytics and decision-support functions into payroll systems.
Chavan et al., 2017	Cloud-based Payroll Management Software	To design a payroll system accessible to employees, HR, and admins, enabling accurate tracking of employee data and payroll processing	The system is designed to be user-friendly, secure, and error-free. It allows several users to access it, tracks hours worked, and records pay, allowances, deductions, and taxes.	Integration with existing systems, handling large-scale organizational data, ensuring compliance with changing regulations	Enhancing automation with analytics, AI-based error detection, improved scalability, and integration with other enterprise systems

## 7. Conclusion and Future Work

Digital payroll management systems have revolutionized the administration of employee compensation by automating calculations, reducing errors, enhancing data security, and improving operational efficiency. However, adoption is influenced by multiple factors, including organizational size, financial resources, technological readiness, workforce skills, regulatory compliance, and culture. Scalability, expertise in IT departments and integration of ERP is helpful in large enterprises, but managing compliance and sensitive data at scale can be challenging. The public sector organizations are constrained by regulatory measures, funding constraints and union opposition, and SMEs have high start-up expenses, technical ignorance, dependence on vendors and employee resistance. Multinational companies must ensure that their cybersecurity is high in negotiating complex cross-border laws. Balancing technical, financial, and human variables, balancing tactics to the context of organization, and the preparation of the workforce all are required to be successful in adoption. In order to assist in deploying digital payroll in most types of organizations, including state institutions and the small and medium-sized business (SME) businesses, the future studies can examine decision-support devices and flexible frameworks. Automation, predictive analytics, and security can be enhanced by integrating advanced technology, such as blockchain, AI, and ML. The digital payroll can be more universal and efficient with the assistance of the empirical evidence of the organizational performance, compliance, and engagement research; organizational training and change management research; and longitudinal research on the best practices.

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