Acceleration, Quantum, Information Technology and Algorithm Journal (AQILA)
Vol. 2, No. 1, June 2025, pp 21-27
ISSN: 3062-8555, DOI: 10.62123/aqila.v2i1.78

Payroll Checker System Based on Employee Performance at PT GOTO Palembang Using FDD

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DOI : 10.6213/aqila.v2i1.78

Received : April 27, 2025
Revised : May 25, 2025
Accepted : May 31, 2025

Keywords:
Payroll Checker
Performance Metric
Feature-Driven Development
Information System

ABSTRACT

This study addresses the critical need for modernising payroll management at PT GOTO Palembang, a rapidly expanding enterprise grappling with the limitations of manual, paper-based salary processing. The research focuses on the design and implementation of a web-based Payroll Checker Information System that integrates employee performance metrics to enhance accuracy, efficiency, and transparency in remuneration processes. Employing the Feature-Driven Development (FDD) methodology, the system was developed iteratively to ensure alignment with organisational requirements and adaptability to evolving operational complexities. The system architecture encompasses modules for attendance tracking, performance evaluation, salary computation—including deductions, allowances, and meal subsidies—and comprehensive reporting functionalities. Role-based access controls were instituted to safeguard data integrity and facilitate secure access for administrators, employees, and directors. The implementation of this system has yielded significant improvements in payroll accuracy, reduced administrative workload, and enhanced employee trust through increased transparency. Furthermore, the integration of performance-based compensation aligns employee incentives with organisational objectives, fostering a culture of accountability and continuous improvement. This initiative exemplifies how strategic application of information technology can optimise human resource management practices, particularly in organisations experiencing rapid growth and structural complexity. The findings underscore the efficacy of agile development methodologies in delivering scalable and responsive business solutions, and they offer valuable insights for enterprises seeking to modernise their payroll systems in alignment with contemporary performance management paradigms.

1. INTRODUCTION

Effective human resource management (HRM) is indispensable for organisational success [1], particularly within rapidly expanding enterprises such as PT GOTO Palembang. The company's growth has led to a substantial increase in workforce size, rendering traditional, manual payroll processes increasingly untenable. Reliance on paper-based systems for salary computation and record-keeping has resulted in inefficiencies, data redundancies, and heightened susceptibility to errors. To address these challenges, the integration of Information Technology (IT) solutions has become imperative. Specifically, the implementation of a Payroll Information System (PIS) offers a strategic avenue to streamline HRM functions. Such systems facilitate the automation of data management processes, ensuring accurate and timely salary disbursements while mitigating the risks associated with manual handling [2].

The current payroll management practices at PT GOTO Palembang are characterised by manual data entry and processing, which are labour-intensive and prone to inaccuracies. The absence of an integrated information system hampers the efficiency of salary calculations, including deductions, allowances, and meal subsidies [3]. This situation necessitates the development of a robust, web-based payroll information system to enhance operational efficiency and data integrity. The primary objective of this initiative is to design and implement a web-based payroll information system that automates the calculation of employee salaries, encompassing deductions, allowances, and meal subsidies. This system aims to enhance the efficiency and accuracy of payroll management at PT GOTO Palembang, thereby streamlining human resource operations. By transitioning from manual to automated processes, the company seeks to reduce the likelihood of errors, expedite salary disbursements, and ensure compliance with relevant financial regulations.

In addition to operational improvements, the system is expected to provide comprehensive salary reports and individual payslips, facilitating transparency and ease of access for both employees and management. This transparency is anticipated to foster trust within the workforce and support informed decision-making by the company's leadership. Furthermore, the adoption of this payroll information system aligns with PT GOTO Palembang's strategic goal of leveraging information technology to optimize business processes. By integrating this system into the company's existing infrastructure, PT GOTO Palembang positions itself to better manage its growing workforce and adapt to the increasing complexity of its organizational structure.

Moreover, the implementation of a Payroll Checker Information System based on employee performance is crucial for aligning compensation with individual contributions. Performance indicators such as overtime, target achievement, work neatness, attitude, and customer satisfaction are essential metrics for evaluating employee effectiveness. Incorporating these indicators into the payroll system ensures that remuneration reflects actual performance, thereby motivating employees to maintain high standards. This approach not only enhances fairness and transparency but also supports the organization's objectives by encouraging behaviours that contribute to overall success.

Lastly, the transition to a web-based payroll information system at PT GOTO Palembang represents a strategic move towards modernizing HRM practices. By automating payroll processes and integrating performance-based compensation metrics, the company aims to improve accuracy, efficiency, and employee satisfaction. This initiative is expected to strengthen organizational capabilities, support sustainable growth, and reinforce PT GOTO Palembang's commitment to leveraging technology for business excellence.

2. LITERATURE REVIEW

Payroll Information Systems (PIS) are integral components of Human Resource Management (HRM), designed to automate and streamline the complex processes involved in employee compensation [4],[5]. These systems encompass functionalities such as salary computation, tax deductions, benefits administration, and the generation of payslips [6]. The primary objective is to enhance operational efficiency, ensure accuracy in financial transactions, and maintain compliance with regulatory standards. By mitigating manual errors and expediting payroll processes, PIS contributes significantly to organizational productivity and employee satisfaction.

The advent of information technology (IT) has revolutionized payroll management by introducing automation and integration capabilities [7]. Modern PIS leverages IT to facilitate real-time data processing, secure information storage, and seamless integration with other HR modules such as attendance tracking and performance evaluation [7],[8]. This technological integration not only reduces administrative burdens but also provides strategic insights through data analytics, enabling informed decision-making. Furthermore, IT-driven payroll systems enhance data security, ensuring confidentiality and integrity of sensitive employee information [9].

Compensation structures are pivotal in influencing employee motivation and performance [10]. Theoretical frameworks, such as Herzberg's Two-Factor Theory, posit that equitable and transparent remuneration serves as a fundamental motivator, leading to increased job satisfaction and productivity [10],[11]. By aligning compensation with performance metrics, organizations can foster a culture of meritocracy, encouraging employees to excel in their roles. Moreover, performance-based incentives can aid in talent retention, as employees perceive a direct correlation between their efforts and rewards [12].

Incorporating performance indicators into compensation systems necessitates the identification of quantifiable and qualitative metrics [13]. Quantitative indicators may include overtime hours, target achievement rates, and punctuality records, while qualitative aspects encompass work quality, professionalism, and customer satisfaction levels. Employing a comprehensive evaluation approach, such as 360-degree feedback, ensures a holistic assessment of employee performance. Integrating these indicators into PIS facilitates objective compensation decisions, promoting fairness and transparency within the organization.

Empirical studies underscore the efficacy of integrated PIS in enhancing organizational performance [14]. Case studies reveal that automation of payroll processes leads to significant reductions in processing time and errors, thereby optimizing resource allocation. These findings substantiate the strategic value of adopting advanced PIS in contemporary business environments. PT GoTo Gojek Tokopedia Tbk (GoTo), Indonesia’s foremost digital ecosystem, exemplifies the integration of sophisticated payroll systems within a dynamic organizational structure. Formed through the merger of Gojek, Tokopedia, and GoTo Financial, the company offers a comprehensive suite of services, including ride-hailing, e-commerce, logistics, digital payments, and financial services. Operating in Palembang, GoTo manages a rapidly expanding workforce, necessitating efficient and reliable payroll mechanisms. The company employs an advanced PIS that amalgamates automated processing with strategic compensation models, notably incorporating stock-based incentives to align employee interests with corporate performance. This approach not only streamlines payroll operations but also serves as a pivotal talent retention strategy in the competitive tech industry. By ensuring accurate, timely, and transparent salary disbursements, GoTo enhances employee satisfaction and operational efficiency.

3. RESEARCH METHODS

The development of the Payroll Checker Information System based on employee performance at PT GOTO Palembang was strategically approached using the Feature-Driven Development (FDD) methodology [15],[16],[17]. The choice of FDD as the guiding framework was driven by PT GOTO Palembang's operational demands for a scalable, accurate, and performance-sensitive payroll system within a dynamic and rapidly expanding organizational environment. FDD, a client-centric and iterative agile software development methodology, emphasizes the frequent delivery of tangible, client-valued features through a structured yet adaptable process [16]. Its inherent flexibility and emphasis on incremental progress made it an ideal choice for developing a system closely aligned with the evolving human resource management needs of PT GOTO Palembang.

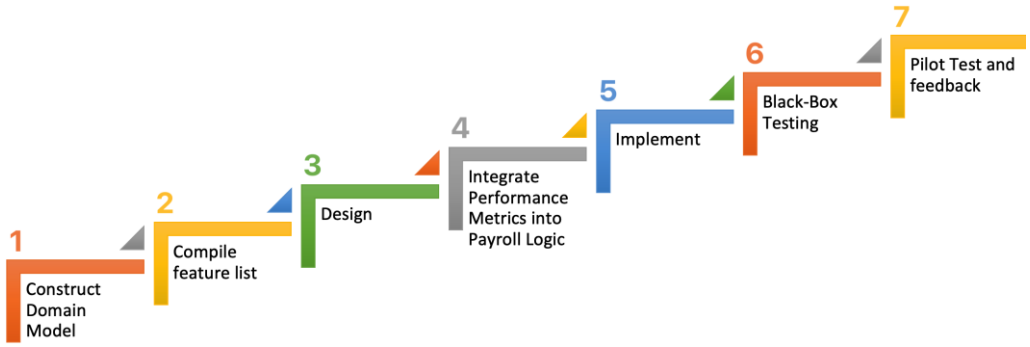

Figure1. Feature-Driven Development

At the initial stage, the development process commenced with the construction of an overall domain model [17]. This phase was critical in encapsulating the operational landscape of payroll management at PT GOTO Palembang. The domain model was designed to represent key entities and their interrelationships, including employee profiles, attendance records, performance metrics, overtime logs, target achievement rates, work neatness, professional attitude, and customer satisfaction indicators [18],[19]. Additionally, components such as salary structures, tax regulations, allowances, and stock-based incentives were carefully modelled to reflect the company's unique compensation schemes. By establishing a comprehensive and coherent domain model, the project team ensured a strong foundational understanding upon which all subsequent development efforts were based.

Following the domain modelling, a comprehensive feature list was generated that specified the details of all system functionalities necessary to support the payroll and performance evaluation processes [20]. Key features included automated salary calculations incorporating deductions and allowances, performance-based incentive computation, overtime tracking, tax computation mechanisms, and real-time payslip generation. Additionally, features such as role-based access controls, dynamic report generation, compliance auditing, and integration with existing human resource databases were identified [19,20]. Each feature was carefully aligned with PT GOTO Palembang's business rules, regulatory compliance requirements, and operational workflows, ensuring that the system would deliver meaningful value to stakeholders upon deployment.

Subsequently, the project entered the design and build phase, wherein each feature underwent a meticulous design and construction process [21],[22]. Cross-functional teams, consisting of software engineers, HR specialists, financial auditors, and system analysts, collaborated to ensure that both technical integrity and business relevance were maintained. The design phase emphasized creating modular, maintainable, and scalable system components, while the build phase focused on iterative coding and rigorous testing. The iterative nature of FDD facilitated continuous stakeholder engagement, allowing for incremental refinements based on user feedback and operational insights. This feedback loop was instrumental in adapting system functionalities to the nuanced needs of PT GOTO Palembang's workforce and management.

A distinguishing characteristic of this development initiative was the careful integration of employee performance indicators directly into the payroll computation logic. Specific performance metrics, such as overtime hours, target achievements, neatness and organization of work, employee attitude, and customer satisfaction ratings, were quantified and mapped to corresponding compensation adjustments [23]. By incorporating these qualitative and quantitative indicators, the Payroll Checker Information System fostered a meritocratic culture wherein employee remuneration was closely tied to demonstrable performance outcomes. This integration not only enhanced the objectivity and fairness of the payroll system but also served as a motivational tool for employees, encouraging higher levels of engagement and productivity [24].

Moreover, the system architecture was deliberately designed to be modular and web-based, leveraging modern technologies to ensure accessibility, security, and scalability. The architecture was divided into distinct modules: attendance tracking, performance evaluation, salary computation, taxation handling, incentive management, and payroll reporting. Each module was interconnected through secure APIs, facilitating data consistency and system robustness. Role-based access controls were implemented to enhance data security and ensure that sensitive payroll information was only accessible to authorized personnel, including employees, HR administrators, and executive management. This focus on security and privacy was paramount, particularly given the sensitive nature of salary and performance data [25].

An additional methodological consideration was the adoption of agile documentation practices. Rather than producing exhaustive upfront documentation, the project team maintained living documents that evolved alongside the system's development

This approach ensured that documentation remained current, relevant, and reflective of the actual system design and implementation. Documentation artifacts included updated domain models, feature lists, technical specifications, test cases, and user manuals, all of which were incrementally refined as the project progressed through successive FDD cycles [16],[24],[25].

To validate the functionality and reliability of the Payroll Checker Information System, black-box testing was employed as the primary testing strategy [26],[27]. This approach focuses on assessing the system's external behaviour without delving into its internal structures or workings. Testers evaluate the software by providing inputs and examining the outputs, ensuring that the system performs as intended from the end-user's perspective. Several blackbox testing techniques were utilized to ensure comprehensive coverage [27]:

1. Equivalence Partitioning: Input data was divided into equivalent partitions to reduce the number of test cases while maintaining effective coverage.
2. Boundary Value Analysis: Test cases were designed to evaluate the system's behaviour at the boundaries of input domains, identifying potential edge-case errors.
3. Decision Table Testing: Complex business rules were represented in decision tables to systematically test all possible combinations of inputs and corresponding outputs.
4. State Transition Testing: The system's responses to various state changes, such as employee status updates or policy modifications, were assessed to ensure correct transitions.

Upon completion of the development and testing phases, the system was deployed in a controlled environment for pilot testing. Selected HR personnel and department heads were involved in the pilot phase, providing valuable feedback on usability, performance evaluation accuracy, and report generation. Insights gained during the pilot phase were incorporated into a final round of system refinements before full-scale deployment across PT GOTO Palembang [26],[27].

4. DISCUSSION AND RESULT

This system was designed by structuring three main user categories: Admin, Employee, and Director. Each category holds specific menu structures aligned with their respective responsibilities. The use case below illustrates the interaction between three actors within the system and the features accessible to each actor.

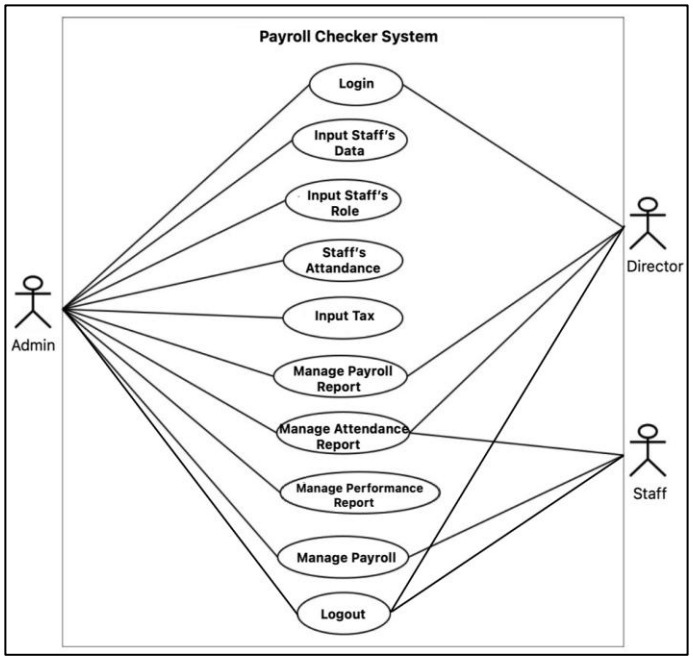

Figure 2. Use Case Diagram

This figure 2 shows that the admin has the main control over system operations. Admins can input payroll data, manage employee records, assign job roles, record attendance, configure salary deductions, and generate reports such as salary slips, attendance summaries, and payroll summaries. Moreover, administrators are granted access to account settings, including password updates, ensuring the security and integrity of data management. Employees have a more limited menu access designed for transparency and self-service purposes. Through their portal, employees can log in securely to view personal salary details, monitor attendance records, and access personal payslips. This feature promotes openness and reduces administrative overhead in

salary inquiries. Meanwhile, the Director's menu aggregates a higher-level overview, offering quick access to summary reports on employee performance, salary expenditures, and overall payroll health, assisting strategic decision-making at the executive level.

The technical implementation was conducted using PHP as the primary programming language, supported by a MySQL database. The development environment was established through Laragon, integrating essential services such as Apache, CodeIgniter 3, MySQL Server, and PHPMyAdmin for database management. Code writing and editing were performed using Sublime Text, streamlining the development workflow. The main landing page is shown in figure 3 below.

Figure 3. Main Page

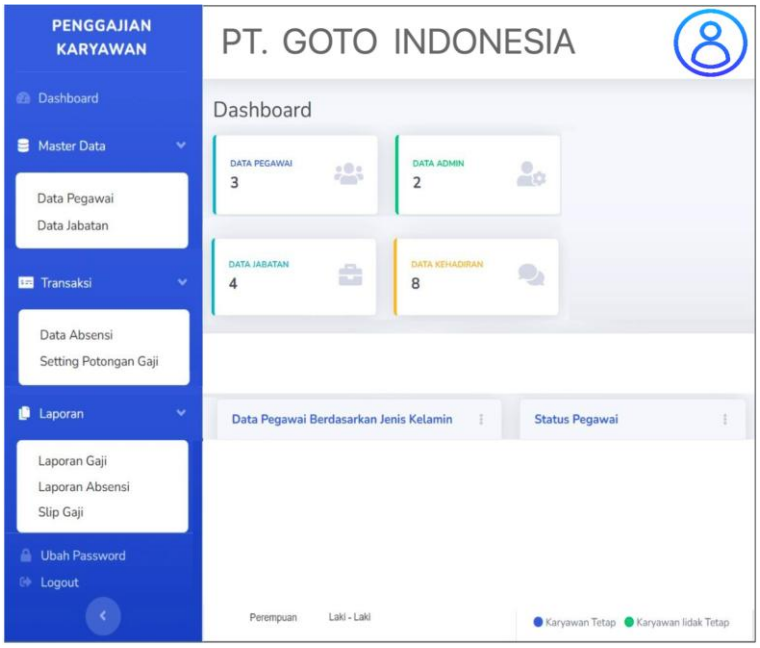

Figure 4. Dashboard

Admin, director, and staff need to insert their StaffID as username and their password. This system will retrieve the job role based on the inserted StaffID. Upon successful login, the system redirects to the Home Dashboard as shown in figure 4, offering a centralized management interface. For admin, the features include accessing master data for employees and their current job positions, managing employee attendance, configuring salary deductions, and generating essential payroll reports. Additional tools such as password management were incorporated to enhance account security. The employee interface, while simpler, emphasizes ease of use. Employees can log in to view salary details in figure 5, verify attendance records, and download their payslips. This empowerment of employees through digital access improves satisfaction and reduces the administrative burden on HR departments. Similarly, the Director's interface focuses on high-level summaries, enabling quick access to critical data needed for corporate oversight without requiring involvement in operational details.

Figure 5. (a) Attendance Record and (b) Salary Detail

5. CONCLUSION

Overall, the implementation of the system demonstrates several tangible benefits. Firstly, automating payroll processing based on employee performance data increases the accuracy of salary computations, minimizing human error. Secondly, real-time access to payroll information enhances transparency and fosters trust among employees. Thirdly, the administrative workload is significantly reduced, allowing HR staff to redirect efforts toward strategic human resource development activities. Lastly, executive leadership benefits from consolidated reporting, supporting informed policy-making and financial oversight. Payroll Checker Information System represents a strategic digital transformation initiative, aligning operational activities with organizational goals through effective information systems management. From the perspective of warehouse staff and HR administrators, the system greatly reduces repetitive manual input and enables faster processing of payroll adjustments. Employees benefit from transparency, as they can monitor salary breakdowns and performance metrics in real-time. One HR officer noted that the integrated performance scoring helped reduce disputes over salary amounts and encouraged team accountability.

ACKNOWLEDMENT

The authors would like to express their sincere gratitude to PT GOTO Palembang for their support and cooperation during the development and implementation of the Payroll Checker Information System. Special thanks are extended to Universitas Indo Global Mandiri for providing the academic environment and resources necessary for this research. We also acknowledge the editorial team of the Acceleration, Quantum, Information Technology and Algorithm Journal (AQILA) for their guidance and valuable feedback throughout the publication process. Finally, heartfelt appreciation is given to all colleagues, mentors, and family members whose encouragement and insights have been instrumental in completing this study.

REFRENCES

[1] H. Li, "Optimization of the enterprise human resource management information system based on the Internet of Things," Complexity, vol. 2021, no. 1, p. 5592850, 2021.

[2] M. S. Rumetna, T. N. Lina, I. S. Rajagukguk, F. S. Pormes, and A. B. Santoso, "Payroll information system design using waterfall method," International Journal of Advances in Data and Information Systems, vol. 3, no. 1, pp. 1–10, 2022.

[3] F. Ayu and W. Sholeha, "Rancang Bangun Sistem Informasi Penjadwalan Mata Pelajaran Berbasis Web Pada Smart Center Pekanbaru," vol. 3, 2019.

[4] N. Gani, D. Suprayitno, D. Wardhani, H. Al Imran, and K. A. Rahwana, "Optimising Human Resource Information Systems in the context of MSME technology management," Jurnal Informasi dan Teknologi, pp. 302–309, 2024.

[5] R. Evitasari, M. Muthmainnah, and R. S. Kusumadiarti, "Perancangan Sistem Informasi Penggajian Karyawan Di CV Anugerah Sukses Gemilang," Jurnal JTIK (Jurnal Teknologi Informasi Dan Komunikasi), vol. 6, no. 4, pp. 600–607, 2022. [Online]. Available: https://doi.org/10.35870/Jtik.V6i4.611.

[6] D. P. A. Julianto, S. Andryana, and A. Gunaryati, "Rancang Bangun Sistem Informasi Penggajian Karyawan Menggunakan Metode Fuzzy Tsukamoto," JATISI (Jurnal Teknik Informatika Dan Sistem Informasi), vol. 8, no. 4, pp. 1710–1722, 2021. [Online]. Available: https://doi.org/10.35957/Jatisi.V8i4.1097.

[7] O. Pavelko, V. Blyshchyk, and A. Savchuk, "Payroll accounting of construction companies: aspects of organization and automation in competitiveness potential management," Bulletin National University of Water and Environmental Engineering, vol. 1, no. 101, pp. 98–115, 2023.

[8] T. Karmila, R. Romauli, R. Rahmawati, and A. Hakim, "The influence of organizational culture on the performance efforts of Pusdatin employees to support the main tasks of Pusdatin Kemhan," *Dinasti International Journal of Management Science (DIJMS)*, vol. 5, no. 3, 2024.

[9] D. Meydiana and S. Novika, "Rancang Bangun Absensi Karyawan Pada Dinas Perumahan Rakyat Dan Kawasan Permukiman Kota Palembang Berbasis Web," vol. 3, no. 1, 2020.

[10] Z. M. Thant and Y. Chang, "Determinants of public employee job satisfaction in Myanmar: Focus on Herzberg's two factor theory," Public Organization Review, vol. 21, no. 1, pp. 157–175, 2021.

[11] M. T. Miah and M. J. Hasan, "Impact of Herzberg two-factor theory on teachers' job satisfaction: An implication to the private Universities of Bangladesh," International Journal of Business and Management Research, vol. 10, no. 1, pp. 1–5, 2022.

[12] A. Simangunsong, "Sistem Informasi Pengarsipan Dokumen Berbasis Web," vol. 2, no. 1, 2018.

[13] V. Anokha and A. V. Reddy, "Beyond the paycheck: Unlocking employee engagement," in *Harnessing Happiness and Wisdom for Organizational Well-Being*, IGI Global Scientific Publishing, 2025, pp. 61–84.

[14] V. R. Tania, "Perancangan Sistem Informasi Penggajian Karyawan Pada CV. Tri Multi Jaya Yogyakarta," Jurnal Sistem Informasi Dan Sains Teknologi, vol. 2, no. 1, 2020. [Online]. Available: https://doi.org/10.31326/Sistek.V2i1.669.

[15] R. Chandra, M. Javed, B. Rajesh, B. S. Sanjeev, and S. Khijmatgar, "Target-less drug discovery pipeline using Feature Driven Development (FDD) model," in Proc. 2021 IEEE Int. Conf. Bioinformatics and Biomedicine (BIBM), 2021, pp. 2651–2658.

[16] G. P. Barni, C. M. Sacchelli, and R. K. Scalice, "Agile method for product development based on CK theory and feature-driven development," Journal of the Brazilian Society of Mechanical Sciences and Engineering, vol. 46, no. 3, p. 155, 2024.

[17] M. Hagal, A. F. Al-Awami, and S. Elakeili, "A framework for improving software development process hybridization of Extreme Programming, Feature-Driven Development and Waterfall," in Proc. 2024 IEEE 4th Int. Maghreb Meeting of the Conf. on Sciences and Techniques of Automatic Control and Computer Engineering (MI-STA), 2024, pp. 13–19..

[18] A. Gunawan, D. Saepudin, and Z. Aripin, "The effect of payroll control systems and performance benefits on employee performance at Bappeltibangda Cianjur District," *KRIEZ ACADEMY: Journal of Development and Community Service*, vol. 1, no. 2, pp. 16–32, 2024.

[19] J. R. C. Jalaman and R. E. Encarnacion, "Employee satisfaction on compensation system: Basis for an improved payroll management system with face recognition and attendance monitoring technology," *Integration*, vol. 4, no. 4, 2024.

[20] A. Marhendra and R. Wahyuningtyas, "The effect of leadership style and employee motivation on employee performance of Pt. Indotoko Pangan Makmur," *Enrichment: Journal of Multidisciplinary Research and Development*, vol. 2, no. 10, 2025.

[21] Z. Yusuf, A. Nawawi, and A. S. A. P. Salin, "The effectiveness of payroll system in the public sector to prevent fraud," *Journal of Financial Crime*, vol. 30, no. 2, pp. 404–419, 2023.

[22] B. A. H. Menajang, M. N. Warokka, S. Kalele, and R. Djamali, "Performance analysis of receiving staff in the accounting department at Manhattan Hotel Jakarta," *Journal of Multi-Disciplines Science*, vol. 2, no. 1, pp. 34–42, 2024.

[23] B. Ghimire, R. K. Dahal, B. Rai, and D. Upadhyay, "Employee performance factors in the Nepalese commercial banks: Insights from emerging markets," *Journal of Logistics, Informatics and Service Science*, vol. 10, no. 2, pp. 29–42, 2023.

[24] B. Ghimire, "Does it pay to be employee-owned? On the performance of knowledge-intensive firms," *Employee Relations: The International Journal*, 2025.

[25] A. J. Staples and T. P. Krumel Jr, "The Paycheck Protection Program and small business performance: Evidence from craft breweries," *Small Business Economics*, vol. 61, no. 3, pp. 931–956, 2023.

[26] I. A. Shaleh, P. P. Juma Prayogi, R. Syawal, and A. Saifudin, "Pengujian Black Box pada Sistem Informasi Penjualan Buku Berbasis Web dengan Teknik Equivalent Partitions," Jurnal Teknologi Sistem Informasi dan Aplikasi, vol. 2654, pp. 3788, 2021.

[27] E. H. K. Dewi, I. S. Pratama, A. S. Putera, and C. Carudin, "Black Box Testing pada Aplikasi Pencatatan Peminjaman Buku Menggunakan Boundary Value Analysis," STRING (Satuan Tulisan Riset dan Inovasi Teknologi), vol. 6, no. 3, pp. 315–324, 2022.