





An Infrastructure Model for Lean Banking Human Resource Management in State-Owned Banks

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Article Info

Article type:

Original Research

How to cite this article:

Zarei Einalghasi, R., Taghvaei, R., keyhanihekmat, R., Eslambolchi, A., & Nik Nafas, J. (2026). An Infrastructure Model for Lean Banking Human Resource Management in State-Owned Banks. *Journal of Resource Management and Decision Engineering*, 5(6), 1-15.

<https://doi.org/10.61838/kman.jrmd.379>



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ABSTRACT

In an era of intensifying competition and rapid technological transformation, human resource management within the national banking system faces significant challenges related to productivity, service quality, and the elimination of process waste. Despite the importance of lean thinking in enhancing organizational performance, a substantial research gap exists regarding the application of this approach in the human resource management domain of state-owned banking institutions. The present study was conducted with the aim of developing an infrastructure model for lean banking human resource management in the country's state-owned banks. This research employed a qualitative approach and qualitative content analysis method within the framework of the naturalistic paradigm. The statistical population consisted of 20 banking and academic experts who were selected through purposive sampling, and the sample size was determined based on the principle of theoretical saturation. Data were collected through semi-structured and in-depth interviews, with an average duration of 45 to 75 minutes. Data analysis was conducted using thematic analysis and MAXQDA Version 12 software through three stages of open, axial, and selective coding. The data analysis process resulted in the extraction of 189 basic themes, 41 organizing themes, and 10 overarching themes. The identified overarching themes included participatory culture (34 basic themes), technology in banks (31 basic themes), strategy and objectives in banks, banking laws and regulations, employee selection and recruitment in banks, employee empowerment, performance management in banks, motivation and communication in banks, banking compensation management, and organizational design of banks. The findings indicate that the infrastructure model of lean banking human resource management possesses a multidimensional and complex nature that extends beyond the traditional functions of recruitment and compensation. The successful implementation of this model requires the simultaneous alignment of organizational culture, technological infrastructure, legal systems, and human resource strategies. The results of this study can be utilized in designing administrative transformation programs, redesigning human resource processes, and enhancing the effectiveness of state-owned banks.

Keywords: *Lean Banking, Human Resource Management, State-Owned Banks, Lean Thinking.*

1. Introduction

The banking industry has undergone profound structural, technological, and managerial transformations in recent years, driven by intensified competition, digitalization, changing customer expectations, financial instability, and increasing pressure for productivity and operational transparency. Banks are no longer evaluated solely on the basis of financial intermediation, branch expansion, or credit allocation; rather, their competitiveness increasingly depends on the quality of internal processes, agility in service delivery, digital capability, customer-oriented value creation, and the strategic management of human resources. In such an environment, human resource management has moved beyond its traditional administrative role and has become a core strategic function for enhancing organizational performance, reducing operational waste, improving employee productivity, and supporting sustainable transformation in banking institutions. Evidence from the banking sector indicates that effective human resource management practices can significantly affect organizational performance by improving employee capabilities, commitment, service quality, and adaptability to institutional change (Salman et al., 2024). Therefore, in state-owned banks, where bureaucratic structures, regulatory constraints, legacy systems, and rigid administrative routines are often more pronounced, the need for an integrated and infrastructure-oriented model of human resource management becomes especially critical.

Human resources constitute one of the most important intangible assets of banking organizations because banking services are highly dependent on employee knowledge, service behavior, compliance capability, ethical judgment, technological readiness, and interaction with customers. Unlike manufacturing-based organizations, where waste is often visible in inventory, production defects, or physical movement, waste in banking frequently appears in the form of redundant administrative procedures, delayed decision-making, repeated documentation, low employee engagement, inefficient recruitment, fragmented performance appraisal, inadequate training, weak interdepartmental communication, and misalignment between employees' competencies and strategic objectives. From this perspective, human resource management in banking should be understood not only as a set of operational practices but also as a system for aligning human capital with value creation, customer responsiveness, institutional

legitimacy, and process improvement. Studies on the influence of human resource management in banking emphasize that employee selection, training, motivation, performance evaluation, and compensation policies are fundamental determinants of service effectiveness and organizational competitiveness (Yashaswini et al., 2023). Accordingly, the development of a lean banking human resource management model requires a systemic understanding of both human resource functions and the infrastructural conditions that enable their effectiveness.

Lean thinking, originally developed as a philosophy of waste elimination and continuous improvement, has gradually expanded from manufacturing into service industries, including banking and financial services. In the banking context, lean thinking focuses on identifying activities that do not create value for customers, simplifying workflows, reducing delays, improving service quality, and empowering employees to participate in continuous process improvement. However, the successful implementation of lean banking cannot be reduced to the redesign of operational processes alone. Lean transformation depends heavily on human factors, including employee participation, leadership commitment, organizational culture, knowledge sharing, job design, training systems, and performance management mechanisms. For this reason, lean banking human resource management requires an infrastructure that supports employee empowerment, participatory decision-making, evidence-based recruitment, transparent communication, fair compensation, and competency-oriented performance evaluation. The importance of productivity-oriented human resource models in banking has been highlighted in recent studies that link human resource productivity to green approaches, sustainability, and strategic organizational development (Vardi et al., 2025). Thus, lean HRM in banking can be conceptualized as a bridge between process efficiency, human capital development, and long-term institutional sustainability.

State-owned banks face distinctive challenges that make the application of lean human resource management both necessary and complex. These banks usually operate under stronger legal, political, and regulatory supervision, and their human resource systems may be affected by centralized decision-making, formal employment rules, limited managerial flexibility, and traditional administrative procedures. At the same time, state-owned banks are expected to provide reliable public financial services, maintain social trust, comply with national banking regulations, and contribute to broader economic

development. These expectations increase the importance of designing HRM systems that are not only efficient but also legitimate, equitable, transparent, and compatible with public-sector accountability. Research on human resource management and social responsibility in banking shows that HRM practices can influence organizational legitimacy, particularly when they are aligned with social responsibility indicators and stakeholder expectations (Razmkhah & Sajadi Khah, 2024). Similarly, value-based human resource development grounded in social responsibility has been proposed as a relevant approach for the Iranian banking industry, indicating that banking HRM should be connected to ethical responsibility, social value, and organizational decision-making (Fard et al., 2026). Therefore, the infrastructure of lean banking HRM in state-owned banks should incorporate not only efficiency-oriented mechanisms but also social, legal, ethical, and institutional dimensions.

Digital transformation has further intensified the need to redesign human resource management systems in banking. Digital banking, artificial intelligence, data analytics, cloud computing, and electronic human resource management have changed how banks recruit, train, evaluate, reward, and communicate with employees. Digital transformation strategies can enhance human resource development in commercial banks by improving learning systems, digital competencies, operational integration, and organizational responsiveness (Al-Hmesat et al., 2025). In addition, digital transformation in HRM has been shown to affect both financial and non-financial reward systems in commercial banks, indicating that technology can reshape motivation, compensation, and employee experience (Ghimire, 2025). These developments suggest that lean banking HRM must be supported by technological infrastructure capable of reducing administrative waste, accelerating information flows, improving decision quality, and enabling data-driven human resource processes. Without such infrastructure, lean initiatives may remain limited to isolated process improvements rather than becoming an integrated organizational capability.

Electronic human resource management has become an essential component of modern banking systems because it enables greater efficiency, transparency, accuracy, and accessibility in HR processes. E-HRM practices can support recruitment, training, payroll, performance appraisal, employee records, internal communication, and strategic workforce planning. Evidence from the State Bank of Pakistan demonstrates that e-human resource management practices can play a significant role in modernizing HR

functions and enhancing administrative efficiency in banking institutions (Zafar et al., 2023). Similarly, digital human resource management has been linked to career agility among bank employees, showing that digital HR systems can strengthen employees' ability to adapt to changing work demands and organizational conditions (Althabhwae & Saeed, 2024). These findings are highly relevant to lean banking because career agility, process transparency, and digitalized HR functions can reduce delays, duplication, and uncertainty in human resource processes. As a result, technological readiness should be considered a central infrastructure component in any model of lean banking human resource management.

Artificial intelligence has also created new opportunities and challenges for human resource management in banking. AI-based recruitment systems, algorithmic screening, predictive analytics, intelligent performance monitoring, and automated HR service platforms can improve the speed and accuracy of HR decisions. In recruitment and talent acquisition, artificial intelligence may support smarter attraction processes by analyzing applicant data, identifying competency patterns, and improving person-job fit, thereby contributing to organizational performance (Ali Mohammadi, 2025). However, the use of AI in HRM also requires clear regulatory, ethical, and organizational safeguards, particularly in banking institutions where fairness, data security, privacy, and accountability are critical. Lean HRM cannot rely on technology merely as a tool for automation; rather, technology must be embedded in a broader governance framework that ensures transparency, justice, and strategic alignment. Therefore, AI-based HRM in lean banking should be designed to reduce waste and enhance decision quality while protecting employees' rights and maintaining institutional trust.

Leadership is another fundamental prerequisite for implementing lean and digital HRM in banking. Digital transformation requires leaders who can understand technological change, mobilize employees, promote learning, manage resistance, and align digital initiatives with organizational strategy. Research on digital transformation leadership competencies in the national banking system indicates that leadership development is a key condition for successful transformation, particularly when banking organizations seek to adapt to new technologies and changing competitive environments (Ahmadi Khesal et al., 2024). In lean banking, leadership is equally important because managers must foster a participatory culture, encourage continuous improvement, support employee

empowerment, and remove barriers to value creation. In the absence of committed and competent leadership, lean HRM may become a formal slogan rather than an operational reality. Thus, any infrastructure model of lean banking HRM should include leadership competencies, managerial commitment, and the capacity to institutionalize a culture of participation and continuous improvement.

Training and human resource development are also central to lean banking because employees cannot participate effectively in waste elimination, customer-oriented service improvement, or digital transformation unless they possess the necessary knowledge, skills, and attitudes. A comprehensive human resource training and development model designed for Sina Bank emphasizes the importance of systematic training, competency development, and continuous learning in the banking sector (Afkaneh & Jafari, 2024). Training in lean banking should go beyond technical instruction and include process thinking, customer value analysis, digital skills, problem-solving, teamwork, ethical decision-making, regulatory awareness, and innovation capabilities. Moreover, training systems should be needs-based, continuous, and connected to performance management so that learning outcomes are reflected in organizational practice. Employee empowerment depends not only on formal training but also on opportunities for participation, feedback, autonomy, leadership development, and knowledge sharing. Therefore, training and development should be viewed as an enabling infrastructure rather than an isolated HR function.

Cloud computing and digital infrastructure have also become important for enhancing human resource capabilities in banks. Cloud-based HR platforms can support integrated data management, remote access, scalable HR services, digital collaboration, and faster decision-making. The role of cloud computing in improving banks' human resource capabilities has been emphasized in recent research, particularly in relation to flexibility, information processing, and the modernization of HR systems (Davalidi et al., 2024). In lean banking, cloud-based systems may reduce paperwork, improve the availability of HR data, facilitate performance analytics, and support more responsive human resource services. However, these advantages depend on cybersecurity, data governance, compliance mechanisms, and organizational readiness. Given the sensitive nature of banking information, technological infrastructure must be accompanied by clear policies for data protection, accountability, and regulatory compliance. Consequently, the technological dimension of lean HRM in banks must

integrate efficiency, security, governance, and human capability development.

Financial technology has also affected banking productivity and human resource cost structures. FinTech can automate routine processes, reduce manual workload, improve service accessibility, and transform the relationship between employees, customers, and banking platforms. Studies on the impact of FinTech on bank productivity and the reduction of human resource costs indicate that technological innovation can contribute to efficiency improvement and cost reduction in banking operations (Mohaghegh & Arasteh, 2024). Nevertheless, the relationship between FinTech and HRM should not be interpreted as merely substituting technology for employees. Instead, lean banking requires the intelligent reallocation of human effort from repetitive and low-value tasks toward analytical, relational, advisory, and customer-centered activities. In this sense, technology can support lean HRM by eliminating process waste while simultaneously increasing the need for reskilling, role redesign, and strategic workforce planning. Therefore, the integration of FinTech into state-owned banks should be accompanied by human resource policies that manage transition, protect motivation, and enhance employee contribution.

Sustainability has increasingly become a major concern in human resource management and banking. Sustainable HRM emphasizes the long-term well-being of employees, ethical employment practices, organizational resilience, social responsibility, and the balance between performance outcomes and human needs. A recent conceptual discussion of sustainable human resource management highlights that while sustainable HRM has strong potential for organizational improvement, it also involves tensions and implementation challenges that must be carefully managed (Griep et al., 2024). In the banking industry, sustainability is closely related to green HRM, corporate social responsibility, and responsible governance. Research on green human resource management and corporate sustainability in the banking industry of a developing country indicates that CSR can play a meaningful role in linking HRM practices to corporate sustainability outcomes (Yahya & Zargar, 2023). These insights are relevant to lean banking HRM because lean systems should not focus narrowly on cost reduction; they should also enhance human well-being, social responsibility, environmental awareness, and organizational legitimacy. Accordingly, a lean HRM model in banking should be sustainable, ethical, and value-based.

Despite the growing body of research on digital HRM, sustainable HRM, green HRM, HR productivity, AI recruitment, and banking performance, the literature remains fragmented regarding how these components can be integrated into a coherent infrastructure model for lean banking human resource management, particularly in state-owned banks. Existing studies have examined important but relatively separate dimensions, such as HRM effects on organizational performance (Salman et al., 2024), digital transformation in HR development (Al-Hmesat et al., 2025), digital rewards in banking HRM (Ghimire, 2025), e-HRM practices (Zafar et al., 2023), digital HRM and career agility (Althabhawee & Saeed, 2024), cloud computing and HR capabilities (Davalidi et al., 2024), AI-based recruitment (Ali Mohammadi, 2025), leadership competencies for banking digital transformation (Ahmadi Khesal et al., 2024), training and development models (Afkaneh & Jafari, 2024), FinTech and HR cost reduction (Mohaghegh & Arasteh, 2024), value-based HR development (Fard et al., 2026), HRM and social responsibility (Razmkhah & Sajadi Khah, 2024), green productivity models (Vardi et al., 2025), sustainable HRM (Griep et al., 2024), green HRM and CSR (Yahya & Zargar, 2023), and the general influence of HRM in banking (Yashaswini et al., 2023). However, fewer studies have attempted to synthesize these elements into an infrastructure-based qualitative model that explains how participatory culture, technology, strategy, laws and regulations, recruitment, empowerment, performance management, motivation, compensation, and organizational design interact in the implementation of lean banking HRM.

This research gap is particularly important in the context of state-owned banks, where lean transformation requires simultaneous attention to public accountability, regulatory compliance, technological modernization, employee development, and organizational culture. A purely technical approach to lean banking may fail if it ignores employee motivation, leadership style, training needs, compensation justice, or organizational design. Likewise, a purely human-centered approach may remain ineffective if it does not address digital infrastructure, data analytics, process integration, and legal requirements. Therefore, an infrastructure model of lean banking HRM should be multidimensional, integrating soft and hard elements of organizational transformation. Such a model can help policymakers and senior banking managers identify the foundational conditions required for implementing lean HRM, redesign human resource processes, improve employee productivity, reduce waste, enhance service

quality, and support sustainable banking transformation. By adopting a qualitative approach and drawing on expert perspectives, the present study seeks to provide an empirically grounded understanding of these infrastructural dimensions in the national banking system.

The aim of this study is to develop an infrastructure model of lean banking human resource management in state-owned banks based on the perspectives of banking and academic experts.

2. Methods and Materials

In this study, a qualitative approach and the qualitative content analysis method were used to examine and explain the dimensions of the infrastructure model of lean banking human resource management in the national banking system. This research was conducted within the framework of the naturalistic paradigm; that is, the researcher seeks to achieve a deeper understanding of the phenomenon under study through interaction with the participants and analysis of their lived experiences. The main objective of the research was to extract the concepts, categories, and cognitive patterns of experts in the field of lean banking human resource management. Accordingly, data analysis began by relying on the raw data obtained from the interviews and without imposing initial theoretical assumptions, and an effort was made to extract the concepts and categories directly from the data.

The study population consisted of 20 banking and academic experts who had managerial, executive, or scientific experience in this field. These individuals included senior managers and experts from state-owned banks, university faculty members in the field of human resource management, and specialists in productivity and lean thinking in the banking system. The selection criteria included having managerial or executive experience in the field of state-owned banking, possessing scientific or research experience in the field of human resource management, the ability to analyze managerial issues, and familiarity with the concepts and principles of lean thinking. Sampling in this study was conducted through purposeful sampling, and the participants were selected based on expertise and practical experience. The principle of theoretical saturation was also used to determine the sample size; that is, the interviews continued until no new information emerged from the data. Finally, theoretical saturation was achieved after conducting 20 interviews, and data collection was stopped. The sample composition

included university faculty members at the ranks of assistant professor, associate professor, and full professor in the fields of human resource management and banking management; senior and middle managers of state-owned banks in the areas of human resources and productivity; and experts and specialists in lean thinking within the national banking system. In selecting the sample, an effort was made to ensure appropriate diversity in terms of gender, work experience, organizational position, and field of study in order to enhance the richness of the data.

The main data collection instrument in this study was semi-structured and in-depth interviews. This type of interview enables the researcher, while following a specific framework of questions, to gain a deeper understanding of the participants' perspectives by posing supplementary and probing questions when necessary. The interview questions were designed based on the research objectives and covered areas such as the challenges of human resource management in state-owned banks, the factors generating waste in the infrastructural domain of banking human resources, the barriers and requirements for implementing lean thinking in the banking system, the characteristics of an optimal lean

banking human resource management system, and the role of senior managers and macro-level policies in developing this field. The interviews were conducted after prior coordination with the participants and after obtaining informed consent. Each interview lasted between 45 and 75 minutes and was held in the participants' offices or in agreed-upon locations. With the participants' permission, the interviews were audio-recorded; in cases where recording was not possible, detailed notes were taken. After each interview, the full text was transcribed verbatim to prepare it for analysis.

3. Findings and Results

This section presents the findings obtained from the content analysis of in-depth interviews with 20 participants. Data analysis was conducted using thematic analysis through three stages of open, axial, and selective coding with the aid of MAXQDA Version 12 software, resulting in the extraction of 189 basic themes, 41 organizing themes, and 10 global themes. Table 1 presents a sample of the coding process:

Table 1

A Sample of the Coding Process for the Infrastructure Model of Lean Banking Human Resource Management

Meaning Unit	Basic Theme	Organizing Theme	Global Theme
Employee participation and empowerment can strengthen organizational commitment toward better culture building. (P1)	Employee participation	Organizational culture	Participatory culture
Employees' trust in organizational management can strengthen a justice-oriented culture, which ultimately contributes to participation among employees. (P2)	Employees' trust in the organization	Organizational culture	
Focusing on customers' needs can strengthen a participatory culture between employees and customers. (P3)	Customer focus	Lean banking	
Work commitment and employee motivation for organizational participation are highly important in a participatory culture. (P4)	Organizational commitment	Organizational culture	
Appropriate leadership and support for a participatory culture are essential for realizing the infrastructural values of lean banking human resource management. (P5)	Participatory leadership	Organizational culture	
Recruiting and selecting talented individuals, training and developing them, and providing financial and non-financial benefits create the infrastructure for appropriate organizational presence. (P6)	Recruitment and selection	Human resource management	
In the infrastructural domain of human resource management, bank employees can contribute to continuous organizational improvement and the creation of lean banking through value creation. (P7)	Value creation	Lean banking	
Transformations in the banking system require lean banking in order to eliminate work-related waste and strengthen lean banking tools. (P8)	Waste elimination	Lean banking	
The existence of behavioral health and occupational safety can strengthen the level of participatory culture. (P9)	Occupational health and safety	Human resource management	

The existence of open workspace infrastructure and appropriate facilities for exchanging information and ideas among employees leads to the strengthening of participatory culture. (P10)	Appropriate facilities	Organizational culture	
Applying appropriate policies and processes can introduce transparent and fair processes into the banking human resource management cycle. (P11)	Implementation of systematic policies	Appropriate policies and processes	
Providing appropriate rewards and incentives to employees can strengthen this culture by encouraging participation in participatory processes. (P12)	Rewards and incentives	Organizational culture	
Planning for the implementation of human resource information systems can help advance new technology in the field of lean banking. (P1)	Human resource information management systems	Human resource information systems	Technology in banks
The technology required for data analysis can be effective in the field of banking technology and the introduction of business intelligence into lean banking. (P2)	Data analysis	Data analysis and business intelligence	
Human resource management software in banks helps employees improve recruitment, payroll, and performance management processes. (P3)	Performance appraisal systems	Human resource management software	
Management by objectives and feedback management are accelerated through the use of technological tools. (P7)	Management by objectives	Performance management	
Security technology in banks can contribute to the security of customer information through security encryption and cybersecurity. (P7)	Cybersecurity	Banking data security and compliance	
Technologies such as management information systems can help analyze human resource information, such as performance and payroll systems. (P10)	Performance analysis	Management information system	
Increasing efficiency and productivity can be among the macro-level goals and strategies of banks. (P1)	Artificial intelligence automation	Increasing efficiency and productivity	Strategy and objectives in banks
Employee empowerment through training and development should be placed on the agenda so that human resources are managed in the best possible way. (P2)	Employee empowerment	Increasing efficiency and productivity	
Employees' focus on providing personalized and high-quality services to customers should be included in banks' objectives. (P3)	Provision of personalized services	Improving customer experience	
Employee training and skill development should be among the continuous objectives of organizational design. (P8)	Employee training and skill development	Human resource development and training	
The market regulation law for banks determines the general framework of the country's banking system activities. (P1)	Financial market regulation law	Upstream laws and regulations	Banking laws and regulations
High organizational commitment causes employees to adhere to banking laws and regulations in terms of organizational loyalty and attachment. (P2)	Organizational commitment	Law-abiding banking culture	
The Law for Usury-Free Banking Operations must be determined based on Islamic Sharia rulings in order to reduce the likelihood of behavioral error. (P4)	Law for Usury-Free Banking Operations	Upstream laws and regulations	
The artificial intelligence-based human resource management approach must comply with the laws governing infrastructure and digital processes. (P10)	Compliance with digital laws	Fundamental laws of technology and digital transformation	
Precisely determining the duties, responsibilities, and skills required for each job in the bank helps create a framework for human resource selection. (P1)	Creating an accurate job profile	Creating an accurate job profile	Selection and recruitment in banks
Assessing human resources through online tests, personality interviews, and résumé screening to determine the precise level of skills can enhance selection efficiency. (P1)	Comprehensive applicant assessment	Comprehensive applicant assessment	
Using various channels to publish job advertisements increases the likelihood of attracting qualified individuals. (P2)	Publishing attractive job advertisements	Publishing attractive and targeted job advertisements	
Encouraging current bank employees to engage in continuous learning and providing professional development opportunities can improve their work approaches. (P1)	Providing training programs	Providing comprehensive and needs-based training programs	Employee empowerment

Using new training methods, such as virtual training and modern internships, helps increase the effectiveness of training. (P3)	Modern training methods	Creating a learning culture in the bank	
Empowering employees to lead and guide their teams toward achieving lean banking objectives can enhance human resource management capability. (P10)	Development of leadership skills	Development of leadership skills	
Selecting appropriate custodians for human resource data management and accountability for how information is used is essential. (P5)	Accountability	Accountability and collaboration	Performance management in banks
Employee performance appraisal should be conducted based on skills, knowledge, and indicators related to lean banking. (P8)	Competency-based performance appraisal	Using a competency-based performance appraisal system	
Using the results of data analysis to improve human resource management processes is essential. (P12)	Data analysis	Analysis and examination of existing data	
Helping employees understand how their work contributes to organizational objectives is one of the factors that creates purposefulness. (P5)	Creating purposefulness	Creating purposefulness and meaning among employees	Motivation and communication in banks
Creating a safe and healthy work environment and encouraging employees to maintain work-life balance should be among the priorities of the organizational program. (P12)	Creating welfare and comfort	Appreciation and creating welfare among employees	
Holding regular meetings with employees and establishing communication channels for providing opinions and suggestions lead to better decision-making. (P11)	Open and transparent communication	Creating open and transparent communication	
Avoiding age discrimination in determining salaries and benefits and observing fairness among different generations of employees should be considered. (P11)	Intergenerational justice	Justice among different generations of employees	Banking compensation management
Creating a space for employees in which they feel freedom and encouragement to present new ideas helps enhance creativity. (P9)	Open workspace	Innovation and creativity	
The financial sustainability of the banking system and proper budgeting are essential for managing compensation costs. (P12)	Financial sustainability	Sustainability of the banking system	
Organizational design should be such that the bank can quickly adapt to market changes. (P1)	Rapid adaptation	Agility and flexibility	Organizational design of banks
Organizational design should comply with corporate governance principles and create transparent and accountable structures for supervising bank activities. (P8)	Corporate governance	Appropriate corporate governance	
The bank's organizational design should be aligned with the overall strategy and values of the bank and support its objectives. (P12)	Strategic alignment	Alignment of organizational design with bank strategies	

As shown in Table 1, the coding process for the infrastructure model of lean banking human resource management in the national banking system includes 189 basic themes, 41 organizing themes, and 10 global themes. These global themes are, respectively, participatory culture, technology in banks, strategy and objectives in banks, banking laws and regulations, selection and recruitment in banks, employee empowerment, performance management in banks, motivation and communication in banks, banking compensation management, and organizational design of banks.

The global theme of participatory culture includes a total of 34 basic themes and six organizing themes: organizational culture with 11 codes, human resource management with 4 codes, the Iranian banking system with 2 codes, lean banking with 8 codes, human resource management with 6 codes, and appropriate policies and processes with 3 codes. This theme

indicates that creating a participatory culture in state-owned banks requires the alignment of organizational values, transformational leadership, attention to the specific characteristics of the Iranian banking system, and the application of lean thinking principles in waste elimination and value creation.

The global theme of technology in banks includes a total of 31 basic themes and seven organizing themes: human resource information systems with 2 codes, artificial intelligence with 2 codes, data analysis and business intelligence with 4 codes, human resource management software with 8 codes, performance management with 6 codes, banking data security and compliance with 4 codes, and management information systems with 5 codes. This theme emphasizes the central role of technological infrastructure in making banking human resource management processes lean.

The global theme of strategy and objectives in banks includes a total of 28 basic themes and nine organizing themes: increasing efficiency and productivity with 3 codes, reducing costs with 4 codes, promoting a culture of creativity and innovation with 2 codes, human resource development and training with 5 codes, improving customer experience with 2 codes, aligning recruitment and attraction processes with 3 codes, employee performance management with 5 codes, committed and competent management with 3 codes, and creating a strong supportive work environment with 1 code. This theme reveals the link between banks' macro-level objectives and human resource management programs within the framework of lean thinking.

The global theme of banking laws and regulations includes a total of 23 basic themes and five organizing themes: upstream laws and regulations with 6 codes, law-abiding banking culture with 8 codes, ethical and legal human resource management with 4 codes, fundamental laws of technology and digital transformation with 4 codes, and human resource compliance with the laws governing infrastructure and digital processes with 1 code. This theme indicates the necessity of transparency, legality, and adherence to Islamic Sharia principles in human resource management decisions in state-owned banks.

The global theme of selection and recruitment in banks includes a total of 9 basic themes and three organizing themes: creating an accurate job profile with 3 codes, comprehensive applicant assessment with 3 codes, and publishing attractive and targeted job advertisements with 3 codes. This theme reflects attention to meritocracy, needs analysis, and evidence-based assessment in recruiting human resources aligned with lean banking values.

The global theme of employee empowerment includes a total of 13 basic themes and four organizing themes: using modern technologies to enhance efficiency and effectiveness with 3 codes, providing comprehensive training programs based on lean banking needs with 3 codes, creating a learning culture in the bank with 4 codes, and developing leadership skills with 3 codes. This theme highlights the role of continuous learning, experience transfer, and the use of modern technologies in developing the human capital of state-owned banks.

The global theme of performance management in banks includes a total of 10 basic themes and three organizing

themes: accountability and collaboration with 3 codes, using a competency-based performance appraisal system with 4 codes, and analyzing and examining existing data with 3 codes. This theme explains the cycle of evaluating, correcting, and improving employee performance within the framework of lean and data-driven principles.

The global theme of motivation and communication in banks includes a total of 9 basic themes and three organizing themes: creating purposefulness and meaning among employees with 3 codes, appreciation and creating welfare among employees with 3 codes, and creating open and transparent communication with 3 codes. This theme reveals the role of clear communication, growth pathways, and motivational justice in increasing the commitment and loyalty of employees in state-owned banks.

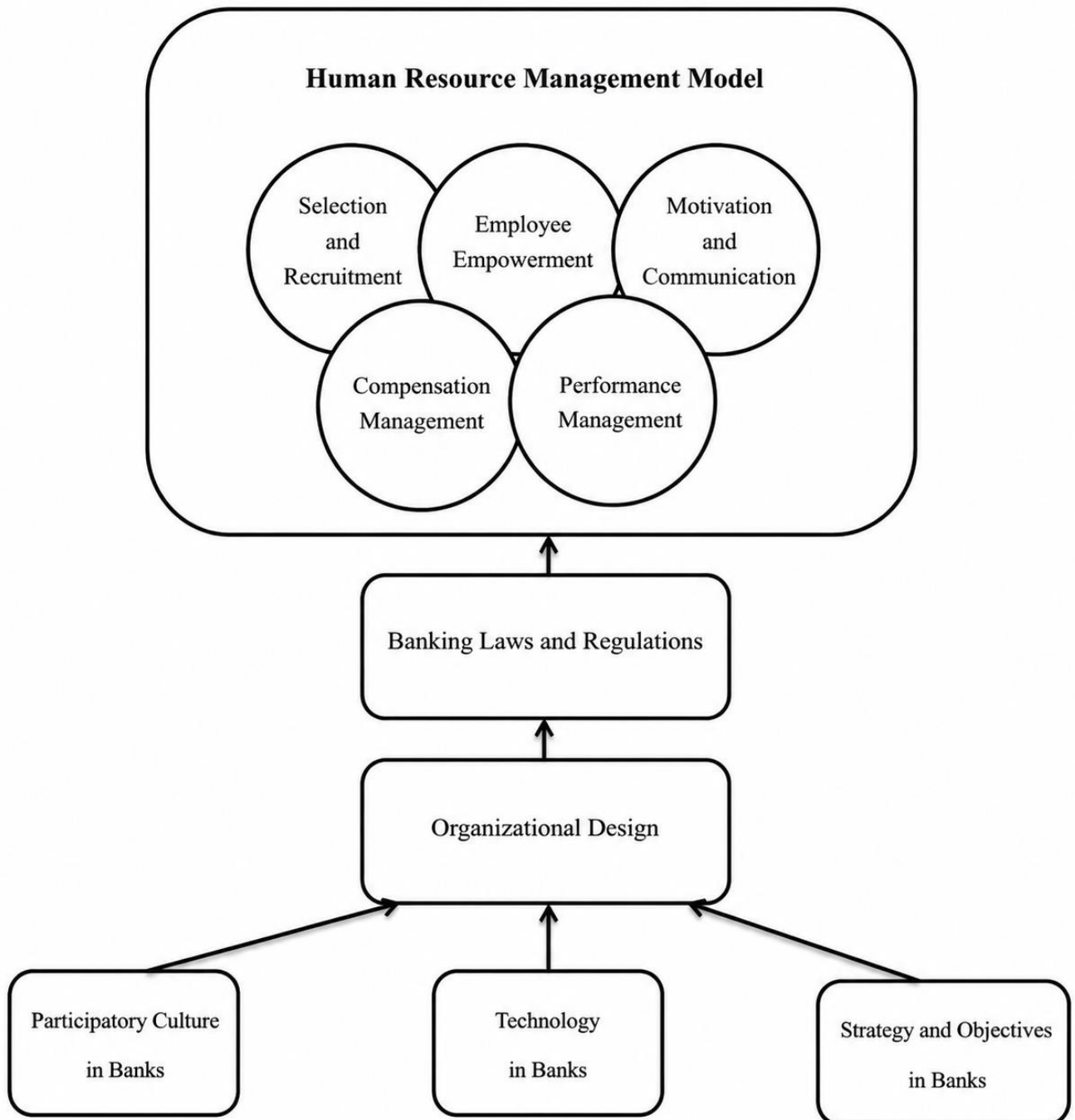
The global theme of banking compensation management includes a total of 9 basic themes and three organizing themes: justice among different generations of employees with 3 codes, organizational justice and fairness with 3 codes, and sustainability of the banking system with 3 codes. This theme emphasizes the necessity of perceived justice and job satisfaction in relation to the reward and payment system in line with the elimination of human-related waste.

The global theme of organizational design of banks includes a total of 23 basic themes and eight organizing themes: the bank's organizational design focus on customers with 5 codes, agility and flexibility with 4 codes, risk management with 3 codes, focus on customer-oriented values and ethics with 1 code, socially responsible and environmentally aligned values with 1 code, innovation and creativity with 2 codes, appropriate corporate governance with 4 codes, and alignment of organizational design with bank strategies with 3 codes. This theme indicates that designing an appropriate organizational structure for implementing lean banking requires simultaneous attention to customer needs, organizational agility, risk management, and transparent corporate governance.

Furthermore, Figure 1 presents the initial conceptual model derived from the preliminary examination of the subject and the qualitative interviews concerning the infrastructure model of lean banking human resource management in the national banking system, as follows.

Figure 1

Initial Conceptual Model Derived from the Preliminary Examination of the Subject and the Qualitative Interviews



Now, after identifying the components of the infrastructure model of lean banking human resource management in the national banking system through interviews with experts, the content validity ratio form is provided to the experts so that the usefulness or non-usefulness of each of these indicators can be examined from the experts' perspective and validity can be assessed.

4. Discussion and Conclusion

The present study aimed to develop an infrastructure model for lean banking human resource management in state-owned banks. The findings revealed that the proposed model consists of ten overarching themes, namely participatory culture, technology in banks, strategy and

objectives in banks, banking laws and regulations, selection and recruitment in banks, employee empowerment, performance management in banks, motivation and communication in banks, banking compensation management, and organizational design of banks. The extraction of these themes demonstrates that lean banking human resource management is not limited to conventional HR functions such as recruitment, compensation, and employee administration. Rather, it represents a multidimensional and integrated system in which organizational, technological, strategic, legal, and behavioral dimensions interact to create a supportive infrastructure for continuous improvement and value creation. This finding aligns with contemporary perspectives that view human resource management as a strategic capability rather than an administrative function. Previous studies have similarly emphasized the central role of HRM in improving organizational performance and achieving sustainable competitiveness in banking institutions (Salman et al., 2024; Yashaswini et al., 2023). The findings also support the argument that effective HRM systems must be integrated with broader organizational objectives and transformation initiatives to maximize their impact on organizational outcomes (Fard et al., 2026; Griep et al., 2024).

One of the most significant findings of this study was the identification of participatory culture as a foundational dimension of lean banking human resource management. The results demonstrated that organizational culture, employee participation, trust, commitment, leadership, value creation, and supportive policies collectively shape a participatory environment that facilitates the implementation of lean principles. This finding is consistent with lean management theory, which emphasizes employee involvement as a prerequisite for continuous improvement and waste elimination. A participatory culture encourages employees to share knowledge, identify inefficiencies, and contribute actively to organizational development initiatives. Such an environment strengthens organizational commitment and promotes ownership of change processes. Previous research has similarly highlighted the importance of employee engagement, collaborative leadership, and organizational commitment in enhancing workforce productivity and organizational effectiveness within banking institutions (Salman et al., 2024; Yashaswini et al., 2023). Furthermore, sustainable HRM literature argues that employee participation and empowerment create favorable conditions for long-term organizational sustainability and

adaptability (Griep et al., 2024). Therefore, the prominence of participatory culture in the present model reflects the central role of human interactions and collective engagement in successful lean transformation.

Technology in banks emerged as another major component of the proposed model. The findings indicated that human resource information systems, artificial intelligence, data analytics, business intelligence, cybersecurity, management information systems, and digital performance management tools constitute critical technological enablers of lean banking HRM. This result reflects the ongoing digital transformation of banking systems worldwide and confirms that technological infrastructure has become inseparable from contemporary human resource management practices. Advanced technologies facilitate process automation, improve decision quality, enhance employee experiences, and support evidence-based management. The identified role of artificial intelligence and data analytics is particularly noteworthy because these technologies enable organizations to optimize recruitment, workforce planning, performance assessment, and talent management processes. Similar conclusions have been reported by studies examining the impact of digital transformation on human resource development in commercial banks (Al-Hmesat et al., 2025), the influence of cloud computing on HR capabilities (Davaldi et al., 2024), and the contribution of digital HRM to career agility and organizational effectiveness (Althabhawee & Saeed, 2024). Likewise, research on electronic human resource management and artificial intelligence has demonstrated that technological innovation significantly enhances organizational performance through improved workforce management and process efficiency (Ali Mohammadi, 2025; Zafar et al., 2023). Consequently, the present findings reinforce the view that digital infrastructure constitutes a key prerequisite for the successful implementation of lean banking systems.

The results also identified strategy and objectives in banks as a central theme encompassing efficiency improvement, cost reduction, customer experience enhancement, human resource development, performance management, innovation, and supportive leadership. This finding suggests that lean banking human resource management cannot operate effectively in isolation from organizational strategy. Instead, HRM practices must be aligned with broader institutional objectives and performance expectations. Lean organizations require strategic coherence between workforce management

initiatives and organizational priorities to ensure that employee capabilities contribute directly to value creation and customer satisfaction. Previous studies have consistently emphasized the positive relationship between strategic HRM practices and organizational performance in banking organizations (Salman et al., 2024). Moreover, investigations into green productivity models and value-based human resource development frameworks have highlighted the importance of aligning human resource initiatives with organizational goals and sustainability priorities (Fard et al., 2026; Vardi et al., 2025). The present findings therefore confirm that strategic alignment represents a critical success factor in lean banking transformation.

Another important finding concerns the role of banking laws and regulations. The results revealed that legal compliance, regulatory frameworks, ethical HRM practices, digital governance requirements, and adherence to Islamic banking principles constitute essential elements of lean banking human resource management. This finding is particularly relevant in the context of state-owned banks, where regulatory obligations significantly influence organizational decision-making and operational processes. Lean systems require standardization, transparency, accountability, and consistency, all of which are reinforced through appropriate legal and regulatory mechanisms. Moreover, digital transformation initiatives increasingly require compliance with data protection, cybersecurity, and governance regulations. Similar observations have been reported in studies examining digital leadership competencies and transformation readiness in banking systems (Ahmadi Khesal et al., 2024). Research on organizational legitimacy and social responsibility has likewise emphasized the importance of regulatory compliance and ethical management practices in strengthening stakeholder trust and institutional credibility (Razmkhah & Sajadi Khah, 2024). Accordingly, the present study suggests that legal and regulatory infrastructures should be viewed as facilitators rather than constraints in the implementation of lean banking HRM systems.

Selection and recruitment in banks was another theme identified in the proposed model. The findings highlighted the importance of accurate job profiling, comprehensive applicant assessment, and targeted recruitment strategies. This result reflects the principle that lean organizations require highly competent employees whose capabilities align with organizational objectives and continuous improvement initiatives. Effective recruitment systems help

ensure that individuals possess not only technical competencies but also the adaptability, collaborative orientation, and learning mindset necessary for lean environments. The growing application of artificial intelligence in recruitment further supports the need for evidence-based and competency-focused selection processes. Previous studies have demonstrated that smart recruitment systems and AI-driven talent acquisition practices contribute significantly to organizational performance improvements by enhancing workforce quality and reducing recruitment inefficiencies (Ali Mohammadi, 2025). Similarly, research on digital HRM has emphasized the importance of leveraging technological tools to improve recruitment accuracy and efficiency (Althabawee & Saeed, 2024; Zafar et al., 2023). Therefore, the findings indicate that recruitment and selection systems form a critical entry point for establishing a lean organizational culture.

Employee empowerment was identified as another major component of the model. The findings emphasized comprehensive training programs, learning culture development, leadership skill enhancement, and the application of modern technologies for capability development. This result is consistent with the fundamental assumption that lean organizations depend on knowledgeable, skilled, and empowered employees who can actively participate in organizational improvement efforts. Continuous learning and professional development strengthen employees' abilities to adapt to technological changes, solve operational problems, and contribute to organizational innovation. Previous research has demonstrated the positive impact of training and development programs on employee capabilities and organizational effectiveness within the banking sector (Afkaneh & Jafari, 2024). Furthermore, studies examining digital transformation strategies have shown that workforce development is essential for enabling employees to operate effectively in increasingly digitalized environments (Al-Hmesat et al., 2025). The present findings therefore reinforce the view that employee empowerment represents a strategic investment that enhances organizational resilience and long-term competitiveness.

The findings regarding performance management indicated the importance of accountability, collaboration, competency-based evaluation systems, and data-driven decision-making. These results align closely with lean management principles, which emphasize continuous monitoring, measurement, feedback, and improvement. Competency-based performance assessment enables

organizations to evaluate employees according to strategic priorities while encouraging professional growth and organizational learning. The integration of data analytics into performance management further enhances objectivity and supports evidence-based decision-making. Previous studies have similarly highlighted the importance of digital HRM systems and analytical tools in improving workforce performance and organizational effectiveness (Althabawee & Saeed, 2024; Ghimire, 2025). Moreover, strategic HRM literature suggests that performance management systems are among the most influential mechanisms through which organizations translate strategic objectives into employee behaviors and outcomes (Salman et al., 2024). Consequently, the present findings underscore the importance of integrating performance management systems into broader lean transformation initiatives.

The themes of motivation and communication and banking compensation management further highlight the human-centered nature of lean banking HRM. The findings demonstrated that meaningful work, employee recognition, welfare provisions, transparent communication, fairness, intergenerational equity, and sustainable compensation systems contribute significantly to employee commitment and organizational effectiveness. These findings support motivational theories emphasizing the importance of fairness, recognition, and psychological engagement in promoting positive work behaviors. Sustainable compensation practices not only improve employee satisfaction but also strengthen trust in organizational systems. Similar conclusions have been reported in studies examining financial and non-financial rewards within digital HRM systems (Ghimire, 2025). Research on sustainable HRM and corporate social responsibility has also emphasized the importance of employee well-being, organizational justice, and stakeholder-oriented management practices in achieving sustainable organizational success (Griep et al., 2024; Yahya & Zargar, 2023). Therefore, the findings suggest that lean banking initiatives must address both operational efficiency and employee well-being to achieve long-term effectiveness.

Finally, organizational design emerged as an overarching structural dimension encompassing customer orientation, agility, flexibility, risk management, innovation, corporate governance, and strategic alignment. This finding reflects the reality that lean banking requires organizational structures capable of responding rapidly to environmental changes while maintaining accountability and operational excellence. Organizational agility enables banks to adapt to

technological disruptions, evolving customer expectations, and regulatory changes. At the same time, effective governance mechanisms ensure transparency, coordination, and strategic coherence. Previous studies examining digital transformation, productivity enhancement, and sustainable organizational development have similarly emphasized the importance of adaptive organizational structures and governance systems in supporting innovation and performance improvement (Ahmadi Khesal et al., 2024; Mohaghegh & Arasteh, 2024; Vardi et al., 2025). Collectively, these findings indicate that the successful implementation of lean banking human resource management requires the simultaneous alignment of organizational culture, technological infrastructure, legal frameworks, strategic objectives, and human resource systems. The proposed model therefore provides a comprehensive framework for understanding how these interconnected dimensions contribute to the development of effective and sustainable lean banking organizations.

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted exclusively within the context of state-owned banks, which may limit the generalizability of the results to private, international, or specialized banking institutions. Second, the study employed a qualitative approach based on expert interviews; therefore, the findings reflect the perceptions and experiences of participants rather than objectively measured organizational outcomes. Third, although theoretical saturation was achieved, the sample size was limited to twenty experts, and additional perspectives from employees, customers, and policymakers may have enriched the findings. Finally, organizational and technological changes in the banking industry occur rapidly, and some identified components may evolve over time as new technologies and regulatory requirements emerge.

Future studies may examine the proposed model quantitatively and test the relationships among its components using structural equation modeling or other advanced statistical techniques. Comparative investigations involving private and public banks could provide deeper insights into contextual differences in lean banking human resource management. Longitudinal studies may also be conducted to evaluate how the implementation of the proposed model influences organizational performance over time. Additionally, future researchers may explore the role of emerging technologies such as generative artificial intelligence, machine learning, blockchain, and advanced analytics in strengthening lean HRM infrastructures. Further

research focusing on employee perceptions and customer outcomes would also contribute to a more comprehensive understanding of lean banking transformation.

Bank executives should prioritize the development of participatory organizational cultures that encourage employee involvement in continuous improvement initiatives. Investments in digital infrastructure, human resource information systems, and analytical technologies should be integrated with broader organizational transformation strategies. Human resource departments should strengthen competency-based recruitment, continuous training, leadership development, and performance management systems to support lean banking objectives. Managers should also ensure that compensation systems, communication mechanisms, and employee welfare programs promote fairness, engagement, and organizational commitment. Finally, policymakers and senior banking leaders should align organizational structures, governance mechanisms, and regulatory frameworks with lean management principles to create sustainable foundations for long-term organizational effectiveness and innovation.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethics Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were considered.

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