

DEVELOPING A HUMAN CAPITAL MODEL FOR DIGITAL TRANSFORMATION IN THE SMART-FSM-BASED SECURITY OUTSOURCING INDUSTRY

Yakub Gunawan ¹, Rhian Indradewa ², Unggul Kustiawan ³, Ketut Sunaryanto ⁴

¹²³⁴ Universitas Esa Unggul, Indonesia

Email: yakubgunaone@student.esaunggul.ac.id, rhian.indradewa@esaunggul.ac.id,
unggul.kustiawan@esaunggul.ac.id, ketut.sunaryanto@esaunggul.ac.id

Diterima: 23/7/2026; Direvisi: 7/8/2026; Diterbitkan: 14/8/2026

ABSTRAK

Transformasi digital telah secara signifikan membentuk kembali industri outsourcing keamanan, yang mengharuskan organisasi untuk mengembangkan sumber daya manusia yang mampu beroperasi dalam lingkungan berbasis teknologi yang didukung oleh *Smart Field Service Management* (Smart-FSM). Terlepas dari investasi besar dalam teknologi digital, banyak organisasi terus menghadapi tantangan dalam mengembangkan tenaga kerja yang memiliki kompetensi terkait keamanan dan kemampuan digital yang diperlukan untuk mendukung efektivitas operasional dan kualitas layanan. Studi ini bertujuan untuk mengembangkan model Modal Manusia untuk mendukung transformasi digital dalam industri outsourcing keamanan berbasis *Smart-FSM*. Studi ini mengadopsi pendekatan kualitatif menggunakan metode penelitian konseptual berdasarkan analisis literatur dan sintesis teori yang berkaitan dengan Modal Manusia, Transformasi Digital, Manajemen Bakat, dan Manajemen Pengetahuan. Proses penelitian melibatkan identifikasi persyaratan kompetensi digital, pemeriksaan dimensi Modal Manusia yang relevan, dan pengembangan model konseptual terintegrasi yang selaras dengan implementasi *Smart-FSM*. Temuan menghasilkan pengembangan model Modal Manusia yang terdiri dari tujuh dimensi utama: Perencanaan Tenaga Kerja Digital, Rekrutmen dan Seleksi Digital, Pembelajaran dan Pengembangan, Manajemen Kinerja, Manajemen Bakat, Manajemen Pengetahuan, dan Retensi Karyawan. Model yang diusulkan berkontribusi pada pengembangan tenaga kerja keamanan yang adaptif secara digital, meningkatkan kualitas layanan, memperkuat kepuasan pelanggan, dan mendukung keberlanjutan bisnis jangka panjang. Oleh karena itu, model ini dapat berfungsi sebagai referensi strategis bagi perusahaan outsourcing keamanan yang berupaya menerapkan inisiatif transformasi digital yang berkelanjutan.

Kata kunci: *Sumber Daya Manusia, Transformasi Digital, Outsourcing Keamanan, Smart-FSM, Manajemen Bakat.*

ABSTRACT

Digital transformation has significantly reshaped the security outsourcing industry, requiring organizations to develop human resources capable of operating within technology-driven environments supported by Smart Field Service Management (Smart-FSM). Despite substantial investments in digital technologies, many organizations continue to face challenges in developing a workforce that possesses both security-related competencies and digital capabilities necessary to support operational effectiveness and service quality. This study aims to develop a Human Capital model to support digital transformation in the Smart-FSM-based security outsourcing industry. The study adopts a qualitative approach using a conceptual research method based on literature analysis and the synthesis of theories related to Human

Capital, Digital Transformation, Talent Management, and Knowledge Management. The research process involved identifying digital competency requirements, examining relevant Human Capital dimensions, and developing an integrated conceptual model aligned with Smart-FSM implementation. The findings resulted in the development of a Human Capital model consisting of seven key dimensions: Digital Workforce Planning, Digital Recruitment and Selection, Learning and Development, Performance Management, Talent Management, Knowledge Management, and Employee Retention. The proposed model contributes to the development of a digitally adaptive security workforce, enhances service quality, strengthens customer satisfaction, and supports long-term business sustainability. Therefore, the model may serve as a strategic reference for security outsourcing companies seeking to implement sustainable digital transformation initiatives.

Keywords: *Human Capital, Digital Transformation, Security Outsourcing, Smart-FSM, Talent Management.*

INTRODUCTION

Digital transformation has become a strategic priority for organizations across various industries, including the security outsourcing sector. Rapid advancements in information and communication technologies have fundamentally changed the way organizations manage operations, human resources, and customer services. Within the security outsourcing industry, digital transformation extends beyond the adoption of new technologies to encompass the development of a workforce capable of operating effectively in technology-driven environments (Chandratreya, 2025; Kaggwa et al., 2023). Security outsourcing companies are increasingly facing complex operational challenges. In addition to performing conventional physical security functions, security personnel are now expected to utilize a wide range of digital technologies, including mobile applications, Global Positioning Systems (GPS), Internet of Things (IoT) devices, monitoring dashboards, panic button systems, and real-time reporting platforms. Consequently, the competencies required of security personnel have evolved from traditional operational skills toward a combination of security expertise and digital capabilities.

One emerging approach that supports digital transformation in field-based service industries is Smart Field Service Management (Smart-FSM) (Adebanjo et al., 2021; Chandratreya, 2025; Minaya et al., 2024). Smart-FSM refers to the integration of digital technologies into workforce management processes, enabling real-time task allocation, activity monitoring, reporting, performance evaluation, and decision-making. Within the security outsourcing industry, Smart-FSM has the potential to improve operational visibility, accelerate incident response, enhance service quality, and increase customer satisfaction. However, the successful implementation of Smart-FSM depends not only on technological readiness but also on the availability of a workforce capable of effectively utilizing such technologies.

Previous studies have consistently identified human-related factors as critical challenges in digital transformation initiatives. O'Leary et al. (2021) argued that limited digital competencies, low adaptability to technological change, and insufficient human resource development programs frequently hinder successful digital transformation. Similarly, Hossain et al. (2022) found that although many organizations recognize the importance of digital transformation, implementation success remains relatively low due to inadequate Human Capital readiness. These findings suggest that technology investments alone are insufficient without corresponding investments in workforce development (Mabaso & Ontong, 2025; Westover, 2026). Ideally, digital transformation should improve operational efficiency,

strengthen organizational competitiveness, enhance service quality, and create value for customers. Nevertheless, many security outsourcing companies continue to experience difficulties in integrating digital technologies into their business processes. Low levels of digital literacy, high employee turnover, limited competency development initiatives, and weak knowledge management practices remain significant barriers to successful transformation.

From an academic perspective, Human Capital has long been recognized as a strategic organizational asset. Becker (1993) emphasized that Human Capital contributes significantly to productivity and organizational performance through the accumulation of knowledge, skills, and competencies. Research on digital transformation has also highlighted the importance of organizational capabilities in responding to technological change (Westerman et al., 2014; Verhoef et al., 2021). Furthermore, studies on Talent Management and Knowledge Management have demonstrated that employee development, talent retention, and knowledge sharing play essential roles in building adaptive and innovative organizations.

Despite the growing body of literature, several research gaps remain. Most Human Capital studies have focused on manufacturing, financial services, education, and information technology sectors. Research on digital transformation generally examines organizational strategies without specifically addressing the unique characteristics of the security outsourcing industry. Similarly, studies on Field Service Management have primarily concentrated on telecommunications, utilities, and technical service sectors. Consequently, limited research has integrated Human Capital, digital transformation, and Smart Field Service Management within the context of security outsourcing organizations.

Addressing this gap, the present study proposes a Human Capital Model designed to support digital transformation in the Smart-FSM-based security outsourcing industry. The proposed model integrates seven key dimensions: Digital Workforce Planning, Digital Recruitment and Selection, Learning and Development, Performance Management, Talent Management, Knowledge Management, and Employee Retention. By integrating these dimensions into a unified framework, the model seeks to support the development of a digitally adaptive security workforce capable of sustaining organizational performance in a rapidly evolving technological environment. Therefore, this study aims to develop a Human Capital Model for supporting digital transformation in the Smart-FSM-based security outsourcing industry and to explain the role of each Human Capital dimension in enhancing service quality and long-term business sustainability.

METHODOLOGY

This study adopts a qualitative conceptual approach to construct an integrated framework that addresses the evolving demands of technology-driven operations. The analytical process is structured around a thorough secondary evaluation of peer-reviewed journals, books, and industry reports focused on organizational change and workforce planning. Researchers acted as independent conceptual evaluators, systematically collecting, classifying, and screening theoretical texts without conducting direct physical field experiments or interviewing external personnel. Literature selection followed specific parameters requiring clear alignment with organizational adaptation and technological integration within modern security services. The operational design progressed through 5 distinct sequential phases: identifying core operational challenges, reviewing academic dimensions, synthesizing theoretical perspectives, formulating 7 framework components, and evaluating systemic alignment. Data analysis employed qualitative descriptive techniques, incorporating data

reduction, concept categorization, comparative mapping, and theoretical synthesis to ensure high conceptual validity.

The structural framework integrates 7 core dimensions that address the entire workforce lifecycle within digitally enabled environments. These dimensions encompass digital workforce planning, recruitment, learning and development, performance evaluation, talent management, knowledge sharing, and employee retention. To measure operational adaptation, the framework incorporates indicators that assess mobile application utilization, global positioning tracking, dashboard monitoring, and internet of things device integration. The theoretical models were evaluated against established practices in technology-oriented service sectors to ensure conceptual robustness and structural alignment. By establishing systematic linkages between workforce capabilities, operational readiness, and service delivery, the methodology provides a transparent and objective blueprint. This qualitative framework yields a clear, highly accountable model that serves as a strategic reference for managing human capital during technological transitions.

RESULTS AND DISCUSSION

Result

Identification of Human Capital Requirements for Digital Transformation in the Security Outsourcing Industry

The literature review findings indicate that digital transformation in the security outsourcing industry requires not only technological investment but also a workforce capable of operating, managing, and continuously adapting to digital systems. As organizations increasingly adopt technology-driven operational models, Human Capital readiness has become a critical factor in ensuring the successful implementation of digital transformation initiatives. The adoption of Smart Field Service Management (Smart-FSM) has significantly altered the operational landscape of security outsourcing organizations. Traditional security operations, which primarily relied on manual supervision and reporting, are increasingly being replaced by data-driven and technology-enabled management systems. Consequently, security personnel are expected to possess not only conventional security competencies but also a range of digital capabilities required to support technology-based service delivery.

The findings suggest that security personnel must develop competencies related to mobile application usage, digital reporting systems, dashboard monitoring, Global Positioning System (GPS) technologies, and Internet of Things (IoT)-enabled devices. These competencies are essential for supporting real-time operational monitoring, incident response, and data-driven decision-making processes within Smart-FSM environments. Based on the identification of organizational and technological requirements, several key Human Capital competencies were identified as critical enablers of digital transformation in the security outsourcing industry, as presented in Table 1.

Table 1. Human Capital Requirements for Digital Transformation in the Security Outsourcing Industry

Digital Transformation Challenge	Human Capital Requirement
Real-Time Monitoring	Digital Literacy
GPS Tracking	Mobile Technology Skills
Dashboard Monitoring	Data Interpretation Skills

IoT Integration	Technology Awareness
Digital Reporting	Information Management Skills
Incident Response System	Adaptive Competency

Based on table 1 the findings highlight that digital competencies have become fundamental requirements for the modern security workforce. Beyond traditional security expertise, organizations increasingly require personnel who can effectively interact with digital technologies, interpret operational data, and adapt to rapidly evolving technological environments. These competencies form the foundation for developing a digitally adaptive security workforce capable of supporting Smart-FSM implementation and sustaining organizational performance in an increasingly digital business landscape.

Dimensions of the Smart-FSM Human Capital Model

Based on the synthesis of Human Capital Theory, Digital Transformation, Talent Management, and Knowledge Management literature, this study identified seven core dimensions that collectively form the proposed Smart-FSM Human Capital Model. These dimensions represent the critical Human Capital components required to support digital transformation within the security outsourcing industry.

Table 2. Core Dimensions of the Smart-FSM Human Capital Model

Dimension	Strategic Functions
Digital Workforce Planning	Planning and forecasting digital workforce requirements
Digital Recruitment and Selection	Acquiring talent with relevant digital competencies
Learning and Development	Developing workforce competencies and capabilities
Performance Management	Monitoring and evaluating employee performance
Talent Management	Identifying, developing, and retaining high-potential employees
Knowledge Management	Capturing, sharing, and utilizing organizational knowledge
Employee Retention	Maintaining a qualified and sustainable workforce

Based on table 2 the findings indicate that these seven dimensions should not be viewed as isolated Human Capital functions. Instead, they operate as an integrated system that supports workforce readiness and organizational adaptability in digitally enabled operating environments. The integration of these dimensions enables organizations to systematically develop the capabilities required to support Smart-FSM implementation and long-term digital transformation initiatives.

The proposed dimensions collectively address the entire Human Capital lifecycle, beginning with workforce planning and talent acquisition, continuing through competency development and performance management, and extending to knowledge retention and workforce sustainability. As a result, the model provides a comprehensive framework for aligning Human Capital practices with digital transformation objectives.

Development of the Smart-FSM Human Capital Model

The findings suggest that digital transformation in the security outsourcing industry requires a structured and sustainable Human Capital approach. While technological infrastructure serves as an important enabler, successful transformation ultimately depends on the organization's ability to develop, manage, and retain a workforce capable of operating within increasingly digital environments. Through theoretical synthesis and industry needs analysis, this study developed a Human Capital model that integrates the seven identified dimensions into a unified framework supporting Smart-FSM implementation. The model emphasizes that Human Capital should be positioned as a strategic driver of transformation rather than merely a supporting organizational function.

Furthermore, the model recognizes that workforce development, talent acquisition, competency enhancement, knowledge sharing, and employee retention are interdependent elements that collectively contribute to organizational readiness. Consequently, the effectiveness of Smart-FSM implementation depends on the extent to which organizations can align these Human Capital dimensions with their digital transformation strategies. The resulting framework provides a structured pathway through which organizations can transform traditional security operations into digitally enabled service systems supported by a competent and adaptive workforce.

Conceptual Model of Human Capital for Smart-FSM-Based Digital Transformation

The conceptual model developed in this study illustrates the strategic role of Human Capital as the connecting mechanism between digital transformation initiatives and organizational performance outcomes. Rather than functioning as a sequential process, the seven Human Capital dimensions operate simultaneously and interactively within the Smart-FSM environment. Together, these dimensions contribute to the development of a Digital Security Workforce characterized by technological competence, adaptability, continuous learning, and service orientation.

The conceptual relationship proposed by the model can be summarized as follows figure 1:

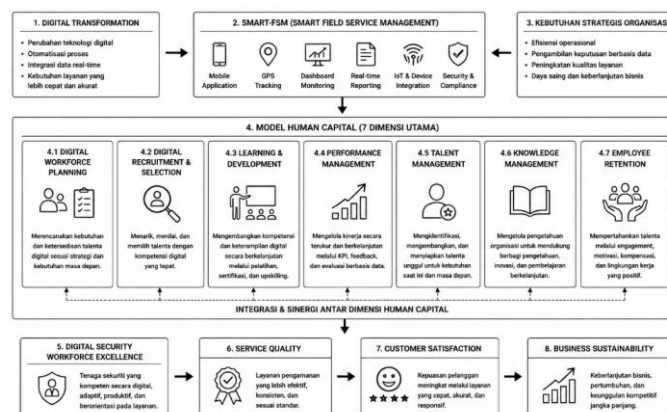


Figure 1. Conceptual Model of Human Capital Smart-FSM

Based on Figure 1, this model highlights that Human Resources (HR) serves as a strategic bridge connecting technology adoption with organizational outcomes. Thus, organizations that systematically invest in HR development are more likely to achieve successful digital transformation, deliver higher-quality services, improve customer satisfaction, and sustain long-term business performance.

Discussion

Digital Workforce Planning in Supporting Digital Transformation in the Security Outsourcing Industry

Digital Workforce Planning represents the foundational dimension of the Human Capital Model proposed in this study. The findings suggest that digital transformation within the security outsourcing industry requires organizations to move beyond traditional workforce planning approaches that primarily focus on staffing levels and operational deployment. Instead, organizations must strategically identify and develop workforce competencies that align with technology-enabled service environments and Smart-FSM implementation requirements.

From a Human Capital perspective, workforce planning plays a critical role in creating organizational capabilities that support long-term competitiveness. Becker (1993) argued that Human Capital constitutes a strategic asset capable of generating sustainable competitive advantages through the accumulation of knowledge, skills, and competencies. In the context of security outsourcing, this perspective becomes increasingly relevant as operational effectiveness is no longer determined solely by workforce availability but also by the ability of personnel to utilize digital technologies effectively.

The findings indicate that Digital Workforce Planning contributes to the identification of key competencies required for Smart-FSM implementation, including mobile application utilization, digital reporting, GPS tracking, dashboard monitoring, and Internet of Things (IoT)-enabled technologies. These competencies form the basis of a digitally adaptive workforce capable of supporting real-time operational management and data-driven decision-making processes. Consequently, workforce planning should incorporate competency forecasting mechanisms that anticipate future technological requirements rather than merely addressing current staffing needs.

This finding is consistent with Armstrong's (2021) view that effective workforce planning enables organizations to place the right people in the right roles at the right time while ensuring the availability of required competencies. In rapidly evolving digital environments, workforce planning becomes a strategic process through which organizations prepare for technological disruptions and changing service delivery requirements. Therefore, Digital Workforce Planning should be viewed not merely as an administrative Human Resource Management function but as a strategic mechanism for ensuring organizational readiness, workforce adaptability, and long-term sustainability in the face of continuous technological transformation.

Digital Recruitment and Selection in Building a Digitally Competent Workforce

The digital transformation of security outsourcing services requires organizations to reconsider traditional recruitment and selection practices. Historically, recruitment processes in the security sector have focused primarily on physical security competencies, operational discipline, and regulatory compliance. However, the increasing adoption of Smart-FSM technologies has expanded competency requirements to include digital literacy, technology adaptability, and data management capabilities.

The findings suggest that Digital Recruitment and Selection constitutes a critical dimension of the proposed Human Capital Model. Organizations that incorporate digital competencies into recruitment criteria are more likely to attract and retain individuals capable

of operating effectively within technology-enabled service environments. As digital transformation accelerates, the ability to recruit employees with both security expertise and technological capabilities becomes an important determinant of organizational performance. This finding aligns with Dessler's (2020) argument that recruitment serves as a strategic mechanism for acquiring human resources that match organizational objectives and future business requirements. Within digitally transformed organizations, recruitment decisions should extend beyond evaluating previous experience and technical qualifications to include an assessment of an individual's capacity to learn, adapt, and engage with emerging technologies.

Furthermore, technological innovation has transformed the recruitment process itself. Digital recruitment platforms, Applicant Tracking Systems (ATS), online assessments, and virtual interviews have improved efficiency, transparency, and objectivity in talent acquisition. These technologies enable organizations to identify candidates who possess the competencies required to support Smart-FSM implementation while reducing recruitment costs and processing time.

The findings also highlight the growing importance of competency-based recruitment strategies. Rather than focusing solely on current job requirements, organizations should evaluate candidates based on their potential to develop future-oriented skills that support continuous digital transformation. Such an approach allows organizations to build a workforce that remains relevant despite ongoing technological change. Consequently, Digital Recruitment and Selection should be regarded as a strategic investment in Human Capital development. By acquiring talent that combines security expertise with digital competencies, organizations can strengthen workforce readiness, accelerate Smart-FSM adoption, and improve overall service performance.

Learning and Development as a Driver of Digital Transformation

Learning and Development represents one of the most critical dimensions within the proposed Human Capital Model. The findings suggest that digital transformation cannot be sustained solely through technological investments; rather, organizations must continuously develop workforce capabilities to ensure that employees are able to effectively utilize emerging technologies. Consequently, learning and development initiatives become strategic mechanisms for strengthening organizational adaptability and supporting long-term transformation objectives.

The findings indicate that Learning and Development contributes significantly to workforce readiness through training programs designed to address digital operational requirements. These programs include Smart-FSM application training, digital reporting systems, dashboard monitoring, information security awareness, and the utilization of Internet of Things (IoT)-enabled technologies. Through continuous learning initiatives, security personnel can enhance both their technical competencies and their ability to adapt to rapidly evolving technological environments.

This finding supports the argument of Noe et al. (2017), who emphasized that organizations investing in employee development are better positioned to sustain competitiveness in dynamic business environments. Within the context of the security outsourcing industry, continuous learning initiatives facilitate technology adoption and accelerate workforce adaptation to digital operating systems. As employee competencies improve, organizations become increasingly capable of leveraging technological resources to enhance operational effectiveness and service quality.

From a Human Capital Theory perspective, training and development should be viewed as strategic investments that increase the economic value of employees through the enhancement of knowledge, skills, and capabilities (Becker, 1993). This perspective is particularly relevant in the Smart-FSM environment, where technological advancements continuously redefine operational requirements. Organizations that fail to invest in workforce development may experience competency gaps that hinder digital transformation efforts and reduce organizational competitiveness. Beyond individual competency enhancement, Learning and Development also contributes to the establishment of a learning-oriented organizational culture. Such a culture encourages continuous improvement, knowledge acquisition, and innovation, thereby strengthening organizational resilience and supporting sustainable digital transformation initiatives.

Performance Management in a Digital Work Environment

The transition toward digitally enabled operations requires organizations to redesign traditional performance management practices. Within Smart-FSM environments, employee performance is no longer evaluated solely through direct supervision but increasingly through operational data generated by digital systems. As a result, Performance Management emerges as a critical dimension of the proposed Human Capital Model. The findings indicate that Smart-FSM implementation enables organizations to monitor employee performance in real time using various operational indicators, including task completion rates, compliance with operational procedures, incident response effectiveness, and service quality outcomes. The availability of real-time operational data provides a more objective basis for performance evaluation and managerial decision-making.

This finding is consistent with Armstrong's (2021) view that effective performance management systems should align individual performance objectives with broader organizational goals. In digital work environments, this alignment can be achieved through Key Performance Indicators (KPIs), integrated reporting systems, and performance dashboards that provide transparent and measurable performance information. Such mechanisms facilitate more accurate performance assessment while promoting accountability and continuous improvement. Furthermore, the findings suggest that digital performance management systems contribute to workforce accountability by ensuring that operational activities are systematically recorded and monitored. This capability is particularly important within the security outsourcing industry, where service reliability, operational responsiveness, and customer satisfaction are critical determinants of organizational success.

Consequently, Performance Management should not be viewed merely as an evaluation mechanism but as a strategic tool that enables organizations to optimize workforce productivity, improve service delivery, and support the successful implementation of Smart-FSM technologies.

Talent Management as a Strategy for Organizational Sustainability

Talent Management represents a strategic dimension within the proposed Human Capital Model because it focuses on identifying, developing, and retaining individuals who possess the capabilities necessary to drive organizational transformation. In increasingly digital business environments, organizations require employees who are not only technically competent but also capable of leading change, fostering innovation, and adapting to emerging technologies. The findings indicate that Talent Management contributes to organizational readiness by ensuring the availability of individuals with strategic competencies required for Smart-FSM implementation. Through systematic talent identification and development

processes, organizations can cultivate future leaders who possess technological expertise, innovative thinking, and the capacity to navigate complex operational environments.

This finding supports the work of Collings and Mellahi (2009), who argued that Talent Management serves as a source of sustainable competitive advantage through the effective management of high-potential employees. Within the context of digital transformation, talented employees act as catalysts for technological adoption and organizational innovation. Their ability to understand and apply digital technologies directly influences the effectiveness of transformation initiatives. In addition to improving operational performance, Talent Management contributes to organizational sustainability through succession planning and leadership development. These practices enable organizations to prepare future leaders capable of managing technological change while ensuring continuity in strategic decision-making and organizational growth. Therefore, Talent Management should be regarded as a long-term strategic investment that supports workforce excellence, organizational resilience, and sustainable digital transformation within the security outsourcing industry.

Knowledge Management as an Enabler of Digital Transformation

Knowledge Management is a strategic component of the proposed Human Capital Model because it ensures that organizational knowledge is systematically captured, shared, and utilized to support decision-making and operational improvement. Within digitally transformed organizations, knowledge increasingly becomes a critical organizational asset that contributes to innovation, efficiency, and competitive advantage. The findings indicate that Smart-FSM implementation generates substantial volumes of operational data and information derived from patrol reports, incident records, performance evaluations, monitoring activities, and customer interactions. These information resources possess significant strategic value when transformed into organizational knowledge that supports operational effectiveness and continuous improvement.

This finding aligns with the Knowledge Creation Theory proposed by Nonaka and Takeuchi (1995), which emphasizes the dynamic interaction between tacit and explicit knowledge. In the security outsourcing industry, valuable tacit knowledge often exists in the form of field experience, incident-handling expertise, communication skills, and decision-making capabilities under high-pressure conditions. Through effective Knowledge Management practices, this knowledge can be converted into organizational assets such as operational procedures, training materials, best-practice guidelines, and digital knowledge repositories.

Furthermore, Davenport and Prusak (1998) argued that organizations capable of effectively managing knowledge are better positioned to foster innovation and sustain competitive advantages. The findings support this perspective by suggesting that Knowledge Management reduces dependency on individual employees and minimizes the loss of critical expertise resulting from workforce turnover. Within Smart-FSM environments, Knowledge Management can be implemented through digital repositories, e-learning platforms, knowledge-sharing programs, lesson-learned databases, and best-practice management systems. These mechanisms facilitate organizational learning while enhancing workforce preparedness for technological change. Therefore, Knowledge Management should be viewed not merely as an information storage function but as a strategic enabler that accelerates digital transformation by strengthening organizational learning, innovation, and knowledge utilization capabilities.

Employee Retention and the Sustainability of Human Capital

Employee Retention represents a crucial dimension of the proposed Human Capital Model because it ensures the continuity of organizational competencies in an industry characterized by relatively high workforce mobility. Excessive employee turnover not only increases recruitment and training costs but also creates risks associated with the loss of organizational knowledge, operational experience, and service quality. The findings indicate that successful digital transformation depends not only on acquiring competent employees but also on retaining them over the long term. Organizations capable of maintaining a stable and highly skilled workforce are better positioned to develop sustainable digital competencies and preserve operational continuity.

This finding is consistent with Hausknecht and Holwerda (2013), who reported that higher employee retention rates are associated with improved productivity, service quality, and overall organizational performance. Within Smart-FSM-based security outsourcing organizations, retention becomes particularly important because the development of digital competencies requires substantial investments of time, resources, and organizational commitment (Ekhsan et al., 2023; Zhang, 2025). Beyond compensation, the findings suggest that employee retention is influenced by career development opportunities, supportive work environments, performance recognition, and access to continuous learning initiatives. These factors strengthen organizational commitment and encourage employees to contribute to organizational objectives over extended periods (Elrayah & Mabkhot, 2023; Osembe & Tuliswa, 2026; Palma, 2024).

From a Human Capital perspective, retaining high-performing employees represents a strategic investment that preserves accumulated knowledge, experience, and competencies. Organizations that successfully retain talented employees can reduce workforce replacement costs while sustaining the Human Capital necessary for long-term competitiveness and digital transformation success. Accordingly, Employee Retention serves as a critical mechanism for maintaining digital workforce capabilities and ensuring the sustainability of transformation initiatives within the security outsourcing industry.

Theoretical and Practical Implications of the Smart-FSM Human Capital Model

This study contributes to the existing literature by developing a Human Capital Model that integrates Human Capital Theory, Digital Transformation, Talent Management, Knowledge Management, and Smart Field Service Management into a unified conceptual framework. Unlike previous studies that often examine these concepts independently, the proposed model demonstrates that successful digital transformation within the security outsourcing industry requires a comprehensive and integrated Human Capital approach. From a theoretical perspective, the study extends the application of Human Capital Theory to the context of technology-enabled security services. The findings suggest that digital competencies, talent development, knowledge management, and employee retention collectively influence workforce readiness and organizational adaptability. Consequently, Human Capital should be viewed as a strategic capability that enables organizations to successfully navigate digital transformation processes.

From a practical perspective, the proposed model provides security outsourcing companies with a structured framework for aligning Human Capital strategies with digital transformation objectives. The seven dimensions identified in the model can guide organizations in designing recruitment strategies, competency development programs, performance management systems, talent development initiatives, knowledge-sharing mechanisms, and retention policies that support Smart-FSM implementation. Moreover, the

model can serve as an assessment framework for evaluating Human Capital readiness in digitally transforming organizations. By identifying strengths and weaknesses across the seven dimensions, organizations can prioritize development initiatives and maximize the value generated from technological investments. Overall, the Smart-FSM Human Capital Model offers a comprehensive framework that bridges digital transformation initiatives, workforce development strategies, and organizational performance outcomes. Although developed within the context of the security outsourcing industry, the model may also be adapted to other service organizations that rely on field-based workforces and technology-enabled operational systems.

CONCLUSION

The development of a human capital model based on smart field service management has been conceptually proven to be a key strategic enabler in supporting the successful digital transformation of the security outsourcing industry. Technological readiness will not achieve optimal impact without the support of an adaptive workforce, digital literacy, and mastery of real-time surveillance competencies. The integrated synergy of seven key dimensions—from planning, recruitment, learning, performance management, talent management, knowledge management, to employee retention—successfully constructs a new paradigm for security workforce management. This integrated framework has proven reliable in transforming conventional, passive security operations into a responsive, scalable, and professional data-driven service system. Therefore, investing in strengthening human capital capacity is proven to be essential in ensuring operational efficiency, service quality, customer satisfaction, and long-term business sustainability in the digital era.

The implications of this research provide strategic direction for the management of security outsourcing companies to transform their human resource governance systems from conventional administrative functions to an integrated approach based on smart-FSM technology. Industry managers are required to design recruitment programs and digital competency training to optimize the adoption of operational tools in the field. However, because this qualitative research is based on a conceptual qualitative study through literature synthesis, the findings are limited by the lack of empirical hypothesis testing on business entities directly. Therefore, future research is recommended to empirically test the validity of this model using structural equation modeling (SEM) or partial least squares (PLS-SEM) approaches, as well as comprehensively explore its applicability to other field service industries.

BIBLIOGRAPHY

- Adebanjo, D., Laosirihongthong, T., Samaranayake, P., & Teh, P. (2021). Key enablers of Industry 4.0 development at firm level: Findings from an emerging economy. *IEEE Transactions on Engineering Management*, 70(2), 400–416. <https://doi.org/10.1109/tem.2020.3046764>
- Armstrong, M. (2021). *Armstrong's handbook of human resource management practice* (15th ed.). Kogan Page.
- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). The University of Chicago Press.
- Chandratreya, A. (2025). Digital transformation and the future workforce. In *Advances in hospitality, tourism and the services industry (AHTSI) book series* (pp. 19–40). IGI Global. <https://doi.org/10.4018/979-8-3693-7447-4.ch002>

- Collings, D. G., & Mellahi, K. (2009). Strategic talent management: A review and research agenda. *Human Resource Management Review*, 19(4), 304–313. <https://doi.org/10.1016/j.hrmr.2009.04.001>
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business School Press.
- Dessler, G. (2020). *Human resource management* (16th ed.). Pearson.
- Ekhsan, M., Badrianto, Y., & Suwandi, S. (2023). Digital talent on employee retention: The role of employee engagement as mediation. *Journal of Law and Sustainable Development*, 11(10). <https://doi.org/10.55908/sdgs.v11i10.1121>
- Elrayah, M., & Mabkhot, H. (2023). Organizational commitment and employees turnover intention in Saudi public sector: The mediating role of job satisfaction and work environment. *International Journal of Professional Business Review*, 8(10). <https://doi.org/10.26668/businessreview/2023.v8i10.3788>
- Hausknecht, J. P., & Holwerda, J. A. (2013). When does employee turnover matter? Dynamic member configurations, productive capacity, and collective performance. *Organization Science*, 24(1), 210–225. <https://doi.org/10.1287/orsc.1110.0720>
- Kaggwa, S., Akinwolemiwa, D. I., Dawodu, S. O., Uwaoma, P. U., Akindote, O. J., & Eloghosa, S. O. (2023). Digital transformation and economic development: A review of emerging technologies' impact on national economies. *World Journal of Advanced Research and Reviews*, 20(3), 888–905. <https://doi.org/10.30574/wjarr.2023.20.3.2541>
- Mabaso, C., & Ontong, A. (2025). Advancing economic growth through human capital development in the era of the Fourth Industrial Revolution. *SA Journal of Human Resource Management*, 23. <https://doi.org/10.4102/sajhrm.v23i0.3080>
- Minaya, P. E., Avella, L., & Trespalacios, J. A. (2024). Synthesizing three decades of digital servitization: A systematic literature review and conceptual framework proposal. *Service Business*, 18(2), 193–222. <https://doi.org/10.1007/s11628-024-00559-x>
- Noe, R. A., Clarke, A. D. M., & Klein, H. J. (2017). Learning in the twenty-first-century workplace. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 245–275. <https://doi.org/10.1146/annurev-orgpsych-031413-091321>
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.
- O'Leary, D. E., Storey, V. C., & Sarkar, S. (2021). Digital transformation and organizational readiness: Implications for human capital development. *Journal of Information Systems Education*, 32(2), 115–126. <https://doi.org/10.1234/jise.v32i2.2021>
- Osembe, L., & Tuliswa, N. N. N. (2026). AI-powered employee attrition prediction: Key insights from the Gauteng ICT sector. *International Journal of Research in Business and Social Science*, 15(3), 118–131. <https://doi.org/10.20525/ijrbs.v15i3.4938>
- Palma, E. J. C. (2024). Organizational commitment of non-tenured employees in the Philippine government service: A behavioral model. *International Journal of Advanced and Applied Sciences*, 11(3), 8–18. <https://doi.org/10.21833/ijaas.2024.03.002>
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and



- research agenda. *Journal of Business Research*, 122, 889–901.
<https://doi.org/10.1016/j.jbusres.2019.09.022>
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.
- Westover, J. H. (2026). Navigating the paradox of AI enthusiasm and upskilling inaction: Building workforce capability in the era of digital transformation. *Human Capital Leadership*, 30(2). <https://doi.org/10.70175/hclreview.2020.30.2.5>
- Zhang, Z. (2025). Retention risks and governance strategies of core employees under global HR outsourcing trends. *Modern Economics & Management Forum*, 6(3), 426–426.
<https://doi.org/10.32629/memf.v6i3.4027>