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Research article

Building tomorrow's hotel talent: A digital-driven approach to upskilling, reskilling, and cross-skilling

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ABSTRACT
The rise of digital technology has profoundly transformed the management and operation of human resources in the hospitality sector. This digital shift is altering workforce structures, the skill sets needed, and the strategies for developing employee competencies to stay relevant amidst fluctuating industry trends. This study aims to investigate how digital transformation affects workforce composition, the skills sets needed, and the creation of vocational training aligned with the demands of the digital age within the hospitality industry. This qualitative study involved 21 respondents, comprising seven managers of the Indonesian Hotel and Restaurant Association of East Kalimantan Province-Indonesia, seven hotel managers, and seven hotel HRD managers. This study results show that digital transformation has positive impacts, including increased work productivity, operational efficiency, a focus on experience-based services, and data-driven decision-making. However, negative impacts also emerged, including workforce reductions in operator and administrative positions, skills gaps, and an increased reliance on digital systems. This study identified the skills necessary in the digital era, including digital competence, adaptability, effective communication, and multitasking abilities. Based on these findings, this study recommends the development of vocational training programs that emphasize upskilling, reskilling, and cross-skilling to support workforce readiness in the face of changes in work structures and competency demands in the increasingly digitalized hospitality industry.

KEYWORDS
digital transformation; hospitality industry; job skills; vocational training; human resource development

Introduction

The advancement of digital transformation in the hospitality industry is becoming increasingly crucial for enhancing customer experiences and gaining a competitive advantage. Digital technologies, including artificial intelligence, cloud computing, and customer relationship management systems, facilitate efficient operations and personalized guest services, significantly improving the overall quality of customer interactions (Bestin et al., 2026; Cheng et al., 2023; Pencarelli, 2020; Razack et al., 2025). Hotels that adopt robust digital solutions can manage reservations through intuitive platforms, integrate online payment systems, and provide responsive customer service through multiple digital channels (Nyide, 2025). These capabilities not only enhance customer satisfaction but also increase loyalty, as guests tend to value personalized experiences supported by advanced technology (Pawar et al., 2021). Furthermore, the COVID-19 pandemic has accelerated this digital shift, prompting many companies to adopt contactless services and modernized operating systems as a means to compete in a rapidly changing market (António & Rita, 2021). In this context, hospitality businesses must embrace digital transformation not only to survive but also to

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excel in delivering exceptional customer experiences while effectively addressing industry challenges. However, with the rapid digitalization of the hospitality industry, there is a pressing need for workforce qualifications that align with the technological advancements being adopted. Today's workforce must adapt to new digital devices and systems, necessitating targeted training and vocational education programs that equip staff with essential digital competencies. These training programs should focus on technical skills while simultaneously developing a customer-centric approach to enhance service delivery in a digital context. Consequently, hotels that prioritize employee skill development improve service delivery while simultaneously fostering employee confidence and effectiveness in using new technologies. As transformational changes continue to redefine industry standards, investing in workforce qualifications will be critical for hospitality industries seeking to maintain a competitive edge while ensuring their staff are prepared to maximize the benefits of digital transformation in fostering superior customer experiences (Cheng et al., 2023).

Developing practical experience in the digital era through an on-the-job training framework allows individuals to acquire relevant skills aligned with industry needs, thereby enhancing their employability and confidence as they transition into professional roles. Furthermore, aligning vocational training with the technological demands of the hospitality sector is crucial for meeting current and future labor market needs (Mahfud et al., 2017, 2024; Razack et al., 2025). The development of vocational training in the hospitality sector must prioritize continuous curriculum updates and collaboration with industry stakeholders to ensure graduates possess the necessary skills and knowledge. Integrating the latest digital technologies into vocational training curriculum development can create a learning environment that enhances technical competency and prepares superior human resources for the dynamic hospitality industry landscape (Feng & Liang, 2024). Critical to the development of vocational training is the essential instilling of thinking and problem-solving skills to prepare students for the complexities of technology application in real-world scenarios. While numerous previous studies have addressed the impact of digital transformation on the hospitality industry, most studies tend to focus on technology adoption from an operational and customer experience perspective, with little attention paid to its impact on the development of vocational training needs in the hospitality sector. This theoretical gap arises from the limited research linking technological change with the social and economic implications for workforce training needs, particularly in terms of the growing skills gap resulting from automation and digitalization. Therefore, this study aims to fill this gap by exploring the impact of digital transformation on vocational training needs in the hospitality sector in more depth. Specifically, this study aims to explore the impact of digital transformation on the employment structure in the hospitality industry, focusing on the changes in roles and skills required of workers in the digital era. This study will also identify emerging skills needs resulting from the adoption of new technologies. In addition, this study will explore the development needs of relevant vocational training to close these skills gaps, and how such training can be adapted to the evolving demands of the hospitality industry, along with advances in digital technology.

Literature review

Effects of digital transformation

The term "digital transformation" refers to the process of utilizing digital technologies to drive significant impacts on stakeholders, companies, organizations, industries, and society, thereby enhancing the advancement of hospitality and tourism (Cheng et al., 2023) through the creation of strategic value opportunities (Ozdemir et al., 2023). Current research trends in the hospitality sector have highlighted the beneficial and detrimental impacts of artificial intelligence and robotics (Kim et al., 2021), big data, cloud computing (Buhalis & Leung, 2018), blockchain technology and virtual technologies (Filimonau & Naumova, 2020). Digital technology has had a profoundly positive impact on the hospitality industry, particularly in enhancing operational efficiency and improving the customer experience. Digitization enables hotels to automate reservation processes, customer management, and room service through artificial intelligence-based systems and the Internet of Things (IoT), thereby increasing guest satisfaction (Buhalis & Leung, 2018). Furthermore, the use of big data and analytics helps hotels understand customer preferences and provide more personalized services (Ivanov et al., 2018). Digital marketing through social media and online platforms also expands market reach and increases hotel occupancy rates (Morosan & DeFranco, 2016). In general, digital transformation strengthens organizational structures by changing corporate governance frameworks (Verhoef et al., 2021) and maintaining the information base for corporate investment and financial strategies. Furthermore, digital transformation can enhance a company's operational management by improving cognitive capabilities and management decision-making competencies, as well as optimizing operations, revenue, costs, and competitiveness across various scenarios in the hospitality industry (Cheng et al., 2023). With these innovations, the hospitality industry can be more

competitive and adaptable to changing market trends. The advent of various digital technologies also presents challenges in implementing digital transformation, including complex information technology frameworks, substantial capital requirements, lengthy investment payback periods, organizational inertia, and a high risk of failure (Wimelius et al., 2021). Furthermore, there are adverse consequences such as technology-induced unemployment (Parvez et al., 2022), employee job insecurity, employee turnover, and decreased well-being (J. Li et al., 2019), as well as concerns about privacy and security (Tussyadiah, 2020). The shortage and high cost of relevant skilled personnel can hinder a company's development during digital transformation. Furthermore, the significant fixed costs associated with an organization's digital transition can require substantial financial resources (Mueller & Sensini, 2021).

Vocational training needs

In an era of increasingly rapid digital transformation, the need for vocational training is becoming increasingly urgent to ensure the workforce has skills relevant to modern industries. Technologies such as automation, artificial intelligence, and the Internet of Things (IoT) have transformed the workplace landscape, requiring workers to possess higher technical and digital competencies (Achtenhagen & Achtenhagen, 2019). Digital technologies may replace simpler, more demanding job tasks. Conversely, industrial jobs may also become more challenging as more complex or interdisciplinary tasks are added. Therefore, many companies require more training to equip their workforce for future demands better (Achtenhagen & Achtenhagen, 2019). Vocational training plays a crucial role in bridging the skills gap by providing practice-based education aligned with industry demands. Technology-based training programs, such as simulation-based learning and digital certification, are key strategies in preparing a workforce that is adaptable to technological change (World Economic Forum, 2020). Furthermore, vocational training contributes to increasing workforce competitiveness and accelerating economic growth. Digital-based training enables workers to develop new skills needed in a technology-driven economy, such as data analysis, programming, and digital systems management (OECD, 2019). Furthermore, vocational training enhances productivity, contributing to economic growth through increased employability (Giddens, 1994).
The hospitality industry, particularly with its automated reservation systems, the use of artificial intelligence for customer service, and the use of big data in guest experience management, increasingly requires a workforce that is not only technically skilled but also able to adapt to digital innovation (Buhalis & Leung, 2018). Therefore, hospitality workers need to be trained in digital technologies, such as cloud-based property management systems, digital marketing, and Internet of Things (IoT)-based services, to improve efficiency and customer satisfaction (Ivanov et al., 2018). Furthermore, soft skills such as digital communication and adapting to new technologies are also crucial for workers to compete in an increasingly digitalized industry. With structured, technology-based vocational training, hospitality workers can be better prepared to face industry challenges and provide more innovative and responsive services to customer needs.

Methods

This study uses a qualitative approach with a case study design to gain an in-depth understanding of the impact of digital transformation on the employment structure, skills gaps, and vocational training needs in the hospitality industry. The qualitative approach allows researchers to explore the experiences, perceptions, and social dynamics that arise from digitalization in the hospitality workplace in a contextual and naturalistic manner (Creswell, 2014). Meanwhile, the case study design was chosen because it provides an exploratory framework for understanding complex phenomena within the constraints of real-world situations in a specific industry, thus illustrating the relationship between technological change and workforce dynamics (Yin, 2018). This research focuses not only on describing the phenomenon but also explores the implications of digital transformation on work patterns, competencies, and human resource development needs in the hospitality sector. This study was conducted on the hospitality industry sector in Balikpapan City, Indonesia. The location was chosen based on Balikpapan's strategic location, adjacent to Indonesia's new capital city (IKN), and its role as a significant destination for Meeting, Incentive, Convention, and Exhibition (MICE) activities. The relocation of the Indonesia's new capital city to East Kalimantan, part of which includes Balikpapan, is a significant factor driving the development of this sector. This change has had a substantial impact on the city's economic growth and infrastructure development, including increased activity in the MICE and hospitality industries. Participants in this study were purposively selected based on their involvement and experience in the digitalization process in the hospitality industry. They consisted of administrators from the Indonesian Hotel and Restaurant Association (Perhimpunan Hotel dan Restoran Indonesia) in East Kalimantan Province, Indonesia, and managers and HR personnel from 3- to 5-star hotels in Balikpapan, who understood the changes in work systems resulting from the implementation of digital technology. Purposive sampling was chosen because it allowed researchers to select informants who were

directly relevant to the research objectives (Palinkas et al., 2015). The number of participants was determined based on the principle of data saturation, which occurs when information obtained becomes repetitive and no longer yields new findings (Guest et al., 2006). In this context, 21 participants were involved, including seven administrators from the Indonesian Hotel and Restaurant Association in East Kalimantan Province, seven hotel managers, and seven hotel HRD managers who are actively adapting to digital system changes in hospitality operations.

Data collection was conducted through in-depth interviews, observations, and documentation studies. In-depth interviews were used to explore participants' perspectives on changes in the employment structure, new skills challenges, and training needs arising from the implementation of digital technology (Kvale & Brinkmann, 2015). The interview protocol was developed using the thematic references in Table 1. Furthermore, observations were conducted to directly understand the work interactions between humans and technology, such as the use of property management systems, online booking platforms, and digital service interfaces in hotel operations. Furthermore, documentation studies were conducted on training reports, digital work guidelines, and human resource policies related to digital transformation in the hotel industry. The entire data collection process was carried out with due regard for ethical research principles, such as obtaining participant consent (informed consent), maintaining anonymity, and ensuring the confidentiality of information (Guest et al., 2006).

Table 1. Questions categories

Research focus category	Exploration objectives	Sample research questions / interview guide
The impact of digital transformation on work patterns	To explore how digital transformation affects work systems, structures, and efficiency in the hotel industry.	1) What are the positive impacts of implementing digital technology on work structures in the hospitality industry? 2) What are the negative impacts of implementing digital technology on work structures in the hospitality industry?
Skills needs in the era of digital transformation in the hospitality sector	To identify skill needs in the era of digital transformation in the hospitality sector	1) What is the skills gap between employee capabilities and the digital skills required by the hospitality industry in the era of digital transformation? 2) What skills are considered most important for the hospitality workforce to develop to enable them to adapt and be competitive amidst the digital transformation process?
Vocational Training Needs	To assess the training and development strategies needed to strengthen workforce readiness in facing digitalization.	1) What specific training programs are needed to enhance employees' digital and technical skills in hotel operations? 2) How relevant are current vocational training programs to the actual skills demanded in the hotel industry? 3) What methods or approaches are most effective for vocational skill development in your hotel?

The data obtained were analyzed using thematic analysis (Naeem et al., 2023). The analysis process included a thorough reading of the data, initial coding, identification of patterns and themes, and the development of a thematic narrative that illustrates the relationship between digital transformation and employment dynamics in the hospitality industry. The analysis was conducted iteratively, moving back and forth between empirical data and relevant theories to deepen interpretations (Miles & Huberman, 1994). To ensure data validity (trustworthiness), this study employed triangulation of sources and techniques, member checking with participants, and audit trail documentation to maintain transparency in the research process.

Result and discussion

The impact of digital transformation on the employment structure in the hospitality sector

Digital transformation has significantly altered the employment landscape in the hospitality sector. The adoption of technologies such as digital hotel management systems, automated customer service, and online booking applications has shifted the workforce from manual work to more technology- and data analytics-based roles. Traditional positions, such as receptionists, telephone operators, and administrative staff, are experiencing a decline, while demand is increasing for workers with digital skills, including customer data analysts, digital systems managers, and online marketing specialists. This shift has also created a new segmentation within the hotel workforce, where employees with digital literacy and adaptive flexibility are gaining more strategic positions. One of the study's key findings is that the implementation of various new technologies in the hospitality industry has had a significant positive impact on the workforce structure. These positive impacts include increased work productivity, increased operational efficiency, a focus on new experience-based services, and data-driven decision-making. One of interview finding revealed that the implementation of digital technology in the hotel sector offers more benefits than threats, particularly in terms of increasing work productivity. One hotel's Human Resource Manager stated: "...*We believe that digital technology actually helps us to increase work productivity, so there's really no need to worry. Perhaps the concern stems from employees who want their qualifications updated to maintain balance*." (W1/HRD2/01.07.2025) Automation of work processes through cloud-based hotel management systems and digital applications has increased workforce productivity, as many administrative tasks can be completed more quickly and efficiently. This allows employees to shift from routine work to more strategically valuable activities, such as improvements. Companies that leverage digital technology can optimize human capital

structure and managerial efficiency, thereby increasing overall productivity, further underscoring the importance of effective technology adoption in achieving organizational goals (Peng et al., 2023). Furthermore, the integration of digital technology has been shown to improve operational efficiency by automating repetitive tasks, freeing employees to focus on value-added activities (Alfehaid et al., 2024). This evolutionary shift in the operational framework emphasizes the integral role of digital solutions in fostering a more productive work environment.

Furthermore, this study also reveals that digital technology offers new service experiences for guests. According to a hotel HR manager said that: *"...The new technologies implemented in our hotel include check-in technology and operator services. There haven't been any new jobs created yet, but there are some role mergers between several positions. For example, one person can handle three job descriptions." (W1/HRD3/25.07.2025)*. These new service experiences will drive the fulfillment of consumer expectations in the hospitality sector. The emergence of technologies such as artificial intelligence and big data analytics allows businesses to customize services and enhance customer experiences, thereby attracting and retaining more demanding clients (Helal, 2023). The findings of this study are relevant to previous studies that highlight that as hospitality businesses become increasingly digital, they can create experiences that align with their current customers, which directly impacts employee roles and responsibilities in service delivery (Sha & Chai, 2025). This trend illustrates a fundamental shift towards a more customer-centric approach in the hospitality sector, where employees are required to be involved in innovative service design, thus fostering a dynamic work environment. This study found that the implementation of digital technology has facilitated data-driven decision-making. Previous studies also revealed that the integration of big data analytics enables hospitality businesses to process vast amounts of information from various sources such as social media, reviews, and reservations (J. Li, 2024). This data enables informed decision-making and can quickly adapt to changing consumer preferences and market trends, thus providing a competitive advantage. Furthermore, decision support systems (DSS) and business intelligence (BI) tools play a crucial role in streamlining strategic planning and marketing efforts, helping companies identify opportunities and challenges in real time (Sequeira et al., 2023).

The integration of digital technology in the hospitality sector, while beneficial in many aspects, also raises concerns about workforce dynamics and skill requirements. One finding of this study suggests that a potential negative impact is a reduction in labor demand for certain positions, particularly those involving routine or manual tasks. Previous studies have shown that as automation and artificial intelligence (AI) become more prevalent, many traditional roles become obsolete, especially for low-skilled workers (Ma, 2024). This trend can lead to job losses, as evidenced by studies showing a correlation between the adoption of automation technologies and a decrease in the need for human labor in service areas, such as food and beverage operations (İflazoğlu & Can, 2024). Furthermore, this labor migration not only triggers direct labor issues but also drives a workforce that is increasingly reliant on automation, creating a scenario where employees may find their skills quickly obsolete as new technologies emerge. Furthermore, in-depth interviews revealed that the rapid adoption of digital systems in the hospitality sector poses significant risks related to skills gaps and unequal access to technology. The Indonesian Hotel and Restaurant Association management stated that: *"...Yes, that's right. The risk of a skills gap is real. Many long-time hotel workers find it difficult to keep up with technological developments, especially those related to new digital systems like online reservation apps, hotel management software, or even simply operating digital devices." (W1/PHRI/24.07.2025)* As organizations integrate advanced technologies, disparities emerge between employees who possess the technical skills necessary to interact with these systems and those who do not, potentially creating a skills gap (Fang & Liou, 2024; Fatimah et al., 2023). This disparity can leave certain segments of the workforce vulnerable, particularly individuals who lack access to training resources and upskilling opportunities. Furthermore, this study also revealed that the adoption of digital technologies can lead to increased reliance on digital systems. This finding is relevant to previous studies, which have shown that reliance on digital infrastructure can exacerbate operational vulnerabilities. Technology dependency can hinder organizational resilience in the face of critical failures, cyber threats, or service disruptions (Buhalis & Moldavska, 2021). Addressing these complications requires a comprehensive strategy that emphasizes skills development and equitable access to training, ensuring that all stakeholders can navigate the complexities of the digitally driven environment and maintain competitive employment within the hospitality sector.

Skills needs in the era of digital transformation in the hospitality sector

The findings of this study highlight the critical skills required in the hospitality sector during this era of digital transformation, with a particular emphasis on digital skills, adaptability, communication, and multitasking. According to an HR Manager said that: *"In my opinion, the most important skill for employees today is digital literacy, so they can quickly adapt to new systems. Data analytics is also becoming necessary,*

allowing for more accurate reading of reports and guest data. Digital communication is also crucial, as many interactions now occur through apps or online platforms. But the most important aspect remains customer service, understanding how to use technology without sacrificing hospitality in serving guests." (W1/HRD1/19.06.2025). As noted by Zaragoza-Sáez et al. (2021), the demand for digital competencies is increasing in the tourism and hospitality industry, necessitating a shift in training and education paradigms. Effectively integrating technology into service delivery requires not only an understanding of digital tools but also the ability to engage customers across various digital platforms. This aligns with the broader concept of digital literacy, which encompasses not only technical proficiency but also the soft skills necessary to interact and communicate effectively in an increasingly digital environment (Pshenichnykh & Novi, 2023). With customer expectations constantly evolving with technological advancements, hospitality professionals must be prepared to leverage digital tools to enhance customer interactions, making communication skills more vital than ever. Furthermore, the emphasis on adaptability reflects the rapid changes that characterize the digital era. Hospitality professionals must navigate a landscape where technology is constantly evolving, necessitating the adaptation of their strategies and operations. This need for adaptability is supported by previous research findings (Mahfud et al., 2022), which illustrate how adaptability skills will become increasingly necessary in the future. An HR Manager at a hotel in Balikpapan City stated that: *"Technology is a tool that can support increased work productivity and is constantly changing. Therefore, skills are needed that can adapt to these changes. For example, in hotels, hospitality is still needed because it cannot be replaced by technology. Likewise, soft skills will continue to be needed despite technological changes in the workplace." (W1/HRD2/01.07.2025).*

Furthermore, multitasking and practical time management skills are increasingly crucial for fulfilling diverse roles in a technology-driven workplace (Ferreira et al., 2022). Cross-departmental skills are crucial in the hospitality sector, as they require operational flexibility from each employee to support overall service continuity. Cross-departmental skills can promote service continuity, enhance operational efficiency, and ensure an optimal guest experience, even in dynamic working conditions. One interview finding revealed: *"Nowadays, employees are required not only to be experts in one field, but also to be able to multitask across divisions. Certification is also crucial because it serves as recognized proof of expertise. In recruitment, what's looked at isn't just experience, but rather competence, attitude, and engagement. Furthermore, employees must also understand global distribution channels and be able to manage loyalty programs, as these are crucial for long-term relationships with guests." (W1/HRD2/01.07.2025)*. Combining these capabilities with digital skills also suggests that a holistic approach to training and upskilling can provide significant benefits for the hospitality workforce. Organizations must not only recognize the importance of digital competencies but also invest in ongoing professional development to foster adaptability and resilience among their employees. In this context, developing both hard and soft skills has emerged as a crucial strategy to ensure the workforce is ready to meet the demands of the digitally transformed hospitality industry.

The need for vocational training in the era of digital transformation in the hospitality sector

Based on previous findings that confirmed the impact of digital technology implementation on the workforce structure and competency needs in the hospitality sector, this study then developed a training program design tailored to these changing dynamics. This study underscores the importance of strengthening vocational training in the hospitality sector as a strategic step in addressing the complexities and challenges arising from the digital transformation process. The study's findings reveal that the hospitality industry needs to develop vocational training with upskilling, reskilling, and cross-skilling approaches to meet the industry's evolving demands. This is relevant to the statement of one respondent, who stated: *"In my opinion, employee skills are still relevant to digital technology in hotels, but they do need to be continually upgraded. They can already use basic systems, but when they encounter newer or more complex technologies, they still need further training to ensure faster and more friendly service." (W1/HRD3/25.07.2025)*. The concept of upskilling refers to developing the capacity of the current workforce, both in terms of technical skills and non-technical skills (also known as soft skills), to address current and future skills needs (Storey & Wright, 2023). Simply put, upskilling refers to the process of enhancing existing skills to become more proficient or in line with the latest developments in the same field. Vocational training must evolve to include up-to-date technical training aligned with industry trends and innovations, thus equipping educators and students with relevant digital competencies. As the hospitality industry increasingly adopts technology solutions—from online booking systems to sophisticated customer relationship management (CRM) tools—employees need a solid foundation of digital skills to enhance digital service delivery. Furthermore, this study also revealed that reskilling is crucial in an era where artificial intelligence and digital devices are becoming integral to hospitality operations. This way, hotels can enhance their professionalism, creativity, and competitiveness in utilizing social media as a promotional and brand-building tool. A member of the Indonesian Hotel and

Restaurant Association of East Kalimantan Province stated that: *"Regarding new skills training at the hotel, we are now also starting to focus on the digital sector, such as training as social media specialists and content creators. The goal is to enable employees to support hotel promotions through social media, create engaging content, and strengthen the hotel's branding in the digital realm." (W1/PHRI/24.07.2025)*. Reskilling is the process of equipping the workforce with new skills to transition to different roles or departments within an organization (L. Li, 2024). Reskilling is designed to prepare personnel to move into new roles or areas of work. For example, a front office employee previously tasked with serving guests directly could undergo training in customer data analysis and digital reservation system management to transition to a reservation system analyst or digital guest experience coordinator. This shift occurs because many check-in and payment processes are now automated through self-service kiosks or online applications. Adapting training to the reskilling concept significantly enhances efficiency and enables personalized, data-driven services in the hospitality sector.

Table 2. Differences between upskilling, reskilling, and cross-skilling

Aspect	*Upskilling*	*Reskilling*	*Cross-Skilling*
Definition	Enhancing existing skills to make them more relevant to current developments.	Learning new skills to move into a different field or job.	Learning skills from other relevant fields that support the primary role.
Primary Objective	Improving performance in the current role to remain relevant and competent.	Preparing an individual to move into a different role or job function.	Increase flexibility and collaboration by expanding cross-functional understanding.
Relevance	Current job	New job	Other related roles
Position Change	None — remaining in the same position, with higher competencies.	Existing—moving into a different position/job field.	None — remaining in the same position but taking on additional roles from other fields.
Example	A network engineer studying cybersecurity to strengthen their skillset.	A front office employee is being trained to become a data analyst because machines are replacing their position.	Front office staff are trained to learn the basics of sales and reservation management, enabling them to assist marketing in handling group reservations and room promotions.
Learning Focus	Deepening or updating existing technical/functional skills.	Learning new skills that differ from their current job.	Learning additional skills that complement the primary role.
Career Orientation	Vertical development (advancing to greater expertise or promotion within the same career path).	Career transition to a different path.	Horizontal expansion, increasing flexibility, and cross-functional roles.

Finally, the findings of this study also offer the concept of cross-skilling training, which emphasizes the development of additional skills beyond one's primary responsibilities, but still related to or supporting existing work functions. This cross-disciplinary capability encourages employees to be more flexible, efficient, and adaptable to the complexities of modern hotel operations. The combination of interdisciplinarity and cross-skilling will narrow the skills gap between employees and industry demands. A hotel HR manager stated that: *"... I think cross-training is the most appropriate or necessary option for hotels to offer to employees or internship students. This training concept offers cross-division or cross-field skills development that enable them to navigate new technological changes." (W1/HRD2/01.07.2025)*. This strategy aims to increase flexibility and collaboration among cross-functional teams in the hospitality sector. Unlike reskilling, which prepares employees for transitions to new roles, or upskilling, which deepens technical skills in the same role, cross-skilling aims to create workers who are more adaptable, interdisciplinary, and ready to collaborate in a complex work environment. As stated by Mirakyan (2024), cross-skilling helps address changes in the workplace. In principle, cross-skilling encourages employees to understand processes and challenges in other functions, thereby minimizing silos between departments and increasing operational efficiency. The concept of cross-skilling can strengthen organizational resilience, particularly in the context of cross-functional teamwork and projects. When team members have a broader understanding of various roles, they can work more synchronously, fill temporary vacancies, or even take on more strategic collaborative initiatives. Furthermore, cross-skilling also enhances individual job satisfaction by providing opportunities for self-exploration and development, as well as opening flexible horizontal career mobility paths—something increasingly relevant in today's dynamic work environment. The fundamental difference between the three lies in the ultimate goal and scope of skill change: upskilling deepens competency within the same career path, reskilling changes career direction, while cross-skilling broadens role scope within a more flexible work structure. Another distinction is that upskilling focuses on improving performance in the current role, reskilling prepares employees for new organizational roles, and cross-skilling adds new skills beyond their primary role. Table 2 illustrates the differences between the three skills training schemes.

Reskilling, upskilling, and cross-skilling strategies are also crucial for the hospitality industry, which is currently facing disruption due to digital transformation and changing traveler behavior. The adoption of technologies such as online booking systems, contactless check-in, and artificial intelligence in customer service requires hotel workers to possess digital skills and a strong adaptability. According to the World Economic Forum (2020), approximately 50% of the global workforce will need to undergo retraining to remain relevant in the ever-changing workplace. In the hospitality context, this means employees across all sectors—from front office and housekeeping to food and beverage—need to be equipped with new skills to operate effectively in a technology-driven and sustainable work environment. However, challenges such as limited access to digital training, technological skills gaps, and low investment in training in some regions

need to be addressed through collaboration between the hospitality industry, vocational education institutions, and government policy support oriented toward strengthening the competency of tourism human resources.

Conclusion

This study examines the impact of digital transformation on the workforce structure, skills requirements, and the need for relevant vocational training development in the hospitality sector. The results of this qualitative study reveal that digital transformation has had a positive impact on the hospitality sector, including increased work productivity, enhanced operational efficiency, a focus on new experience-based services, and data-driven decision-making. Furthermore, the study also reveals negative impacts, including workforce reductions in operator and administrative roles, skills gaps, unequal access to technology, and a reliance on digital systems. Other findings indicate that the skills needed in the digital transformation era include digital skills, adaptability, effective communication, and multitasking abilities. Finally, this study encourages the hospitality sector to develop various types of training, including upskilling, reskilling, and cross-skilling, to meet the evolving demands of the hotel industry. The limitations of this study lie in its limited scope, which remains qualitative and does not incorporate quantitative analysis to empirically measure the extent to which digital transformation impacts the performance and structure of the workforce across various hotel types. Furthermore, this study does not delve deeply into the differences in the implementation of digital transformation between star-rated and non-star-rated hotels, nor into regional factors that may influence the digital readiness of the workforce. Therefore, further research is recommended to employ quantitative methods or conduct comparative studies across regions and hotel categories to gain a more comprehensive understanding of the dynamics of skill change, the effectiveness of training programs, and HR adaptation strategies in response to digital transformation in the hotel industry.

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