

# AI redefining the hospitality industry

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## Abstract

**Purpose** – This paper aims to explore how artificial intelligence (AI) technologies have redefined the hospitality industry. It develops a theoretical framework to evaluate its impact on employee engagement, retention and productivity levels, stemming from its potential implications for service quality and customer satisfaction.

**Design/methodology/approach** – Based on the exploration of relevant literature, role theory and service-profit chain were used to develop – role-service-profit chain.

**Findings** – Role-service-profit chain is an analytical tool which has strong implications for investment and deployment analysis of the new technologies in hospitality and tourism businesses. It proposes how managers can evaluate how the role expectation of technological innovations relate to service quality and customer satisfaction through its impact on employee-related outcomes (such as employee engagement, retention and productivity), and assess the corresponding impact on profitability and growth, in the context of their own unique internal environment and position in the market.

**Research limitations/implications** – Although an empirical assessment of the hypothesised relationships in the model is required to evaluate and validate it in the hospitality industry, role-service-profit chain presents promising implications for tourism and hospitality practice and future research.

**Practical implications** – Role-service-profit chain is an analytical tool from which managers can make improvements on talent and talent management practices and adjust expectations and behaviours in ways that facilitate improvements in service quality and customer satisfaction.

**Originality/value** – This paper makes an important contribution to hospitality and tourism literature, as it explores how AI technologies implemented to improve on talent and talent management practices impact on service quality and customer satisfaction, and develops analytical tools by which this may be evaluated.

**Keywords** AI and robotics, e-HRM, Role theory, Service-Profit chain, Hospitality industry, Service quality, Customer satisfaction

**Paper type** Conceptual paper

## 1. Introduction

The international hospitality and tourism industry is one of the world's largest and fastest growing industry. Globally, it brings in US\$7.6tn and creates 292 million jobs, which accounts for almost 10% of the global GDP and one out of ten jobs, with the expectation to provide more jobs in the coming years, due to its projected steady growth (World Travel & Tourism Council, 2017; Statista Research Department, 2018; OECD, 2018). A success which relies on the service quality and customer satisfaction delivered by hospitality and tourism businesses. Since in addition to price, reliability and having highly sophisticated destinations in the right locations, attracting and retaining guests largely depends on service quality and customer satisfaction (Narayan *et al.*, 2008; Bellou and Andronikidis, 2009; Nunkoo *et al.*, 2017; Li *et al.*, 2020). This is, however, challenged by the industry's high turnover rates due to job dissatisfaction, poor pay, limited career development opportunities, and poor work-life balance that leads the industry to need more effective talent management practices to help improve its employee engagement, retention and productivity levels (Pizam and Shani, 2009; Ruel, 2018; Jooss, 2018).

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Progress in machine/artificial intelligence (AI) capabilities is especially promising and threatening to the industry in this regard (Ivanov and Webster, 2017; OECD, 2018; Cain *et al.*, 2019; Prentice *et al.*, 2020). AI helps people to work smarter, resulting in better business outcomes and requires them to develop new competencies and capabilities, from technological expertise to social and emotional skills, as well as creative skills (de Leede, 2016; Ivanov and Webster, 2019). At the same time, AI may cause human talent to be replaced by technology in some cases and lead hospitality and tourism businesses to become challenged to redesign their structures and processes as a result (Ivanov and Webster, 2017; OECD, 2018; Cain *et al.*, 2019; Prentice *et al.*, 2020). For human resource management (HRM), using digital analytics and AI instruments (i.e. AI enhanced e-HRM) to manage and monitor the performance of human talent results in enhanced talent attraction, development, deployment and productivity; while managing and monitoring the performance of digital talent (such as AI technologies) is the most challenging technological development. Stemming from its potential implications for service quality and customer satisfaction, the need for better understanding of the impact of AI technologies on employee engagement, retention and productivity levels, is of considerable interest in hospitality and tourism research (Ivanov and Webster, 2017; Bowen and Whalen, 2017; Ruel, 2018; Cain *et al.*, 2019; Prentice *et al.*, 2020).

This paper generates a theoretical framework for better understanding of how technological innovations (such as AI technologies) relate to employee engagement, retention and productivity levels, and impact on service quality and customer satisfaction, to contribute to providing this understanding in the hospitality industry. It starts by building on systems perspective and directs the discussion to role theory, to provide a theoretical structure for the framework. Drawing from role theory (Katz and Kahn, 1978) and service-profit chain (Heskett *et al.*, 1994), role-service-profit chain is developed. It is a framework which offers managers analytical tools to evaluate and understand how the role expectation of technological innovations relate to employee engagement, retention and productivity levels, which enables them build service quality and customer satisfaction from these levers, and assess the corresponding impact on profitability and growth. It aims to enhance evidence-based decision-making on investments and deployment of the new technologies in hospitality and tourism businesses and enable improvements on talent and talent management practices. The paper closes with its contribution and implications for research and practice.

## 2. Theoretical foundation

### 2.1 Systems perspective

Systems perspective views organisations as socio-technical systems rather than either a technical or a social system (Trist and Bamforth, 1951). It believes that effective work is a function of the interdependence between technical factors (i.e. job design such as equipment, physical layout and task requirement) and social systems (i.e. human factors), where technical factors contribute to maximising task accomplishments dependent on human factors (especially the relationships within groups) that help to improve the quality of work life (Trist and Bamforth, 1951). For organisations to achieve overall system effectiveness, it is argued to be about wedding the humanistic factors with strictly technical/mechanistic factors, while harmonising the conflicting objectives of its components (van Gigch, 1974), by differentiating them into roles that work together to achieve a common purpose (Parsons, 1951; Biddle, 1979). Thus, placing roles at the heart of overall system effectiveness (Katz and Kahn, 1978).

### 2.2 Role theory

Role theory is concerned with what a person or group or technology should or should not do as part of their role in the workplace (i.e. their role expectation) (Alleyne, 2002). With normative consensus and conformity as its central concepts used to explain social

integration (Jackson, 1998), role theory emphasises the significance of organisations as socio-technical systems. As it identifies that it is through roles that organisational members get to know each other and come to understand the boundaries of people and various organisational technologies, and form the shared belief of what a person or group or technology can contribute to achieving set goals (Biddle, 1979). It assumes that role clarity (role understanding) helps social actors to understand how to add value in organisations and set clear expectations (Alleyne, 2002). As it believes that roles and expectations originate from social interactions (Thies and Wehner, 2019) and the adoption of appropriate roles by different social actors (i.e. role conformity) is a continuous process that leads towards role fulfilment and a means to further interaction and behaviours (Broderick, 1998; Jackson, 1998; Alonso, 2016). Katz and Kahn (1978) thus state that understanding the role expectation of a person or group or technology, accepting them and fulfilling them is at the heart of organisational effectiveness.

This can, however, be impacted and influenced by wider organisational context – organisational structure, culture, systems, strategy and policies – together with changes occurring over time, that leads to the constant redefining of what roles and expectations are in adapting to the dynamic nature of organisations (Alleyne, 2002). Making roles not static, but ever changing, and the phenomenon of role expectation more complex (Biddle, 1979; Broderick, 1998). This constant redefining of roles and expectations resulting from technological changes (such as advancements in machine learning) and the increasing digitalisation of talent and talent management practices – and – its impact on service quality and customer satisfaction is the focus of this paper.

### 3. Redefining the hospitality industry with artificial intelligence technologies

In the digital economy, technological innovations are expected to enable businesses to transition towards more digital ways of working, managing, organising and facilitating change in various organisational processes. The introduction of AI and robotics into human and world economies is expected to have important implications for the nature, structure and conditions of work, and as a consequence, for HRM in helping organisations to attract and retain talent (Colbert *et al.*, 2016). It is associated with elimination of jobs, head-count reduction, surviving workers finding themselves having to work harder, longer and more intricate and ever-changing job roles (Habraken and Bondarouk, 2017; Ivanov and Webster, 2017; OECD, 2018; Cain *et al.*, 2019). In terms of intelligent agents, AI is about using intelligent machines designed to work, react, learn and train as humans to augment human intelligence and perform human tasks, through their capacity and capability to retain and analyse more data real-time to complement human effort (Bringsjord and Govindarajulu, 2020). A form of skills transfer in which humans train algorithms, by which computers and robots can learn from to complement or enhance human intelligence (as decision-support systems) and/or perform human tasks.

AI adds intelligence to the hospitality industry through AI-enhanced hotel and tourism operations and management systems, which has redefined the hospitality industry to an intelligent hotel and tourism industry (Lai and Hung, 2018). It has also reshaped the models of tourism and hoteling by disrupting the traditional system, as this technological innovation enables customers to access reliable and accurate information that allows them to customise their requests, make reservations and purchase hotel and tourism products and services directly through technological platforms, rather than dealing with a hotel, booking agent, or professional travel agent (OECD, 2018; Zlatanov and Popesku, 2019; Buhalis, 2020). It makes booking and travelling more affordable and convenient, and pricing and services more standardised, resulting in a shift in the key to creating competitive advantage in the hospitality industry. It is now about the degree of hotel and tourism intelligence and information gathered from technological platforms (Lai and Hung, 2018). Hotel and tourism businesses now derive competitive differentiation through the quality of intelligence that

enables them to truly understand and comprehend customers and their specific needs (and preferences), and identify ways to meet those needs with a personal touch, to differentiate themselves from competitors (Pizam and Shani, 2009; Bellou and Andronikidis, 2009; Jooss, 2018; Zlatanov and Popesku, 2019).

AI also allows for service innovation in delivering personalised services, as AI-driven smart services and robotics (such as chatbots, cobots and maidbots) are used to augment human intelligence and physical capabilities (Cain *et al.*, 2019; Zlatanov and Popesku, 2019; Belias and Varelas, 2019; Ivanov and Webster, 2019). By streamlining services, enabling reduction of errors, improving speed of decisions and service, identifying demand signals, identifying guests by names through facial recognition technology, predicting customer demands, providing real-time language translation software to interact with international customers and providing interactive virtual, as well as physical assistance for customers (Ivanov and Webster, 2017; OECD, 2018; Cain *et al.*, 2019; Ivanov and Webster, 2019; Prentice *et al.*, 2020). Prentice *et al.* (2019) find that delivering services with AI technologies in the hospitality industry significantly influences employee performance, but not on turnover, and indicates that AI can enhance employee productivity. Prentice *et al.* (2020) further demonstrate that AI service quality significantly contributes to overall service quality in the hospitality industry through employee service quality, that calls for better understanding of how AI technologies can influence or affect service quality and customer satisfaction in the hospitality industry through employee-related outcomes (such as employee engagement, retention, productivity and service quality).

### ***3.1 Digital strategic talent and talent management innovations***

Businesses put in place processes, systems and practices to ensure that people work effectively and deliver expected levels of performance, by implementing and using effective HRM processes and practices (Snell *et al.*, 1995; Francis and Keegan, 2006). As an example, Web-based technologies (such as e-HRM) are implemented and used to support and augment HRM processes and practices (that includes Operational HRM, Relational HRM and/or Transformational/Strategic HRM activities) (Snell *et al.*, 1995; Alleyne, 2002; Ruel *et al.*, 2004; Bondarouk, 2011; Burbach and Royle, 2014; Njoku, 2016), to enable HR improve on its efficiency and effectiveness (Tansley *et al.*, 2001; Marler and Fisher, 2013).

The use of e-HRM is expected to progress from being more of an operational e-HRM to a more Transformational e-HRM (Foster, 2008; Bondarouk, 2011; Marler and Parry, 2015), to enable HR transit from a more administrative or transactional approach to HRM to a more strategic approach to HRM (Reddington *et al.*, 2011; Burbach and Royle, 2014; Ruel, 2018; Njoku *et al.*, 2019). As operational e-HRM supports HRM transactions and administrative activities (Snell *et al.*, 1995; Alleyne, 2002; Ruel *et al.*, 2004), while transformational e-HRM, digital data analytics and AI-enhanced e-HRM is concerned with innovating HRM to a more strategic oriented function, by providing HR with HR intelligence and tools for enhanced talent decisions and a strategic approach to HRM (Jooss, 2018; Njoku *et al.*, 2019).

At its core, AI technologies provide domestic/small businesses and global businesses with the tools to build strategic capabilities to harness the opportunity of operating as integrated and interconnected businesses in a digital economy (i.e. industry 4.0) (Ustundag and Cevikcan, 2018; Njoku *et al.*, 2019). Thus, more businesses, including international and global businesses now consider, plan and implement AI-enhanced e-HRM, to have AI-enhanced strategic talent management systems to innovatively manage their talent in ways that will enable them meet the demands of doing business in a digital economy or on a global scale (Ruel, 2018). Since for businesses to have the possibility of establishing competitive advantage to generate revenue and profit in the digital economy or on a global scale, they must see their international activities as an overall system and in some way integrate their activities on a world-wide basis to capture the linkages and economies among countries (Porter, 1987). This includes having a co-ordinated strategy and strategy

execution for managing and transferring intangible assets (global talent) among countries (Jooss, 2018). As this co-ordinated global talent management (GTM) strategy and strategy execution can reinforce/enhance an organisation's international brand reputation with its customers, and hence its differentiation, by ensuring a consistent image and approach to doing business on a world-wide basis.

At the same time, many of the strategy issues for businesses competing internationally are very much the same as the ones competing domestically. As they all still have to analyse their structure, understand their customers and the sources of customer value, diagnose their relative cost position and seek to establish a sustainable competitive advantage, within some competitive scope, whether it be across-the-board or in an industry segment (Porter, 1987). AI technologies are thus also implemented and used by domestic and global businesses to build strategic advantages to establish sustainable competitive advantage in their industry through AI's ability to enable businesses leverage the productivity gains of the new business model of operating as network organisations (boundaryless firms/digital ecosystems). This can be achieved by supporting managers with readily available AI productivity tools (Njoku *et al.*, 2019), as proposed by the digital business strategy theory – integrated value chain theory (Njoku, 2016; Njoku *et al.*, 2019).

Integrated value chain theory believes that for e-systems (IT) to be of strategic value, this will require businesses innovatively embedding and integrating AI instruments and data analytics tools to their already existing e-system that is fully integrated front-end and back-end. With the front-end integration being about the horizontal integration of the sub-activities of each value chain activity and their subsequent vertical integration with business strategy, using all possible IT-enabled front-end integrating mechanisms. To achieve full integration, it proposes their further integration to an organisation's enterprise resource planning system – that is a part of – its fully integrated back-end enterprise-wide information system (EIS), using all possible IT-enabled back-end integrating mechanisms, that enables the integration of intra- and inter-organisational functions with the help of many application domains that connect with an organisation's value system – its suppliers, partners and customers – back-end.

The back-end integrating mechanisms thus help to integrate and connect an organisation's supply-chain management (SCM) system, its enterprise resource planning (ERP) system, its product/service design management (PDM) system, its partners system, and its customer relationship management (CRM) system, back-end. So an organisation's EIS may be of strategic value, achieved through IT strategic alignment (Scott, 1991), from which AI instruments and data analytics tools can have access to a rich informational environment, by which they can analyse an organisation's data through algorithms and make it strategically relevant.

The theory proposes further that for organisations to leverage the productivity gains of implementing this sophisticated fully integrated e-system to create and sustain competitive advantage, this will depend on fully integrating back-end data management systems (EIS) with an intuitive integrated front-end Web-based technology (i.e. a fully integrated front-end Web-based technology embedded and integrated with AI and data analytics tools) and using them in combination, rather than when they are used alone. As they can be successful when used as co-specialised assets, derived through IT complementarity, rather than when they are employed alone (Teece, 1982; Pitelis and Teece, 2010; Srinivasan and Dey, 2014). This enables managers to use their organisation's e-systems as diagnostic (analytic) tools – transformative e-systems – which aids a comprehensive analysis of their organisation's internal and external environment and provides the capability to flexibly respond to contingent events (Njoku *et al.*, 2019).

AI thus relies on vast amount of quality data and advanced analytics technology to get the most out of an organisation's data, to help businesses and managers develop an incredibly deep set of capabilities and amass a level of knowledge to drive continuous intelligence

and competitive differentiation from their data. It uses progressive learning algorithms, its constantly learning capability, to enable businesses to constantly learn and innovate from their data. As data can create and sustain competitive advantage through its sustainable competitive attribute of being a digital asset that is organisation-specific, valuable, rare, imperfectly mobile and not easily duplicated by competitors. For businesses to achieve more from AI, their analytics platform should be designed to support the entire analytics life cycle – from data management (i.e. data capture and integration) – to analytics and visualisation – to decision support and deployment that provides managers with readily available AI productivity tools to have access to their organisation's data to create and sustain a competitive advantage.

This holistic approach of integrating the internal and external environment and customers' needs (or preferences) in hospitality and tourism intelligence is necessary to maintain the flexibility to quickly identify and innovatively respond to emerging trends and priorities that improves customer service orientation and attractiveness in tourists preferences, which are prerequisites for developing a long-term profitable enterprise or industry (Bellou and Andronikidis, 2009). AI may therefore offer solutions in the hospitality industry in two ways:

1. by replacing or supporting human talents with AI applications and robotics that improves customer experiences (Ruel, 2018); and
2. by innovating hotel and tourism management platforms to intelligence enhanced open integrated, interconnected and interactive digitalised platforms where hotel and tourism technologies easily interface and interact with each other, with customers and with strategic alliances on a global scale (Lai and Hung, 2018; Ruel, 2018; Buhalis and Leung, 2018; Buhalis, 2020).

When it comes to what AI can mean for intelligent hotel and tourism HRM, this means the three types of GTM innovations that includes operational AI-GTM, relational AI-GTM and transformational AI-GTM (Ruel, 2018). A typology for e-HRM technologies Ruel (2018) assigns to intelligent GTM innovations in introducing the three types of GTM innovations that results by enhancing GTM technologies (e-HRM) with AI technologies.

Drawing from Müller and Bostrom (2016) and Jooss (2018), Ruel (2018, p. 3) defines AI-GTM as *all kinds of digital analytics technology or neural network-based intelligence with training and learning capabilities that an organisation chooses to put in place in a consciously ethically and regulatory correct and focused way for the systematic identification of pivotal positions, and the development and deployment of a talent pool of high-performing, high-potential employees that contribute to an organisation's competitive advantage in the short or long term.*

Operational AI-GTM refers to the application of AI and digital analytics tools to GTM practices at the operational level. It enables HR, GT managers and line managers deal with day-to-day non-routine and non-administrative HRM (talent management) and GTM activities aimed at implementing strategy, creating a new culture or accomplishing business goals. It concerns the strategic partnering of the HR function with line managers, and/or GT managers to enable businesses meet their HRM and GTM goals through effective strategy formulation and execution (Jooss, 2018; Njoku *et al.*, 2019). It is thus defined as the application of AI to GTM activities which enables HR, GT managers and line managers operate strategically as they carry out their HRM and GTM activities, aiming to improve HR's strategic capability to encourage higher levels of business performance through effective strategic partnering, strategy formulation and strategy execution.

Relational AI-GTM concerns the application of AI and digital analytics tools to HRM and GTM activities at the line management or business unit level. It is about applying digital analytics and AI instruments to support HRM and GTM practices at the tactical level, that includes identifying, attracting, recruiting and selecting, socialisation, developing and

deploying talent and monitoring and rewarding performance for specific positions (or groups). It thus concerns relational AI-GTM's value potential to contribute to reinforcing/enhancing differentiation through the application of AI to HRM and GTM activities at the tactical level (Ruel, 2018; Jooss, 2018), as well as its potential to improve employee relationship management (Strohmeier, 2013; Bissola and Imperatori, 2014). As it also provides employee relationship management applications (such as interactive role or task assistance and individual performance monitoring and improvement assistance) (Ruel, 2018), which encourages transparency in HRM and GTM recommendations and decision-making that helps build employees' trust in management and improves employee commitment, engagement and productivity levels (Strohmeier, 2013; Bissola and Imperatori, 2014; Shahreki, 2019).

Transformational AI-GTM is about applying digital analytics and AI instruments to HRM and GTM activities at the strategic level in a way HRM and GTM aligns with the overall business strategy and contributes to shaping an organisation (Ruel, 2018; Njoku *et al.*, 2019). It concerns activities regarding strategic employer branding, strategic talent forecasting, strategic planning and development, strategic organisational change processes, strategic re-orientation, strategic competence management and strategic knowledge management. It facilitates the creation of a strategic talent pool through a coherent set of AI applications for HRM and GTM that enables the talent to develop in line with an organisation's strategic choices (Ruel, 2018).

The question this raises for the hospitality industry is that in leveraging the productivity gains from implementing and using AI technologies for talent and talent management practices: how can managers build service quality and customer satisfaction from the new technologies and assess the corresponding impact on profitability and growth? As they are associated with the changing role requirement of the workforce and there is the inherent unpredictability on how they will continue to evolve and impact on the profitability and growth of the industry.

#### 4. Discussion: role-service-profit chain

Using role theory (Katz and Kahn, 1978) and service-profit chain (Heskett *et al.*, 1994), role-service-profit chain is developed to conceptualise how managers can build service quality and customer satisfaction from the role expectation of technological innovations (such as AI technologies) and assess the corresponding impact on profitability and growth. Bearing in mind that the role expectation of technological innovations in the changing role expectations of people working at the managerial and operational levels may differ in relation to their job roles (Alleyne, 2002). In terms of what they require from such innovations to perform their own roles effectively.

A role theoretical perspective offers a rich set of conceptual tools in services marketing research when it makes roles part of a socially constructed process to understanding the dynamic process of service transaction (Solomon *et al.*, 1985; Broderick, 1998; Alonso, 2016; Thies and Wehner, 2019). Role theory is committed to understanding how roles allows us to describe how expectations of both agents and structures emerge from social interaction and identify conditions that prevent social or role conformity (Jackson, 1998; Thies and Wehner, 2019). Research findings have shown role expectation to be a key variable that influences or affects satisfaction (customer satisfaction) (Yi, 1990) and shown role understanding to significantly influence or determine expectation (that includes service quality expectation) (Webb, 2000).

Marketing research reveals that service quality is an antecedent of customer satisfaction (Grönroos, 1984; Parasuraman *et al.*, 1994; Brady *et al.*, 2002; Mpwanya, 2019), from which Kang and James (2004) and Bauer *et al.* (2006) studies have validated service quality as a second-order construct in a customer satisfaction and loyalty model. Following this,

hospitality and tourism research applies service quality as a second-order construct in customer satisfaction and loyalty models (Wilkins *et al.*, 2007; Narayan *et al.*, 2008; Nunkoo *et al.*, 2017).

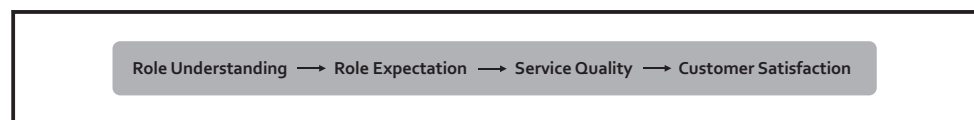
As a theoretical extension of these findings, role-satisfaction chain is developed to establish relationships between role expectation to service quality and customer satisfaction (Figure 1). It proposes that the relationship between role expectation and customer satisfaction is an indirect linear relationship mediated by service quality, where role understanding may precede or moderate role expectation and its consequences (Figure 1).

Role-satisfaction chain is similar to service-profit chain (Figure 2) – a richer and widely acknowledged and applied model that links employee satisfaction to customer loyalty and profitability. They both propose a direct relationship between service quality and customer satisfaction, both highlighting that service quality is an antecedent of customer satisfaction. However, role-satisfaction chain does not provide a basis to establish relationships between role expectation, employee-related outcomes (such as employee engagement, retention and productivity), and profitability, which is at the heart of service-profit chain (Figure 2).

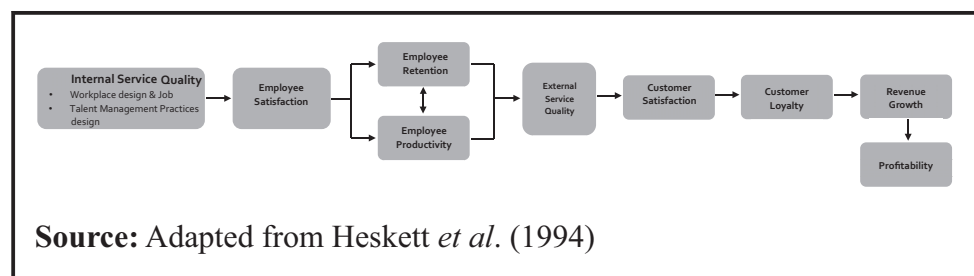
Service-profit chain offers measurement techniques which businesses can use to calibrate the impact of employee satisfaction, loyalty and productivity on the value of products and services delivered, for managers to build customer satisfaction and loyalty, and assess the corresponding impact on profitability and growth (Solnet *et al.*, 2018). It argues that value is created by satisfied customers and the value an organisation ultimately provides is driven by employee satisfaction, loyalty and productivity (Heskett *et al.*, 1994). The outcome of quantifying and understanding these levers for businesses is an increased focus on achieving effective work and work performance by empowering employees, using effective job design and effective talent management practices.

To address the limitations of role-satisfaction chain and achieve the purpose of this paper, we draw from Figures 1 and 2 to develop role-service-profit chain (Figure 3), to establish relationships between role expectation, employee-related outcomes (such as employee engagement, retention and productivity), and profitability, for managers to build service quality and customer satisfaction from these levers, and assess the corresponding impact on profitability and growth (Figure 3).

**Figure 1** Role – satisfaction chain

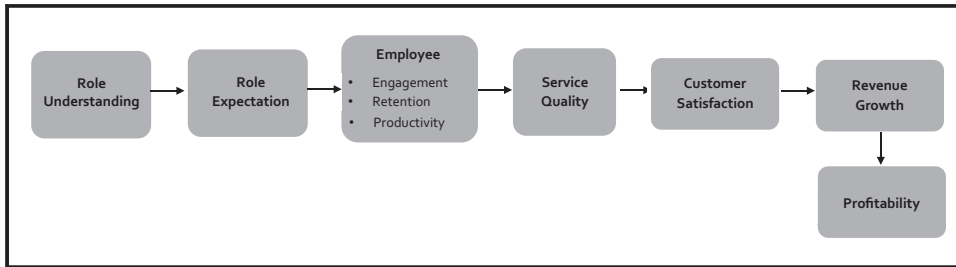


**Figure 2** Service – profit chain





**Figure 3** Role-service-profit chain



Role-service-profit chain (Figure 3) is of importance to industry 4.0, as it provides a framework businesses can use to relate the role expectation of technological innovations implemented to enhance work performance to employee-related outcomes and profitability. Like service-profit chain, it believes that service quality and customer satisfaction is driven by employee related outcomes (such as employee engagement, retention and productivity), that should similarly lead to an increased focus on empowering employees using effective job design and effective talent management practices to improve customer experiences and satisfaction.

Research identifies that effective job design of using AI technologies in the hospitality industry significantly influences employee performance by enhancing employee productivity (Prentice *et al.*, 2019), and that AI's service quality significantly contributes to overall service quality through employee service quality (Prentice *et al.*, 2020). Ivanov and Webster (2019), however, posit that AI and robots may increase turnover intentions in the hospitality industry, as employees may perceive them as instruments for their job substitution, not as a way to enhance their job performance. Role-service profit chain (Figure 3) therefore aims to enable the hospitality industry, and other industries, to better understand the implications of employee-related outcomes emanating from the role expectation of the new technologies that will enable them adjust expectations and behaviours in ways that facilitate improvements in service quality and customer satisfaction, because of its corresponding impact on profitability and growth. As the model proposes that:

- H1. Role understanding of AI technologies will have a significant positive relationship with their role expectation.
- H2a. Role expectation of AI technologies will have a significant positive relationship with employee engagement levels.
- H2b. Role expectation of AI technologies will have a significant positive relationship with employee retention levels.
- H2c. Role expectation of AI technologies will have a significant positive relationship with employee productivity levels.
- H3a. Employee engagement levels will have a significant positive relationship with service quality.
- H3b. Employee retention levels will have a significant positive relationship with service quality.
- H3c. Employee productivity levels will have a significant positive relationship with service quality.
- H4. Service quality will have a significant positive relationship with customer satisfaction.
- H5. Customer satisfaction will have a significant positive relationship with revenue growth.
- H6. Revenue growth will have a significant positive relationship with profitability.

As hospitality and tourism businesses need to learn how significant technological changes carry important implications for service quality and customer satisfaction, role-service-profit chain provides a template managers can use to evaluate these changes and probe their significance. It will help academics and practitioners towards better recommendations and decision-making on investments and deployment of AI technologies for talent and talent management practices in hospitality and tourism businesses; researching the role of AI in the operations and success of the hospitality industry; understanding how hospitality education can adjust and innovate their curricula (HRM and GTM) to incorporate AI developments; and better understanding on how AI may contribute to shaping the future of tourism.

## 5. Conclusion: implications for research and practice

This paper provides a socio-technical background that puts in perspective how AI has redefined the hospitality industry. It makes an important contribution to hospitality and tourism literature, as it explores how AI technologies implemented to improve on talent and talent management practices impact on service quality and customer satisfaction, and develops analytical tools by which this may be evaluated (Figures 1 and 3).

Although an empirical assessment of the hypothesised relationships in the developed conceptualisation (Figures 1 and 3) is required to evaluate and validate them in the hospitality industry, they present promising implications for tourism and hospitality practice and future research. In addition to offering a theoretical framework to evaluate the relationship between the role expectation of technological innovations, service quality and customer satisfaction (Figure 1); role-service-profit chain (Figure 3) has strong implications for investment and deployment analysis of the new technologies in hospitality and tourism businesses. It proposes how managers can evaluate how the role expectation of technological innovations relate to service quality and customer satisfaction through its impact on employee-related outcomes (such as employee engagement, retention and productivity), and assess the corresponding impact on profitability and growth, in the context of their own unique internal environment and position in the market. It is an analytical tool from which managers can make improvements on talent and talent management practices and adjust expectations and behaviours in ways that facilitate improvements in service quality and customer satisfaction. In doing this, it offers testable business hypotheses on which future studies can be based.

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