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## Article

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European Research on Management and Business Economics (ERMBE)

## Provided in Cooperation with:

European Academy of Management and Business Economics (AEDEM), Vigo (Pontevedra)

*Suggested Citation:* Jedsada Wongsansukcharoen; Jutamard Thaweepaiboonwong (2023) : Effect of innovations in human resource practices, innovation capabilities, and competitive advantage on small and medium enterprises' performance in Thailand, European Research on Management and Business Economics (ERMBE), ISSN 2444-8834, Elsevier, Amsterdam, Vol. 29, Iss. 1, pp. 1-13, <https://doi.org/10.1016/j.iedeen.2022.100210>

This Version is available at:

<https://hdl.handle.net/10419/294111>

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# Effect of innovations in human resource practices, innovation capabilities, and competitive advantage on small and medium enterprises' performance in Thailand

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## ARTICLE INFO

### Article History:

Received 4 March 2022  
Revised 27 November 2022  
Accepted 13 December 2022  
Available online 21 January 2023

### Keywords:

Innovations in human resource practices  
Innovation capabilities  
Competitive advantage  
SME performance

### JEL classification codes:

M00  
M1  
M12  
M5  
O30

## ABSTRACT

This study examines the performance of wholesale and retail small and medium enterprises in Thailand, which are integrating innovations in human resource practices, innovation capabilities, and competitive advantage. The data sample comprises 260 small and medium enterprises located in the Eastern Economic Corridor, Thailand. The data were analyzed using quantitative and structural equation modeling. The study finds a significant relationship between innovations in human resource practices, innovation capabilities, competitive advantage, and SME performance. The significant success factors of innovations in human resource practices indirectly affect SME performance through the mediation of innovation capabilities and competitive advantage. These outcomes help develop long-term and business performance effectiveness, as the essential human resource factors and innovation capabilities practices of the current extremely competitive industry will intensify with the digital disruption era.

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## 1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic and digital disruption have caused several challenges, uncertain circumstances, and the transformation of economic landscapes that call for innovative thinking and adaptability in human resource (HR) operations (Azizi et al., 2021). Technological innovations are now actively reinventing the HR management (HRM) landscape globally (Vrontis et al., 2021). HRM is recognized as an essential success factor to boost business performance, attract new charismatic employees, and develop personnel mindsets and behaviors, thus generating a sustainable competitive advantage (CA; Hoon et al., 2019).

Unpredictability is a concern among the executive board of enterprises of some countries, such as China, that are intensely changing their business conditions. To maintain benefits and adapt to dynamic

business conditions represented by innovation, enterprises must develop innovative strategic plans to adjust to unprecedented changes (Xiu et al., 2017).

Small and medium enterprises (SMEs) face several challenges in human capital development; innovation and technology adoption; financing access; market competitiveness; infrastructure; and legal and regulatory environment, which affect their performance (Wan Hooi & Sing Ngui, 2014). In Southeast Asia, innovation affects all the elements of an enterprise, from functional methods to strategic plans and innovative business models. It helps in the evolution of a critical policy for the existence and development of organizations and personalities (Agarwal et al., 2017).

The concept of business innovation plays a significant role in Thailand's highly competitive and dynamic wholesale and retail sector. To achieve effectiveness and excellence in terms of performance, wholesale and retail SMEs should seek new opportunities and become highly innovative. Business innovation is defined as "the intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society" (Mai et al., 2022, p. 2). Business

Abbreviations: CA, competitive advantage; CFA, confirmatory factor analysis; CFI, comparative fit index; IC, innovation capabilities; IFI, incremental fit index; InHR, innovations in human resource; NFI, normed fit index; RMSEA, root mean square error of approximation; SEM, structural equation modeling; TLI, Tucker-Lewis index

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innovation is an enterprise incorporating new practices, services, or products that influence positive business changes (Wang et al., 2022). Hence, business innovation is essential for an enterprise to survive in today's uncertain environment (Wongsansukcharoen, 2022).

This study, in the context of the Association of Southeast Asian Nations (ASEAN) Economic Community, investigates several cases of SMEs benefiting from Innovations in human resource (InHR) practice, each of which can be conceptualized as follows: 1. innovative recruitment and selection; 2. innovative remuneration and rewards; 3. innovative career development; 4. innovative involvement boosts employee contributions in various parts of the business; and 5. innovative training (Agarwal et al., 2017).

Innovation capabilities (IC) present the ability of an organization to offer new products, services and processes, and innovative marketing methods, as well as a unique value proposition to sustain the organization's CA with continued innovations (Ahmed et al., 2020; Liao et al., 2007; Lin et al., 2010; Migdadi, 2021; Mulyana et al., 2020; Valmohammadi, 2017; YuSheng & Ibrahim, 2020). IC has become a means for enterprises to increase their CA, respond to customer delight, and increase revenue (Mulyana et al., 2020). IC addresses changes in service innovation (customer service and after-sales service) and marketing and process innovation (quick response to customers, partners, and stakeholders; Chi, 2021). Considering this mindset, this study considers IC as their ability to implement new business processes, enhanced service quality, and new marketing methods.

Recent literature highlights the need for innovation in HRM practices and IC to achieve CA and performance effectiveness. However, there is a lack of knowledge regarding the effects of innovations in HRM practices and IC at the SMEs and individual (employee) levels (Azizi et al., 2021). Hence, this study attempts to understand the managerial factors that directly and indirectly affect SME performance. Specifically, the study will focus on InHR's contribution to the organizational performance of Thai SMEs through its role in developing IC and CA. This novel research integrates InHR practices, IC, CA, and SME performance through an investigation of the wholesale and retail sectors in Thailand.

The objectives of this study are as follows:

- To examine the level of latent variables that influence SME performance (wholesale and retail SMEs) in Thailand.
- To examine the impacts of several variables influencing SME performance and performs structural equation modeling with the variables influencing SME performance (wholesale and retail SMEs) in Thailand.

## 2. Literature review and hypothesis development

### 2.1. Innovations in HR practices

Theoretically, InHR practices are defined as "an idea, program, practice or system, related to the HRM function and is new to the adopting organization" (Agarwal et al., 2017, p. 398). Businesses with an emphasis on growth are more likely to apply innovative HR practices to cultivate and sustain their effective core competencies that are of great value to gain CA in speedily transforming conditions (Xiu et al., 2017).

The modern ability to manage innovative HR practices consistently and effectively supports SMEs in attracting and retaining high-quality and skilled employees and adding value to their performance, enabling them to develop and sustain CA and maintain superior business performance in the long-term (Chowhan, 2016; Kotev & Slade, 2005; Zheng et al., 2009).

Previous literature on InHR has demonstrated a multi-dimensional construct comprising five components: "recruitment and selection, remuneration and rewards, career development, involvement, and training" (Agarwal et al., 2017, p. 409). These dimensions are explained in the following sections.

In contemporary practices, recruitment and selection innovations are defined as those exhibiting the interdependent principal structures of tactical combination, continuous strategic effort, and points for interpreting tactical demands on appropriate recruitment and selection specifications (Agarwal et al., 2017), and using a novel blend of recruitment methods (Amarakoon et al., 2018). Hence, acquisition practices aimed at recruiting and selecting expert personnel positively influence organizational innovativeness and performance (Huselid, 1995; Som, 2008; Xiu et al., 2017; Youndt et al., 1996).

From a practical perspective, remuneration and rewards consider human capital as an asset through which an appropriate harvest is anticipated. Therefore, an employee should be awarded with an allocation that matches their contributions (Agarwal et al., 2017; Zheng et al., 2009). Consequently, innovative enterprises strategically award the personnel who work toward completing the enterprises' innovation purposes. Thus, innovative compensation practice has a positive significant relationship with firm performance (Som, 2008).

In HR theory, career development is defined as "activities through which organizations seek to appraise employees, identify their training needs, develop their competence, enhance performance and determine their rewards, remuneration and compensation, thus, leading to a more committed employee" (Agarwal et al., 2017, p. 399; Ikramullah et al., 2016; Zheng et al., 2009); hence, career development activities enhance job performance and contribute to the achievement of organizational goals (Edralin, 2008).

The innovation of involvement is a modern HR practice that is an essential component of the InHR model. Involvement innovations boost employee contribution in various sectors of the enterprise and society using modern technology or social media and make a member feel like an essential part of the organization and society (Agarwal et al., 2017; Zheng et al., 2009). Employee involvement practices, such as the use of self-managing groups and information sharing throughout the enterprise, not only allow individual employees some degree of autonomy in decisions associated with their work methods and processes but also help identify and eliminate barriers to performance improvement (Macky & Boxall, 2007; Xiu et al., 2017). Moreover, employee involvement in corporate decision making has upgraded the CA and business performance of enterprises (Huselid, 1995; Katou & Budhwar, 2007; Som, 2008; Youndt et al., 1996; Zheng et al., 2009).

Training is an essential expertise set that supports personnel in developing their modern knowledge and propelling them to be innovative (Gupta, 2018; Liebowitz, 2010). Training innovations are the current HR practices that are "strategically linked to the organizational goals and aim at the formalization of training and development processes to ensure a systematic rather than an *ad hoc* approach toward training" (Agarwal et al., 2017, p. 402; Zheng et al., 2009). Additionally, a few scholars have suggested the need to implement training practices to promote innovation, as existing personnel skill levels can be optimized to fulfill enterprise needs via training innovation (Capelleras et al., 2021). Thus, innovative training practice is significantly positively correlated to human resource outcomes, innovativeness, and business performance (Capelleras et al., 2021; Som, 2008; Xiu et al., 2017; Zheng et al., 2009).

Following Agarwal et al. (2017), this research defines InHR practices as an innovative collaboration of the current HR practices and contribution HR plans, HR strategies, and HR policies that not only develop the value proposition of human capital, but also exhibit outcomes that ensure an upgraded CA and business performance effectiveness. "The key feature of innovative HR practices is to develop employee skills and behavioral repertoires that can provide a firm with sustainable competitive advantages" (Xiu et al., 2017, p. 1338).

Innovative HR practices support CA and improve business performance in the long-term (Elrehail et al., 2020; Zheng et al., 2009). Therefore, InHR practices have significant effects on organizational performance (Agarwal et al., 2017; Capelleras et al., 2021; Moustaghfir et al., 2020; Som, 2008). This study views InHR practices as outcome-oriented approaches that encourage businesses to develop more effectively and generate CA.

Based on this discussion and Table 1, this study proposes the following hypotheses:

- H1. InHR affects IC positively.
- H2. InHR affects CA positively.
- H3. InHR affects SME performance positively.

2.2. Innovation capabilities

Hall and Williams (2008, p. 5) and Hjalager (2010, p. 2) state that “Innovation refers to the process of bringing any new, problem solving idea into use. Ideas for reorganizing, cutting cost, putting in new budgetary systems, improving communication or assembling products in teams are also innovations. Innovation is the generation, acceptance and implementation of new ideas, processes, products or services... Acceptance and implementation is central to this definition; it involves the capacity to change and adapt.” Regarding categories of innovation, Hjalager (2010, p. 2) argues “Product, process, organisational/managerial and market innovations constitute the main body of innovation categories.”

The general definition of innovation as provided by OECD/Eurostat/ European Union (1997, p. 9) and Orfila-Sintes and Mattsson (2009, p. 381) is as follows: “A technological product innovation is the implementation/commercialization of a product with improved performance characteristics, such as to deliver objectively new or improved services to the consumer. A technological process innovation is the implementation/adoption of new or significantly improved production or delivery methods. It may involve changes in equipment, human resources, working methods or a combination of these.” The impact of innovations on SME performance is also reported in the existing innovation review literature (Kusa et al., 2021).

Lawson and Samson (2001, p. 384) define IC as “the ability to continuously transform knowledge and ideas into new products, processes, and systems for the benefit of the firm and its stakeholders.” IC refers to the implementation or creation of technology as applied to policies, systems, programs, applications, products, processes, instruments, or services that are new to an enterprise (Damanpour & Evan, 1984). IC is the enterprise’s capability to develop, accept, and execute new ideas, processes, products, or services, which are key resources that drive an enterprise’s success in the marketplace (Wang & Dass, 2017). An organization should have sufficient IC to encourage the development of products, processes, and services with unique value propositions. Hence, IC is one of the most influential dynamics that enables enterprises to reach a high level of competitiveness—both in the national and international markets (Migdadi, 2022).

With respect to the highly competitive environment, several scholars consider IC as a significantly critical strategy for businesses aiming to improve their business performance in volatile business environments (Gyedu et al., 2021). IC can help businesses innovate and achieve a CA in product attributes, cost reduction, price advantage, and business performance effectiveness. Therefore, IC is required to obtain a successful CA (Agyapong et al., 2018; Chang et al., 2017; Shafi, 2021). The empirical outcomes confirm that developing IC is beneficial to an organization and leads to greater business performance competitiveness (Hwang et al., 2020). Furthermore, an organization’s IC supports sustainability in its competitiveness and growth potential by generating a unique value proposition for its clients (Ahmed et al., 2020).

Some scholars suggest that IC directly influences business performance effectiveness (Borah et al., 2022; Gyedu et al., 2021; Migdadi, 2022). Empirical research reveals the significance of the relationship between IC and business performance effectiveness (Adebanjo et al., 2018; Agyapong et al., 2018; Chang et al., 2017; Saunila, 2017; Yeşil & Doğan, 2019); IC notably drives business success. Hence, IC is a process that directs CA and business performance (YuSheng & Ibrahim, 2020).

Our research defines IC as a core-value creating capability in driving CA and business performance. Following Lin et al. (2010), p. 114; and Migdadi (2021), this research considers that the IC construct comprises five components: “product innovation, process innovation,

**Table 1**  
InHR practices related to organizational performance.

| Authors                 | Latent variable          | Observed variables   | Results   |
|-------------------------|--------------------------|--|---|
| Agarwal et al. (2017)   | InHR practices           | “Recruitment and selection, remuneration and rewards, career development, involvement, and training”   | CA and organizational performance   |
| Amarakoon et al. (2018) | HRM innovation           | “Recruitment and selection, training and development, performance management, compensation and rewards, internal communication, organizational design, and health and safety”  | HRM innovations support CA.   |
| Edralin (2008)          | Innovative HRM practices | “Recruitment and selection, training and development, compensation, performance management, and employee relations”  | Innovative HRM practices enhance personnel job involvement and corporate commitment   |
| Som (2008)              | Innovative HRM practices | “Role of HRM, recruitment, retraining and redeployment, performance appraisal, and compensation”   | “The survey found that the innovative recruitment and compensation practices have a positive significant relationship with firm performance” (p. 1278). |
| Xiu et al. (2017)       | Innovative HR practices  | “Free market recruitment and selection, the use of self-managed teams, decentralized decision making and employee participation, extensive training and development, job rotation, information sharing and open communication, compensation contingent on performance, and competitive compensation” | Innovative HR practices are positively associated with organizational performance and maintain CA.  |
| Zheng et al. (2009)     | Innovative HRM practices | “Free market selection, performance-based payment, provision of social benefits, training and development, performance evaluation, employee involvement in decision making, role of trade unions”  | Chinese SME performance (increased sales, increased market shares, and growth potential)  |

Note: InHR, innovations in human resource; CA, competitive advantage; HRM, human resource management.

marketing innovation, service innovation, and administrative innovation.” These dimensions are explained as follows.

2.2.1. Product innovation

Product innovation includes an organization’s offering of unique value or innovative products in the marketplace and helps achieve client satisfaction (Gopalakrishnan & Damanpour, 1997; Hjalager, 2010; Liao et al., 2007). It is the starting point of new product development in the market segment and target, or the improvement of current products in terms of functionality, quality, high standards, or innovative models (Lin et al., 2010; Mendoza-Silva, 2021). New products may boost sales growth because they may have better features, superior performance, and other improved functionality compared to the existing products offered by rivals (Migdadi, 2022). Moreover, product innovation offers greater value to clients and, consequently, enables the organizations’ growth in market performance (YuSheng & Ibrahim, 2020).

2.2.2. Process innovation

Hjalager (2010) describes process innovation as “backstage initiatives which aim at escalating efficiency, productivity and flow. Technology investments are the anchor of mainstream process innovation, sometimes in combination with reengineered layouts for manual work operations.” It involves all the functional and operational characteristics of firms and creates a significant decrease in business processes’ complexity (Migdadi, 2022). Process innovation entails an organization offering an intelligent production or service process rather than an existing operation to achieve greater performance effectiveness (OECD/Eurostat, 2005; YuSheng & Ibrahim, 2020). It concerns designing and enhancing the procedures in production or service and the acceptance of innovative components. For example, an innovative process may reduce operational costs or increase manufacturing for an organization (Liao et al., 2007; Migdadi, 2022).

2.2.3. Marketing innovation

Marketing innovation is defined as the “application of a new marketing method encompassing important differences in product design and/or packaging, product placement, product promoting or pricing” (Aksoy, 2017, p. 135). It refers to market analysis, innovative marketing research and strategy, focused market segmentation,

advertising developments, new marketing channels, modern marketing systems (Lin et al., 2010), and knowledge of new practices in the digital marketing era. Marketing innovation could effectively bring in new clients and increase profits from current ones (Ding & Li, 2021). Additionally, research shows that marketing innovations could help firms survive risks (Naidoo, 2010). Therefore, marketing innovation contributes significantly to firm performance and is an effective strategy for firms’ survival during the COVID-19 crisis (Wang et al., 2020).

2.2.4. Service innovation

Ostrom et al. (2010, p. 5) define service innovation as a process that “creates value for customers, employees, business owners, alliance partners, and communities through new and/or improved service offerings, service processes, and service business models.” In addition, it refers to producers’ engagement in various innovative actions to boost customer delight, installation and maintenance systems, quality of after-sale services, customer retention, and warranty plans (Lin et al., 2010). The extant literature confirms that innovation superiority in comparison with alternative products or services precipitates greater market acceptance (Santos-Vijande et al., 2021). Hence, we regard service innovation as a core idea to develop service capability and enhance customer lifetime value through a systematic and scientific process (Hsieh & Chou, 2018).

2.2.5. Administrative innovation

Administrative innovation entails corporate structure and managerial procedures indirectly associated with the enterprise’s fundamental work activities and are more directly related to its management (Damanpour & Evan, 1984). It creates shifts in innovative corporate structure or managerial procedures, for example, the unique position of employees; innovative resources management; and novel structuring of responsibilities, authority, and benefits (Damanpour, 1992; Hjalager, 2010; Lin et al., 2010; Mendoza-Silva, 2021).

Based on the above discussion and Table 2, this research offers the following hypotheses:

- H4. IC affects CA positively.
- H5. IC affects SME performance positively.

**Table 2**  
IC related to organizational performance.

| Authors   | Latent variable  | Observed variables  | Results  |
|---|--|---|--|
| Ahmed et al. (2020)                               | IC   | Process innovative capabilities and product innovative capabilities   | Manufacturing performance, marketing performance, and powerful competitive capabilities      |
| Aksoy (2017)                                      | Marketing innovation and product innovation                          | Measurement items   | Market performance of SMEs   |
| Chang et al. (2017)                               | IC   | Marketing innovation, process innovation, product innovation, and strategic innovation                          | Knowledge sharing is the mediating variable of organizational culture and IC.                |
| Liao et al. (2007)                                | IC   | Management innovation, process innovation, and product innovation   | CA and organizational performance  |
| Lin et al. (2010)                                 | IC   | Administrative innovation, marketing innovation, process innovation, product innovation, and service innovation | CA   |
| Shafi (2021)                                      | IC   | Measurement items   | Firm performance (financial performance, nonfinancial performance, and cultural performance) |
| Valmohammadi (2017)<br>YuSheng and Ibrahim (2020) | IC, marketing innovation, process innovation, and product innovation | Process innovation and product innovation<br>Measurement items  | CA and organizational performance<br>CA, market performance, and organizational performance  |

Note: IC, innovation capabilities; CA, competitive advantage.

2.3. Competitive advantage

In the literature, CA has been defined as “the implementation of a strategy not currently being implemented by other firms that facilitates the reduction of costs, the exploitation of market opportunities, and/or the neutralization of competitive threats, and performance is generally conceptualized as the rents a firm accrues as a result of the implementation of its strategies” (Kuo et al., 2017, p. 358; Newbert, 2008, p. 749). CA is the positional excellence based on the terms of excellent customer lifetime value and/or the success of lower comparative cost structures with competitors, a larger market share in market segments, and achieving business success (Amarakoon et al., 2018; Porter, 1985). “An enterprise has a competitive advantage if it is able to create more economic value than the marginal (breakeven) competitor in its product market” (Peteraf & Barney, 2003, p. 314). Additionally, “competitive advantage is the above industry average manifested exploitation of market opportunities and neutralization of competitive threats” (Sigalas et al., 2013).

From strategic management and administrative economics, the resource-based theory of CA focuses on the role of internal resources like personnel play in developing and maintaining an enterprise’s competitive capabilities (Barney, 1991; Wright & McMahan, 1992), which is one of the most critical developments in the strategic HRM and CA literature. HRM practices are undertaken to enhance CA and firm performance (Jackson & Schuler, 1995) by providing employees with skills, knowledge, inspiration, and perspective through HR practices (Guthrie et al., 2002; Huselid, 1995). Elrehail et al. (2020, p. 129) found that “a major source of competitive advantage to a firm is finding the right employees, that is, HR recruitment, selection, and placement.” Hence, SMEs desiring to achieve a CA should initiate innovation in HR and processes, excellent service, and gather the best materials to create and reach sustainability in the competitive market.

In theoretical research, a continued CA exists only when other businesses cannot replicate it (Wright et al., 1994). The holy grail of a successful business is earning a sustainable CA, wherein a business is executed better than that of competitors, and where this advantage does not quickly deteriorate (Knudsen et al., 2021). Specifically, CA significantly affects organizational performance (Kuo et al., 2017; Newbert, 2008; Nguyen et al., 2021). Therefore, the survival of companies often depends on their capability to achieve a sustained CA (Ahmed et al., 2020; Porter, 1985; Wongsansukcharoen et al., 2015). In this study, CA is a latent variable, and four observed variables exist for the exploitation of all market opportunities and neutralization of all competitive threats (Nguyen & Chau, 2017; Sigalas et al., 2013) of SMEs (wholesale and retail) in Thailand.

Therefore, the hypotheses relative to SME performance is:

H6.CA affects SME performance positively.

2.4. SME performance

Pfeffer and Salancik (1978, p. 34) defined performance as the “firm’s ability to create acceptable outcomes and actions” (Domi & Belletti, 2022, p. 118). Business performance generally comprises two components: non-financial and financial performance. Non-financial performance pertains to enterprises’ performance that cannot be estimated in money value, such as customer delight, corporate reputation, innovation activities, and organizational performance, while financial performance is utilized to explain enterprises’ performance that can be estimated in money value and financial operations (Nguyen et al., 2021).

To estimate SMEs’ performance factor, this study considers an endogenous latent variable. SME performance in the wholesale and retail sector concerning the following five items were considered: market share (YuSheng & Ibrahim, 2020), profitability, sales growth, rate of new product development, and managerial practices (introduction of new production systems; Geringer & Hebert, 1991; Wan Hooi & Sing Ngui, 2014).

3. Research method

3.1. Survey design

The research method for all the latent variables in the conceptual framework (Fig. 1) is based on prior research. To measure InHR practices, we created 21 questionnaire items based on Agarwal et al. (2017). In the IC measurement model, the scale for IC is developed from the 23 survey items of Lin et al. (2010). For CA, we adopt 4 survey items based on Nguyen and Chau (2017) and Sigalas et al. (2013). For SME performance, we derive 5 questionnaire items from Wan Hooi, and Sing Ngui (2014).

In the final step of item development, we present the above-mentioned items (53 items) in 38 questionnaire items for computation by the outcomes of confirmatory factor analysis (CFA). All the questionnaire items are developed to the model fit, resulting in 19 measurement items. A 7-point Likert scale is used to estimate the measurement model (1 = “strongly disagree” and 7 = “strongly agree”).

3.2. Data collection

The sample includes 260 Thai SMEs located in the Eastern Economic Corridor (EEC) of Thailand. “The EEC project initially focused

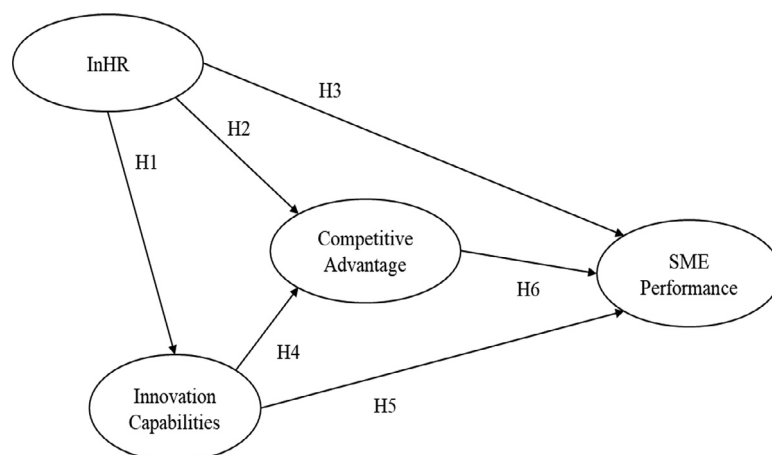


Fig. 1. Conceptual framework (InHR, innovations in human resource).

**Table 3**  
Characteristics of the sample.

| Characteristic                 | Number     | Percent      |
|--------------------------------|------------|--------------|
| <b>Gender</b>                  |            |              |
| Male                           | 110        | 42.3         |
| Female                         | 150        | 57.7         |
| <b>Age (years)</b>             |            |              |
| 20 – 29                        | 87         | 33.5         |
| 30 – 39                        | 94         | 36.2         |
| 40 – 49                        | 49         | 18.8         |
| 50 – 59                        | 26         | 10.0         |
| 60 – 69                        | 3          | 1.2          |
| 70 or above                    | 1          | 0.4          |
| <b>Education level</b>         |            |              |
| High school                    | 21         | 8.1          |
| Vocational certificate         | 17         | 6.5          |
| Senior high school             | 28         | 10.8         |
| High vocational certificate    | 32         | 12.3         |
| Bachelor's degree              | 131        | 50.4         |
| Master's degree                | 30         | 11.5         |
| Higher than master's degree    | 1          | 0.4          |
| <b>Position</b>                |            |              |
| Entrepreneur                   | 197        | 75.8         |
| Chief executive officer        | 10         | 3.8          |
| HR manager                     | 28         | 10.8         |
| Marketing manager              | 25         | 9.6          |
| <b>Type of SMEs</b>            |            |              |
| Micro enterprise               | 137        | 52.7         |
| Small enterprise               | 96         | 36.9         |
| Medium enterprise              | 27         | 10.4         |
| <b>Provinces</b>               |            |              |
| Chachoengsao                   | 59         | 22.70        |
| Chonburi                       | 172        | 66.15        |
| Rayong                         | 29         | 11.15        |
| <b>Work experience (years)</b> |            |              |
| 1 – 9                          | 149        | 57.3         |
| 10 – 19                        | 83         | 31.9         |
| 20 – 29                        | 16         | 6.2          |
| 30 or above                    | 12         | 4.6          |
| <b>Total</b>                   | <b>260</b> | <b>100.0</b> |

on the three Eastern provinces, namely Rayong, Chonburi, and Chachoengsao” (Eastern Economic Corridor Office, 2021). The analysis applies quantitative research methods and structural equation modeling (SEM). The research model instrument includes a two-part survey: the overall data on Thai SMEs in the EEC and four latent variables, including (1) InHR, (2) IC, (3) CA, and (4) SME performance.

In the survey method, to ensure reliability, Bentler and Chou (1987) suggest that a ratio as low as five cases per variable would be sufficient when latent variables have multiple indicators. The minimum sample size should be five times the number of observed variables (Le et al., 2022). Hence, with 53 observed variables, the minimum number of samples must be 265. This research model uses the purposive sampling method to collect data from Thai SMEs. From May 2021 to November 2021, out of the 400 research surveys distributed, 260 completed surveys were returned, yielding a response rate of 65%. Samples were collected by administering the offline, face-to-face survey questionnaire at SMEs in EEC (one questionnaire per unit). In the model fit, we develop all questionnaires items (observed

variables) into 38 questionnaire items for computation by CFA. All the questionnaire items are developed to the model fit, resulting in 19 measurement items. The sample of this quantitative research includes an entrepreneur, a chief executive officer, an HR manager, or a marketing manager per unit (Thai SMEs). Prime information is accumulated using a self-administered research survey of 197 entrepreneurs, 10 chief executive officers, 28 HR managers, and 25 marketing managers. Among the respondents, 110 (42.3%) are male and 150 (57.7%) are female. The sample of this research model is displayed in Table 3.

### 3.3. Reliability and validity

We evaluate this research model for dependability and discriminant validity via commonly acknowledged guiding principles. These outcomes are presented in Table 4. First, we conduct the reliability analysis to compute Cronbach's alpha values, which are, in turn, evaluated for the constructs. Table 4 displays the means, standard deviations, Cronbach's alpha values, average variance extracted (AVE), and composite reliability (CR) of the final constructs. As revealed in this study, the reliability analysis computed ranged from 0.869 to 0.937, “which is greater than 0.7, the threshold as suggested by Nunnally (1978)” (Sin et al., 2002, p. 664).

According to Hair and colleagues (Hair et al., 1998, 2010), in the SEM model fit, the extensively utilized estimates of research model fit comprise  $CMIN(X^2)/df$ . The ratios of  $CMIN(X^2)/df$  in the scope of 3 to 1 are shown as an adequate model fit (Hooper et al., 2008). The comparative fit index (CFI), with a value near 1, displays a great model fit (Bentler, 1990; Hooper et al., 2008). The normed fit index (NFI), incremental fit index (IFI), and Tucker-Lewis index (TLI) are at least 0.90; the NFI, IFI, and TLI values close to 1 display a perfect model fit (Bentler & Bonett, 1980; Bollen, 1989). The root mean square error of approximation (RMSEA) is less than 0.08; an RMSEA value near 0 (zero) shows a faultless model fit (Browne & Cudeck, 1993; Hooper et al., 2008). Consequently, all the constructs that computed latent variables in this research model attained convergent validity (Fig. 2). The recommended and actual model fit values are displayed in Table 5.

### 3.4. Measurement model and structural model

The measurement model and structural model used AMOS software version 21. Table 6 exhibits the standardized regression weights and squared multiple correlations ( $R^2$ ) of each item. Fig. 2 displays the outcomes of the CFA by AMOS, which are measured exceptionally and meaningfully beyond the acceptable thresholds as instructed by Bentler (1990), Bentler and Bonett (1980), Bollen (1989), Browne and Cudeck (1993), Hair et al. (1998), Hair et al. (2010), and Hooper et al. (2008).

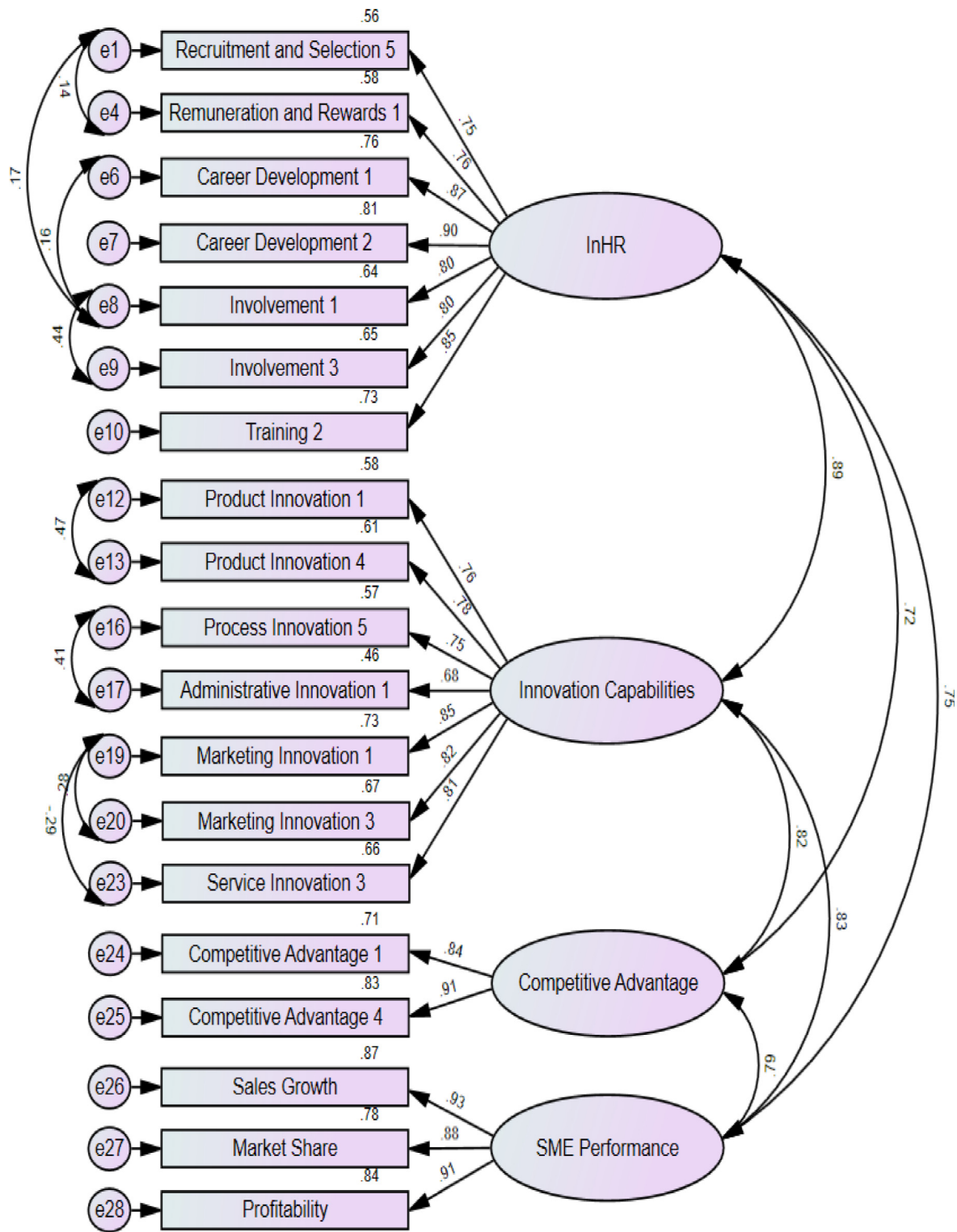
## 4. Results

This study verifies the presented hypotheses using SEM. For the theoretical model, this SEM fits with the empirical information. The

**Table 4**  
Means, standard deviations, Cronbach's alpha value, average variance extracted, and composite reliability for all latent variables.

| Latent variables | No. of items | Mean  | Standard deviation | Cronbach's alpha | AVE   | CR    |
|------------------|--------------|-------|--------------------|------------------|-------|-------|
| InHR             | 7            | 4.805 | 1.754              | 0.937            | 0.672 | 0.935 |
| IC               | 7            | 4.476 | 1.516              | 0.920            | 0.612 | 0.916 |
| CA               | 2            | 4.710 | 1.715              | 0.869            | 0.770 | 0.870 |
| SME performance  | 3            | 4.640 | 1.443              | 0.934            | 0.828 | 0.935 |

Note: InHR = innovations in human resource; IC = innovation capabilities; CA = competitive advantage; AVE = average variance extracted; CR = composite reliability.



Chi-square = 302.091 ,df = 138, CMIN/DF =2.189  
 CFI =.964, NFI = .936, IFI = .964, TLI = .955, RMSEA = .068

Fig. 2. CFA of InHR, IC, CA, and SME performance.

outcomes of the research model approximation are presented in Fig. 3 and Tables 7–11. The results demonstrate that InHR does not directly affect SME performance but indirectly affects it through the conciliation of IC and CA ( $p < 0.001$ ). The model explains 72.9% of the SME performance variations (Fig. 3 and Tables 7 to 9).

We analyzed InHR (exogenous latent variable) as a modern plan for the employee-SMEs relationship and found that it is a probable driver for business performance and business growth, recognizing the influences that affect SME performance. The InHR construct comprises five observed variables. The SEM result confirmed that



**Table 5**  
Suggested and actual value of the model fit.

| Fit indices     | CMIN ( $\chi^2$ )/df | CFI    | NFI   | IFI   | TLI    | RMSEA  |
|-----------------|----------------------|--------|-------|-------|--------|--------|
| Suggested value | < 3                  | ≥ 0.95 | > 0.9 | > 0.9 | > 0.90 | < 0.07 |
| Actual value    | 2.165                | 0.964  | 0.936 | 0.964 | 0.956  | 0.067  |

Note: CFI = comparative fit index; IFI = incremental fit index; NFI = normed fit index; RMSEA = root mean square error of approximation; TLI = Tucker-Lewis index;  $\chi^2$  = chi-square

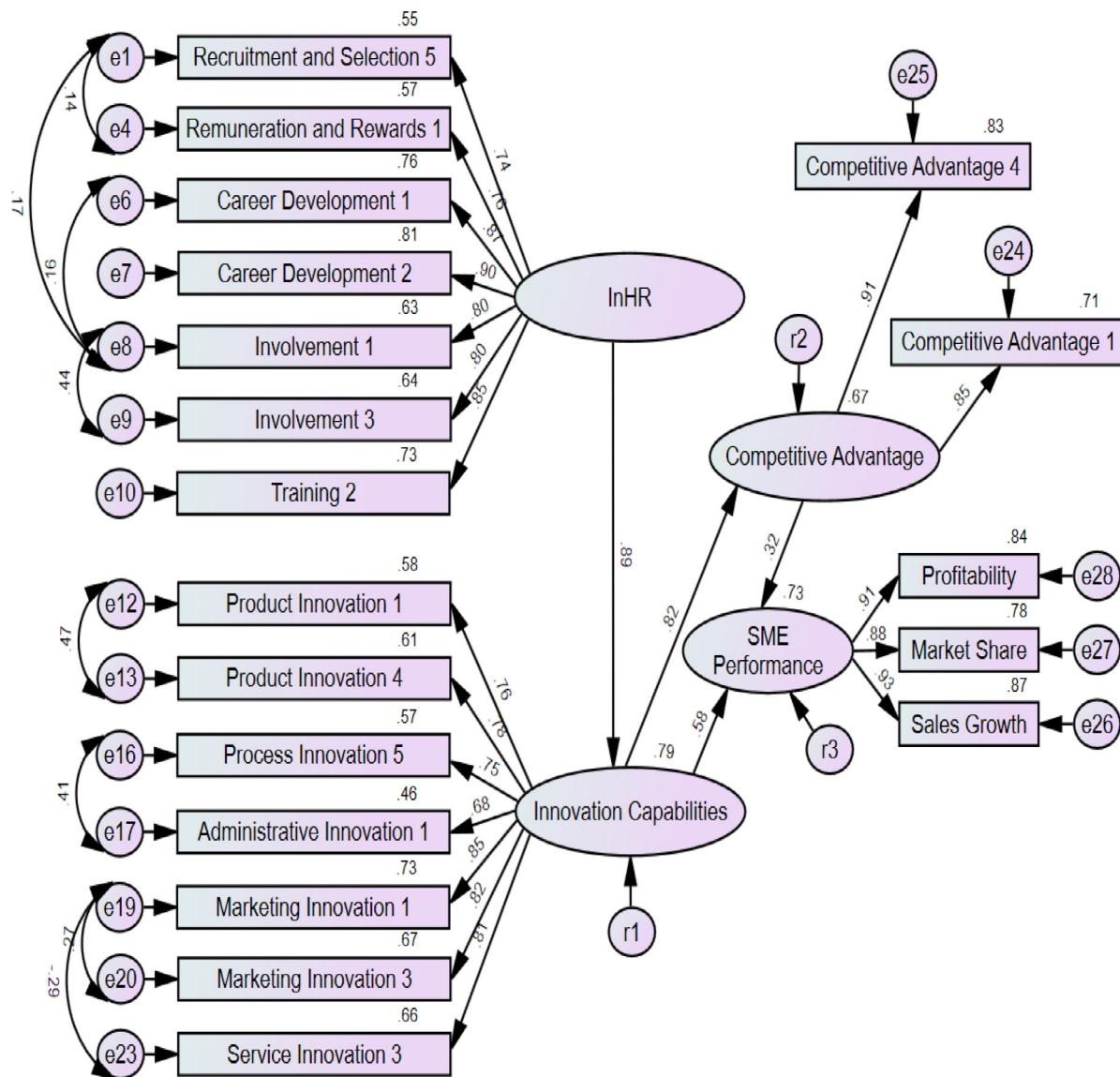
recruitment and selection, remuneration and rewards, career development, involvement, and training have a significant ( $p < 0.001$ ) indirect effect on SME performance. The results reveal that InHR has a direct effect on IC ( $p < 0.001$ ); this explains 79.4% of the IC variation. The outcomes reveal that InHR has no direct effect on CA but an indirect effect through the conciliation of IC ( $p < 0.001$ ); it explains 67%

of the CA variation. In a business environment, InHR provides SMEs the opportunity to recruit smart employees; hence, we conclude that InHR is an essential tool.

Regarding IC as a moderator, the construct includes five observed variables. The SEM confirmed that product innovation, process innovation, marketing innovation, service innovation, and administrative innovation affected CA and SME performance ( $p < 0.001$ ) significantly. IC had a significant ( $p < 0.001$ ) direct effect on SME performance, and an indirect effect on SME performance through the CA ( $p < 0.001$ ).

When CA was used as a mediator, the SEM confirmed a significant influence on SME performance ( $p < 0.001$ ).

The final SME performance (endogenous latent variable) construct contains five observed variables. The SEM confirms that market share, profitability, and sales growth were significantly associated with SME performance ( $p < 0.001$ ; Fig. 3 and Tables 7–9).



Chi-square = 303.111, df = 140, CMIN/DF = 2.165  
CFI = .964, NFI = .936, IFI = .964, TLI = .956, RMSEA = .067

**Fig. 3.** Results for the SEM of InHR, IC, CA, and SME performance.

**Table 6**  
Results of CFA for measurement model.

| Construct       | Item                        | Standardized regression weights | Squared multiple correlations ( $R^2$ ) |
|-----------------|-----------------------------|---------------------------------|---|
| InHR            | Recruitment & Selection_5   | 0.746                           | 0.556                                   |
|                 | Remuneration & Rewards_1    | 0.758                           | 0.575                                   |
|                 | Career Development_1        | 0.873                           | 0.762                                   |
|                 | Career Development_2        | 0.898                           | 0.806                                   |
|                 | Involvement_1               | 0.797                           | 0.635                                   |
|                 | Involvement_3               | 0.803                           | 0.645                                   |
|                 | Training_2                  | 0.854                           | 0.729                                   |
| IC              | Product_Innovation_1        | 0.765                           | 0.585                                   |
|                 | Product_Innovation_4        | 0.781                           | 0.609                                   |
|                 | Process_Innovation_5        | 0.753                           | 0.567                                   |
|                 | Administrative_Innovation_1 | 0.677                           | 0.458                                   |
|                 | Marketing_Innovation_1      | 0.853                           | 0.728                                   |
|                 | Marketing_Innovation_3      | 0.818                           | 0.670                                   |
|                 | Service_Innovation_3        | 0.815                           | 0.664                                   |
| CA              | Competitive Advantage_1     | 0.842                           | 0.709                                   |
|                 | Competitive Advantage_4     | 0.913                           | 0.833                                   |
| SME Performance | Sales Growth                | 0.931                           | 0.867                                   |
|                 | Market Share                | 0.884                           | 0.782                                   |
|                 | Profitability               | 0.914                           | 0.836                                   |

Note: InHR = innovations in human resource; IC = innovation capabilities; CA = competitive advantage.

However, the rate of new product developments and managerial practices (introduction of new production systems) were not significantly related to SME performance. Table 10 displays an overview of the hypotheses analysis for the SEM model.

**5. Discussion and conclusions**

This research model contributes to the current academic literature by developing an innovative study concerning the effects of InHR, IC, and CA, on SME performance. The outcomes showed that InHR influenced SME performance indirectly through the conciliation of IC and CA ( $p < 0.001$ ). Table 11 shows the outcomes of the structural model.

In the context of the Southeast Asian environment and ASEAN Economic Community, this study supports several cases of SMEs benefiting from InHR practice, each of which can be conceptualized as follows: 1. Innovative recruitment and selection are recruiting new personnel via procedures that follow the sustainability strategy and HR planning essentials of SMEs. 2. Innovative remuneration and rewards include compensation and bonus for the personnel who regard them as priceless business investments. 3. Innovative career development is evaluated as the personnel's effectiveness on a holistic foundation, their unique practice needs, and supporting personnel in their professional success. 4. Innovative involvement boosts employee contributions in varied parts of the business and makes the employee feel like an essential part of the team. 5. Finally, innovative

**Table 7**  
Regression weights: default model.

|                             |    |                         | Estimation | S.E.  | C.R.   | P   |
|-----------------------------|----|-------------------------|------------|-------|--------|-----|
| Innovation Capabilities     | <— | InHR                    | 0.849      | 0.059 | 14.298 | *** |
| Competitive Advantage       | <— | Innovation Capabilities | 0.977      | 0.073 | 13.438 | *** |
| SME Performance             | <— | Competitive Advantage   | 0.254      | 0.069 | 3.690  | *** |
| SME Performance             | <— | Innovation Capabilities | 0.552      | 0.084 | 6.578  | *** |
| Product Innovation_4        | <— | Innovation Capabilities | 0.991      | 0.069 | 14.328 | *** |
| Product Innovation_1        | <— | Innovation Capabilities | 1.012      | 0.073 | 13.915 | *** |
| Profitability               | <— | SME Performance         | 1.000      |       |        |     |
| Market Share                | <— | SME Performance         | 1.078      | 0.049 | 22.114 | *** |
| Sales Growth                | <— | SME Performance         | 1.058      | 0.042 | 25.190 | *** |
| Process Innovation_5        | <— | Innovation Capabilities | 1.130      | 0.083 | 13.643 | *** |
| Administrative Innovation_1 | <— | Innovation Capabilities | 1.010      | 0.085 | 11.872 | *** |
| Marketing Innovation_1      | <— | Innovation Capabilities | 1.038      | 0.072 | 14.410 | *** |
| Marketing Innovation_3      | <— | Innovation Capabilities | 0.983      | 0.064 | 15.246 | *** |
| Service Innovation_3        | <— | Innovation Capabilities | 1.000      |       |        |     |
| Recruitment & Selection_5   | <— | InHR                    | 0.993      | 0.069 | 14.321 | *** |
| Remuneration & Rewards_1    | <— | InHR                    | 0.919      | 0.063 | 14.699 | *** |
| Career Development_1        | <— | InHR                    | 1.057      | 0.057 | 18.684 | *** |
| Career Development_2        | <— | InHR                    | 1.060      | 0.054 | 19.699 | *** |
| Involvement_1               | <— | InHR                    | 0.904      | 0.057 | 15.849 | *** |
| Involvement_3               | <— | InHR                    | 0.928      | 0.057 | 16.134 | *** |
| Training_2                  | <— | InHR                    | 1.000      |       |        |     |
| Competitive Advantage_1     | <— | Competitive Advantage   | 0.926      | 0.055 | 16.991 | *** |
| Competitive Advantage_4     | <— | Competitive Advantage   | 1.000      |       |        |     |

Note: InHR = innovations in human resource; S.E. = standard error; C.R. = critical ratio.

\*\*\*  $p < 0.001$ .

**Table 8**  
Standardized regression weights: default model.

|                             |    |                         | Estimation |
|-----------------------------|----|-------------------------|------------|
| Innovation Capabilities     | <← | InHR                    | 0.891      |
| Competitive Advantage       | <← | Innovation Capabilities | 0.818      |
| SME Performance             | <← | Competitive Advantage   | 0.316      |
| SME Performance             | <← | Innovation Capabilities | 0.576      |
| Product Innovation_4        | <← | Innovation Capabilities | 0.781      |
| Product Innovation_1        | <← | Innovation Capabilities | 0.764      |
| Profitability               | <← | SME Performance         | 0.915      |
| Market Share                | <← | SME Performance         | 0.884      |
| Sales Growth                | <← | SME Performance         | 0.931      |
| Process Innovation_5        | <← | Innovation Capabilities | 0.753      |
| Administrative Innovation_1 | <← | Innovation Capabilities | 0.677      |
| Marketing Innovation_1      | <← | Innovation Capabilities | 0.855      |
| Marketing Innovation_3      | <← | Innovation Capabilities | 0.819      |
| Service Innovation_3        | <← | Innovation Capabilities | 0.813      |
| Recruitment & Selection_5   | <← | InHR                    | 0.745      |
| Remuneration & Rewards_1    | <← | InHR                    | 0.757      |
| Career Development_1        | <← | InHR                    | 0.873      |
| Career Development_2        | <← | InHR                    | 0.898      |
| Involvement_1               | <← | InHR                    | 0.796      |
| Involvement_3               | <← | InHR                    | 0.803      |
| Training_2                  | <← | InHR                    | 0.854      |
| Competitive Advantage_1     | <← | Competitive Advantage   | 0.845      |
| Competitive Advantage_4     | <← | Competitive Advantage   | 0.909      |

Note: InHR = innovations in human resource.  
\*\*\**p* < 0.001.

training aims at developing the employees' abilities such that they can contribute as experts in upcoming innovative positions. Therefore, our outcomes confirm that the effects of InHR on SME performance are consistent with Agarwal et al. (2017), Capelleras et al. (2021), Elrehail et al. (2020), Moustaghfir et al. (2020), Som (2008), Xiu et al. (2017), and Zheng et al. (2009).

In Thailand, the wholesale and retail sectors are competitive; this study explores how IC varies with SME performance and how a business can achieve optimal performance and create unique value for its clients. Concerning the IC-SME performance relation, our results indicate that the degree of IC is significantly connected with SME performance. This examination additionally confirms that IC drives SME performance. The investigation also finds that the five components of IC (product innovation, process innovation, marketing innovation, service innovation, and administrative innovation) affect SME performance significantly. Consequently, our results show that IC has direct and indirect effects on SME performance owing to the conciliation of CA. Consequently, Thai SMEs can develop their businesses effectively through the acceptance of the IC practice. This emphasizes the value proposition of developing an innovative organizational culture and encouraging entrepreneurial philosophies to gain greater performance outcomes. Thus, the results that confirm the influence of IC on SME performance are consistent with Agyapong et al. (2018), Liao et al. (2007), Lin et al. (2010), Shafi (2021), Valmohammadi (2017), and YuSheng and Ibrahim (2020).

Regarding the influence of CA on SME performance, this study contributes to the theoretical research via data from Thai SMEs. This study's outcomes are in line with current academic research, which shows that SMEs can achieve sustainable performance by generating CA. In business model innovation, using traditional resources as the core competence, the procedure is displaced from traditional practices to using them in a hybrid system with modern resources like artificial intelligence (AI) management, big data, Internet of Things, information insight, and specific knowledge, as well as InHR practice, IC, organization innovation, management abilities, marketing abilities, technology abilities, and customer success management. If a business has the qualification to develop greater customer lifetime value and is difficult to duplicate or replace, it can be considered to have a unique value proposition that will ensure gaining CA and

**Table 9**  
Squared multiple correlations: default model.

|                             | Estimation |
|-----------------------------|------------|
| Innovation Capabilities     | 0.794      |
| Competitive Advantage       | 0.670      |
| SME Performance             | 0.729      |
| Involvement_1               | 0.634      |
| Training_2                  | 0.730      |
| Involvement_3               | 0.644      |
| Career Development_1        | 0.763      |
| Career Development_2        | 0.807      |
| Remuneration and Rewards_1  | 0.574      |
| Recruitment and Selection_5 | 0.555      |
| Competitive Advantage_4     | 0.827      |
| Market Share                | 0.781      |
| Profitability               | 0.836      |
| Sales Growth                | 0.867      |
| Competitive Advantage_1     | 0.715      |
| Marketing Innovation_1      | 0.730      |
| Process Innovation_5        | 0.567      |
| Service Innovation_3        | 0.661      |
| Marketing Innovation_3      | 0.670      |
| Administrative Innovation_1 | 0.458      |
| Product Innovation_1        | 0.584      |
| Product Innovation_4        | 0.610      |

further business growth. Hence, in sum, CA related to innovative actions are the foundation for the further evolution of SMEs. Consequently, our outcomes that confirm the effect of CA on SME performance are consistent with Ahmed et al. (2020), Ilinova et al. (2021), Nguyen et al. (2021), Wan Hooi, and Sing Ngui (2014), and Porter (1985).

InHR practices and IC are significant live-enterprise drivers for the effective existence and development of enterprises, their evolution of plans, improvement in endurable CA, and excellent business performance. These outcomes help create innovative strategies for InHR and IC by focusing on elements that influence CA and SME performance positively. Integrating innovative HR, innovation strategies, and innovation performance in the wholesale and retail sectors would boost CA and SME performance. Comprehending the variables that influence SME performance would thus enable appropriate HR allocation and sustain business growth, wherein they can contribute to new opportunities in organization innovation, business attractiveness, enhanced sustainability CA, and SME performance effectiveness results.

## 6. Implications

### 6.1. Theoretical implications

This research model contributes to deepening the understanding of the field and proposes several academic contributions. The effect of InHR, IC, and CA on SME performance, in the SME context, has not been clearly identified. First, this research model combines InHR, IC, and CA, concentrating on the wholesale and retail sectors in Thai SMEs. From the results, we confirm that the positive significant influence of the three variables on SME performance arises through the enhanced integration of InHR, IC, CA, and SME performance.

In terms of academic contributions, our outcomes establish the knowledge that three achievement variables influence SME performance. We developed innovative methods to boost SME performance (market share, profitability, and sales growth) emphasizing InHR (innovative recruitment and selection; innovative remuneration and rewards; innovative career development; innovative involvement; and innovative training), IC (product innovation, process innovation, marketing innovation, service innovation, and administrative innovation), and CA. This research especially contributes to studies in the fields of InHR, IC, and CA by revealing that the SEM model improves

**Table 10**  
Hypotheses outcomes for the SEM model.

| Hypotheses                | Estimation | S.E.  | C.R.   | p-value | Outcome         |
|---------------------------|------------|-------|--------|---------|-----------------|
| H1 InHR → IC              | 0.851      | 0.060 | 14.287 | ***     | Significant     |
| H2 InHR → CA              | -0.087     | 0.155 | -0.557 | 0.577   | Not significant |
| H3 InHR → SME Performance | 0.087      | 0.103 | 0.846  | 0.398   | Not significant |
| H4 IC → CA                | 1.064      | 0.173 | 6.154  | ***     | Significant     |
| H5 IC → SME Performance   | 0.460      | 0.145 | 3.165  | 0.002   | Significant     |
| H6 CA → SME Performance   | 0.258      | 0.071 | 3.616  | ***     | Significant     |

Note: InHR = innovations in human resource; IC = innovation capabilities; CA = competitive advantage; S.E. = standard error; C.R. = critical ratio.  
\*\*\*  $p < 0.001$ .

SME performance. This research will enable SMEs to respond to customers' wishes using the unique value of services through innovative processes and deliver world-class services with the support of innovative technology, creating a value proposition for employees and clients and enabling Thai SMEs to retain their sustainable CA in Southeast Asia.

6.2. Managerial implications

In the innovative world, the novel concept of InHR (Agarwal et al., 2017) is identified as an attractive practice to facilitate innovative HRM, high-level performance, and sustainable business growth. Consequently, this study has managerial implications for entrepreneurs, chief executive officers, presidents, managers, HR managers, and employees in SMEs (wholesale and retail sectors) in Thailand. This research can provide an invaluable input to guide entrepreneurs, executive board members, HR policymakers, and HR managers when designing strategies for SMEs. It can be used as an essential assessment tool for entrepreneurs, directors, and HR directors to promote their personnel's welfare. SMEs can also compare existing HR plans and policies, using the InHR structure.

Our study is significant to understand and help companies align with the model proposed by the Thai government. As stated by the Thailand Office of SME's promotion, "the country's path forward will follow an economic model called Thailand 4.0, which aims to unlock Thailand from several economic challenges and help the country break free from the middle-income trap. The economic model focuses on four objectives: economic prosperity, social well-being, raising human values, and environmental protection. To achieve economic prosperity, the key drivers will be innovation, technology, and creativity" (The Office of SMEs Promotion, 2020).

This research found the innovative practice of improving SME performance by using InHR, IC, and CA. In the customer service management of wholesale and retail sectors, digital disruption has transformed the global business model. To survive and maintain excellent service (Wongsansukcharoen, 2022), Thai SMEs must engage in InHR; create innovative products, provide innovative marketing solutions, new services solutions, and new processes systems; offer innovative business models; create innovative business plans; provide greater customer experience; use mobile banking to retain clients; increase the use of data analytics; prepare digital marketing plans; and use AI systems to develop customer success.

6.3. Limitations and further research

This research found that InHR has indirect effects on SME performance through the mediation of IC and CA. Nevertheless, the outcomes of this research are restricted because only quantitative information was used. The findings of this study are based on limited survey responses (260 responses) from Thai SMEs. Additional limitations include the sectors (wholesale and retail) and region (Thailand) to which this study was restricted. Thus, results may be comprehensive only for the assessed sectors and region, but not for other sectors or emerging countries. Finally, the conceptual framework may not be acceptable to every party. It may only benefit the groups interested in innovations in HR and IC.

Further research should use qualitative information to analyze the associations between InHR, IC, CA, and SME performance. For instance, semi-structured interviews can be used for an in-depth understanding of the challenges in developing InHR and IC in SMEs, and additional responses can help further strengthen the findings and assist in generalization across the sector. Finally, using this research model, future studies could extend across dissimilar sectors and analyze surveys in other countries.

Funding

This work was supported by the Faculty of Management Sciences, Kasetsart University, Sriracha Campus, Thailand.

Declaration of Competing Interest

None.

Acknowledgements

We would like to thank the Elsevier Language Editing Services for editing the manuscript.

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**Table 11**  
SEM model outcomes.

|  | Direct effects | Indirect effects | Total effects |
|--|----------------|------------------|---------------|
| InHR → IC  | 0.891          | -                | 0.891         |
| InHR → IC → SME Performance  | -              | 0.513            | 0.513         |
| InHR → IC → CA   | -              | 0.729            | 0.729         |
| InHR → IC → CA → SME Performance   | -              | 0.744            | 0.744         |
| IC → CA  | 0.818          | -                | 0.818         |
| IC → SME Performance   | 0.576          | -                | 0.576         |
| IC → CA → SME Performance  | -              | 0.259            | 0.259         |
| IC → SME Performance (direct effect) + IC → CA → SME Performance (indirect effect) | 0.576          | 0.259            | 0.835         |
| CA → SME Performance   | 0.316          | -                | 0.316         |

Note: InHR = innovations in human resource; IC = innovation capabilities; CA = competitive advantage.  
\*\*\*  $p < 0.001$ .

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