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Panamon Chantabutr, Sawat Wanarat

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## The effect of human capital, employee performance on work process improvement and employee performance on work productivity on sustainable competitive advantage in Thai banks

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Panamon Chantabutr\*

Department of Accounting,  
Faculty of Management Science,  
Ubon Ratchathani University,  
Ubon Ratchathani, Thailand  
Email: panamon.c@ubu.ac.th  
\*Corresponding author

Sawat Wanarat

Department of Operations Management,  
Faculty of Business Administration,  
Kasetsart University,  
Bangkok, Thailand  
Email: sawat.w@ku.th

**Abstract:** Employee performance is critical to maintaining a commercial advantage in today's highly innovative banking environment, as it affects efficiency and goal attainment. This study aims to test the mediator of employee performance on human capital and examine if a high rate of employee performance gives a company a sustainable competitive advantage (SCA). The data for this study was collected by distributing 342 questionnaires to employees, senior staff, and executive managers in Thai banks. The data was analysed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The EFA revealed two dimensions of employee performance that affected a company's competitiveness: work productivity and work process improvement. The findings suggest that the improvement of processes plays a mediative role in this relationship. Therefore, bank managers should focus on improving their processes and reducing costs to maintain a SCA. This study provides unique empirical evidence supporting the application of resource-based and human capital theories in Thai banks.

**Keywords:** human capital; employee performance; sustainable competitive advantages; SCA; SEM; exploratory factor analysis; EFA; confirmatory factor analysis; CFA.

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**Biographical notes:** Panamon Chantabutr is a Lecturer in the Department of Accounting, Business Management School, Ubon Ratchathani University. She holds a Doctor of Business Administration from the Kasertsart University, Thailand. Her research interests are financial accounting, managerial accounting, cost analysis, and financial performance, related to topics how to develop employee and firm performance in sustainability.

Sawat Wanarat is an Assistant Professor and Senior Lecturer in the Department of Technology and Operations Management, Faculty of Business Administration, Kasetsart University, Thailand. He holds a Doctor of Business Administration from the Southern Cross University, Australia. He has published in both international and national journals such as *Management Research Review*, *International Journal of Innovation Management*, and *Journal of Information and Knowledge Management*. He has presented research papers at various national and international conferences. His research interests include operations management, supply chain management, logistics management, lean production, product innovation and service quality. He is a peer reviewer for several journals and annual conferences.

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## 1 Introduction

The shift from the industrial to today's information-based economy has changed consumer behaviour patterns significantly. Information technology has become essential and widely used by many firms, especially within the banking sector. Thus, businesses need to improve their 'human capital' through human resource management (Alnidawi et al., 2017) to increase the effectiveness and success of their performances (Rahman and Akhter, 2021; Vale et al., 2022).

Human capital is one of the most critical factors contributing to the economic growth of a nation (Mirza et al., 2020). Human capital refers to the abilities possessed by an employee, including their skills, expertise, experiences, competence, innovativeness, and learning capabilities, which should be the focus of management (Schultz and Schultz, 1982). An organisation's contribution to human resources will significantly benefit its business (Tran and Vo, 2020). Every organisation considers human capital a competitive tool in today's business world (Mirza et al., 2020; Gupta and Raman, 2021). Companies maintain production efficiency by adopting skilled workforces (Adesina, 2021). Past literature has shown that human resources management is the best tool for developing people, their performances, and their practices (Sengupta et al., 2013; Youndt et al., 2004). Therefore, alongside new technology-based changes, many firms should develop their human capital to become more knowledgeable and skilful and develop their ability to use advanced technology. This study examines how employee performance may be utilised to give a company a competitive advantage (Hitt et al., 2001) and lead them to successfully create added value in their future products and services (Bontis, 1998).

The 'sustainable competitive advantage' (SCA) concept has received considerable attention in the banking industry. Social and economic changes have greatly impacted the banking industry (Imran et al., 2014). Past literature has found that human capital can be an important competitive tool for an organisation (Neves and Proença, 2021; Gupta and Raman, 2021). Adopting skilled workforces allows companies to maintain high

performance levels (Adesina, 2021). It is crucial for businesses to take advantage of opportunities to develop their human capital (Tran and Vo, 2020).

This paper focuses on the effects developing human capital, through the mediative role of employee performance; have on increasing a firm's competitiveness in the banking sector of Thailand. This study aims to fill gaps in previous research surrounding this subject and to address the research problems associated with the development of employee performance to provide Thai bank managers with methods to support their banks and achieve a SCA in the future. This study chose banking companies listed on the Stock Exchange of Thailand (SET) as its respondents. Thailand is one of the fastest-growing countries in the Asian Economic Community (AEC), and studies can examine Thai firms' abilities to create SCAs from just three years of performance, according to Eccles et al. (2014).

This study focuses on separate dimensions of employee performance to examine which dimension has the greatest mediating effect on human capital and SCA. This study will provide a new perspective on human capital (such as through education, training, and skills development) to show that human capital efficiency is still vital to the success of the banking industry, even in the age of technology. Consequently, the primary objective of this research is to investigate the mediative role employee performance plays between human capital and competitive advantage to allow for managerial and academic improvements to be made in the future. This study argues that promoting improvements associated with the dimensions of employee performance in the banking sector will provide firms with a SCA in the long run (Kahreh, Ahmadi, and Hashemi, 2011).

To fill the gaps in past literature, this study will investigate if investing in human capital still positively affects bank performance. How does employee performance help a company create a SCA? Concerning human resource management, which dimensions of employee performance should a company first invest in? (Ringle et al., 2020). The answers to these questions could prove that investment into human capital still results in high employee performance, affecting a business's success and creating added value for the firm (Bontis, 1998).

The remainder of the article is organised as follows: Section 2 summarises theories and prior research relevant to the topic; the underlying conceptual framework is developed, and the research methodology is presented in Section 3; the empirical results are presented and discussed in Section 4 and the final section comprises the study's conclusions and suggestions for further research.

## **2 Theories and previous research**

### *2.1 Resource-based theory*

The resource-based theory is a method of developing a firm's competitive advantage. It states that the developed resources must be valuable, difficult to imitate, and impossible to substitute. These resources help generate sales and retain customers, despite competition from the firm's competitors (Barney, 1986). Hence, it is a critical theory to consider when trying to sustain a firm's long-term financial performance. According to a study by Andrews (1971), firms should focus on the 'distinctive competence' of their employees to maintain a competitive edge (Penrose, 1959). Therefore, companies should emphasise achieving higher organisational performance via an increase in their resources

and employee capabilities rather than only focusing on their products and services (Charoensukmongkol, 2022; Olalla, 1999). Moreover, the firm should focus on driving its assets and employees toward developing future competitive advantages (Wernerfelt, 1984).

## *2.2 Human capital theory*

The concept of ‘human capital’ was introduced in 1961 by Theodore W. Schultz, who stated that human capital is an intangible asset that is not directly measurable (Le et al., 2005). However, human capital significantly impacts a business’s performance (Schwartz et al., 2014) and chances of survival (Brüderl et al., 1992). Therefore, in this research, human capital was studied, and ‘innovativeness’ was included as a human capital factor, which refers to employees’ creative thinking skills in this theory. As per this study’s literature review, banks are susceptible to the effects of innovation and technological changes, so skills in creation and technological development act as important complementary factors in the development of human capital (Baldwin and Johnson, 1996; Shukla and Kanna, 2017).

## *2.3 Employee performance*

Even though most past research focusing on the relationship between human capital and a firm’s success found a positive relationship between the two, some researchers still find that the factor of human capital alone cannot be a strong predictor of a firm’s success (Unger et al., 2011). Determining the effects other components of human resource management, such as employee performance, have on a firm’s success is a challenge. Marimuthu et al. (2009) states that managers can generate higher earnings by increasing employee performance. Hence, employee performance is a crucial factor affecting firm performance and can create a competitive advantage (Ringle et al., 2020).

Human capital focuses on employee behaviour as a factor because behaviour directly affects productivity (Delery and Roumpi, 2017). Therefore, an employee’s performance can be measured in terms of quality, quantity, time, and cost, which all impact a firm’s success (Schneier et al., 1995). In this study, the ‘process quality’ factor was added as a new employee performance dimension. According to Huwe (2010), ‘process’ is an important dimension in service companies, and Guimaraes and Bond (1996) states that effective work processes influence a company’s competitiveness by improving quality, reducing costs, and shortening the product development cycle. Thus, these factors significantly contribute to employee performance and can create competitive advantages that improve a firm’s financial performance.

## *2.4 Sustainable competitive advantage*

The term ‘SCA’ emerged in 1985 when Porter coined it to discuss the basic types of strategies that a firm could utilise to achieve long-term financial success (such as lowering costs and differentiation). Though Porter presented no formal conceptual definition, he discussed activities that would support a firm’s SCA. Later, Barney (1991) offered a formal definition of SCA which went as follows: ‘a firm has sustained competitive advantage when a value creation strategy cannot be implemented with any

competitors'. Barney (1991) also states that some firm resources do not have the potential of SCAs; because SCA must possess four attributes: rareness, value, inability to be imitated, and inability to be substituted. Consistent with the study of Hunt and Morgan (1995), this study categorises potential resources as human, organisational, informational, and relational.

According to a study by Coyne (1986), a SCA refers to a firm's ability to maintain an attributed gap for a certain period to prevent competitors from closing this gap. Later studies revealed that businesses could close this gap by improving their labour or employees (Nghah et al., 2016). Other intangible assets, such as human capabilities and innovation, can also help a firm achieve a competitive advantage (Permatasari et al., 2022). According to Barney (1986), a resource that adds value to a business while being rare, inimitable, and non-substitutable can be a source of continuous competitive advantage. A study by Wright et al. (1994) showed that the human resources in Barney's criteria are a source of SCA and that human assets are a key source of SCA because of their causal ambiguity and systematic information, which make them inimitable (Coff, 1994).

In this study, SCA refers to the capability of an organisation to create high-value products that competitors cannot match in the long-term (Kotler, 2000). When a customer is satisfied, their repeat purchases will reduce the company's operating costs, create profit and growth, and create new market opportunities (Sheth, 2001). Apart from that, Washimkar and Deogaonkar (2013) found that many factors can create competitive advantages, such as new technologies or new knowledge, which reduce costs and generate economies of scale.

## *2.5 Research framework and hypothesis development*

### *2.5.1 Human capital and employee performance*

Employee performance is key to the success of a company. A performance review is a formal, regulated assessment in which managers and other key stakeholders evaluate an employee's work performance (Vosloban, 2012). The intrinsic elements of human capital include levels of education, knowledge, and experience and attitude and motivation to work. As such, organisations with improved human capital increase their ability to adapt to the multifaceted processes associated with urgent change (Ali, 2020). In this technological era, employees should develop their competencies, abilities, skills, knowledge, and attitudes toward becoming familiar with technology, which would better enable them to access technological interfaces, deepen their understanding of network systems, and increase their creativity and innovation to generate new ideas (Sima et al., 2020). Thus, this study formulated its first hypothesis:

Hypothesis 1 Human capital has a positive impact on employee performance.

### *2.5.2 Employee performance and SCA*

The performance of a company's human resources is a key to its success. Within this ideological framework, employee performance is the primary factor and is the focus of this study, which pays special attention to its internal workings (Kaur and Mehta, 2017). Employee performance involves operations based on an understanding of the organisation's goals and strategies (Potočan, 2006). In order to survive in the existing

market, fulfil current demands and customer preferences, and retain a long-term competitive advantage, businesses need to increase their innovation competencies (Sharma and Bhat, 2020). As such, competitive advantages can be attributed to a company's uniqueness, resulting from employee performance and innovation (Isa and Muafi, 2022). Thus, this study proposes its second hypothesis:

Hypothesis 2 Employee performance has a positive impact on SCA.

### *2.5.3 Human capital and SCA*

The resource-based theory emphasises that competitive advantage must be sustainable over time. Some researchers support this idea by drawing a link between human capital and long-term results, whether on an individual productivity level (McCracken et al., 2017) or in terms of the company's financial and market results (Kuzey et al., 2022) or competitive advantage (McCracken et al., 2017). Another interesting approach to the sustainability of income is to consider the effects of employees (Danvila del Valle and Sastre Castillo, 2009).

Factors of human capital include level of education, knowledge, skill, attitude and motivation to work, and work experience (Charoensukmongkol and Pandey, 2022; Craig and Allen, 2013). Organisations that improve their human capital increase their ability to conduct the multifaceted processes that complement change and generate new ideas (Sima et al., 2020). Although this study believes that these past researches partially measured training efforts, it is the present researcher's view that there are sufficient grounds for relying upon them to formulate the study's third hypothesis:

Hypothesis 3 Human capital has a positive impact on SCA.

### *2.5.4 Mediating role of employee performance on human capital and SCA*

The resource-based theory used in past literature shows that human capital plays a crucial role in establishing and maintaining a firm's competitive advantage (Djurica et al., 2014). Human resources refer to an organisation's intangible, irreplaceable, and inimitable resources and are associated with human resource management and company performance. The effective utilisation of human resource practices results in high employee commitment, involvement, and performance (Smith, 2002).

Managers should start by selecting suitable employees and training them (Sengupta et al., 2013) to achieve customer satisfaction by creating better products than their competitors (Ngah et al., 2016). Channar et al. (2015) suggests that human capital has a strong and significant positive relationship with employee and customer satisfaction levels, which subsequently leads to better organisational performance. Adesina (2021) reported that higher levels of human resource productivity positively correlate with a bank's success and can reduce the effects of diversification. Thus, this study's final hypothesis is as follows:

Hypothesis 4 Employee performance has an indirect impact on the relationship between human capital and SCA.

### 3 Research methodology

The data analysed in this study was collected using questionnaires distributed via a convenient sampling method to 342 executives, senior staff members, and operational staff in the public banks of Thailand, as listed in the SET.

The questionnaire responses utilised a 1 to five-point Likert scale (where '1' was 'not important' and '5' was 'very important'). These factors and measurements were adapted from past literature. The human capital elements referred to in the questionnaire were;

- 1 level of skill and experience
- 2 level of knowledge and education
- 3 level of engagement (the respondent's attitude/motivation to work)
- 4 level of innovation and creativity (Lepak and Snell, 2002).

The employee performance elements included in the questionnaire were:

- 1 quality of work (which measures how well the work is done)
- 2 quantity of work (which measures how much of the work is produced)
- 3 time (which measures the work schedule and how quickly, when, or by what date the work may be produced)
- 4 cost-effectiveness (which is measured based on specific resources) (Becker and Huselid, 1998)
- 5 process (which refers to the method of operation) (Marimuthu et al., 2009).

These five items were adapted from Wang and Chen (2013). Finally, the competitive advantages listed in the questionnaire were as follows:

- 1 efficiency (achieving objectives efficiently)
- 2 effectiveness (achieving objectives effectively)
- 3 innovation (sustainability of innovation capabilities)
- 4 customer relationship (corporate relations) (Van der Post et al., 1997).

A pilot analysis was done to test the reliability and validity of the instrument, using the responses of 30 Thai bank employees. The study utilised Cronbach's alpha (Cronbach, 1970) to test for reliability. The reliability score was 0.959, indicating that the scales used were reliable and all questions were credible (Nunnally and Bernstein, 1994).

Based on the study of Fornell and Larcker (1981), an average variance extracted (AVE) process was conducted to evaluate the convergent validity of each construct. The results of each construct need to be greater than or equal to 0.50 to be valid. The AVE concept assesses discriminant validity by comparing the AVE with the corresponding inter-construct squared correlation estimates (Hair et al., 2006). This study showed composite reliability, and the AVE scores of the different factors were obtained. The results of the reliability and validity tests are provided in Tables 1 and 2.



**Table 1** Confidence assertion test results

| <i>Variable</i>                   | <i>Loading factors</i> | <i>Cronbach's alpha</i> | <i>AVE</i> |
|-----------------------------------|------------------------|-------------------------|------------|
| Human capital                     |                        | 0.911                   | 0.630      |
| 1 Employee skills                 | 0.824                  |                         |            |
| 2 Employee knowledge              | 0.837                  |                         |            |
| 3 Employee engagement             | 0.810                  |                         |            |
| 4 Employee innovation             | 0.695                  |                         |            |
| Employee performance              |                        | 0.896                   | 0.567      |
| 1 Work efficiently                | 0.673                  |                         |            |
| 2 Quality of work                 | 0.807                  |                         |            |
| 3 Time efficiency                 | 0.677                  |                         |            |
| 4 Process                         | 0.796                  |                         |            |
| 5 Cost                            | 0.798                  |                         |            |
| Sustainable competitive advantage |                        | 0.928                   | 0.663      |
| 1 Efficiency                      | 0.758                  |                         |            |
| 2 Quality                         | 0.852                  |                         |            |
| 3 Innovation                      | 0.838                  |                         |            |
| 4 Relationships with customers    | 0.804                  |                         |            |

*Source:* Authors' calculations

**Table 2** Discriminant validity among the dimensions of the variables and the reliability coefficient

|                                   | <i>Human capital</i> | <i>Employee performance</i> | <i>Competitive advantage</i> |
|-----------------------------------|----------------------|-----------------------------|------------------------------|
| Human capital                     | 0.911                |                             |                              |
| Employee performance              | 0.735                | 0.896                       |                              |
| Sustainable competitive advantage | 0.618                | 0.650                       | 0.928                        |

Note: From the matrix of the structural relationship, the measures of the discriminant validity are as follows: the correlation coefficients should be lower than the reliability coefficients.

*Source:* Authors' calculations

**Table 3** Descriptive statistic

| <i>Variable</i>                      | <i>Mean</i> | <i>Variance</i> |
|--------------------------------------|-------------|-----------------|
| Human capital (HC)                   |             |                 |
| Human capital – skill                | 4.06        | 0.268           |
| Human capital – knowledge            | 3.87        | 0.421           |
| Human capital – engagement           | 4.07        | 0.333           |
| Human capital – innovation           | 3.81        | 0.471           |
| Employee performance (EP)            |             |                 |
| Employee performance – quantity      | 4.15        | 0.558           |
| X1 Quantity – manage to plan my work | 4.22        | 0.402           |

**Table 3** Descriptive statistic (continued)

| <i>Variable</i>                                              | <i>Mean</i> | <i>Variance</i> |
|--------------------------------------------------------------|-------------|-----------------|
| Employee performance (EP)                                    |             |                 |
| X2 Quantity – work well with minimal time and effort         | 4.38        | 0.447           |
| X3 Quantity – creative solution and new challenges           | 3.86        | 0.537           |
| Employee performance-quality                                 | 4.19        | 0.579           |
| X4 Quality – achieve in work productivity                    | 4.13        | 0.503           |
| X5 Quality – planning optimal                                | 4.17        | 0.391           |
| X6 Quality – improve performance at work                     | 4.32        | 0.411           |
| Employee performance – time                                  | 3.99        | 0.642           |
| X7 Time – on time                                            | 4.03        | 0.656           |
| X8 Time – take on extra responsibility                       | 4.01        | 0.886           |
| X9 Time – creative new solutions/technologies to reduce time | 3.94        | 0.580           |
| Employee performance – process                               | 4.08        | 0.545           |
| X10 Process – follow the rule                                | 4.26        | 0.464           |
| X11 Process – actively participated in work process          | 4.26        | 0.467           |
| X12 Process – know how to set right priorities               | 3.71        | 0.565           |
| Employee performance-cost                                    | 3.85        | 0.666           |
| X13 Cost – low-cost management                               | 3.79        | 0.661           |
| X14 Cost – control and reduce waste                          | 3.96        | 0.473           |
| X15 Cost – look ways to improve work performance             | 3.85        | 0.704           |
| Sustainable competitive advantage (SCA)                      |             |                 |
| Competitive advantage – performance                          | 3.74        | 0.468           |
| Competitive advantage – achievement                          | 3.79        | 0.381           |
| Competitive advantage – innovation                           | 3.79        | 0.539           |
| Competitive advantage – customer relation                    | 3.79        | 0.440           |

### 3.1 *Research process*

This study's research process comprised four steps:

- 1 Descriptive analysis: data collection using questionnaires. The questionnaire is provided in Table 3.
- 2 First model testing: the first model was tested by examining the effects of human capital on employee performance and SCA. SEM analysis was performed using AMOS to verify the harmony of the research model.
- 3 In-depth analysis: exploratory factor analysis (EFA) was utilised to identify suitable groups for employee performance dimensions. Factor analysis was used for an in-depth study of each dimension, and then the dimensions were re-examined to determine which could affect SCA. The samples were analysed in two steps:
  - EFA was carried out using a pilot study's data to assess the appropriate dimensionality, validity, and reliability of the latent constructs.

- After data from the study was obtained, it was analysed using descriptive statistics with the statistical analysis software IBM SPSS Statistics 24 before CFA using SEM was conducted.
- 4 Hypotheses testing: after grouping the dimensions, the study's hypotheses were tested to check if each employee performance dimension had a mediating effect on human capital and SCA. SEM analysis was relied upon for this step.

## 4 Research results

### 4.1 The descriptive statistic

This study comprised 342 respondents: operational staff (53.5%), general managers, and senior managers (46.5%). The respondents were 54.4% male and 55.6% female, with the majority being between 30 to 40 years old (67.0%). This study found that human capital was the most valued factor among respondents, having an average score of 4.07. Employee engagement, knowledge, skills, and innovation were valued at 4.06, 3.87, and 3.81, respectively. Employee performance, defined in the questionnaire as the mean quality of work which is most favourable, and cost-effectiveness were valued at 4.19 and 3.85, respectively. Process and time management were valued at 4.08, followed by the value of work at 3.99 and the quantity of work at 4.15.3. Competitive advantage, achievement, and innovation were all valued at 3.79, while the company's competitive advantage and customer response were both valued at 3.74. Table 3 presents the multiple items representing the descriptive statistics for each construct.

### 4.2 First model testing

#### 4.2.1 Measurement model

Model fit was used as the measurement model. According to the first results of the structural model analysis, CMIN/DF = 3.328, GFI = 0.915, NFI = 0.943, RFI = 0.926, IFI = 0.947, TLI = 0.933, CFI = 0.947, and RMSEA = 0.83. These results indicate that this model was consistent with the study's empirical data. The model was then further modified to improve its consistency using modifying indices (MI). The MI model produced the following results: CMIN/DF = 2.658, GFI = 0.930, NFI = 0.943, RFI = 0.926, IFI = 0.964, TLI = 0.952, CFI = 0.963 and RMSEA = 0.70, which were more consistent with the study's theoretical constructs and empirical data. These results can be found in Table 4.

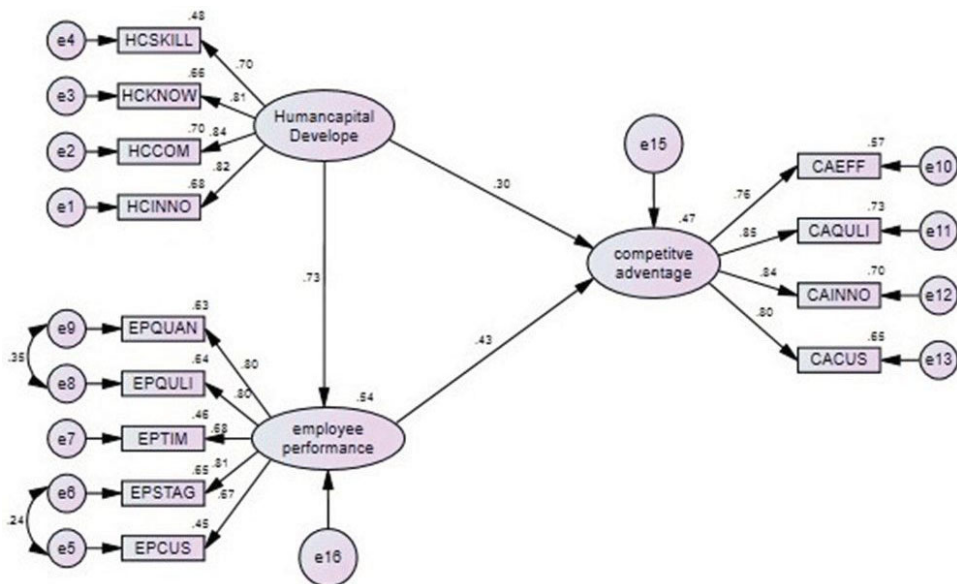
#### 4.2.2 Structural model analysis (model 1)

The results show that human capital affects SCA, as the direct effect size is 0.304 and  $P < 0.05$ , which prove that human capital directly affects employees' performance. The results of the direct effect size being 0.735 and  $P < 0.05$  show that employee performance is directly affected by SCA. Furthermore, human capital indirectly affects SCA, as its direct effect size is 0.427 and  $P < 0.05$ . Finally, the performance of employees is a mediating variable with an indirect influence size of 0.313 and  $P < 0.05$ . These results can be found in Table 5.

**Table 4** The result of the human capital development, employee performance and SCA model

| <i>Fit indices</i>                              | <i>Criteria</i> | <i>Reference</i>                                | <i>Results</i> |
|-------------------------------------------------|-----------------|-------------------------------------------------|----------------|
| Chi square/degrees of freedom (X2/df)           | < 5.00          | Loo and Thorpe (2000)                           | 2.658          |
| Goodness of fit index (GFI)                     | > 0.90          | Hu and Bentler (1999) and Hair et al. (2006)    | 0.930          |
| Normalised fit index (NFI)                      | $\geq 0.90$     | Hu and Bentler (1999)                           | 0.943          |
| Relative fit index (RFI)                        | $\geq 0.90$     | Benler (1990) and Hair et al. (2006)            | 0.926          |
| Incremental fit index (IFI)                     | $\geq 0.90$     | Benler (1990) and Hair et al. (2006)            | 0.964          |
| Tucker Lewis index (TLI)                        | $\geq 0.90$     | Benler (1990) and Hair et al. (2006)            | 0.952          |
| Comparative fit index (CFI)                     | $\geq 0.90$     | Benler (1990) and Hair et al. (2006)            | 0.963          |
| Root mean square error of approximation (RMSEA) | < 0.08          | Hair et al. (1998) and Browne and Cudeck (1993) | 0.070          |

*Source:* Authors' calculations

**Figure 1** The results of structural model analysis (model 1) (see online version for colours)

The findings presented in Table 5 support Hypotheses 1–3 and demonstrate that human capital has a significant impact on SCA (0.304,  $P < 0.05$ ). Additionally, it is evident that human capital directly influences employee performance (0.735,  $P < 0.05$ ). Further analysis of hypothesis testing 3 reveals that Employee performance is directly influenced by SCA (0.427 and  $P < 0.05$ ). Notably, the performance of employees serves as a mediator variable, exerting an indirect influence (0.313 and  $P < 0.05$ ). In conclusion, these results confirm that Human capital has both direct and indirect influences on SCA.

### 4.3 In-depth analysis by using factor analysis

#### 4.3.1 EFA (of employee performance)

This study examines five employee performance factors to identify factors that will lead to better decision-making skills. Some factors of employee efficiency conflict with one another, such as the highest quality and lowest cost (Hossain, 2017). Hence, in this test, the study relied on factor analysis to group and displays the factors that could be best related to one another and grouped them. The results show that the five factors could be simplified into:

- 1 work productivity
- 2 work process improvement dimension.

This is further explained in Table 6.

**Table 5** SEM analysis of all sample models – direct, indirect, and total effects of latent variables

| Paths                                                        | Effects |          | Total |
|--------------------------------------------------------------|---------|----------|-------|
|                                                              | Direct  | Indirect |       |
| H1: Human capital → Sustainable competitive advantage        | 0.304** | 0.313**  | 0.617 |
| H2: Human capital → Employee performance                     | 0.735** | -        | 0.735 |
| H3: Employee performance → Sustainable competitive advantage | 0.427** | -        | 0.427 |

Note: \*\* $p < 0.05$ .

Source: Authors' calculations using primary data

**Table 6** Factor analysis of employee performance indicator

| Employee performance indicator | Component         |                     |
|--------------------------------|-------------------|---------------------|
|                                | (1)               | (2)                 |
| Quantity                       | 0.887             |                     |
| Quality                        | 0.884             |                     |
| Time                           | 0.556             |                     |
| Process                        |                   | 0.656               |
| Cost                           |                   | 0.930               |
| Name                           | Work productivity | Process improvement |

#### 1 Work productivity

From the results, it can be seen that employee performance can be further categorised into providing services to clients for handling larger quantities of information, maintaining information quality, and using the available time to provide the appropriate service. The results identified a new group comprising quantity, quality, and the ability to carry out tasks promptly. This result is similar to one found in Becker et al. (2011), which asserted that performance is associated with the quantity, quality, and time of output, along with the effectiveness of the work completed. This is also in line with Sudiardhita et al. (2018), which found that performance indicators include quality of work, quantity of work, and working time.

## 2 Process improvement

Process factors were labelled ‘process improvement’ in the study and included the process of employees’ services. Technology can be utilised for convenience, usability, reduction of processes, reliability, and cost reduction.

Hence, long-term cost reduction occurs when an organisation fully understands its organisational processes. This helps the organisational improvement process and increases employee efficiency. This new dimension was also identified by Chandran et al. (2019), which reported that all enterprises could be innovated by optimising their process.

### 4.3.2 Hypothesis development (model 2)

This study examined the relationship between human capital and SCA to find new empirical evidence. It examined the mediating effect of each human capital dimension on firms’ competitive advantage. The study proposed seven hypotheses:

- *Hypothesis 1*: there is a positive and significant relationship that exists between human capital and SCA.
- *Hypothesis 2A*: there is a positive and significant relationship between human capital and employee performance which affects productivity.
- *Hypothesis 2B*: there is a positive and significant relationship between human capital and employee performance which affects process improvement.
- *Hypothesis 3A*: there is a positive and significant relationship between employee performance and SCA.
- *Hypothesis 3B*: there is a positive and significant relationship between employee performance on process improvement and SCA.
- *Hypothesis 4A*: employee performance and productivity mediate the relationship between human capital and SCA.
- *Hypothesis 4B*: employee performance on process improvement mediates the relationship between human capital and SCA.

These hypotheses show the relationship between human capital, the employee performance dimensions from the EFA, and SCA. Figure 2 details these hypotheses.

**Table 7** Discriminant validity among the dimensions of variables and reliability coefficient

| <i>Variables</i>                                  | <i>HC</i> | <i>EPP</i> | <i>EPI</i> | <i>SCA</i> |
|---------------------------------------------------|-----------|------------|------------|------------|
| Human capital (HC)                                | 0.630     |            |            |            |
| Employee performance on productivity (EPP)        | 0.575     | 0.515      |            |            |
| Employee performance on process improvement (EPI) | 0.259     | 0.374      | 0.644      |            |
| Sustainable competitive advantage (SCA)           | 0.530     | 0.212      | 0.594      | 0.663      |

The SEM approach adopted in this study employed a three-step procedure:

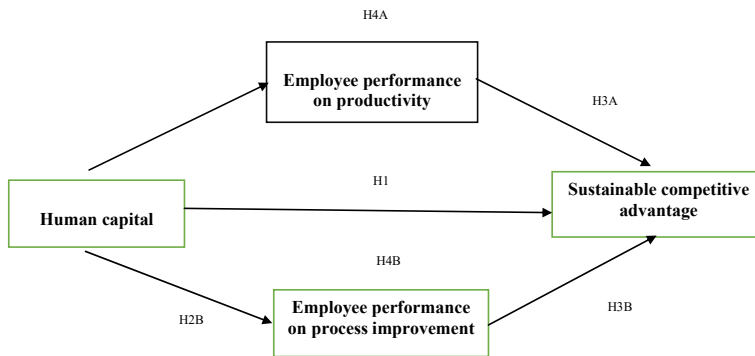
- 1 reliability and validity tests for the measurement models
- 2 confirmatory factor analysis (CFA)

### 3 structural model analysis (Aşkun et al., 2021).

#### 4.3.3 Measurement model results

As can be seen in Table 7, construct validity was established through convergent validity and discriminant validity testing (Hair et al., 2006). It can be inferred that, based on the square root of the AVE values for human capital, all employee performance factors and SCAs are more significant than the inter-construct correlations, thus supporting the discriminant validity of the model. Hence, the measurement model reflects good construct validity and desirable psychometric properties (Bagozzi et al., 1991).

**Figure 2** Conceptual framework (see online version for colours)



**Table 8** Measurement models on the basis of dimensionality

| Fit indices                                     | Criteria | Reference                                      | Measurement model |       |       |       |
|-------------------------------------------------|----------|------------------------------------------------|-------------------|-------|-------|-------|
|                                                 |          |                                                | HC                | EPQ   | EPP   | SCA   |
| Chi square/degrees of freedom (X2/df)           | < 5.00   | Loo and Thorpe (2000)                          | 3.014             | 2.922 | 2.395 | 2.993 |
| Goodness of fit index (GFI)                     | > 0.90   | Hu and Bentler (1999)<br>Hair et al. (2006)    | 0.936             | 0.962 | 0.983 | 0.946 |
| Normalised fit index (NFI)                      | ≥ 0.90   | Hu and Bentler (1999)                          | 0.933             | 0.942 | 0.955 | 0.953 |
| Relative fit index (RFI)                        | ≥ 0.90   | Benler (1990)<br>Hair et al. (2006)            | 0.905             | 0.901 | 0.96  | 0.926 |
| Incremental fit index (IFI)                     | ≥ 0.90   | Benler (1990)<br>Hair et al. (2006)            | 0.954             | 0.961 | 0.988 | 0.968 |
| Tucker Lewis index (TLI)                        | ≥ 0.90   | Benler (1990)<br>Hair et al. (2006)            | 0.935             | 0.933 | 0.977 | 0.95  |
| Comparative fit index (CFI)                     | ≥ 0.90   | Benler (1990)<br>Hair et al. (2006)            | 0.954             | 0.961 | 0.987 | 0.968 |
| Root mean square error of approximation (RMSEA) | < 0.08   | Hair et al. (1998)<br>Browne and Cudeck (1993) | 0.077             | 0.075 | 0.064 | 0.076 |

Note: Fit indices for the structural equation model.

4.4 Hypotheses testing

4.4.1 Confirmatory factor analysis

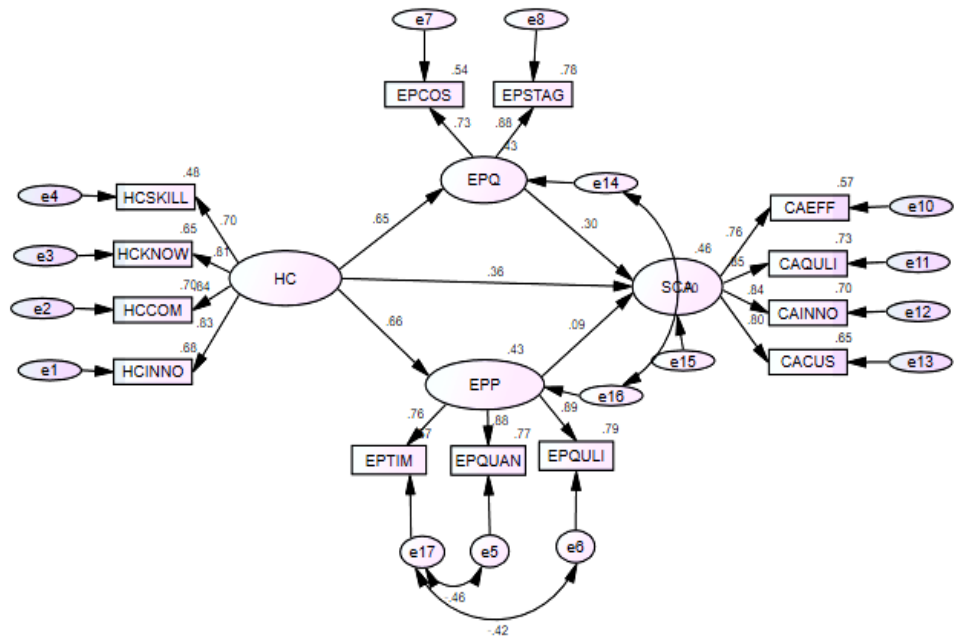
The values of the fit indices indicate that the data is a reasonable fit for the measurement model. The result of CFA revealed that the measurement items follow the pattern shown in the EFA. The evidence of the measurement model is provided in Table 8.

After performing EFA to find new dimensions of employee performance and using CFA to assess the validity and reliability of the constructs, the results showed that the fit indices, including GFI, CFI, and AGFI, were greater than 0.90 and the negative fit criteria, like RMSEA, were less than 0.80 (Hair et al., 2010). These results show that the models employed by this study meet the set criteria (see Table 8).

4.4.2 Structural model analysis

Based on H1 to H4, the impact of employee performance dimensions on human capital and SCA were examined utilising SEM (via AMOS 24.0). The new employee performance dimensions' structural models are given in Figure 3 and the results of the hypothesis testing process are provided in Table 9.

**Figure 3** The results of structural model analysis (model 2) (see online version for colours)



As can be seen from Table 9, the results illustrate that human capital affects SCA (0.364,  $P < 0.05$ ). Moreover, human capital still has a direct influence on employee performance and productivity and on process improvement (0.568 and 0.563, respectively ( $P < 0.01$ )). The results of hypotheses testing 3A and 3B reveal that only the process of improving 'employee performance' is important in driving competitive advantage (0.321,  $p < 0.05$ ). 'Work productivity', however, is insignificant (0.091,  $p > 0.05$ ). Hence, we can conclude



that the process improvement of work has a positive and significant influence on human capital and SCA.

**Table 9** SEM analysis of all sample models – direct, indirect and total effects of latent variables

| <i>Paths</i> | <i>Direct effect</i> | <i>Indirect effect</i> | <i>Total effect</i> | <i>Result</i> |
|--------------|----------------------|------------------------|---------------------|---------------|
| HC → SCA     | 0.364***             | 0.254***               | 0.618               | Support       |
| HC → EPP     | 0.568***             | -                      | 0.717               | Support       |
| HC → EPI     | 0.563***             | -                      | 0.752               | Support       |
| EPI → SCA    | 0.321**              | -                      | 0.497               | Support       |
| EPP → SCA    | 0.091                | -                      | -0.072              | Not support   |

Note: \*\* $P < 0.05$ , \*\*\* $P < 0.001$ .

Source: Authors' calculations

#### 4.5 Discussion and recommendations

In conclusion, all past studies have indicated that the relationship between human capital and SCA is a significantly positive one. Employee performance is a fundamental principle of business that drives competitive advantage, as it affects competition, customer focus, bank performance, and global imperative. This study found that human capital is primarily responsible for improving companies' core competencies. Therefore, companies with substantial human capital have a SCA. In addition, the importance of employee performance becomes obvious when one considers that the economic and service sectors depend significantly on their human capital for matters including engagement, innovation, knowledge, and skill. This is consistent with past research that shows that engagement has the potential to significantly affect employee retention, productivity (Jahanshahi et al., 2021), and loyalty, but it is also a critical link to customer satisfaction, company reputation, and overall stakeholder value, all of which give the company a competitive edge (Lockwood, 2007). Like in the study of Hassanzadeh (2021), this study based its competitiveness development model on the concept of dynamic capabilities. Kaur and Mehta (2017) confirmed that employee knowledge, innovation, and engagement could give a company more competitive advantages over its competitors. Firms should facilitate the development of their human capital, which affects their performance and long-term success (Imran and Zaki, 2016).

This study conducted an in-depth factor analysis of 'employee performance', which resulted in two dimensions being identified:

- 1 work productivity
- 2 process improvement.

The results of the path analysis (model 2) found that 'process improvement' had a mediating effect on the relationships being studied. The 'ease of technology usage' and 'lower costs' dimensions had relatively higher impacts and significance on SCA (Clemons and Row, 1991). According to the RBV theory, which states that groups of capabilities and resources are difficult to imitate and commercialise because they are scarce, employee performance can create unique knowledge that enhances an organisation's activities. Therefore, after conducting a factor analysis on employee

performance, the study found that work process development should be the focus of companies. Developing employees to engage their creativity and skills will allow an organisation to pool knowledge and integrate its work processes with this new knowledge, providing a viable competitive advantage. This focus on an organisation's processes may help it overcome its functional obstacles and improve groups, which will create opportunities for the knowledge and professions of the group members to be utilised. Dhamija and Bag (2020) states that technology should not be restricted to record-keeping and reducing processing time but should also be utilised for other developments, such as developing HRM by integrating technology into their systems and procedures (Agarwal, 2022). The dimension of 'quantity and quality of work and time efficiency' is still crucial to a company's competitive advantage because it indicates its ability to produce results with minimum effort and resources (Kablan, 2010). Harry and Barinua (2022) found that the relationship between efficiency and competitive advantage is very positive, strong, and significant.

In this study, a contradiction to the results found in previous studies was found, that being that work productivity is not significant to maintaining a SCA. This anomalous result might be due to most banking environments of today relying on new technology, such as enabling customers to deposit and withdraw money over the internet via their mobile phones. This has resulted in the factors of quantity, quality, and time becoming similar between different banks, thus making these factors equal and easily imitated (Hammonds, 2005). On the other hand, the service process dimension, which includes an easy, comfortable, and reliable flow of documents and processes and a lower service cost, might be more easily differentiated between banks. Moreover, this study found that employees require more skills than before, especially in terms of the ability to utilise a variety of new technology, which leads to a more accessible and reliable workflow that reduces costs. This finding corresponds with Ho and Wu (2009), which found that developing bank technology to reduce costs, can support a bank's operations performance. Porter (1985) states that the technological innovations of process systems have important implications for the competitive advantages of individual companies. This finding is consistent with Jassim and Jaber (1998), which discovered that employee performance had a direct and positive impact on long-term competitive advantage. Latukha et al. (2019) states that the maintenance of a firm's SCA through human resource management can be assessed by its development of different competence-based management functions.

## 5 Conclusions

This research aimed to understand the role employee performance plays as a factor of SCA in the Thai banking sector. As most banks operate by employing unique rules and regulations, it is important to understand why each bank's performance differs.

The results found that human capital has a significant positive impact on a bank's competitive advantage and that employee performance, based on the 'improvement of work processes', is the primary factor contributing to higher output or more significant competitive advantage. Past studies have suggested that firms should manage their work process models to maintain competitiveness, which is consistent with this study's results (Carrillo and Gaimon, 2000; Kim et al., 2020; Wahid and Prince, 2020). Even though many past pieces of research found that work productivity is essential to gaining a

competitive advantage, a high productivity rate cannot sustain long-term competitive advantage on its own (Baumann and Pintado, 2013). In the technology-driven era, more work is outsourced and globalised, thus leading to productivity rates, time-management practices, and management techniques becoming easily transferable. When the best practices have become the norm, they cannot be relied on to provide a company with a competitive advantage.

This study shows managers that improving their work processes can help them gain a competitive advantage in their field, as is consistent with the results in Alnidawi et al. (2017), Wassell and Bouchard (2020), and Huselid (1995). Zacharatos et al. (2005) identified several components of the work process, including the selection of effective teams, training and development, information sharing, and performance measurement practices. Although the banking sector relies on modern technology to provide services in a manner that is convenient to its customers (Chahal and Bakshi, 2016), technology alone is not enough to succeed in the industry. Firms should have better-trained employees who are highly motivated, innovative, and display high competency (Fareed et al., 2016) to succeed, as employee performance directly affects an organisation's productivity and performance (Tomer, 2001). Hence, banks should increase employee performance by developing employees' competencies, engagement, and motivation (Bailey, 1993; Combs et al., 2006).

From a theoretical perspective, this study is significant for its evidence of the mediative effect work process development has on the relationship between human capital and SCA in the banking sector of Thailand, which demonstrates that new technology can make firms more efficient by increasing quantity and quality and reducing the time taken to complete work processes. However, technology might not be able to provide a firm with a SCA if every firm has the same technological advantages. According to the RBV theory, resources that give a firm a competitive advantage are made differently, rare, and cannot be imitated. Even though productivity improvements are appealing and important, they can often be imitated. Interestingly, the human capital theory states that a firm can achieve a competitive advantage through the RBV theory. Work process development via extensive HR training of employees' competencies (Barney, 1991), such as knowledge management, can contribute to achieving a competitive advantage (Priem and Butler, 2001). Therefore, following the RBV theory, employees can add value to the organisation because they have different proficiency levels that are difficult to imitate. This study postulates that human capital could be a basis for SCA (Barney and Wright, 1998; Kraaijenbrink, 2011) and financial performance (Weqar and Haque, 2020).

### *5.1 Limitations and future research*

This study focuses on employee performance in the banking industry of Thailand. Future research should examine the factor of employee performance in other industries and other countries. Furthermore, the study's data was collected using the convenient sampling method, so its findings might be limited in generalisability as a universal model for employee performance. Future research should be tested and carried out across other dimensions of employee performance. Therefore, it is recommended that future research utilise a mixed-method study to analyse the influence of human capital development on banks' competitive advantages or use other methods, such as interviews with the

management teams. Finally, human capital is an evolving factor. To confirm the results of this study, future studies should re-examine the present study's measurements and repeatedly test their own findings. Moreover, human capital development can differ for different demographic groups, including genders and ages. This study's results should be retested to confirm its findings regarding competitive advantages.

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