EXPLORING THE RELATIONSHIP BETWEEN DIGITAL TRANSFORMATION AND COMPETITIVE ADVANTAGE ON SMES: BIBLIOMETRIC ANALYSIS AND SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

This study aims to map the business strategies that impact the competitive advantage of Small and Medium Enterprises. A systematic literature review on the Web of Science covered a 5-year timeframe (2019–2023). Of 399 papers identified, 258 peer-reviewed papers from the most critical journals were selected. Content analysis was used following the digital transformation to the competitive advantage of SMEs.

The review encompasses only academic papers from journals considered the most relevant retrieved from specific databases using the impact factor as the quality criterion of relationship valuation of the digital transformation to the competitive advantage of SMEs, and this research only uses the Web of Science, not others such as Scopus, and Google Scholar.

Based on descriptive and systematic analysis such as co-occurrence analysis, co-citation, and bibliographic coupling, this research aims to find gaps in the relationships and roles of business strategy to the competitive advantage of SMEs around SMEs the world.

The findings can help business managers better understand the relationship and the degree of impact of business strategies to competitive advantage on SMEs and implement impact factors on business strategies to improve the business performance of our firm.

Keywords: Digital transformation, competitive advantage, SME, information technology, Innovation, and firm performance.

1. Introduction

SMEs (Small and Medium Enterprises) are essential in contributing to each nation worldwide. According to the report by Clark, there were approximately 332.99 million SMEs worldwide (Clarck, 2022).

According to Tahir et al. (2018), SMEs contributed 32 % of GDP in Malaysia. This data proved that SMEs had contributed significantly to Malaysia's economy (Tahir et al., 2018). While Myslimi (2015) found that SMEs have a substantial impact on the economic growth of Albania, besides, SMEs contribute to poverty reduction, job creation, export growth, and reduction of imports (Myslimi & Kaçani, 2015).

SMEs are crucial to the economies of developing nations. SME job creation is significant. Additionally, SMEs make up more than 50% of all jobs globally and about 90% of all businesses. In

addition, SMEs in emerging economies make up 40% of the GDP, and by 2030, 600 million jobs are expected to be created worldwide. SMEs are especially crucial to the economic development of developing nations. SMEs are especially crucial to the economic development of developing nations (Clarck, 2022).

The economy benefits significantly from the various business types. Even so, SMEs play a crucial role in the growth of economies all over the world and the creation of jobs. With only formally registered businesses, they represented 90% of all businesses worldwide and more than 50% of all workers (Clarck, 2022). Historically, SMEs were either encouraged to expand into much larger businesses or, for reasons other than economic viability, were thought to deserve protection from outside threats (Juradoa & Battisti, 2019).

Small and medium-sized enterprises (SMEs) play a significant role in the economies of both developed and developing nations. The business world is changing quickly today. Additionally, the impact of business environment turbulence on the tone of industrial interactions harms organizational competitiveness, and the stronger the scales of influence of business environment turbulence, the weaker the connection between the industrial climate and it (Faisal et al., 2022). However, the quality of the business environment is one of the critical indicators for increasing global competitiveness (Valaskova et al., 2022). In recent years, the world has been facing the COVID-19 pandemic. The COVID-19 pandemic has slowed sustainable globalization and worsened complex and unstable trade and business conditions. The ambivalent strategy can also assist businesses in implementing some aspects of cost and investment strategies at various adjustment scales to deal with conditional market volatility (Gukasyan et al., 2022). The roles of innovation are essential in creating and building strategies. The innovational issue positively impacts and strengthens the relationship between the successes of a strategy with the sustainability of financial performance and helps firms to have consistent results (Juniarti et al., 2022). According to the business strategy, focused and core activities of management link to the future of firm performance in finance (Yi et al., 2019).

According to Porter (1998), competitive advantage is essential for businesses competing in complex markets due to the negotiating power of suppliers and customers, the threat of substitutes, and new entrants (Porter, 1998). The competitive advantage model has aided numerous businesses in developing plans to increase their ability to compete in the complex and chaotic business environment. It is crucial to increase production and business in a country to gain competitiveness, and the competitiveness of firms in the industry is another important factor contributing to that competitive advantage (Porter, 1998).

The competitive advantage must have three aspects such as the use of efficiency, the ability to maintain superior quality, and the customer's responsibility (Lestari et al., 2020). According to Lestari et al., business activities must be supported by factors such as the promotion of technology, entrepreneurship, promotional channels, and consistency.

All business sectors will experience fundamental change due to the adoption of digital technology in how businesses operate and deliver value to customers. Customer experience, operational procedures, and business models are impacted and improved (Gebayew et al., 2018). However, it is a process in which digital technologies disrupt industries, prompting strategic responses from businesses that aim to change their value-creation routes while managing structural changes and organizational barriers that impact both positive and negative outcomes (Vial, 2019).

Li et al. (2018) demonstrated how SMEs can benefit from support from digital platform service providers but still need more capabilities and resources to drive digital transformation (Li et al., 2018). According to Philbin et al. (2022), SMEs must consider business, strategy and management, organizational structure, organizational culture, skills and qualifications, and leadership issues when adopting digital technologies to support sustainability outcomes (Philbin et al., 2022a). According to Philbin et al. 2022, digital transformation could aid SMEs in achieving sustainability, competitiveness, and product and service customization (Philbin et al., 2022a).

Each SME can solve the difficulties of digital transformation by investing in digital transformation, digital skills for employees, digital transformation management and strategies, and developing

organizational capacities. Troise et al. (2022) demonstrated that organizational agility, possibly aided by digital technologies, innovation, and capability, had a favorable impact on SMEs' financial performance, product innovation, and process innovation (Troise et al., 2022).

According to Teng et al. 2022, investing in digital technologies, employee digital skills, and strategies positively impacts SMEs' digital transformation and financial performance (Teng et al., 2022). Besides, Philbi et al. (2020) found that business strategy and management, organizational structure, organizational culture, skills and qualifications, and leadership are essential business factors for SMEs to consider in their digital transformation strategy (Philbin et al., 2022b). Furthermore, Hassine (2021) showed that some factors, such as human capital, funding, and methodological support, are SMEs' main challenges in their digital transformation (Hassine, 2021).

Li et al. (2018) recognized that SME entrepreneurs could lead digital transformation by creating a business team, developing managerial social capital, and augmenting firm capability (Li et al., 2018). Berawi (2020) showed that digital technologies improve most end-to-end workflows and create competitive business advantages (Berawi, 2020). According to research by Nurhidayati et al. in 2021, the ability of knowledge management and the ecosystem of the digital environment can enhance and improve the digital transformation for SMEs (Nurhidayati et al., 2021). Zhang (2022) showed how technological and environmental issues have positively impacted organizational capabilities to support the success of digital transformation in SMEs (Li et al., 2018).

Although digital transformation has been used widely, it was a good trend in Industry 4.0. Because. Digital transformation has been developed and implemented in many kinds of firms and industries for different clusters, scales of firms, and industries. Therefore, some limitations need to be explored, as some limitations have been mentioned as following from some authors. According to Verhoef (2021), SMEs need a specific structure, assets, and capacity if they want to achieve digital transformation (Verhoef et al., 2021). Furthermore, the research of Pihir et al. (2019) proved that if SMEs need to conduct digital transformation, they need to systemize because, according to digital is a complex process, SMEs need to involve all organizational resources entirely (Kutnjak & Pihir, 2019). Li's (2018) findings showed that SMEs need more capabilities and resources when pursuing digital transformation (Li et al., 2018). However, Javier, Cenamor, et al. (2019) did not take operational and dynamic capacity influenced by digital transformation and the level of digitalization based on various countries and entrepreneurial SMEs in various countries (Cenamor et al., 2019).

In summary, the above arguments and insights justify the need for both intensive by finding impact factors on digital transformation to increase the competitive advantage of SMEs.

2. Method:

The systematic literature review is quite significant in systemizing the knowledge of business management and business and marketing research (Kumar et al., 2021). The systematic Literature Review (SLR) differs from traditional literature review methods in three aspects systematic review searches must be systematic, comprehensive, and transparent (Greyson et al., 2019). The Reporting Standards for Systematic Evidence Synthesis (ROSES) is a method to synthesize systematic evidence, including systematic reviews (Haddaway et al., 2016).

2.1 Review Strategy

The Reporting Standards for Systematic Evidence Synthesis (ROSES) were applied to process and evaluate the article. Some advantages of ROSES were discussed and included a transparent process during the conduction of a systematic review.(Haddaway et al., 2018). Besides, the ROSES focus on the initial and middle stages of the review process, such as searching for articles, screening, evaluating, and extracting data (Haddaway et al., 2018).

In the discussion of SLR, seven stages need to be applied, such as the development and validation of the review, the standard of publication, the standard of reporting guidelines, the formulation of research questions, systematic searching strategies, quality appraisal, data extraction, data synthesis,

and data demonstration (Shaffril et al., 2021). This research used ROSES to review and evaluate the literature via the systematic review methodology.

2.2 Research Question

This study is about the relationship between digital transformation and the competitive advantage of SMEs. Thus, the main research questions are:
- What are the impacts of digital transformation on competitive advantage for SMEs?
- This first research question will lead to the second one: According to this field, what is the research gap for future research direction?

2.3 Systematic search strategies
2.3.1 Selection strategy

Some database resources such as Google Scholar, Scopus, and Science-direct were used to conduct the systematic literature review. However, in this research, the Web of Science (WoS) is selected and meets these requirements of literature reviews. Because WOS is one of the leading academic literature sources covering multiple industries. WoS is one of the most trusted publishers in the world with independent global citation data sources.

Furthermore, The WoS includes 1.9 billion cited references from over 171 million records and over 9,000 leading in academic research. The WoS also comprises over 73 million journal publications and additional sources such as conference proceedings, books, theses, technical reports, and new articles (Gusenbauer & Haddaway, 2020). The most exhaustive search will use the WoS Core Collection consisting of SCIE, SSCI, SCI-Expanded, A&HCI, BKCI, and ESCI indices.

As Table 1, articles were searched in the WOS Core Collection for the following expressions included in the title, abstract, or keywords: TS= (("digital transformation*" AND "competitive advantage*" AND "SME*" OR "small medium enterprise*")). WoS can process such long reports effectively (Gusenbauer & Haddaway, 2020). We refrained the articles from limiting time for this search, and the period for refrained covered the entire available five years from 2019 to December 2023. The next step was to apply the systematic process to conduct consisting of identification, screening, and eligibility.

Table 1: Selection strategy

Period	Search string	Search boundaries
Period Up to and including December, 2023	*Search string* TS= (("digital transformation*" AND "competitive advantage*" AND "SME*" OR "small medium enterprise*"))	*Search boundaries* Articles in electronic database Web of science (SCI, SCI-Expended, A-HCI, ESCI)

2.3.2 Review process

Conduction of a systematic review follows logical steps: planning and conducting, reporting review, and dissemination (Kraus et al., 2020). The review plan consists of identifying the need for research and developing a review for setting up the research objective and the steps to take (Tranfield et al., 2003).

The second step is to conduct the review which consists of identifying and selecting literature, quality assessments, and synthesis identifying and selecting literature begins with developing relevant keywords such as business strategy, competitive advantage, and SMEs (Tranfield et al., 2003). Next step, a systematic review recommends a quality assessment of the study of identification (Tranfield et al., 2003).

2.3.3 Identification
The WoS database was the primary database for searching for article sources. A total of 399 included the Proceeding paper, early access, reviewed article, book chapter, data paper, and the editorial material collected from WoS.

2.3.4 Screening
The only article is the same title that is available in more than one database. The author removed this duplicated article, which resulted in 399. In this step, the author has conducted the exclusion of some of the journal types. The trusted papers were for the next step. Finally, a total of 258 continued to use the study.

2.3.5 Eligibility
At this stage, we performed manual checks by evaluating the titles and abstracts to ensure that all the articles met the desired criteria. After reviewing and refining the titles and abstracts of papers, 258 articles were for the next step.

2.4 Quality assessment
This stage was the validation process for the retrieved articles after conducting the eligibility, as shown in **Figure 1.** The author wants to ensure that the remaining papers are valid for the next stage. Finally, the descriptive analysis and systematic analysis are on 258 articles.
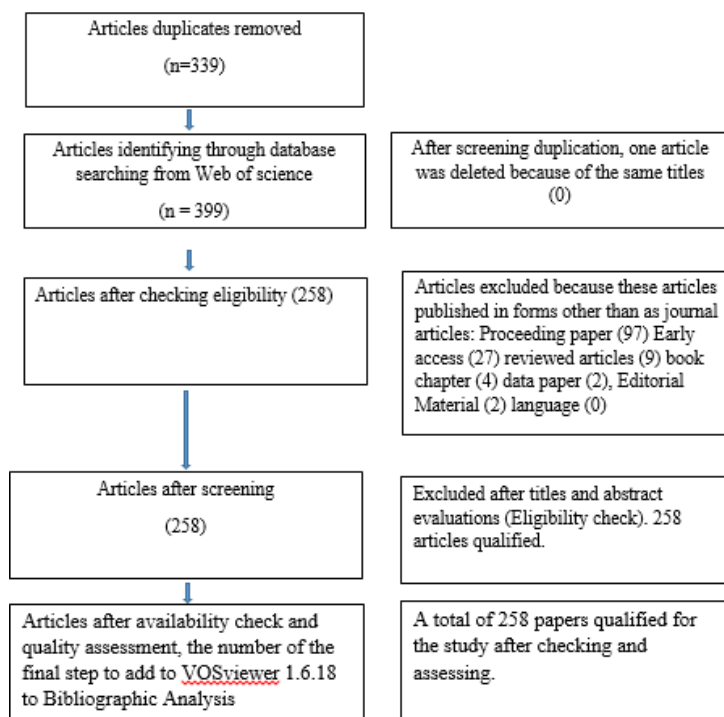
Figure 1: Article Selection Process

3 Result
3.1 Data Presentation and Analysis
This research conducted a descriptive analysis by presenting information on the development of articles by examining and evaluating from Web of Science (WOS) for the journals, authors, journal titles, citation topics, categories, and publishers. Furthermore, the author also analyzed the clustering via network and content analyses by checking and evaluating co-citations and co-occurrences via bibliometric analysis. The bibliometric analysis was used to select articles from WOS and processed systematic analysis by VOSviewer 1.6.18.

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3.1.1 Analysis of Citation Topics

There are 40 citation topics that authors have published. It was a total of 258 articles. Table 2 below shows the top ten topics that the author focused on studying. Management was made up of the number of papers mainly. Management was made up 50% (129 articles). The next was economics accounting for 27 articles (10.5%). While Nursing was low, it accounts for three papers (1.2%).

Table 2: Analysis of citation topics

Management	129	50.0%
Economics	27	10.5%
Design & Manufacturing	14	5.4%
Sustainability & Science	12	4.7%
Safety & Maintenance	5	1.9%
Security Systems	5	1.9%
Hospitability, leisure, Sport & Tourism	5	1.9%
Artificial Intelligence & Machine Learning	4	1.6%
Political Science	4	1.6%
Nursing	3	1.2%

3.1.2 Analysis of Categories

A total is 63 categories that shown. Table 3 shows the top ten categories many articles that were published. These authors were interested in research. Management accounted for 54 articles (20.5%). The business was 47 articles (18.2 %). Environmental Science was also 47 (18.2%). In comparison, E-waste was only 11 articles (4.2 %).

Table 3: Analysis of Categories

Management	54	20.5%
Business	47	18.2%
Environmental Sciences	47	18.2%
Green sustainable Science Technology	41	15.9%
Environmental Studies	35	13.5%
Economics	17	6.5%
Computer Science Information Systems	16	6.2%
Business Finance	13	5.0%
Information Science Library Science	12	4.6%
Engineering Industrial	11	4.2%

3.1.3 Analysis of Publication Titles

Based on the data from WoS, the total number of publication titles was 147. Many publications' titles were only one article. Table 4 shows the top ten publication titles. The result shows that sustainability was the highest in 30 articles (11.6%). Journal of Asian Finance Economic and Business had low articles three articles equal to 1.1 %.

Table 4: Analysis of Publication Titles

Sustainability	30	11.6%
Journal of Business Research	6	2.3%
Journal of Cleaner Production	6	2.3%
Quality Access to Success	5	1.9%
Frontier in Psychology	4	1.5%
Pacific Business Review International	4	1.5%
Applied Science Basel	3	1.1%
Cogen Business Management	3	1.1%
International Journal of Innovation Management	3	1.1%
Journal of Asian Finance Economic And Business	3	1.1%

3.1.4 Analysis of Publishers

According to data from WoS results, there were 61 publishers. Table 5 presents the top ten publishers. The highest number of articles was from MDI publishers, with 45 articles (17.2 %). The second one was Elsevier Publisher 37 articles (14.3%). Emerald Group Publishing also made up 12.7% (33 papers). World Scientific was only five articles (1.9%).

Table 5: Analysis of Publishers

Mdpi	45	17.2%
Elsevier	37	14.3%
Emerald Group Publishing	33	12.7%
Taylor & Francis	22	8.5%
Springer Nature	17	6.5%
Sage	7	2.7%
Wiley	7	2.7%
Igi Global	6	2.3%
Soc Romana Pentru Asigurarea Calitatii	5	1.9%
World Scientific	5	1.9%

3.1.5 Citation analysis

After setting the search strategy and screening from 2019 to 2023 a total of 258 articles and a total of 1939 citations were obtained. Through the result of citation analysis, the value of the H-index was 22 average number of citations per item was 7.94. The total citation frequency was 2,049 times, 2,026 times after removing self-cited references. After removing the self-cited reference, the number of cited references was 1,939 and 1,920.

After the screening, as in Figure 2, 258 articles were obtained from the synthetic publications in the Web of Science database. In 2019, 45 articles and 16 citations were presented. The number of papers increased slightly and reached the top of the number are 75 articles in 2021. While the number of citations reached, a high rate was 1021 from 558 in 2022. The number of articles decreased slightly to 67 in 2022. In 2023, the total of papers was 14, and the number of citations was 313.
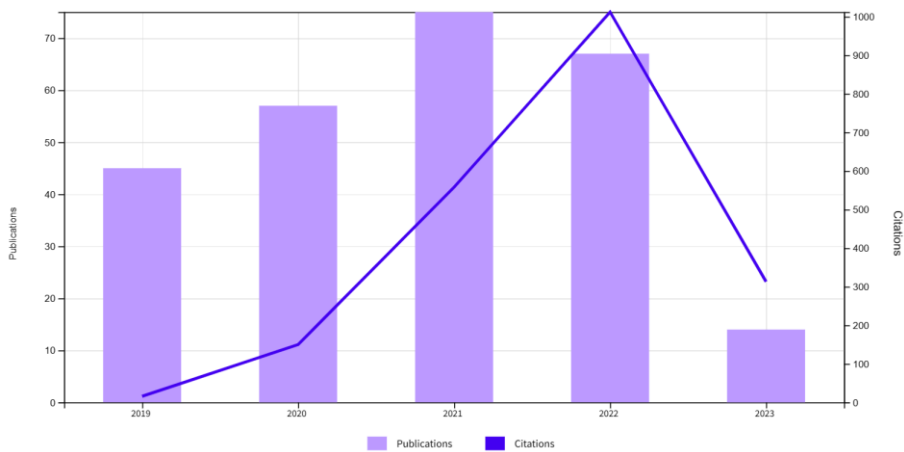

Figure 2: Contribution of article and citation from 2019 to 2023.

3.2 Mapping Analysis

3.2.1 Co-occurrence Analysis

In this item, the author presents the keyword co-occurrence cluster view. The VOSviewer software was applied to generate the keywords and to show the mapping of keywords. The author has selected co-occurrence and all keywords. A minimum number of keywords occurred 03 times, 385, and 31 thresholds. Every 31 keywords and the total strength of the co-occurrence links with one keyword were defined. the keyword has a total of strength links that were selected. The number of keywords used those were 31.
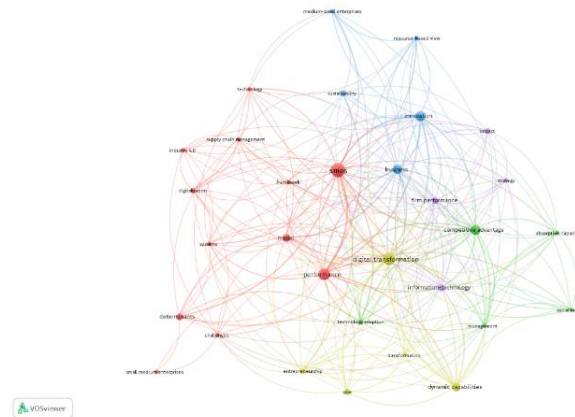
Figure 3: VOSviewer keyword co-occurrence clustering view

Figure 3 presents the keyword co-occurrence cluster view. The weight value of the keyword was significant for the node area and font size of the cluster. The scale of the appearance of a keyword depended on the weight value. The larger the weight value, the more time the keywords occurred, and the larger the linkage node and font area. Figure 3 also shows the linked line among nodes where a keyword appears in common with another. The strength between the two keywords depended on the thickness of the connection line of the co-occurrence. Besides, the thickness of the linking line was equal to the co-occurrence strength. Figure 3 also shows the analysis of cluster review and five clusters obtained. The orange cluster showed that the SMEs and Digital transformation were the same cluster and had a big circle, which meant that SMEs and digital transformation have a strong relationship and impact together heavily. Besides, the green cluster illustrated that competitive advantage has a big size circle. It proved that it has a strong relationship with digital transformation directly and indirectly.

3.2.2 Co-citation analysis
3.2.2.1 Co-citation and cited-conference
In the Co-citation analysis conducted by the VOSviewer, the minimum number of citations of a cited conference was 6 for a total of 3568 and 03 thresholds. The number of the cited conference was 40. Figure 4 shows the co-citation of articles among articles. Two papers were linked to co-citation. The larger the co-citation circles, the more citations obtained. The distance between of two presents the articles related together. Figure 4 also shows that three clusters were obtained with orange, green, and blue colors. The Journal Management, Strategic Management Journal, and Journal of Marketing Resource were the main three cite-references with six citations and a solid link.
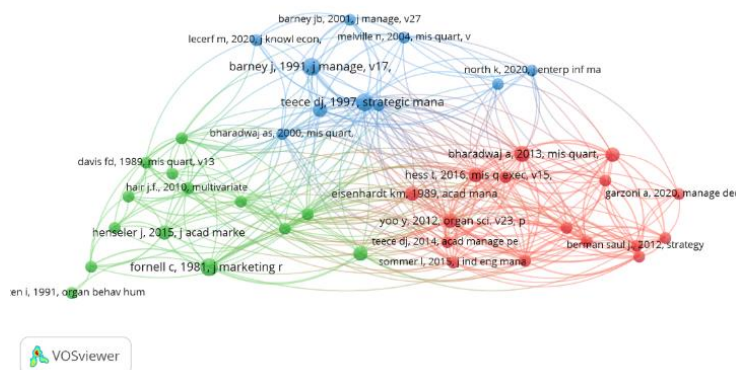
Figure 4: VOSviewer Co-citation and cited-conference

3.2.2.2 Co-citation and cited sources:

To conduct the analysis of co-citation and cited sources, the VOSviewer chose. The minimum number of citations of the sources was 10. The total number of sources was 1777, and 67 thresholds. The sources that have the greatest total link strength were selected. A total of 67 sources of citation were selected. Figure 5 illustrates the cluster of sources for citing and four sets of co-citation and cited sources received via different colors such as orange, blue, green, and light green. In contrast, the orange color presented a strong impact. Figure 5 shows the cited sources for articles. The larger the size of the papers more cited sources were. The primary cited sources were sustainability, green production, strategic management business, management decisions, and information management.
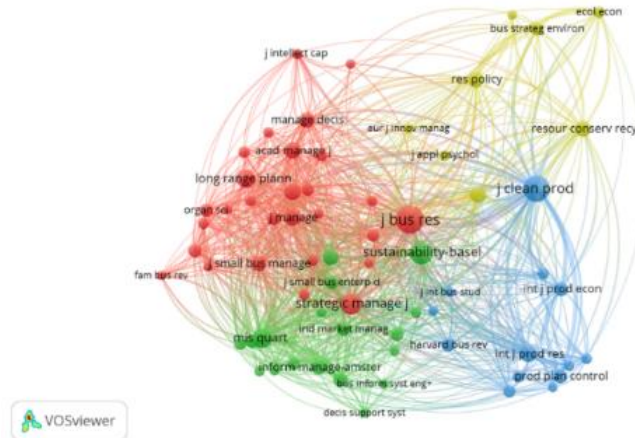

Figure 5: VOSviewer Co-citation and cited- sources

3.2.3   Bibliographic coupling
3.2.3.1 Bibliographic Coupling by Author

To analyze the bibliographic coupling and authors, the VOSviewer chose. The minimum number of documents for an author was 1. The minimum number of citations for an author was 5. Figure 6 shows the bibliographic coupling linking all the studied articles. A total of 182 authors contributed 84 thresholds minimum of citing being 5. Figure 6 presents the cluster of bibliographic coupling analysis. The parts are seven and presented by the different colors among sets. Besides, the number of citations of each author differed depending on the size of the circles. The larger the circle's size, the more citing for each author. Authors such as Budwar and Pawan, Hart and Karin, Anser and Muhammad Khalid, Elhaddadesh and Ramzi, Elia and Stefano, and Aagaard and Annabeth conducted the articles.
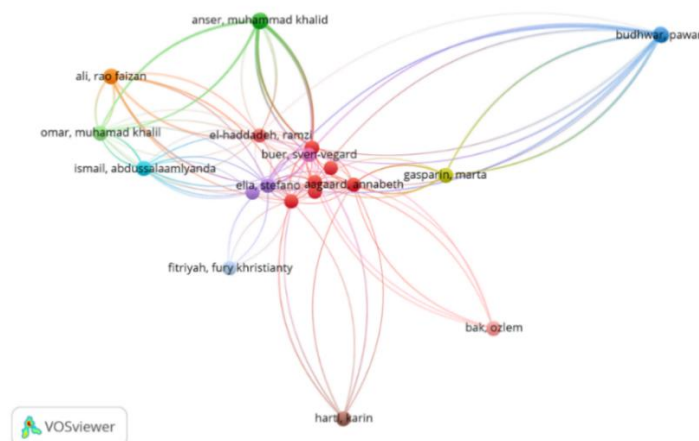

Figure 6: VOsviewer -Bibliographic coupling by authors

3.2.3.2 Bibliographic coupling by source

To analyze bibliographical coupling analyzed through sources. The minimum number of document sources has been selected by 1. The minimum number of citations of a source was set up by 3. A total of 41 were obtained. Besides, 23 thresholds were set up. Figure 7 shows the bibliographic coupling of 41 journal sources. Four clusters have formed via these steps presented in Figure 7. The orange color set strongly impacted the other three parts. It proved that most reference of this cluster is sustainability journal. Most authors wanted to publish their articles. Besides, the Journal of Business Research also was selected for publication. While European Journal of Information and the International Journal of Innovation also contributed to the publications that the authors chose for publications.
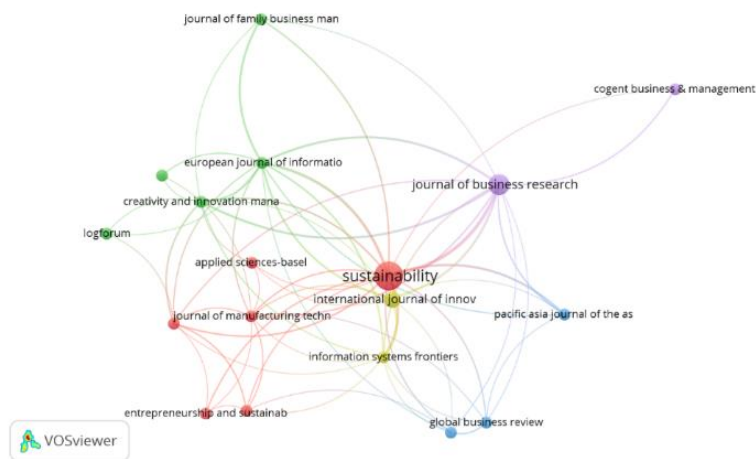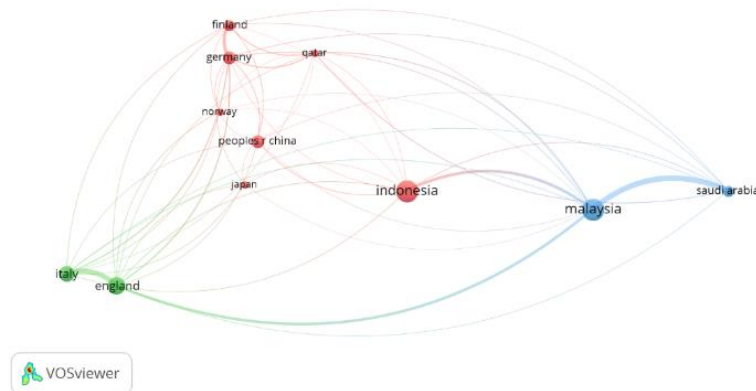

Figure 7: VOsviewer -Bibliographic coupling by source

3.2.3.3 Bibliographic coupling by country

For the analysis of bibliographic coupling conducted by country, the minimum number of documents of a country was selected by 01, and the minimum number of citations of a country was chosen by 10. Finally, in 35 countries, 11 thresholds were obtained. Figure 8 and Table 6 show the analysis of Bibliographic coupling by country. The results showed that there were 03 clusters obtained. The big circle size was related to Malaysia. Many studies also were conducted in Malaysia and England (Blue color cluster), and the highest rate of citation (151 and 124). Finland, Italy, and Saudi Arabia were also two countries that have many studies. Indonesia also has eight articles. Nevertheless, the citation is high (15 citations). Four countries had strong links. It proved that the total citations were high.

Table 6: Bibliographic coupling by country

Country	Document	Citations	Total link Strength
Malaysia	8	151	540
England	5	124	405
Saudi Arabia	2	96	368
Italy	4	87	320
Germany	3	54	180
Finland	2	95	147
Indonesia	8	15	118
Qatar	1	32	47
People Republic China	3	22	32
Norway	1	23	19

Figure 8: VOsviewer -Bibliographic coupling by country

3.3 Thematic observation

In this section, the author explores the relationship between digital transformation and competitive advantage and the outcomes of this relationship. Figure 3 shows that there are five clusters found. There were five types of colors include colored blue, purple, green, yellow, and red set. According to the theory of color range, an item's color is defined by the item's score, ranging from blue color (the lowest score) to green to red (the highest score). Based on the observations from Figure 3, the red color cluster had a significantly strong impact. The SMEs and the performance are in the same cluster (red cluster), meaning there is a significant impact together. Especially, SMEs and digital transformation have big circles and also large thick lines. These matters prove a strong relationship between digital transformation and SMEs and performance. In the green cluster, the competitive advantage also has a big circle that shows the competitive advantage has a relationship with digital transformation and SMEs directly or indirectly. Besides, even though innovation is located in the blue cluster (lowest score), the circle of innovation is quite extensive, which means innovation is also essential for digital transformation and the competitive advantage of SMEs. Further, some items, such as firm performance and sustainability, relate to SMEs and digital transformation. Industry 4.0, technology, digitalization, systems, and frameworks are involved directly with digital transformation.

4 Discussion, implication, future research recommendation, and limitation
4.1 Discussion

By synthesizing this review with the review of impact factors on business strategies and the relationship between the digital and competitive advantage of SMEs more precisely, it believes that the present paper makes a noteworthy contribution to the field of business and management, the findings contribute to business and management field by basing on the research foundation can help business managers to implement the theory into the practice to help our companies to improve competitive advantage then increase the performances of firms in the turbulence business environment nowadays. These contributions are analyzed based on Figure 3, showing the relationship between digital transformation, competitive advantage, and SMEs and firm performance.

- **Digital transformation:**
The figure shows that digital transformation is immensely affected by many factors. These factors can be involved directly and indirectly. Some items, such as entrepreneurship, dynamic capacity, transformation, and technology adoption, have influenced digital transformation. However, the level of these impacts differs based on the same cluster. Figure 3 also shows the relationship between digital transformation and competitive advantage in SMEs. This relationship is quite strong. Digital transformation is a significant factor in the competitive advantage of SMEs and SMEs' performances. It proves that digital transformation is essential not only for big firms but also for SMEs. Therefore,

SMEs need to invest capital in improving capacities such as technology, business, management, and adoption of technology and innovation.

- **Competitive advantage:**

As Figure 3 above, some factors such as social media, management, adoption of technology, and absorptive capacity directly impact SMEs' competitive advantage. These factors prove that the competitive advantages depend on the firm's capacity, such as technology, management, and adoption of technology. Therefore, each SME needs to invest the internal capacities, which will help them improve their competitive advantage in the challenging market. Figure 3 also presents that competitive advantages have an impact firmly on SMEs' performance and SME business. Besides, Innovation, management, Innovation, strategy, and business are also influent to the competitive advantage of SMEs.

- **Firm performance:**

The network shown in Figure 3 presents the relationships between digital transformation and competitive advantage. The outcome of competitive advantages is dependent on SMEs' digital transformation. The performance is the result of competitive advantage. Besides, the firm performance is influenced by business, strategy, and information technology. Besides, the performances are also impacted by factors such as dynamic capacity, entrepreneurship, management, business, supply chain management, system, and framework.

Furthermore, some external issues also influence performance, such as digitalization, industry 4.0, and technology. Figure 3 also presents the strong relationship between SMEs and sustainability management. The next step, sustainability be shown.

- **Sustainability:**

Figure 3 also indicates the relationship between sustainability and performance. As shown in Figure 3, many factors impact sustainability, such as business, industry 4.0, absorptive capacity, supply chain management, and innovation. Besides, some factors indirectly influence the sustainability of SMEs, such as digital transformations, information technologies, dynamic capacities, transformation, and entrepreneurship. As a theoretical implication, this review has identified emerging themes that, in our view, call for future SMEs' competitive advantage studies to consider new theoretical approaches and conceptualizations of digital transformation for competitive advantage on SMEs by identifying the relationship between innovation and information technology to improve the competitive advantage of SMEs. This research shows the importance of the relationship not only to digital transformation to the competitive advantage of SMEs by helping researchers have a point of view about essential factors impacting digital transformation, such as management, social media, capacity, business, and innovation, to contribute to the theory for research.

4.2 Practical and Theoretical Implication

Today, the business environment is highly competitive. As a result, each SME needs to plan and implement digital transformation to gain a competitive advantage in the market and compete against competitors. Figure 3 shows the result. Many factors interact with one another, both indirectly and directly, with the markets.

- One of the significant factors is innovation. This factor influences indirectly and directly to digital transformation. Therefore, SMEs need to focus on innovation, such as innovation management, innovation technology, and innovation of products and services. Industry 4.0 is also an essential foundation for business strategy and firms' sustainability in the market (Khan et al., 2021). Furthermore, SMEs need to know how to innovate the capacity of market, and marketing (Lestari et al., 2020). When SMEs focus on digital transformation, it improves the competitive advantage of SMEs in the market.

- Secondly, SMEs must focus on information technology, technology adoption, and Industry 4.0. Technology plays a prominent role in digital transformation because technology is related to digital transformation. With technology factors, digital transformation can be implemented. Therefore, SMEs should invest in technology in Industry 4.0. Besides, SMEs should know how to adapt to the change in technology and adapt suitably and efficiently in Industry 4.0.

- Furthermore, SMEs need to focus on management. The management plays a significant role in the operation of the firm and the digital transformation and competitive advantage of SMEs. The management impacts directly on digital transformation and competitive advantage. Therefore, SMEs must focus on management by building a management system in human resources, marketing, operation and sales, and marketing and knowledge. When firms concentrate on management, it can help SMEs to improve their competitive advantage and performance. Knowledge management is also an essential factor that SMEs should focus on (Lestari et al., 2020). Knowledge management of the leader and management team can assist SMEs in improving and developing the management capacity of departments such as marketing, production, sales, and finance. Furthermore, knowledge management assists SMEs in operating and running their businesses efficiently and lowering operational costs to reduce product and service costs and gain a competitive advantage over competitors.

- Finally, the firm's capacities also play an essential role in SMEs to implement digital transformation and improve their competitive advantage on SMEs. Those insist on dynamic and adaptive capacity. These matters show that each SMES should be active and flexible in operation, management, and investment, and they can help SMEs adapt and face market, customer, and supplier challenges in the digitalization era and Industry 4.0.

4.3 Future research recommendations

- The Author focuses on finding out the relationship between digital transformation and the competitive advantage of SMEs. In the future, the scholars may use the content presented in Table 1 and the issues discussed in the section on selection strategy for research to position their following papers and explore the research gaps and the good topics. In the future other authors can focus on and find out this relationship for other types of firms and explore the relationship between sustainability and the competitive advantage of SMEs.

- In figure 1 shows the driver and moderating role. However, future research needs to explore these two aspects to know more about how these sub-factors of driver impact performance and moderating role influence the digital transformation and the competitive advantages of SMEs.

- Figure 3 presents that the supply chain management, system, and framework must be more transparent regarding digital transformation and competitive advantage. Therefore, this relationship needs to be conducted in the future.

4.4 Conclusion and research limitation
4.4.1 Conclusion

This paper illustrates the holistic view that the role impacted digital transformation to competitive advantage for SMEs. Based on the mapping results of research recommendations for research future and adds the industry and the academic section as well as implications to help police-makers make a decision accurately for policies for SMEs. This research focuses on the bibliometric review. The research classifies into five clusters. Figure 3 presents that each cluster of the digital transformation and the competitive advantage is also classified into some categories. Many factors have been found that impact directly and indirectly on the digital and competitive advantages, such as innovation, business, strategy, management, the capacity of the firm, technology and social media, and absorptive capacity. In this research, one of the highest impacted factors was innovation. Furthermore, the mapping of this research powerfully illustrated the relationship between the firm performance, the performance, and the sustainability between digital transformation and the competitive advantage of SMEs.

4.4.2 Limitations

- Firstly, this research only collected one source (WoS). If we combine articles with other sources, such as Scopus and Google Scholar, the research results may differ.

- Secondly, this study only consulted peer-reviewed literature. Other forms of publication by the author will produce different outcomes.

- Finally, the author uses a strategy of selection based on some criteria, and the findings of the observations and analyses are different due to the various evaluation strategies.

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