

## Digital Transformation and Smes: A Systematic Literature Review Using Bibliometric Analysis



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**ABSTRACT:** This article uses bibliometric analysis to integrate, synthesize, and expand the knowledge regarding digital transformation and small and medium enterprises. The author examined the Web of Science (WOS) core collection database for articles between 2021 and 2023, October. For a complete record, information is collected on the publication year, keywords, document type, journal, author, affiliations, country, abstracts, and the number of citations. The co-citation, co-occurrence, and publication patterns were analyzed using VOSviewer 1.6.19. The study comprised 64 papers (N = 64), of which 94% were original research articles and just 6% were review articles. The study adopted the bibliometric approach in mapping out the research focus on digital transformation and small and medium enterprises which has been given considerable attention recently. The article concludes by identifying the gaps in the literature and proposing future study possibilities.

**KEYWORDS:** digital transformation, bibliometrics, SMEs, systematic literature review, web of science, VOS viewer

### 1. INTRODUCTION

Digital transformation brings many benefits to businesses. When applying digital transformation, the information linkage among departments within a business is connected on a unified technological platform, enabling the resolution of issues that arise in the enterprise immediately and ensuring smooth operations without negative impacts such as delayed customer service or decreased sales volume (Hinings, Gegenhuber, et al. 2018). Participating in the digital transformation process allows managers to proactively and easily access business activity reports (Nguyen Đình Quyet, 2021). Therefore, as an innovative approach, digital transformation enables businesses to optimize production and business in an environment where resources are becoming increasingly scarce, enhancing global competitiveness.

Small and medium-sized enterprises (SMEs) account for nearly 97% of the total businesses in Vietnam, operating under various constraints. Although digital transformation brings many benefits to businesses regarding cost savings, changing production and business methods, improving the quality of goods and services, and enhancing business management effectiveness, not all businesses can afford to invest. The majority of small and medium-sized enterprises face difficulties in digital transformation.

### 2. DATA SOURCE AND METHODOLOGY

Web of Science (WoS) database was the only source for the study's data collection. WoS is the most critical database for scientific research and the top scientific citation search and analytical information platform globally (Li, Rollins, & Yan, 2018). It is utilized as a research tool supporting various scientific activities across multiple knowledge fields and as a data collection for large-scale, data-intensive studies. WoS contains more than 53 million records, 1.18 billion referenced references, and coverage of over 34,000 publications, and it has been utilized in thousands of published academic research over the past 20 years. It is also Eugene Garfield's most incredible enduring commercial legacy (Li et al., 2018). The Journal Impact Factor (JIF) is a crucial Web of Science component. The "impact factor" is the metric used in the InCites Journal Citation Reports (JCR) for SCI and SSCI, as is extensively documented elsewhere (Garfield, 2007; Meho & Yang, 2007).

The selection of journal articles was based on the idea that journal articles are viewed as more credible sources of information and are briefer and more thorough than other sources of information (Ramos-Rodríguez & Ruíz-Navarro, 2004; Zhang et al., 2016). The chosen key search terms were "digital transformation" AND "SMEs". It was determined which publications had these search terms in their titles, abstracts, and keywords. This study's time range included twenty years, from 2021 to 2023.

Throughout 64 chosen papers, the institutes of corresponding authors are gathered and examined.

3. ANALYZE THE RESULTS

Country

China was represented by the first of the 10 nations included in this list with 10 research. Italy has the second-highest number of articles, behind the United States, with a total of eight, followed by Spain and Czech, each with six and seven articles. With just seven articles, Spain has a fantastic citation high citations per article, despite having a comparatively low number of articles. There are three nations in Asia with a high rate of article production. China has the most significant proportion of articles (10), followed by Vietnam, and South Korea. China had the highest number of citations, while Vietnam had a higher citation rate per item.

Table 1. Top 10 ranking of countries by article, citations

Selected	Country	Documents	Citations	Total link strength
<input checked="" type="checkbox"/>	peoples r china	7	65	289
<input checked="" type="checkbox"/>	italy	5	165	171
<input checked="" type="checkbox"/>	south korea	4	21	167
<input checked="" type="checkbox"/>	czech republic	5	4	142
<input checked="" type="checkbox"/>	spain	2	20	118
<input checked="" type="checkbox"/>	canada	4	42	108
<input checked="" type="checkbox"/>	germany	2	1	58
<input checked="" type="checkbox"/>	vietnam	2	11	12
<input checked="" type="checkbox"/>	greece	3	15	11

Source: Author’s analysis of the WOS database.

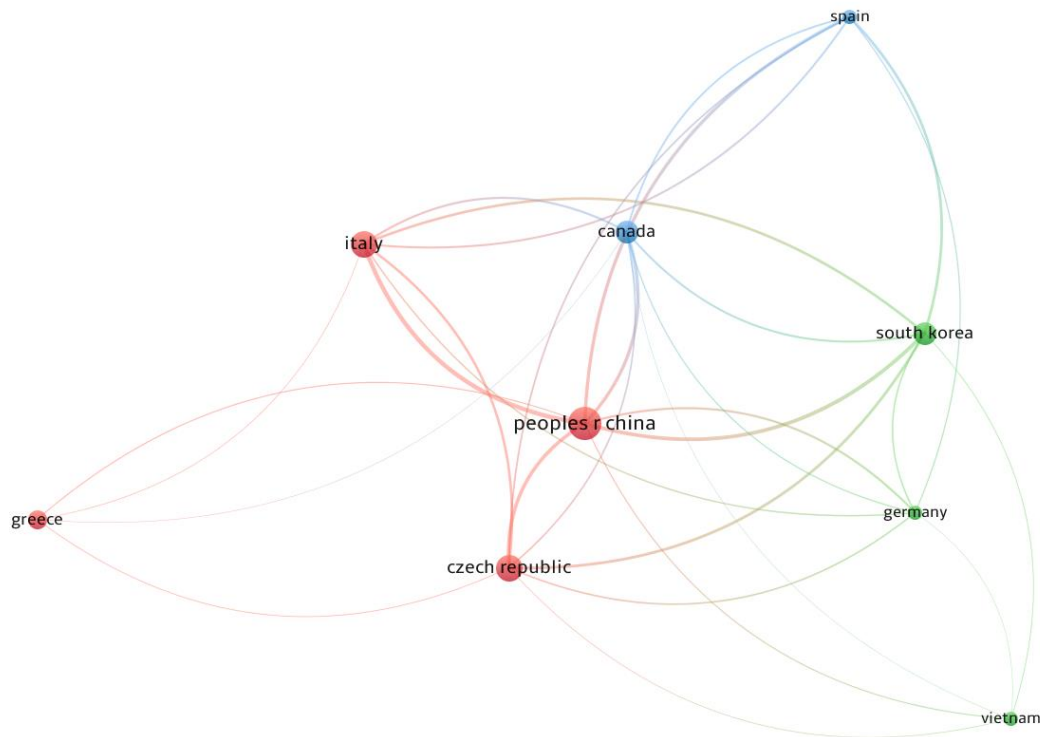


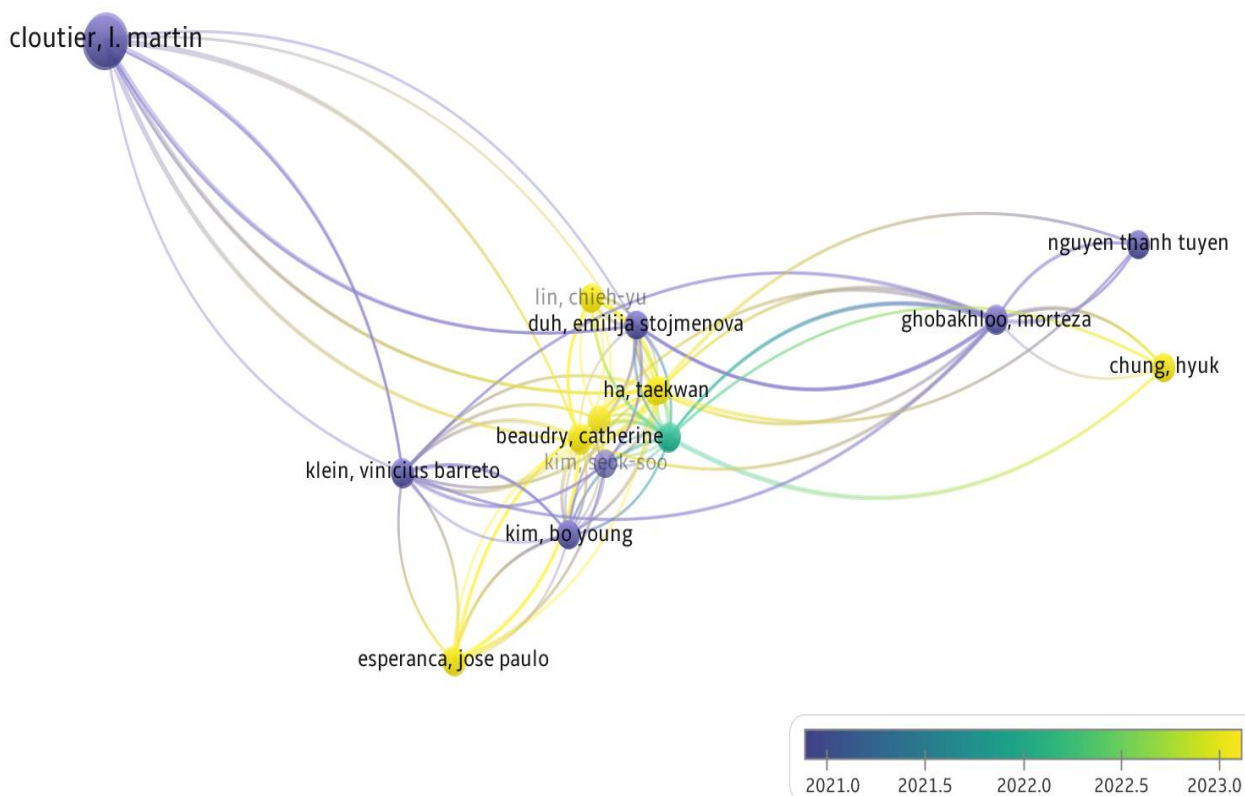
Figure 1. Network visualization map of the country

Source: Author’s analysis of the WOS database

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### Authors

The overlay visualization co-authorship network depicts eleven co-authorship clusters. As shown above, in the co-authorship networks, the color of the linkages (such as blue, green, yellow, and purple) corresponds to the color coding of the different time spans inside a 5-year slice. In addition, the network established several research communities composed of the communities' chief writers and other authors to allow collaborative collaborations and fieldwork. Klein, Cloutier, and Emilija were the first writers to publish in their respective fields. These co-authorships, seen in deep purple and blue on the map, existed between 2021 and 2023.



**Figure 2. Overlay visualization co-authorship network**

**Source:** Author's analysis of the WOS database.

### KEYWORDS

Su and Lee (2010) indicated that keywords might be employed to offer a clear and succinct summary of the study topic during keyword analysis. Moreover, as N. Van Eck and Waltman (2010) mentioned, a network of keywords may be utilized to illustrate the knowledge between their link and the conceptual organization of the study issue. Many study subjects and themes have merged and evolved in the field of automation research throughout the years, representing the tendencies and boundaries of the discipline. The evaluation of bibliographic record data to create a network of co-occurring keywords and subject categories in labor market research. Co-word analysis is one of the most often utilized bibliometric approaches (Callon, Courtial, & Laville, 1991). It is defined as the number of publications in which two keywords appear together (Whittaker, 1989). Co-word analysis successfully analyzes the visual interactions between frequently used terms, allowing authors to determine trends within a particular field. The keywords employed by the writers of the research study provide light on the most important research topics in the field (N. J. Van Eck & Waltman, 2014). So, the current study examines the co-occurrence of keywords, which may be derived from the title, abstract, or authors. Figure 3 depicts the overlay visualization network map for co-occurring terms throughout publishing years. From 2021 to 2023, it was noticed that there were at least four instances of study concentrating on digital transformation and SMEs, such as innovation, dynamic capabilities, business, management, performance, strategy ...

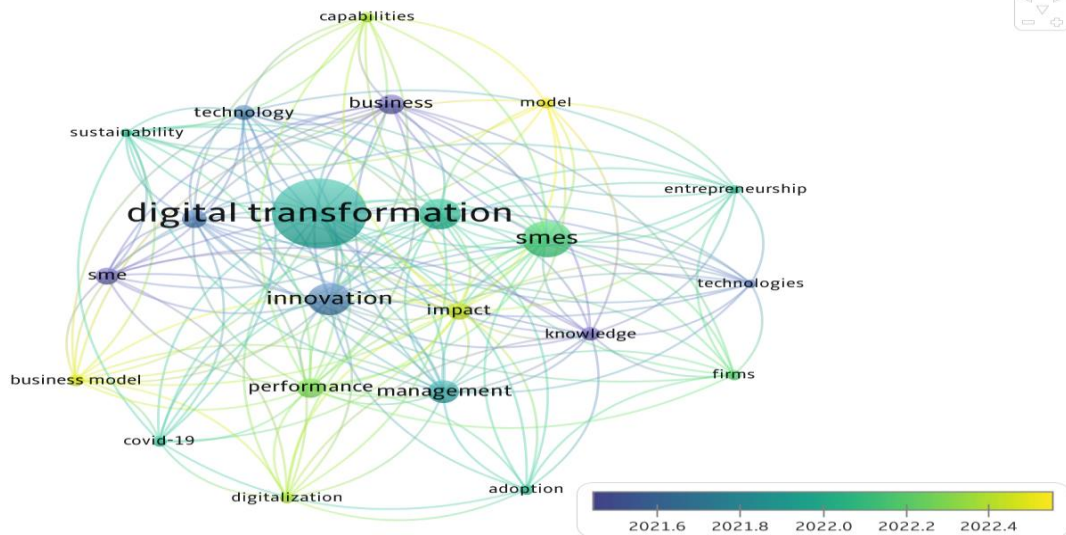


Figure 3. Overlay visualization map for co-occurring keywords

Source: Author’s analysis of the WOS database.

#### 4. DISCUSSION AND CONCLUSION

The concept of digital transformation has been discussed and studied for many years, but up to now, there is still no unified definition. At each stage and from different perspectives, authors present different definitions. From a business perspective, authors generally agree that digital transformation involves the application of new technologies to optimize resources, operational processes, and better meet customer needs. According to (Stolterman and Fors 2004), digital transformation is defined as using technology to significantly improve business performance or access range. (McDonald Mark and Rowsell-Jones 2012) suggest that digital transformation is not just about digitizing resources but creating business value based on digital assets. In line with this viewpoint, (Fitzgerald, Kruschwitz et al. 2013) defines digital transformation in businesses as the use of new digital technologies, such as social media, smart mobile devices, new analytic techniques, or automated linking systems, to bring about significant changes in business operations, such as enhancing customer experience, optimizing activities, and creating new business models. (Hess T, Matt C et al. 2016) believe that digital transformation encompasses changes that digital technology can bring about in a business model, leading to changes in products, organizational structure, or automation of business processes. Therefore, digital transformation in enterprises is not merely about digitizing statistical data, operational processes, or organizational information; rather, it is more important to apply technology to analyze the digitized data and then change the way value is created for the business. The digital transformation capability of an enterprise is its ability to apply new digital technologies in its organization, operations, and management, while creating valuable assets from digital technology applications to optimize resources, better meet market needs, and generate added value for the business. According to (Hinchcliffe D. 2016), the process of digital transformation in enterprises involves three aspects.

Firstly, it is the transformation of operational processes. Building and utilizing electronic data exchange systems will greatly save time and increase efficiency for businesses.

Secondly, it is the transformation of operating models, meaning changing the way operations are carried out to create value for the business.

Lastly, it is the change in customer experience. This results from the interaction between customers and the business, which the customers experience and perceive.

#### REFERENCES

- 1) Bennis W (2013). "Leadership in a digital world: embracing transparency and adaptive capacity." MIS Q 37: 635–636.
- 2) Berman SJ (2012). "Digital transformation: opportunities to create new business models." Strategy Leadersh 40: 16-24.
- 3) Besson P and Rowe F (2012). "Strategizing information systems-enabled organizational transformation: a transdisciplinary review and new directions." J Strateg Inf Syst 21: 103-124.
- 4) Bharadwaj A, et al. (2013). "Digital business strategy: toward a next generation of insights." MIS Q 37: 471–482.
- 5) Cha KJ, et al. (2015). "An integrative model of IT-enabled organizational transformation: a multiple case study." Manag Decis 53: 1755–1770.

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- 6) Chatterjee D, et al. (2002). "Shaping up for e-commerce: institutional enablers of the organizational assimilation of web technologies." *MIS Q* 26: 65–89.
- 7) Daniel EM and Wilson HN (2003). "The role of dynamic capabilities in e-business transformation." *Eur J Inf Syst* 12: 282–296.
- 8) Dremel C, et al. (2017). "How AUDI AG established big data analytics in its digital transformation." *MIS Q Exec* 16 (2): 81–100.
- 9) El Sawy OA, et al. (2016). "How LEGO built the foundations and enterprise capabilities for digital leadership." *MIS Q Exec* 15 (2): 141–166.
- 10) Fitzgerald, M., et al. (2013). "Embracing digital technology: a new strategic imperative." *MIT sloan management review* 55(1).
- 11) Gerth AB and Peppard J (2016). "The dynamics of CIO derailment: how CIOs come undone and how to avoid it." *Bus Horiz* 59(1): 61–70.
- 12) Granados N and Gupta A (2013). "Transparency strategy: competing with information in a digital world." *MIS Q* 37(2): 637–641.
- 13) Hai Phong Statistics Office (2023). *Niên giám thống kê 2023*. Hanoi, NXB Thống Kê.
- 14) Hansen R and Sia SK (2015). "Hummel's digital transformation toward omnichannel retailing: key lessons learned." *MIS Q Exec* 14(2): 51–66.
- 15) Hess T, et al. (2016). "Options for formulating a digital transformation strategy." *MIS Q Exec* 15(2): 123–139.
- 16) Hinchcliffe D. (2016). *The Hardest Lesson of Digital Transformation: Designing for Loss of Control*.
- 17) Hinings, B., et al. (2018). "Digital innovation and transformation: An institutional perspective." *Information and Organization* 28(1): 52–61.
- 18) Hu H, et al. (2016). "The role of institutional entrepreneurship in building digital ecosystem: a case study of Red Collar Group (RCG)." *Int J Inf Manag* 36(3): 496–499.
- 19) Ireland RD, et al. (2009). "Conceptualizing corporate entrepreneurship strategy." *Entrepreneursh Theory Practice* 33(1): 19–46.
- 20) Karimi J and Walter Z (2015). "The role of dynamic capabilities in responding to digital disruption: a factorbased study of the newspaper industry." *J Manag Inf Syst* 32(1): 39–81.
- 21) Kohli R and Johnson S (2011). "Digital transformation in latecomer industries: CIO and CEO Leadership Lessons from Encana Oil and Gas (USA) Inc." *MIS Q Exec* 10(4): 141–156.
- 22) Kohli R and Melville NP (2019). "Digital innovation: a review and synthesis." *Inf Syst J* 29(1): 200–223.
- 23) Liu DY, et al. (2011). "Resource fit in digital transformation: lessons learned from the CBC Bank global e-banking project." *Manag Decis* 49(10): 1728–1742.
- 24) Llopis J, et al. (2004). "Transforming the firm for the digital era: an organizational effort towards an E-culture." *Hum Syst Manag* 23(4): 213–225.
- 25) Loebbecke C and Picot A (2015). "Reflections on societal and business model transformation arising from digitization and big data analytics: a research agenda." *J Strateg Inf Syst* 24(3): 149–157.
- 26) Mazzei MJ and Noble D (2017). "Big data dreams: a framework for corporate strategy." *Bus Horiz* 60(3): 405–414.
- 27) McDonald Mark, P. and A. Rowsell-Jones (2012). *The Digital Edge. Exploiting Information and Technology for Business Advantage*.
- 28) Nguyen Đình Quyet (2021). "Chuyển đổi số trong doanh nghiệp ở Việt Nam hiện nay: Những khó khăn cần tháo gỡ." *Tạp chí Cộng sản*.
- 29) Peltola S (2012). "Can an old firm learn new tricks? A corporate entrepreneurship approach to organizational renewal." *Bus Horiz* 55(1): 43–51.
- 30) Ranganathan C, et al. (2004). "Bringing professionals on board: lessons on executing IT-enabled organizational transformation." *MIS Q Exec* 3(3): 151–160
- 31) Rigby DK, et al. (2016). "Embracing agile." *Harv Bus Rev* 94(5): 40–50.
- 32) Rindova VP and Kotha S (2001). "Continuous "morphing": competing through dynamic capabilities, form, and function." *Acad Manag* 44(6): 1263–1280.
- 33) Sandström CG (2016). "The non-disruptive emergence of an ecosystem for 3D Printing—insights from the hearing aid industry's transition 1989–2008." *Technol Forecast Soc Change* 102: 160–168.
- 34) Schuchmann D and Seufert S (2015). "Corporate learning in times of digital transformation: a conceptual framework and service portfolio for the learning function in banking organisations." *Int J Adv Corp Learn* 8(1): 31–39.
- 35) Sebastian IM, et al. (2017). "How big old companies navigate digital transformation." *MIS Q Exec* 16(3): 197–213.



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