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# The Role Of Information Technology In Improving The Competitiveness Of Small And SME Enterprises

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## Abstract

*Small and Medium Enterprises (SMEs) play an important role in the economic and industrial growth of a country. Almost 90% of all activities in the world are contributed by SMEs. In addition, SMEs contribute to employment. Empirical studies show that SMEs internationally are a source of job creation so that the contribution of SMEs to employment in both developed and developing countries, including Indonesia, plays an important role in overcoming unemployment. **Problems** in the current era of the global economy, SMEs must make changes to increase their competitiveness. One of the important factors that will determine the competitiveness of SMEs is information technology (IT). Therefore, the **purpose** of this research is to use Information Technology for **novelty** that can improve business transformation through the speed, accuracy, and efficiency of exchanging large amounts of information. The European case study also shows that more than 50% of productivity is achieved through investment in information technology. SMEs are said to be globally competitive if they can carry out their business activities in a reliable, balanced and high quality manner.*

*Keywords: SMEs, Information Technology, Competitiveness, Economic, Enterprise*

## 1. Introduction

Small and medium enterprises (SMEs) play an important role in the economic and industrial growth of a country [1],[2]. Small businesses are in dire need of research as they play an important role in national and regional economic growth [3]. Nearly 90% of all businesses in the world are small and medium enterprises [4],[5]. Furthermore, SMEs contribute to employment. Empirical studies show that SMEs are internationally a source of job creation [6]. The contribution of SMEs to employment in both developed and developing countries, including Indonesia, plays an important role in addressing unemployment [7],[8].



In Indonesia, SMEs have a strategic role to play in development, as embodied in the National Long-Term Development Plan (RPJPN) 2005-2025 which states that in order to enhance the country's competitiveness, One of the long-term development policies is to strengthen the economy based on mutual advantages region with competitive advantage. One of the ways to implement this policy is through the development of SMEs. In addition, the promulgation of Presidential Directive No. 6 in 2007 on Accelerating Food Sector Development and Micro, Small and Medium enterprises (MSMEs), showing the increasingly strong position of SMEs in national development policies. The fundamental issue is how to implement these policies, so that Indonesian SMEs truly become economic actors with great contributions to strengthening the national economy [9],[10].

Indonesian SMEs are very optimistic about further development, as about 64% of SME entrepreneurs in Indonesia intend to increase investment in business development and about 44% of SME entrepreneurs in Indonesia plan to increase their business development. labor. This study concludes that SMEs in Indonesia are a barometer of a country's economic health [11]. This study further affirms that SMEs in Indonesia have demonstrated their role in creating or increasing employment opportunities and are one of the important sources of Gross Domestic Product (GNP) growth. GDP [12].

However, to deal with the global economic crisis and multilateral free trade (WTO), regional (AFTA), informal cooperation APEC and ASEAN Economic Community (AEC), SMEs need change to increase competitiveness so that we can continue to race and develop. One of them is the use of information technology (IT) [13],[14]. The use of IT can improve business transformation through the speed, accuracy and efficiency of exchanging large amounts of information [15]. European case studies also show that more than 50% of productivity is achieved through investments in information technology [16],[17]. SMEs are said to be globally competitive if they can carry out their business activities in a reliable, balanced and highly qualified manner.

**In this study research** the extant literature on technology use in SME context shows several performance factors such as strategy, owner commitment, and external technology expertise. [18] Identified the characteristics that play a role and performance based SMEs also affirmed that CEO characteristics (innovativeness and level of technology knowledge), innovation characteristics (relative advantage, compatibility), and organizational characteristics (business size and employee knowledge) are important in technology adoption and use [19] in the UK context supported this research and indicated that technology adoption depends more on the internal technology knowledge level of the firm and firms with a higher knowledge rely on their own team excluding outside experts that they see as a danger. [19],[20] Emphasized the importance of accounting information systems and the information processing capability. The conformity between the required information quantity and the accounting information system that process this information to provide management with necessary reports contribute to the performance of SMEs in developing economies. Therefore, the strategic use of technology and IT add also to the firm value making them adopt new more information based business strategies. The conformity between the type of accounting information system and the general IT strategy of the firm [20] that formulates as defender, prospector and analyzer strategies have an effect on the overall performance of the company. In the same line of research, the relationship between technological capabilities and firm performance [22] in a study of SMEs. Moreover, the alignment of strategy and information technology is realized by shared vision, cooperation, empowerment, and innovation backed by technology making it connected, flexible and most importantly easy to report. [24] Evaluated information systems performance according to operational efficiency of the information system, downtime and the responsiveness of the system. [23] Their study showed that the alignment between information system and strategy, the user-friendliness and the functionality of the system play an important role in the SMEs performance. However, the investment in information is limited to supporting operations and transactions. [26] The performance increase is supported by information systems especially in the service sector using information systems intensively. The study also showed that new accounting standard implementation and information systems usage are the key factors for SMEs that align strategies with organizational culture towards continuous improvement and competitiveness in the market these studies show a significant positive relation with SMEs

performance and the information system but the information systems sophistication level and the company's requirements must be fit and in order to measure this fit level several studies suggested factors such as the systems and organizational characteristic, type of industry and type of strategy moreover the extant literature shows that business strategy, owner commitment, IT expertise are also other factors affecting AIS implementation success and the company's performance. The next part of our study will explain these factors according to the literature [34].

## 2. Research Method

The time period statistics era (IT) have become famous withinside the overdue 70s. In the past, the time period statistics era turned into usually known as the laptop era or digital statistics processing [27]. The Information era is described as an era for processing and disseminating statistics the use of hardware (hardware) and software (software), computer systems, communications, and virtual electronics [28],[29]. Information Technology is an era used to method statistics, along with processing, obtaining, compiling, storing, manipulating statistics in numerous methods to provide excellent statistics, specifically statistics that are relevant, correct and timely, that is used for personal, commercial enterprise and governance and is strategic statistics for choice making [30], [37]. This era makes use of fixed computer systems to method statistics, a community machine to attach one laptop to any other as needed, and telecommunications era is used in order that statistics may be disbursed and accessed globally. Thus, in general, the statistics era may be interpreted as an extensive issue concerning era and different factors of a way to manipulate and method statistics into statistics [24]. This statistics era is a subsystem of the statistics machine (statistics machine). Especially withinside the assessment from the factor of view of its era [25].

Competitiveness can be defined as the ability to hold market share. This ability is mainly determined by the provided factors and fast competitive prices [26]. Two other important factors, namely flexibility (the ability to adapt to consumers) and managing product differences. Similarly, the flexibility of the product and the difference can be achieved as long as possible to innovate and effectively in marketing systems [27]. The correlation between the above mentioned elements is shown in Figure 1. In addition, on the basis of the above image, competitiveness has a significant **impact** on the increase in business productivity and increased market access [28]. This will lead to an increase in revenue and business profits [35], [36].

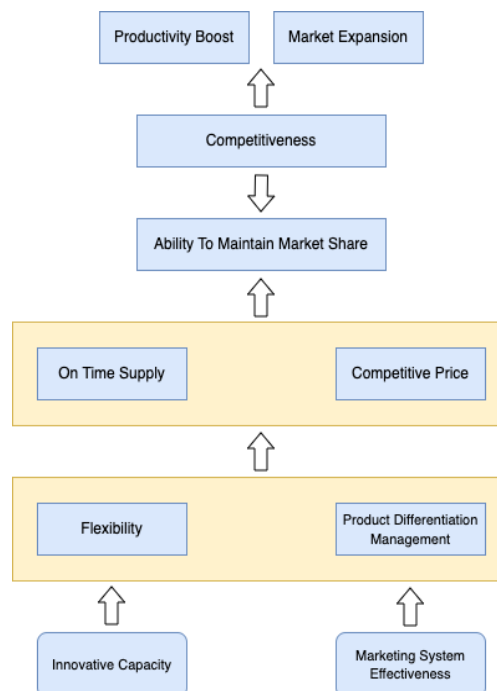


Figure 1. Competitiveness Concept

### 3. Findings

Based on the effects of studies on using IT in SMEs, together with the quantity of computer systems owned with the aid of using SMEs, the sphere of use of IT in SMEs, and the extent of net use in SMEs [29] [30]. In relation to point, basically each SME already has a laptop to help its commercial enterprise methods with a composition of one to three approximately 69%, four to. [31],[38] SMEs who've computer systems to assist their commercial enterprise systems, have understood the significance of IT to boost the productiveness of SMEs, a good way to result in the formation of aggressive SMEs. The fields of computer use are quite diverse. Almost all small and medium businesses already use IT for administration. The use of IT for product design and marketing is also quite large, while its use in manufacturing is still relatively low compared to other sectors [39].

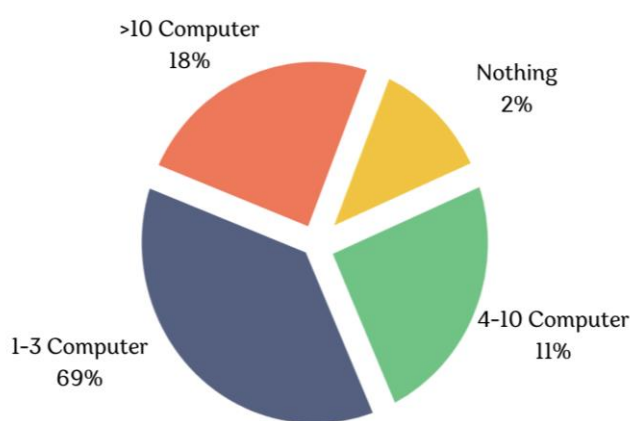


Figure 2. Competitiveness of The Use Information Technology

The characteristic of the use of the net as a medium of facts era in assisting SME commercial enterprise strategies is as follows:

#### 1. Communication

The internet is used as a medium of conversation with numerous parties. For example, right here among SMEs and suppliers. For example, SMEs withinside the discipline of chook farming. [32] The proprietor can use email to the animal feed dealer, as an instance to place an order or vice versa, the dealer communicates with SMEs. Communication right here can vary, certainly considered one among which has been mentioned earlier, as an instance, the usage of emai [33].

#### 2. Promotion

The Internet can be used as a means of promoting services or products offered by SMEs. For example, small and medium businesses in the car rental sector can promote their services through their website or through mailing lists. Advertising over the Internet here can be done in different ways, namely:

- a. Website, small and medium businesses can create a website for services or products to sell and enter the website into search engines.
- b. Social Media, SMEs can promote as insta posts or stories, even SMBs can pay public figures to promote their services or products.
- c. Marketplace, Besides using social media as mentioned above, you can also use commerce sites like Tokopedia, Shopee and others. This marketplace is very useful for small and medium businesses that have their own store page and conduct activities to promote and market their products. It's not uncommon for

business owners who already have a physical store to create their store pages in a variety of markets to expand their network and attract more consumers.

### 3. Research

Another other Internet function is equally important to conduct research and comparison. Businesses will use the Internet to study to determine the level of benefits of their products compared to other similar products that have existed. Search functions can also be used to find new formulas to improve the quality of products or services. The study is also useful to determine which competitors do with similar products.

### 4. Conclusion

In today's digitalization world, SMEs need to take advantage of Information Technology to increase their competitiveness, considering that in the current era of globalization, competition is increasingly competitive, and is very global in nature. As explained above, one of the strategies to increase the competitiveness of SMEs is through the use of Information Technology. The use of Information Technology will encourage SMEs to get export opportunities and other business opportunities.

In the business context, the internet has a transformational **impact** that creates a new paradigm in business, in the form of digital marketing or internet marketing. The term internalization refers to the process by which a company engages in electronic business activities (e-commerce or e-business), particularly by utilizing the internet as a medium, market, and supporting infrastructure.

The process of absorption of Information Technology in SMEs is classified as having a low level because the Information Technology used is simple applications aimed at supporting marketing activities. The ability of SMEs to adopt Information Technology causes the importance of vendor involvement in the adoption process. The ICT implementation phase which includes development, usage training, and maintenance is entirely left to the vendor or consultant. Products with an artistic value from handicrafts are the hallmark of this sub-sector. These characteristics cause the use of IT in the field of product design and production processes to be less needed. So that the use of Information Technology is more intended to support marketing activities and its development in the form of using the internet as a means of e-catalog and e-commerce business transactions.

### References

- [1] F.-J. Lin and C. Lai, "Key factors affecting technological capabilities in small and medium-sized Enterprises in Taiwan," *Int. Entrep. Manag. J.*, vol. 17, no. 1, pp. 131–143, 2021.
- [2] B. P. K. Bintoro, N. Lutfiani, and D. Julianingsih, "Analysis of the Effect of Service Quality on Company Reputation on Purchase Decisions for Professional Recruitment Services," *APTISI Trans. Manag.*, vol. 7, no. 1, pp. 35–41, 2023.
- [3] R. K. Goel, C. S. Yadav, S. Vishnoi, and R. Rastogi, "Smart agriculture—Urgent need of the day in developing countries," *Sustain. Comput. Informatics Syst.*, vol. 30, p. 100512, 2021.
- [4] F. J. Díez *et al.*, "Insolvency Prospects Among Small and Medium Enterprises in Advanced Economies: Assessment and Policy Options," *Small*, p. 2, 2021.
- [5] E. A. Nabila, S. Santoso, Y. Muhtadi, and B. Tjahjono, "Artificial Intelligence Robots And Revolutionizing Society In Terms Of Technology, Innovation, Work And Power," *IAIC Trans. Sustain. Digit. Innov.*, vol. 3, no. 1, pp. 46–52, 2021.
- [6] J. Amoah, A. B. Jibril, B. N. Luki, M. A. Odei, and C. Yawson, "BARRIERS OF SMES'SUSTAINABILITY IN SUB-SAHARAN AFRICA: A PLS-SEM APPROACH: Reference: Amoah, J., Jibril, AB, Luki, BN, Odei, MA & Yawson, C.(2021). Barriers of SMEs' sustainability in sub-saharan Africa: a pls-sem approach. International Journal of Entrepreneurial Knowledge, 9 (1), 10-24," *Int. J. Entrep. Knowl.*, vol. 9, no. 1, pp. 10–24, 2021.

- [7] W. Dhewanto, S. Herliana, F. Yunita, V. Nur Rizqi, and I. O. Williamson, "Quadruple helix approach to achieve international product quality for Indonesian food SMEs," *J. Knowl. Econ.*, vol. 12, no. 2, pp. 452–469, 2021.
- [8] D. Julianingsih, A. G. Prawiyogi, E. Dolan, and D. Apriani, "Utilization of Gadget Technology as a Learning Media," *IAIC Trans. Sustain. Digit. Innov.*, vol. 3, no. 1, pp. 43–45, 2021.
- [9] A. Chollisni, S. Syahrani, A. Shandy, and M. Anas, "The concept of creative economy development-strengthening post COVID-19 pandemic in Indonesia," *Linguist. Cult. Rev.*, vol. 6, pp. 413–426, 2022.
- [10] A. G. Pamungkas, A. Suharko, D. Apriani, and E. A. Nabila, "Analysis of the Effect of Quality, Service Price and Satisfaction on Patients and Their Impact on Visits to Exclusive Dental Clinics in South Jakarta," *APTISI Trans. Manag.*, vol. 7, no. 1, pp. 8–14, 2023.
- [11] A. R. C. Omar, S. Ishak, and M. A. Jusoh, "The impact of Covid-19 Movement Control Order on SMEs' businesses and survival strategies," *Geografia*, vol. 16, no. 2, 2020.
- [12] G. O. Evbuomwan, A. E. Ikpi, V. O. Okoruwa, and V. O. Akinyosoye, "Sources of finance for micro, small and medium enterprises in Nigeria," 2013.
- [13] R. Bhagwat and M. K. Sharma, "Information system architecture: a framework for a cluster of small-and medium-sized enterprises (SMEs)," *Prod. Plan. Control*, vol. 18, no. 4, pp. 283–296, 2007.
- [14] E. S. Pramono, D. Rudianto, F. Siboro, M. P. A. Baqi, and D. Julianingsih, "Analysis Investor Index Indonesia with Capital Asset Pricing Model (CAPM)," *Aptisi Trans. Technopreneursh.*, vol. 4, no. 1, pp. 36–47, 2022.
- [15] M. Kumar, V. M. Shenbagaraman, R. N. Shaw, and A. Ghosh, "Digital Transformation in Smart Manufacturing with Industrial Robot Through Predictive Data Analysis," in *Machine Learning for Robotics Applications*, Springer, 2021, pp. 85–105.
- [16] G. Kakoulaki, I. Kougias, N. Taylor, F. Dolci, J. Moya, and A. Jäger-Waldau, "Green hydrogen in Europe—A regional assessment: Substituting existing production with electrolysis powered by renewables," *Energy Convers. Manag.*, vol. 228, p. 113649, 2021.
- [17] N. Lutfiani, Q. Aini, M. I. Ali, L. Wijayanti, and E. A. Nabila, "Transformation of Blockchain and Opportunities for Education 4.0," *Int. J. Educ. Learn.*, vol. 3, no. 3, 2021.
- [18] Thong, J.Y.L. (1999). An integrated model of information systems adoption in small business. *Journal of Management Information Systems*, 15(4): 187-214.
- [19] Ismail NA, & King, M. (2006). The alignment of accounting and information systems in SMEs in Malaysia. *Journal of Global Information Technology Management*, 9 (3): 24-42.P. Ahokangas, L. Haapanen, I. Golgeci, A. Arslan, Z. Khan, and M. Kontkanen, "Knowledge sharing dynamics in international subcontracting arrangements: The case of Finnish high-tech SMEs," *J. Int. Manag.*, vol. 28, no. 1, p. 100888, 2022.
- [20] Ismail, NA. & King, M. (2007). Factors influencing the alignment of accounting information systems in small and medium sized Malaysian manufacturing firms. *Journal of Information Systems and Small Business*, 1(1-2): 1-20.
- [21] Hussin, H. King, M. & Craig, P. (2002). IT alignment in small firm. *European Journal of Information Systems*, 11, 108-127.
- [22] Isobe, T. Makino, S. & Montgomery, DB. (2008). Technological capabilities and firm performance: The case of small manufacturing firms in Japan. *Asia Pacific Journal*, 25, 413-428.
- [23] Levy, M. Powel, P & Yetton, P. (2011). Contingent dynamics of IS strategic alignment in small & medium sized enterprises. *Journal of Systems & Information Technology*, 13(2): 106-124.
- [24] Sharma, M. & Bhagwat, R. (2003). Performance measurements in the implementation of information systems in small and medium sized enterprises: A framework and empirical analysis. *Measuring Business Excellence*, 10(4): 8-21.
- [25] Eztebanez, R., Grande, E.U. & Colomina, C.M. (2010). Information technology implementation: Evidence in Spanish SMEs. *International Journal of Accounting & Information Management*, 18(1): 39-57.

- [26] Tuanmat Z. & Smith, M. (2011). The effect of changes in competition, technology and strategy on organizational performance in small and medium manufacturing companies. *Asian Review of Accounting*, 19(3): 208-220.
- [27] S. Ribeiro-Navarrete, J. R. Saura, and D. Palacios-Marqués, "Towards a new era of mass data collection: Assessing pandemic surveillance technologies to preserve user privacy," *Technol. Forecast. Soc. Change*, vol. 167, p. 120681, 2021.
- [28] A. Sharma, N. P. Rana, and R. Nunkoo, "Fifty years of information management research: A conceptual structure analysis using structural topic modeling," *Int. J. Inf. Manage.*, vol. 58, p. 102316, 2021.
- [29] B. Rawat, A. S. Bist, D. Apriani, N. I. Permadi, and E. A. Nabila, "AI Based Drones for Security Concerns in Smart Cities," *APTISI Trans. Manag.*, vol. 7, no. 2, pp. 125–130, 2023.
- [30] R. Regin, S. S. Rajest, and B. Singh, "Spatial Data Mining Methods Databases and Statistics Point of Views," *Innov. Inf. Commun. Technol. Ser.*, pp. 103–109, 2021.
- [31] A. S. Bist, B. Rawat, U. Rahardja, Q. Aini, and A. G. Prawiyogi, "An Exhaustive Analysis of Stress on Faculty Members Engaged in Higher Education," *IAIC Trans. Sustain. Digit. Innov.*, vol. 3, no. 2, pp. 126–135, 2022.
- [32] M. Tang and H. Liao, "From conventional group decision making to large-scale group decision making: What are the challenges and how to meet them in big data era? A state-of-the-art survey," *Omega*, vol. 100, p. 102141, 2021.
- [34] O. E. Oluyisola, S. Bhalla, F. Sgarbossa, and J. O. Strandhagen, "Designing and developing smart production planning and control systems in the industry 4.0 era: a methodology and case study," *J. Intell. Manuf.*, vol. 33, no. 1, pp. 311–332, 2022.
- [35] Susilawati, D. S., & Riana, D. (2019). Optimization the Naive Bayes Classifier Method to diagnose diabetes Mellitus. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, 1(1), 78-86.
- [36] Sampoerna, S. T., Rahardja, U., Devana, V. T., & Santoso, N. P. L. (2022). Pelatihan Inovasi Media Pembelajaran iLearning 2.0 Sebagai Pengabdian Masyarakat Terhadap Pendidikan Tinggi. *ADI Pengabdian Kepada Masyarakat*, 2(2), 46-55.
- [37] Bist, A. S., Rawat, B., Rahardja, U., Aini, Q., & Prawiyogi, A. G. (2022). An Exhaustive Analysis of Stress on Faculty Members Engaged in Higher Education. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, 3(2), 126-135.
- [38] Choiriyah, C., Lutfiani, N., Khoirunisa, A., Faturahman, A., & Nabila, E. A. (2021). Science Literacy in Early Childhood: Development of Learning Programs in the Classroom. *Indonesian Journal of Early Childhood Education Studies*, 10(2), 136-142.
- [39] Hendriyati, P., Agustin, F., Rahardja, U., & Ramadhan, T. (2022). Management Information Systems on Integrated Student and Lecturer Data. *Aptisi Transactions on Management (ATM)*, 6(1), 1-9.