Technology Implementation in SMEs

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Abstract

Purpose - This study aims to examine conceptually the implementation of the use of technology in SMEs, what is the driving force, and inhibiting factors based on theoretical and empirical studies.

Design / Methodology / Approach - this research method is a literature study or literature study that contains theories that are relevant to research problems

Findings-technology has a significant role in the development of SMEs, arguing that there are six main areas to develop entrepreneurial competencies, namely opportunity, relationship, conceptual, organizing strategic, and commitment skill.

Research Limitations / Implications - This research only discusses research and studies related to aspects of SME information technology, learning organizations, drivers of implementation as well as E-Wom factors in SMEs within specific period time.

Practical Implications-It could serve as a basis for future research on technology in SMEs

Originality-This research has originality by comparing several aspects of research so that it produces some interesting aspects to be studied in technology implementation research in SMEs.

Latest-Value Information and can understand in the framework of the implementation of SME technology concerning business performance.

Keywords- Technology, Innovation, Performance, SMEs

Paper Type- Research in Literature Study

Introduction

Indonesia is a very potential country for SMEs, with a large population and high consumer interest in SME products. A large number of internet users in Indonesia provides an opportunity for SMEs to promote their products through electronic media (N. A. Hamdani & Maulani, 2018) and (Permana, 2019). The use of information systems in SMEs is also growing with the changes and technological developments (A. Hamdani & Fatah, 2018). Technology also plays a role as a reliable business strategy and can be used by all lines of the business organization (N. A. Hamdani, Herlianti, & Maulani, 2019; N. A. Hamdani & Nugraha, 2020).

The number of SMEs in 2015 is estimated to reach 3,615,650 business units. In other words, there was an increase of 2.6% from 2014; that is, 3,522,851 business units. Regarding the development of SMEs in Indonesia, there has been an increase every year in the period 2010-2015 although it is always below 5% (BPS, 2016).

Figure 1. Development of
SMEs in Indonesia
(2016)

This study aims to examine conceptually the implementation of the use of technology in SMEs, what is the driving force and inhibiting factors based on theoretical and empirical studies. In this study, we will try to compare previous studies regarding the implementation of technology in SMEs.

Literature Review

Some studies say that Business is very dynamic in its changes, to meet the needs of consumers and meet them with environmental changes very quickly (Kalibatiene, Vasilecas, Savickas, Vysockis, & Bobrovs, 2016). Furthermore, mentioning that the key to success in analyzing a business situation is how the company's ability to capture market capability and be able to identify internal capabilities (Teece, Pisano, & Shuen, 1997). While (Putten, Schief, Berlin, & Darmstadt, 2012), requires companies to be able to identify factors that can affect the sustainability of a business. While (Foster, 2013) in his thesis explains that the ability to apply Information Systems and Decision Support Systems is the key to success in analyzing the competition. The strategy is the steps that must be achieved by the company to achieve the targets or objectives set based on the analysis of the company's resources and capabilities (Hamdani, N.A dan Rhamdani, 2019).

Several studies have shown that the use of information technology will benefit SMEs. SMEs will have good competitiveness if they have adopted IT in carrying out their business activities (Apulu & Latham, 2010). While (Zoroja, 2016), also has a similar opinion that SMEs who have IT will be more innovative to be able to compete with other MUs. Information technology will have a positive impact on the company (N. A. Hamdani & Maulani, 2019, 2020). The company will have the ease of entering the market,

diversifying the types of products produced, and the efficiency of production costs. The positive impact of IT on the company will be able to improve company performance in the end (Maulani & Hamdani, 2019b). So it can be said that the use of IT in companies is a strategic step that will bring the company to an increasingly increasing profitability, is that is one of the financial performance indicatorsn (Ling, 2017), (A. Hamdani & Fatah, 2018) dan (Lingsiya, 2012).

The ability of information technology as the company's ability to mobilize and disseminate resources based on information technology in combination or combination with other resources and capabilities (Ling, 2017). Technology capability refers to the ability to develop and design new products and process and enhance knowledge of the physical world in a unique way, thereby transforming this knowledge into designs and instructions for creating expected outcomes (Turulja & Bajgorić, 2016). More concretely, technological capability is a collection of pieces of knowledge that includes practice and theoretical know-how, methods, procedures, experience, and physical devices and equipment. The ability of IT as the ability of a computer system, a collection of computers and related technology in an organization to store, process, and convey information (Al-Rajhi, Majed and Liu, 2010). Therefore, to measure information technology capability, dynamic information technology capability, intergrating information technology capability, utility information technology capability indicators are used (Ling, 2017).

Methodology/Materials

The research method is a literature study or literature study that contains theories that are relevant to research problems. This section reviews the concepts and theories used based on the available literature, especially from articles published in various scientific journals. A Literature study serves to build concepts or methods that form the basis of study in research. Literature study or literature study is an activity that is required in research, especially academic research, whose main purpose is to develop theoretical aspects and aspects of practical benefits.

Result and Findings

The use of information technology systems at this time is needed by SMEs, at some SMEs, the level of information system needs and the ability of learning organizations is needed so that SMEs can survive (N. A. Hamdani & Susilawati, 2018) and Further research explains that SMEs need technology to develop and have a positive impact on SMEs (Albeshir, 2012; N. A. Hamdani, Maulani, Tetep, & Supriyadi, 2020). On the other hand, the application of technology provides benefits. Still, most SMEs have constraints. Some of the results of this study indicate information technology and co-creation have a significant influence on business performance. Information technology is used by SMEs to promote their products. In addition, SMEs also use information technology for business management even though information technology is not implemented optimally because of financial limitations (N. A. Hamdani, Solihat, & Maulani, 2019) and (Fadil, 2015; N. A. Hamdani, Maulani, & Solihat, 2020).

Companies that have no competitiveness will be abandoned by the market. Because not having competitiveness means not having excellence, and not superior means there is no reason for a company to survive in the competitive market for the long term (Kabue & Kilika, 2016). Competitiveness relates to how the effectiveness of an organization in the competitive market, compared to other organizations that offer the same or similar products or services. Companies that are able to produce good quality products or services are effective companies in the sense that they will be able to compete. Several studies have measured the competitiveness of SMEs by using indicators containing factor conditions, demand conditions, related and supporting industries and business strategies (Anton, Muzakan, & Muhammad, 2015). The measure of competitiveness in SMEs in this study uses organizational capability, competency of the owners and the performance of SMEs (Hudson, Smart, & Bourne, 2001), (Darsono, Yahya, & Amalia, 2016), (Ramadhilla Maghfira Utami and Donald Crestofel Lantu, 2013) and (Nota & Santander, 2012). Some studies in the last 10 years include several studies on SMEs as follows:

Table I.
Model for Paper

Year	Topic	Author
2013-2018	E-WOM Implementation	(N. A. Hamdani & Maulani, 2018), (Rita, Hutomo, & Natalia, 2013), (Lamba B. and Manav Aggrawal, 2016), (N. A. Hamdani, Herlianti, Nugraha, & Suparman, 2019)
2019-2019	Information Technology	(A. Hamdani & Fatah, 2018), (N. A. Hamdani, Solihat, & Maulani, 2019), (Zoroja, 2016), (Windrum & De Berranger, 2010) (A. Hamdani & Fatah, 2018), (Maulani & Hamdani, 2019a)
2009-2018	Learning Organization and Information Technology	(N. A. Hamdani & Susilawati, 2018), (Rrustemi, 2011), (Farrukh & Waheed, 2015), (King, 2009), (N. A. Hamdani, Maulani, & Muharam, 2019)
2000-2020	Driven factors	(N. A. Hamdani, Nugraha, & Suparman, 2020), (Carrasco, Carrington, & Lee, 2009)

Furthermore (Anton et al., 2015) explains the theoretical concepts of SME competitiveness (Kadocsa, 2006). Several studies explain the importance of information technology in SMES (Ladokun IO, Osunwole OO, & Olaoye BO, 2013), (Windrum & De Berranger, 2010) and (N. A. Hamdani & Maulani, 2018). Based on the results of research on the effect of Entrepreneurial Knowledge on Self-efficacy and its impact on Entrepreneurial Interest, researchers have made several conclusions: Entrepreneurial Knowledge gained by students has been considered sufficient, although knowledge in implementing leadership, and in business planning is still lacking (Setiawan, Alam, & Solihat, 2020). While some researches emphasize the importance of implementing good governance in UKM Crafts (N. A. Hamdani, Nugraha, et al., 2020).

Conclusion and Implication

The Adoption of technology is needed to support the business performance and competitiveness of SMEs. The use of information technology has a huge role, supported by government policies that support the technology sector. Based on this, it was also stated that technology has a major role in the development of SMEs, said that there are six main areas to develop entrepreneurial competencies, namely opportunity, relationship, conceptual, organizing strategic and community skills. In this study, there are four topics in the SME technology study, namely E-Wom, information technology, ICT driving organizations, and external factors driving IT implementation.

References

- Al-Rajhi, Majed and Liu, K. and N. (2010). A Conceptual Model for Acceptance of Information Systems: An Organizational Semiotic Perspective. *Proceedings of the Sixteenth Americas Conference on Information Systems, Lima*, 1–9. Lima, Peru: Americas Conference on Information Systems.
- Albeshier, A. A. (2012). The impact of IT resources on SMEs innovation performance. *DRUID Academy*, 1–35.
- Anton, S. A., Muzakan, I., & Muhammad, W. F. (2015). An Assessment of SME Competitiveness in Indonesia. *Journal of Competitiveness*, 7(2), 60–74. <https://doi.org/10.7441/joc.2015.02.04>
- Apulu, I., & Latham, A. (2010). Benefit of Information and Communication Technology in Small and Medium Enterprises. *UK Academy for Information Systems*, 1–19. AISel.

- BPS. (2016). Statistik Indonesia 2016.
- Carrasco, E. R., Carrington, W., & Lee, H. (2009). Governance and Accountability: The Regional Development Banks. *Boston University International Law Journal*, 27(1), 1–60. <https://doi.org/10.1525/sp.2007.54.1.23>.
- Darsono, N., Yahya, A., & Amalia, R. (2016). Analysis of Distinctive Capabilities and Competitive Advantage on Business Performance of Tourism Industry in Aceh. *Journal of Economics, Business and Management*, 4(3), 4–7. <https://doi.org/10.7763/JOEBM.2016.V4.395>
- Fadil, A. (2015). Value Co-Creation Process in Small and Medium Enterprise by Utilization of Viral Marketing as a Branding Tool : A System Dynamic Approach. *Social and Behavioral Sciences*, 169(August 2014), 12–14. <https://doi.org/10.1016/j.sbspro.2015.01.309>
- Farrukh, M., & Waheed, A. (2015). Learning Organization and Competitive Advantage-an Integrated Approach. *Asian Economic and Social Society*, 5(4), 2309–8295. <https://doi.org/10.18488/journal.1006/2015.5.4/1006.4.73.79>
- Foster, G. (2013). *UTIL-DSS: Utilization-Based Dynamic Strategy Switching for Improvement in Data Centre Operation*. Western University.
- Hamdani, N.A dan Rhamdani, A. (2019). *Manajemen Strategi* (Edisi 1). Bandung: Karima, Bandung.
- Hamdani, A., & Fatah, G. A. (2018). *Perencanaan Strategis Sistem Informasi pada Usaha Kecil dan Menengah*. 4(September), 167–172.
- Hamdani, N. A., Herlianti, A. O., & Maulani, G. A. F. (2019). Customer equity in the marketplace. *International Journal of Innovation, Creativity and Change*, 8(3), 1–7.
- Hamdani, N. A., Herlianti, A. O., Nugraha, S., & Suparman, A. (2019). *Electronic - Word Of Mouth In Tourism 4 . 0: Customer Review Of Online Travel Agent*. (5), 705–708. <https://doi.org/10.35940/ijeat.E1100.0585C19>
- Hamdani, N. A., & Maulani, G. A. F. (2018). The influence of E-WOM on purchase intentions in local culinary business sector. *International Journal of Engineering & Technology*, 7(2.29), 246–250. <https://doi.org/10.14419/ijet.v7i2.29.13325>
- Hamdani, N. A., & Maulani, G. A. F. (2019). The Influence Information Technology Capabilities and Differentiation on the Competitiveness of Online Culinary SMEs. *International Journal of Recent Technology and Engineering (IJRTE)*, 8(1S), 146–150.
- Hamdani, N. A., & Maulani, G. A. F. (2020). Motivation and leadership on the performance of private higher education lecturers. In *Advances in Business, Management and Entrepreneurship* (pp. 812–816). London: Taylor & Francis Group, LLC.
- Hamdani, N. A., Maulani, G. A. F., & Muharam, A. A. (2019). Entrepreneurial Culture in the Village of the Barbers , Garut , Indonesia. *International Journal of Engineering and Advanced Technology (IJEAT)*, 8(5C), 685–687. <https://doi.org/10.35940/ijeat.E1096.0585C19>
- Hamdani, N. A., Maulani, G. A. F., & Solihat, A. (2020). The Influence of Current Ratio, Debt-to-equity ratio, inventory turnover, and return on investment on price-earnings ratio of cement industry companies listed at Indonesia Stock Exchange. In *Advances in Business, Management and Entrepreneurship* (pp. 498–504). Taylor & Francis Group, LLC.
- Hamdani, N. A., Maulani, G. A. F., Tetep, & Supriyadi, D. (2020). Human Capital to competitive advantage of micro industry coffee in Garut Regency through distinctive. In *Advances in Business, Management and Entrepreneurship* (pp. 983–987). London: Taylor & Francis Group, LLC.
- Hamdani, N. A., & Nugraha, S. (2020). The influence of information technology and entrepreneurial orientation on competitiveness and business performance. In *Advances in Business, Management and Entrepreneurship* (pp. 565–569). London: Taylor & Francis Group, LLC.
- Hamdani, N. A., Nugraha, S., & Suparman, A. (2020). SUPPORTING FACTORS FOR THE SUCCESSFUL IMPLEMENTATION OF. *Humanities & Social Sciences Reviews*, 8(1), 913–919.
- Hamdani, N. A., Solihat, A., & Maulani, G. A. F. (2019). The Influence of Information Technology and Co-Creation on Handicraft SME Business Performance. *International Journal of Recent Technology and Engineering*, 8(1S), 151–154. Retrieved

- from <https://www.ijrte.org/download/volume-8-issue-1s/>
- Hamdani, N. A., & Susilawati, W. (2018). Application of Information System Technology and Learning Organization to Product Innovation Capability and Its Impact On Business Performance of Leather Tanning Industry. *International Journal of Engineering and Technology*, 7, 393–397.
- Hudson, M., Smart, A., & Bourne, M. (2001). Theory and practice in SME performance measurement systems. *International Journal of Operations & Production Management*, 21(8), 1096–1115.
- Kabue, L. W., & Kilika, J. M. (2016). Firm Resources, Core Competencies and Sustainable Competitive Advantage: An Integrative Theoretical Framework. *Journal of Management and Strategy*, 3(1), 98–108. <https://doi.org/10.5430/jms.v7n1p98>
- Kadocsa, G. (2006). Research of competitiveness factors of SME. *Acta Polytechnica Hungarica*, 3(4), 71–84.
- Kalibatiene, D., Vasilecas, O., Savickas, T., Vysockis, T., & Bobrovs, V. (2016). A New Approach on Rule and Context Based Dynamic Business Process Simulation. *Baltic J. Modern Computing*, 12(1), 408–419. https://doi.org/10.1007/978-3-319-46254-7_16
- King, W. R. (2009). *Knowledge Management and Organizational Learning*. 4, 3–13. <https://doi.org/10.1007/978-1-4419-0011-1>
- Ladokun IO, Osunwole OO, & Olaoye BO. (2013). Information and Communication Technology in Small and Medium Enterprises: Factors affecting the Adoption and use of ICT in Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 2(6), 2226–3624. <https://doi.org/10.6007/IJAREMS>
- Lamba B. and Manav Aggrawal. (2016). A Study on Influence of eWOM: Consumer Buying Behavior. *THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT*, 4(1), 246–251.
- Ling, L. S. (2017). Impacts Of Information Technology Capabilities on Small and Medium Enterprises (Smes) and Large Enterprises. *Journal of Innovation Management in Small & Medium Enterprises*, 5, 1–9. <https://doi.org/10.5171/2017.133143>
- Lingesiya, Y. (2012). Identifying Factors to Indicate the Business Performance of Small Scale Industries: Evidence from Sri Lanka. *Global Journal of Management and Business Research*, 12(21), 75–82.
- Maulani, G. A. F., & Hamdani, N. A. (2019a). Can universities improve their competitiveness using information technology? *International Journal of Engineering and Advanced Technology*, 8(6 Special Issue 3), 456–458. <https://doi.org/10.35940/ijeat.F1083.0986S319>
- Maulani, G. A. F., & Hamdani, N. A. (2019b). The Influence of Information Technology and Organizational Climate on the Competitiveness of Private Universities in Indonesia. *International Journal of Recent Technology and Engineering*, 8(1S), 142–145. Retrieved from <https://www.ijrte.org/download/volume-8-issue-1s/>
- Nota, S., & Santander, B. (2012). The influence of entrepreneurial competencies on small firm performance. *Revista Latinoamericana de Psicología*, 44(2), 165–177.
- Permana, I. (2019). Customer Switching Behavior dalam Membeli Batik dari UKM. *Business Innovation and Entrepreneurship Journal*, 7(1), 48–52. Retrieved from <http://ejournals.fkwu.uniga.ac.id/index.php/BIEJ>
- Putten, B. Van, Schief, M., Berlin, H., & Darmstadt, T. U. (2012). The Relationship Between Dynamic Business Models and Business Cases. *The Electronic Journal Information Systems Evaluation*, 15(1), 138–148.
- Ramadhilla Maghfira Utami and Donald Crestofel Lantu. (2013). Development of Competitiveness Model for Small - Medium. *The Indonesian Journal of Business Administration*, 2(11), 1309–1318.
- Rita, R., Hutomo, K., & Natalia, N. (2013). Electronic Word of Mouth (e-WOM) Foursquare: The New Social Media. *Binus Business Review*, 4(2), 711–724.
- Rustemi, V. (2011). Organizational learning and knowledge creation processes in SMEs. *Journal of Knowledge Management, Economics and Information Technology*, (6), 1–21.
- Setiawan, R., Alam, N., & Solihat, A. (2020). Does Entrepreneurial Knowledge Affect Self-Efficacy and Impact on Entrepreneurial

Interest? *International Journal of Innovation, Creativity and Change*, 11(12), 563–582.

- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- Turulja, L., & Bajgorić, N. (2016). Innovation And Information Technology Capability As Antecedents Of Firms ' Success. *Interdisciplinary Description of Complex Systems*, 14(2), 148–156. <https://doi.org/10.7906/indexs.14.2.4>
- Windrum, P., & De Berranger, P. (2010). The adoption of e-business technology by SMEs. *University Business*, 177–201. Retrieved from <http://hdl.handle.net/2173/93160>
- Zoroja, J. (2016). Impact of ICTs on Innovation Activities: Indication for selected European countries. *Naše gospodarstvo/Our Economy*, 62(3), str. 39-51. <https://doi.org/10.1515/ngoe-2016-0017>

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