



Relationship between organizational learning process and types of innovation capability within Indonesian manufacturing SMEs

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Abstract

Recent years, many small and medium sized companies have to face problems in the form of rapidly changing business environments, technology, and consumer preferences. Such a condition has forced the companies to build innovation capability to improve their business performance as a means of survival and development. Innovation capability can be influenced by several factors, including organizational learning process. The purpose of this study was to examine the relationship between organizational learning process and innovation capability of manufacturing SMEs. The study used a survey method to collect data relevant to the research objectives. The samples involved are small and medium scale companies producing electrical components located in Tegal Regency, Central Java Province of Indonesia. The findings indicate that seven organizational learning items significantly predict product innovation capability, five organizational learning items significantly predict process innovation capability, and seven organizational learning items significantly predict process innovation capability. The findings imply that company leaders need to encourage and facilitate an effective integration, transfer and adoption of external knowledge throughout the organization, build teamwork, and realize organizational learning at the individual, group and organizational levels. The new knowledge created from organizational learning is then directed at activities that support innovations in various company business process activities.

Keywords: organizational learning, innovation capability, manufacturing SMEs

1. Introduction

Changes in the business environment that occur today have affected the business processes of many companies, including small and medium scale companies engaged in manufacturing in Indonesia. In addition, technological changes and rapid product variations also affect the development of all industries. Another challenge that must be faced by Indonesian manufacturing SMIs is the emergence of an era of free trade which has the potential to reduce import duties between countries and the opening of regional boundaries and competition boundaries, so that economic activity depends on free global competition. Rapid technological advances and high levels of competition have forced companies to build innovation capability to improve organizational business performance as a means of survival and development (Raymond and St-Pierre, 2010; Wang and Wang, 2012) ^[19, 24].

There are several factors that are claimed to determine the success of a company in an effort to improve its performance and competitiveness. One of the factors cited as a key factor for improving performance and competitiveness is innovation capability. Innovation has been seen as a key factor for companies to survive and thrive in the global era. The company's ability to innovate can affect the company's performance level. Innovation is a process where new ideas are implemented in a culture. Innovation is a determining factor in competition and is an effective means of facing competition in the market (Forsman, 2011; Hult *et al.* 2004) ^[7].

Subsequent literature suggests that there are several factors that affect a company's ability to innovate. One of the factors that is widely cited as a prerequisite for building

innovation capability is new knowledge gained from the organizational learning process. Rapid technological advances and high levels of competition require companies to update their knowledge continuously. This organizational knowledge will ultimately increase the company's ability to innovate and achieve high business performance (Baker and Sinkula, 2002; Nonaka and Takeuchi, 1995) ^[1, 15].

The literature suggests that learning in organizations has a positive relationship with innovation capability. In this case, companies that have good abilities in developing knowledge; then the company will be able to produce innovative products and services. The learning process in an organization reflects that the organization learns things that they have to learn so that the organization has a higher performance than its competitors. Organizational learning has a positive influence on the innovation capability of the organization. Organizational learning encourages the company's ability to produce new products or processes in the form of adding different features to existing products and processes as well as completely new products and processes. The company's ability to produce innovative products and processes can increase competitiveness and become a characteristic of the company (Brockman and Morgan, 2003; Gomes and Wojahn, 2017; Skerlavaj *et al.*, 2010) ^[4, 8, 20].

A review of the literature shows that organizational learning includes a variety of different modes; namely knowledge acquisition, knowledge dissemination, knowledge interpretation, and company memory (Jimenez-Jimenez and Sanz-Valle, 2011) ^[12]. Meanwhile, innovation in manufacturing organizations can be interpreted differently. This study focuses on three types of innovation; namely

product innovation, process innovation, and organizational innovation (Camison and Lopez, 2010) ^[17]. This study aims to examine the relationship between organizational learning and types of innovation capability in Indonesian manufacturing SMEs.

2. Literature Review and Hypothesis Development

2.1. Organizational learning

To deal with the changing business environment and consumer preferences, companies need to commit to enhancing their innovation capabilities by discovering new products and services and ways of delivering these new products and services. For this reason, companies need to develop organizational knowledge and distribute it to all individuals in the organization, and interpret it with the same perspective, namely the achievement of the company's vision and mission. In addition, companies also need to explore the knowledge stored in existing individuals or groups of individuals (Tohidi *et al.*, 2012) ^[21].

There are several explanations and definitions of organizational learning known in the literature. Several definitions refer to action-oriented activities and learning implementation. For example, organizational learning can be defined as organizational skills to create, acquire, interpret, transfer and share knowledge. The purpose of this organizational learning is to modify the behavior of individuals, groups of individuals, and organizations as an implication of the emergence of new knowledge and insights in the organization. In addition, organizational learning can also be viewed as an opportunity given to employees so that the organization becomes more efficient in its production and operations; or a set of organizational behavior that shows organizational commitment to continuous learning and improvement (Jimenez-Jimenez *et al.*, 2008; Ramirez and Kumpikaite, 2012) ^[14, 18].

The literature emphasizes the importance of companies to develop organizational knowledge in a sustainable manner and direct knowledge for innovation activities and improvement of organizational performance. In today's knowledge-based economy environment, every organization needs to focus on increasing learning and distributing knowledge to all parts of the organization. The literature also highlights the importance of an organization to continue to develop its capacity to continue to learn and adapt to respond to changing business environments and market demands. For this reason, organizations must be able to motivate all individuals to be willing and able to improve their daily behavior, which leads to improved thinking and broadening the horizons of its employees. In addition, organizations need to develop a conducive organizational environment that allows the creation of a learning process within the organization; including building managerial commitment, working from a systems perspective, building openness and experimentation, transferring and integrating knowledge (Brockmand and Morgan, 2003; Jimenez-Jimenez and Sanz-valle, 2011) ^[4, 12].

Furthermore, the literature states that the learning process in organizations includes four stages, namely knowledge acquisition, knowledge distribution, knowledge interpretation, and organizational memory. In this case, knowledge acquisition refers to the process that the company uses to obtain information and knowledge from within and from outside the company, knowledge distribution refers to the process by which people within the

company share information and knowledge, knowledge interpretation refers to the process by which people in the company gives meaning to the information they obtain and transforms it into new knowledge, and organizational memory refers to the process by which people in the company store information and knowledge in corporate memory for future use (Jimenez-Jimenez *et al.*, 2008; Hung *et al.*, 2011) ^[13, 11].

2.2. Innovation capability

In an organizational perspective, the concept of innovation can be understood through a variety of different approaches. For example, innovation can mean taking creative ideas and turning them into new products or work methods; a process in which the organization uses skills and resources to develop new products, new services, new production systems and operations in response to the needs of its customers; or, applying new ideas to the organization's product, process, and service improvements. In addition, innovation can also be referred to as a process by which new products, processes, materials and services are developed and transferred to the appropriate market; use of various resources to create or develop new products, new services, new ways of doing things, or new mindsets (Battor and Battor, 2010; Bigliardi and Dormio, 2009; Omachonu and Einspruch, 2010) ^[2, 3, 16].

Many researchers view that innovation in a company can be categorized into four types; namely product innovation, process innovation, organizational innovation, and marketing innovation. In this case, product innovation refers to any good, service or idea that is perceived by consumers as something new, process innovation refers to the adaptation of new production attributes such as the application of new production lines and technologies that allow companies to create new products, organizational innovation refers to changes in organizational attributes such as new purchasing, sales, administration and management models, and marketing innovation refers to changes in marketing attributes such as new market exploitation models and penetration of existing market segments (Bigliardi and Dormio, 2009; Camison and Lopez, 2010) ^[3, 17].

2.3. Research Model

To gain deeper insight into the relationship between organizational learning processes and innovation capability, this study proposes three hypotheses; first, organizational learning has a positive effect on product innovation capability, second, organizational learning has a positive effect on process innovation capability, and third, organizational learning has a positive effect on organizational innovation capability. This study uses three multiple regression analysis to test these three hypotheses. Figure 1 shows the conceptual model proposed in this study.

3. Research Methodology

3.1 Data collection and sample

The sample involved in this study includes small and medium scale Indonesian manufacturing companies with 20-100 permanent employees. The companies surveyed are companies that produce electrical components located in Tegal Regency, Central Java Province, Indonesia. The research survey was conducted from November 2019 to January 2020. This study distributed 200 questionnaires

directly to company owners or managers. In the end, this study got 74 responses that were valid to use.

3.2 Variable definitions

3.2.1 Organizational learning

Referring to Perez Lopez *et al.* (2004) [17], this study views that organizational learning is a multidimensional construct consisting of five dimensions, namely external knowledge acquisition (4 items), internal knowledge acquisition (3 items), knowledge distribution (5 items), knowledge interpretation (5 items), and organizational memory (8 items). All indicators are measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2.2 Innovation capability

Referring to Camison and Lopez (2010) [17], this study considers that innovation capability is a multidimensional construct. This study focuses on three dimensions of innovation, namely product innovation, process innovation, and organizational innovation. Product innovation is measured using 5 indicators, process innovation is measured by 11 indicators, and organizational innovation is measured by 9 indicators. All indicators are measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

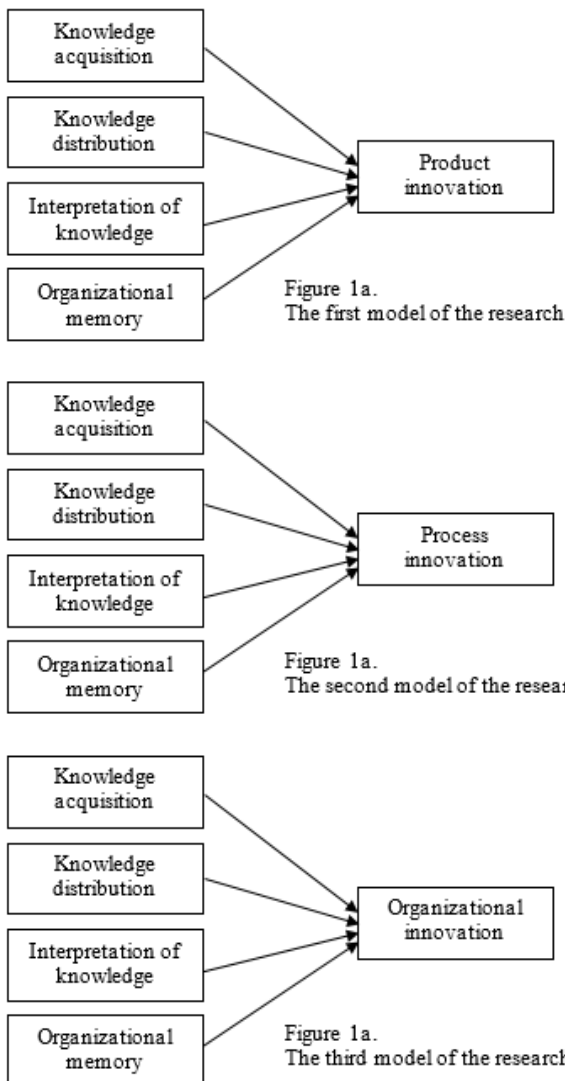


Fig 1: Conceptual model of this study

4. Results and Discussion

The purpose of this study in general is to examine the relationship between the organizational learning process and the innovation capability of manufacturing SMEs in Indonesia. In order to gain deeper insight into the relationship between organizational learning processes and innovation capability, specifically, this study proposes three hypotheses; first, organizational learning has a positive effect on product innovation capability, second, organizational learning has a positive effect on process innovation capability, and third, organizational learning has a positive effect on organizational innovation capability. This study uses multiple regression analysis (MRA) to test this hypothesis. Table 1 summarizes the results of the hypothesis testing with MRA.

Table 1: The Results of MRA for organizational learning and innovation capability

Organizational learning items	Product innovation (β)	Process innovation (β)	Organizational innovation (β)
External knowledge acquisition			
X01	0,27*	0,05	0,10
X02	0,25*	0,22*	0,26*
X03	0,05	0,06	0,04
X04	0,02	0,01	0,03
Internal knowledge acquisition			
X05	0,07	0,34**	0,22*
X06	0,03	0,10	0,06
X07	0,03	0,03	0,04
Knowledge distribution			
X08	0,05	0,04	0,03
X09	0,24*	0,34**	0,05
X10	0,21*	0,02	0,25*
X11	0,05	0,07	0,07
Knowledge interpretation			
X12	0,40**	0,06	0,33**
X13	0,04	0,42**	0,21*
X14	0,06	0,08	0,08
X15	0,09	0,03	0,09
X16	0,00	0,01	0,01
Organization memory			
X17	0,38**	0,02	0,04
X18	0,03	0,07	0,08
X19	0,02	0,40**	0,05
X20	0,06	0,09	0,02
X21	0,25*	0,07	0,06
X22	0,10	0,02	0,22*
X23	0,06	0,05	0,06
X24	0,06	0,04	0,38**
Adj. R2	0,41	0,27	0,16
Constant	0,57	0,16	0,26
	1,08		

* Significant at $\alpha < 0.05$; ** significant at $\alpha < 0.01$

This study conducted a multicollinearity test before proceeding with multiple regression analysis. This test is conducted to check the correlation between independent variables or between independent variables which are not mutually independent. This study uses the variance inflation factor (VIF) to detect multicollinearity in the regression model used in the study, considering that the linear regression model used involves more than two independent variables. The analysis results show that all VIF values are not greater than 2.50. These VIF values indicate that the multicollinearity effect does not appear in the regression model used in this study (Hair *et al.*, 1998).

As shown in Table 1, of the three MRA models proposed in this study, it is found that the largest coefficient of

determination is for process innovation capability ($R^2 = 0.57$), followed by determination coefficient for product innovation capability ($R^2 = 0.41$), and determination coefficient for organizational innovation capability ($R^2 = 0.12$). The results of the analysis of variance show that the three coefficient of determination are statistically significant. This means that the ability of organizational learning to explain the capability of product innovation, process innovation, and organizational innovation is sufficient. Table 1 shows that of the 24 organizational learning practices studied, this study found only 12 items that were positively related to the innovation capability of Indonesian manufacturing IKMs; namely two external knowledge acquisition items, one internal knowledge acquisition item, two knowledge distribution items, two knowledge interpretation items, and five organizational memory items.

In particular, there are seven organizational learning items that are significantly able to predict product innovation capability, namely item numbers X01, X02, X09, X10, X12, X17, and X21. Thus, there is strong enough support to accept the hypothesis that organizational learning has a significant positive effect on increasing product innovation capability. Furthermore, this study found that five organizational learning items significantly predict process innovation capability; namely item numbers X02, X05, X09, X13, and X19. Thus, there is sufficient support to accept the hypothesis that organizational learning has a significant positive effect on increasing process innovation capability. For organizational innovation capability, this study found seven organizational learning items significantly predict organizational innovation capability; namely item numbers X02, X05, X10, X12, X13, X22, and X24. Thus, there is sufficient support to accept the hypothesis that organizational learning has a significant positive effect on increasing the innovation capability of the organization.

The research findings indicate that the product innovation capability is positively influenced by the level of company activeness in carrying out cooperation agreements with other companies, the level of company activeness in establishing cooperative relationships with experts, the company's routine in holding meetings with all employees about the latest innovations in the company, and provides a formal mechanism within the organization to ensure the dissemination of best practices throughout the organization. In addition, product innovation capability are also positively influenced by employee commitment to the organization, database availability to store experience and knowledge, and database updating continuously.

Furthermore, it was found that the capability of process innovation was positively influenced by the level of company activeness in establishing cooperative relationships with experts, the availability of company policies regarding research and development that were implemented, and the company's routine in holding meetings with all employees about the latest innovations in the company. In addition, innovation capability the process was also positively influenced by the willingness of employees to share knowledge and experiences and the availability of up-to-date databases of all stakeholders.

Meanwhile, the innovation capability of the organization is positively influenced by the level of company activeness in establishing cooperative relationships with experts, the

availability of company policies on research and development that are implemented, the availability of formal mechanisms within the organization to ensure the dissemination of best practices to all parts of the organization, and employee commitment. against the organization. In addition, the innovation capability of the organization is also positively influenced by the willingness of employees to share knowledge and experiences, the ease with which employees can access company databases, and the use of databases for generating ideas in daily work problems.

5. Conclusion

The purpose of this study in general is to examine the relationship between the organizational learning process and the innovation capability of manufacturing SMIs in Indonesia. Specifically, this study hypothesizes that organizational learning has a positive effect on product innovation capability, organizational learning has a positive effect on process innovation capability, and organizational learning has a positive effect on organizational innovation capability. The findings of the study indicate that there are three items of knowledge acquisition modes that significantly influence the increased attractiveness of innovation; namely X01 the level of company activeness in carrying out cooperation agreements with other companies, X02 the level of company activeness in establishing cooperative relationships with experts, and X05 the availability of company policies on implemented research and development.

For knowledge distribution mode, this study found three items that significantly influence the increase in mobility of innovation; namely X09 the company's routine in holding meetings with all employees about the latest innovations in the company and X10 the availability of formal mechanisms within the organization to ensure the dissemination of best practices to all parts of the organization. Furthermore, there are three items of knowledge interpretation mode that significantly influence the increase in mobility of innovation; namely X12 employee commitment to the organization and X13 employee willingness to share knowledge and experiences. Finally, the research findings indicate that there are three item modes of knowledge interpretation that significantly influence the increased attractiveness of innovation; namely X17 database availability to store experience and knowledge, X19 availability of the latest database from all stakeholders, X21 continuous database updates, X22 ease of employees accessing company databases, and X24 database utilization for generating ideas in daily work problems. -day.

Innovation at all levels of the organization is very important in order to improve performance and competitiveness. Thus the organization has an obligation to create an organizational environment that supports innovation at all levels of the organization through organizational learning. In order to build this innovative organizational environment, organizations need to carry out all modes of organizational learning that allow all individuals to make innovations; both through exploration of opportunities and generating ideas.

First, organizational leaders need to increase management commitment, by providing support to individuals or groups of individuals through participatory, facilitative, and organizational learning-oriented leadership patterns. Second, organizational leaders need to encourage a systemic

perspective in their production and operation activities. In other words, production and operation activities must be carried out with a systems approach that prioritizes harmony, integration and harmony. In this case, various production and operation activities must be structured in such a way that there is a continuous systemic and integrated learning process so as to produce better products and services.

Third, organizational leaders need to create an open and innovative environment through acceptance and follow-up of new ideas submitted by individuals or groups of individuals. In addition, organizational leaders need to encourage employees to be able to solve various problems independently, familiarize themselves with an experimental culture, and integrate external knowledge. For this reason, organizational leaders need to develop a learning process on an ongoing basis, learn from past experiences, and carry out a variety of new production and operation activities.

6. References

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