

“The model of human capital and knowledge sharing towards sustainable competitive advantages”

AUTHORS

Widodo
Moch Ali Shahab

ARTICLE INFO

Widodo and Moch Ali Shahab (2015). The model of human capital and knowledge sharing towards sustainable competitive advantages. *Problems and Perspectives in Management*, 13(4), 124-134

RELEASED ON

Tuesday, 15 December 2015

JOURNAL

"Problems and Perspectives in Management"

FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

© The author(s) 2026. This publication is an open access article.

Widodo (Indonesia), Moch Ali Shahab (Indonesia)

The model of human capital and knowledge sharing towards sustainable competitive advantages

Abstract

This study aims to arrange a development model of SMEs through the model of human capital and knowledge sharing towards sustainable competitive advantage. The number of respondents is 150 people that are the SMEs leaders. For the technique of data analysis, this research uses The Structural Equation Modeling (SEM) from the packet of AMOS software 5.0. The findings of this research play roles as an effort of development in the model of human capital and knowledge sharing, so it can realize the sustainable competitive advantages. It is done by developing the human capital which is built by improving knowledge sharing and organizational learning.

Keywords: sustainable competitive advantage, human capital, knowledge sharing, organizational learning.

JEL Classification: D8, J5, L2.

Background

The basic problems occurring in strategic management are how an organization can achieve superior performance and maintain competitive advantages (Teece, D.J., Pisano, G. & Shuen, A., 1997). However, those organizations resources are too easy to be generated by competitors and they have more effective substitution resource, which is not a basis in achieving competitive advantages.

Hsu (2007) states that the easier technology to be imitated as well as the rapid change of competitors, regulations and society, make organizational knowledge appear as a main source of competitive advantages, through knowledge sharing such as interaction, interpersonal communication and business units. The result of a research conducted by Galunic & Rodan (2008) deals with resource-based view emphasis on knowledge-based resource, as knowledge becomes an important component in the new era of economy.

Human capital is a characteristic of human resource determined by knowledge that is owned and used to create a value for the organization (Collin and Clark, 2003). Chiquan, G. (2007) explains that the capacity of human resource of a company limits the opportunities of an organization. A group of people who have high motivation and skills is competitive advantage as it represents specific resource of a company which is important, scarce, and difficult to be imitated. A company with skillful and knowledgeable human resources has higher human capital and is more likely to create knowledge, make appropriate decisions, and more innovative (Hitt et al., 2006).

The ability to exploit external knowledge is an important component for innovation aptitude. Thus, the knowledge which is related before, gives an

ability to recognize the value of new information, absorb and apply knowledge sharing about the customer needs, market alteration, competitors' reactions, and evaluation about technology can make the company superior among other competitors (Liao, 2009). Knowledge sharing is a behavior to spread the knowledge among members within an organization. The main focus of an organization is how knowledge sharing can create a value added (Liebowitz & Megbulobe, 2005).

Therefore, organizational learning is not only about the total amount of knowledge owned but also emphasized on interaction pattern among human resources to achieve the goals. The perception of knowledge-based organization is started by individuals while the company becomes superior for their ability to integrate knowledge among individuals (Kogut & Zander, 1996). The researchers explain that a systematic effort to develop a valid measurement to construct organizational learning has not been found (Hsu, 2007).

The result of study conducted by Widodo (2013) shows that the problems of SMEs are the lack of innovation and adoption of new technologies, and the products that are relatively saturated which cause the lack of marketing access to potential markets. This is the impact of human capital and knowledge sharing of the entrepreneurs that are not optimal. Based on the above background, the problem formulation of this research is "how to develop human capital and knowledge sharing in order to realize sustainable competitive advantage among SMEs".

1. Literature review

1.1. Organizational learning. Kang, Y.J., Kim, S.E., and Chang, G.W. (2009) explain learning process as an effect of adaptation process which influences on the relation between a system and its external environment. Learning process makes people are able to act in various ways due to the environment. On the other hand, their own actions enable them to learn.

© Widodo, Moch Ali Shahab, 2015.

Widodo, Ph.D., Professor, Faculty of Economics, Sultan Agung Islamic University (UNISSULA) Semarang-Indonesia.

Moch Ali Shahab, Ph.D., Faculty of Economics, Sultan Agung Islamic University (UNISSULA) Semarang-Indonesia.

Song, J.H. (2008) concludes that learning process of an organization is particularly oriented on the cognitive and behavioral dimensions which exist in the context of: (1) culture, (2) strategy, (3) structure, (4) environment. Culture is defined as beliefs, norms, and ideologies that affect the actions of organization. Strategy is explained as attitude of organization in facing the market as well as a target and goal which give a momentum and direction for the actions of organization. Structure refers to an arrangement of organization, some elements of it are important for determining the structure examination such as in decision making, centralization/decentralization, simple/compound characteristics, formal/non-formal, etc. Then, environment is defined as having internal and external characteristics. Besides, it devotes the intention on the tension between constancy (constant or remain unchanged) and the change as well as various stress intensity.

Hence, learning process strategically focuses on insight (an attempt to discover new things) and foresight. Nonaka & Takeuchi (1995) relate knowledge invention with continual innovation and continual innovation with profitable competitive side. These researchers explain knowledge invention as a dynamic interactive process which time by time will produce 2 knowledge spirals. The first spiral includes socialization, externalization, combination, and internalization. On the other hand, the second spiral encompasses stages of individual, group, and organization. The first spiral is epistemological and the second spiral is ontological.

Entrepreneurial learning (EL) has existed as an interesting research area. The research focuses of EL are the issues of businessmen, not only about what to do or conducting learning activities during the exploration and exploitation processes of entrepreneurship opportunities in creating new business or existing company management, but also, more important, about the specific process of learning. In brief, it is about how learning is possibly happen and how understanding about entrepreneurship may fundamentally occur in learning process (Catherine L. Wang and Harveen Chugh, 2014). EL happens through various challenging conditions, such as about opportunity, problem solving, and doing different roles of entrepreneur. Broadly, it is understood as how individual acquires knowledge and implies new behavior in the process of recognizing and acting based on chance and organization as well as business management. According to Cope (2005), EL approach is through readiness of entrepreneurship which relates to ideas and historical learning and by preparing entrepreneur

which has personal dimension and is interactive. The EL domain occurs in entrepreneurship field is that the individuals adopt somewhat static perspective in the EL process, where the process only refers to logic that gives a causal relation explanation between the previous businessman's experience and the next business performance (Mine Karatas O'zkan, 2011). The basic quality of learning involves action and practice orientation, experience and interactivity, development and transformation among various modal forms, and finally significance with enhancement process of proactive responds to chances and unstoppable struggle against hardship perceived as part of entrepreneurship transformation. Transformations on business ideas for appropriate business opportunities to utilize resource, do self-management, manage different functions from the business, and to learn from failure and success, besides of learning to legitimate business and forming strategic alliances. Hence, EL development is directed to actualization process of innovative intention of individual or group, either within new or existing companies through networking in order to acquire needed knowledge which then will further improve the success of business in facing uncertain environment.

The study conducted by Pitt & Kannemeyer (2000) shows that there are 6 substantial dimensions, such as organizational structure, decision making process, cross-functional teams, rewarding system, management development, and corporation culture. Besides, Hsu (2007) explains that the substantial dimensions are information and technology communication, culture support, measurement system, resource support, structure design, and leadership support. Liao (2009) then states that it includes commitment, shared vision, and communication.

1.2. Knowledge sharing. Knowledge sharing is an interaction between individuals and business units (Reed, Srinivasan & Doty, 2009). Knowledge sharing is part of knowledge management, which scope is group, not individual. It at least acquires sharer and receiver (Cameron Cockrell and Dan N. Stone, 2011). Knowledge sharing refers to providing information about duty and knowledge to help and to collaborate with others to solve problems, develop new ideas, or implement regulation or procedure. Knowledge sharing possibly happens through written correspondence, or face-to-face communication through networking with some experts, or document, manage and capture knowledge for others (Peyman Akhavan and S. Mahdi Hossein, 2015).

Smalla & Sageb (2006) explain that the success of knowledge sharing depends on the quantity and the quality of interaction happen among employees as well as volition and ability that they have to use the

knowledge. Organization should support the goal of employees and organization, then interpret the goal technically and promote the employees. Knowledge owned by the employees is difficult to verbalize, hence it needs to be articulated and stated into knowledge frame implicitly.

Based on the above explanation, it can be concluded that knowledge sharing is a conduct to spread knowledge to other members in an organization in order to create value added for the company. Although knowledge sharing is very important for a company, one of significant problems occurs is that it cannot automatically happen. Knowledge sharing is a complicated process. It is complicated because it comes from different perceptions of knowledge sharers and receivers.

The result of Hsui (2007) study shows that 80% of knowledgeable respondents become strategic asset. 78% of business opportunity fails because of the disability to exploit the knowledge in the organization. Therefore, knowledge sharing is a key for the success of individual learning towards organizational capability (Ficke H. Rawung, 2015). The success of a small industry is determined not only from what the employees know, but also from how fast they can learn and share their knowledge.

A group of people, who has high motivation and is knowledgeable, is competitive advantage for a company since it represents the specific resource in a company which is important, scarce, and inimitable. A company with skillful human resource and knowledgeable has higher human capital and is more possible to construct knowledge, make right decisions, and have higher innovation in technology (Hitt et al., 2001). Knowledge sharing helps to retain knowledge of employees within an organization, such as in innovation process and decreasing product costs, increasing productivity of workers and improving the employees' satisfaction. However, knowledge sharing acquires a strong relationship among workers. The more they are related, the more informal they will be. Informality in relation creates trusting environment and willingness to do knowledge sharing. The workers' willingness is highly important as knowledge sharing is a process that cannot be forced and mandated (Muhammad Mursaleen et al., 2015).

The result of study conducted by Hsui (2007) shows that organizational learning has relation with the development of new knowledge. It is very important for the innovation ability and organizational performance. Edvinsson (1996) states that without support from the company resource, human resource will not be able to realize their ideas. Nonaka & Takeuchi (1995) explain that human capital is not

enough to benefit the company. It needs mechanism for the human resources to share the knowledge of one another. Therefore, organizational learning is not only about the total amount of knowledge owned by the individual (Brown & Duguid, 1991). Organizational learning emphasizes on the interaction pattern among individuals to achieve the meaningful goals. The perception of knowledge-based organization is started by individual. Then, the company becomes superior for their ability to integrate knowledge cross-individual (Kogut & Zander, 1996). Then, the hypotheses proposed in this research are:

H1a: The higher dimension of organizational learning (i.e. commitment), the higher intensity of knowledge sharing will be.

H1b: The higher dimension of organizational learning (i.e. shared vision), the higher intensity of knowledge sharing will be.

H1c: The higher dimension of organizational learning (i.e. communication), the higher intensity of knowledge sharing will be.

1.3. Human capital. Human as business actor has productive work ethics, skills, creativity, discipline, professionalism, and has ability to use, improve, and master the science and technology as well as management skill. Human quality as human resource in various life fields of big countries equals with other developed countries. In the real life, human takes major role in increasing productivity and sophisticated production tools. Thus, it needs skillful human resource with a performance expectation that can increase the life quality, for both human and life quality. The success of an organization is affected by the performance of the employees. Every organization or company always tries to develop human capital.

Human capital is a characteristic of human resource determined by the knowledge which is used to create value for the organization (Collin & Clark, 2003). The result of a study conducted by Penning et al. (1998) explains that human capital management should pay attention on knowledge resources and knowledge flow. The knowledge flow is meant as a process of skill development and knowledge institutionalism, especially those who have relation with the market.

Human capital constantly changes (dynamic) because of external and internal factor. The external factors deal with the necessity of recruitment for new human resources to replace some human resources who resign from the organization. It also has relation with mutation. On the other hand, the internal factors are about the quality of human capital itself (Subramaniam & Youndt, 2005). The skill of human resources can be less dynamic, so the organization has to improve it

through certain training programs. The result of a study conducted by Hsui (2007) and Song (2008) shows that the commitment improvement to the consensus is able to develop the human capital.

Organizational learning is used as strategy of self controlling which is able to increase skills and human resources abilities as well as knowledge that can improve working performance (Cuminnings, 2006). The result of the study shows that learning orientation is able to support human sources to work harder, so they can enjoy their works and then their performance will increase (Sujan, Weitz & Kumar, 1994). The study conducted by Hsui (2007) shows that organizational learning is able to develop human capital. Therefore, the hypotheses proposed in this research are:

H2a: The higher dimension of organizational learning (i.e. Commitment), the higher quality of human capital will be.

H2b: The higher dimension of organizational learning (i.e. Shared vision), the higher quality of human capital will be.

H2c: The higher dimension of organizational learning (i.e. Communication), the higher quality of human capital will be.

Organizational learning requires the human resources to use the time given by the organization to seek for knowledge outside their working scope. If the organization does not support the knowledge development, the human resources will not be motivated to do learning activities (Calcantone, Cavusgil & Zhao, 2002). With effort and experience, an organization can build the interaction continuity to recognize the potential opportunity and choose on what element that is going to collaborate, and then facilitate the knowledge sharing. Thus, the human capital can develop (Lane & Lubatkin, 1998). Therefore, the hypothesis proposed in this research is:

H3: The higher intensity of knowledge sharing, the higher quality of human capital will be.

1.4. Sustainable competitive advantages. Having a framework of perspective working which is a resource-based, an organization is considered as the relationship between resources and capability that cannot be traded freely (Norus, J., 2006). If the resources and specific competitive owned by a company generate economic excellence which is inimitable, the competitive then will be a potential source to achieve sustainable competitive advantages (Barney, 1991). The company resources mean all supported factors either tangible or non-tangible which are owned, controlled by organization of the company and are used for production process to produce goods and services in order to fulfill the peoples needs (Amit & Schomaker, 1993).

However, human resource of the company is not a basis to achieve the sustainable competitive advantages. This is due to the convenience of other competitors to repair besides that the substitution resources that they have are more effective. Hence, new paradigm occurs in achieving competitive advantages that is from a perspective from advantage resources-based to competence-based.

In the competence-based perspective, organization competences are resources and specific capability of the organization which enable it to develop, choose, and implement the values improvement strategies and organization performance. The capability of organization of a company is all dynamic mechanism and unlimited which becomes potential source for a company to acquire, develop, and spread the resources in order to achieve better performance than other competitors. The capabilities of organization of a company which are approved as the source of competitive advantage are culture, routine, and entrepreneurship. The competence encompasses assets, knowledge, skills, and specific capabilities of a company, which are embedded in the structure of technology, processes, interpersonal relationship, and intergroup relationship within an organization. The competence of organization of a company is heterogeneous, distributed, and spread in the competitive environment.

The heterogenic competence can reduce competitive advantages in the following conditions (Barney, 1991, p. 1). Competence of a company enables it to use the opportunities and/or neutralize the threads of competition in the business environment. 2) There are only few companies in the competitive environment that own and authorize the competences. 3) The organizational competences are relatively immobile in giving economic advantages for the company. The competences can be said as immobile if it is inimitable and cannot be transferred from one to other sustainable company.

Furthermore, Red & De Fellipi (1990) state some aspects that are included in the organizational competences of a company such as: 1) unique historical conditions; 2) complex social interactions; 3) specific company aspects; 4) upgraded skills and knowledge. The study conducted by Chiquan, G. (2007) shows that sustainable competitive advantage has dimensions of durability, imitability, and grade of easiness to be equal with the strategic assets of a company. Ferdinand (1999) explains that a company is considered as having competitive advantage if it has some characteristics as follows. First, it has special competence such as having products with better quality, having more smooth distribution channels, and having more famous brand. Second, it has creating imperfect

competitions. In a perfect competition, every company can go in and out of the market easily, so the company which desired to find competitive advantage has to get out of the perfect competitive market. Third, it has continuity which means that competitive advantage has to run continually without broken off. Fourth, it has to be compatible with the external environment. The external environment gives opportunity and threads to the competitors. Thus, a competitive advantage does not only look at the other competitors but also the market condition. Fifth, the profit that a company earns is higher than the mean that the other competitors earn.

A group of people who are highly motivated and skilled is considered as competitive advantage as it represents the specific resource of a company which is important, scarce, and inimitable. A company with skilled and knowledgeable human resources has higher human capital and has a better opportunity to create knowledge, make better decisions, and has higher innovation rate of technology (Hitt, 2006). Therefore, the hypothesis proposed in this research is:

H4: the higher human capital, the higher sustainable competitive advantage will be.

The result of a study conducted by Hsui (2007) shows that the main dilemma faced by a company is how it can support human resources in contributing their knowledge for the benefit of the organization.

People can be unwilling to share their knowledge because they are afraid of losing their ownership, positions, and superiority. Then, for the organization's interest, the manager has to emphasize on the capability and commitment development (willingness and desire to contribute) for the success of the company. Therefore, the human capital has to involve their competences of human resources (i.e. skills, knowledge, and capability) and commitment (i.e. the willingness to dedicate their life and work for the company). It is hypnotized that a group of people who have high commitment and skills will be able to develop and use the company resources by creating innovative products for the company. Some experts in social organizations state that a company can be explained as a social community which specializes itself on the speed and efficiency in creating and transferring knowledge (Kogut & Zander, 1996). Therefore, the hypothesis proposed in this research is:

H5: the higher intensity of knowledge sharing, the higher sustainable competitive advantage will be.

2. Empiric model

The study identifies and analyzes the relationship of the dimension of organizational learning, knowledge sharing and human capital, as well as their impacts on the sustainable competitive advantage. It is expected that by developing the model of knowledge sharing and human capital a company can compete in the market. The model is described in Figure 1.

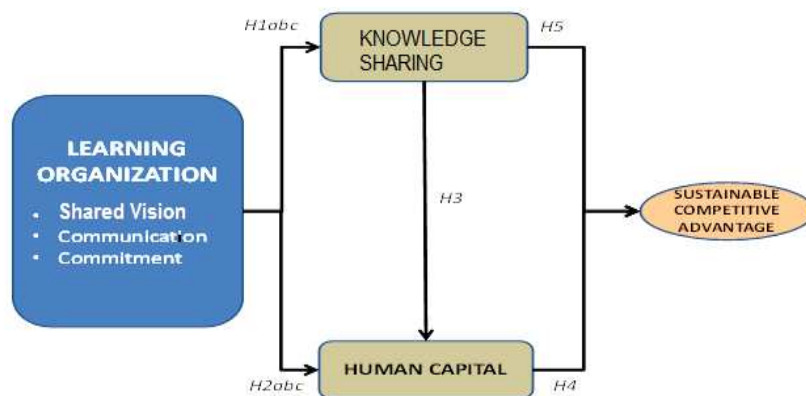


Fig. 1. Empiric model

2. Research methodology

Respondents

The respondents in this study are the head of small Batik industries which total is 150. The total of population is 851 which are distributed in West Java, East Java, North Java, South Java, and Central Java.

Measure

Organizational learning. The variable of this research includes the organizational learning consisting of: 1) Commitment, which is the

willingness and desire to contribute for company success, with the indicator of having desire, willingness, and emotional bond (Menon, 1999; Floyd, 1989). The result of Construct Reliability Test (Hair et al., 1995) shows value 0.82 above 0.7. 2) Communication quality, which means the degree of contents that are communicated, acquired, and understood by other parties of a relationship by the interaction indicators: continuous, transparent, feedback, and formal communication (Menon, 1999). The result of Construct Reliability Test (Hair et al., 1995) shows value 0.82 above 0.7.

3) Shared vision means the knowledge, understanding, use, and evaluation (Liao, 2008; Kang, 2009). The result of Construct Reliability Test (Hair et al., 1995) shows value 0.79 above 0.7.

Knowledge sharing. Knowledge sharing is a behavior to spread knowledge to other members, by the indicator of interaction, willingness, ability, and knowledge quality (Liao, 2008; Kang, 2009). The result of Construct Reliability Test (Hair et al., 1995) shows value 0.80 above 0.82.

Human capital. Human capital is the characteristic of human resource which is determined by the knowledge used for creating value for the organization, by the indicators of skills change, creativity, new idea and knowledge development, and becoming the best (Youndt et al., 2004). The result of Construct Reliability Test (Hair et al., 1995) shows value 0.85 above 0.7.

Sustainable competitive advantage. Sustainable competitive advantage is a unique position that is

not owned by other organizations, by the indicators of durability, imitability, networking, and strategic assets (Ferdinand, 1999). The result of Construct Reliability Test (Hair et al., 1995) shows value 0.88 above 0.7.

To analyze the data, the researcher uses The Structural Equation Modeling (SEM) from software package AMOS 5.0. This model is a group of statistical techniques which enable the examination of a set of relationship that is relatively complicated. The prominence of SEM in the researches of management field is its potential to confirm the dimensions of a concept or factor and measure relationships that theoretically exist.

3. Result and discussion

Based on the calculation through confirmatory factor, each indicator in the fit model can be used to define latent construction, so the full model of Structural Equation Modeling (SEM) can be analyzed. The result of data analysis can be seen in Figure 2:

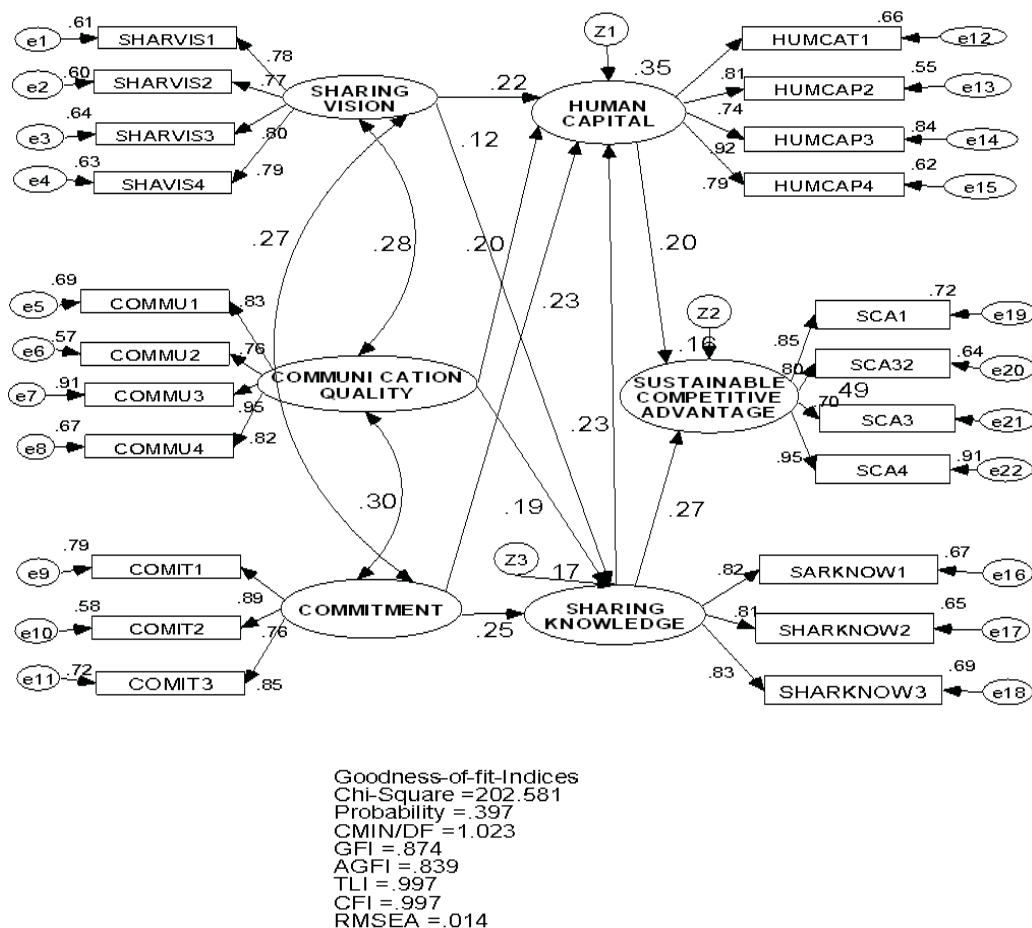


Fig. 2. Full model of human capital and knowledge sharing based on the organizational knowledge towards the sustainable competitive advantages

Figure 2 shows that this model is compatible with the data used in this research. It is showed by the Chi-Square, Probability, CMIN/DF, and TLI which exist in the expected range of values even though

GFI and AGFI are marginally accepted. Then, based on this fit model there is an analysis of hypotheses proposed in this research which is shown in Table 1.

Table 1. Standard estimate and critical ratio

Hypothesis	Impact	Std. estimate	Critical ratio	Explanation
<i>H_{1a-1c}</i>	<i>Commitment → Knowledge sharing</i>	0.254	2.355	Sign.
	<i>Shared vision → Knowledge sharing</i>	0.119	1.120	Non. Sign.
	<i>Communication → Knowledge sharing</i>	0.190	2.131	Sign.
<i>H_{2a-2c}</i>	<i>Commitment → Human capital</i>	0.228	2.134	Sign.
	<i>Shared vision → Human capital</i>	0.220	2.302	Sign.
	<i>Communication → Human capital</i>	0.195	2.082	Sign.
<i>H₃</i>	<i>Knowledge sharing → Human capital</i>	0.228	2.290	Sign.
<i>H₄</i>	<i>Human capital → SCA</i>	0.201	2.205	Sign.
<i>H₅</i>	<i>Knowledge sharing → SCA</i>	0.270	2.466	Sign.

Table 1 shows that in the estimation parameter of endogenous with exogenous, the mark of $CR \geq 2.00$ with significance degree 0.05 (5%). Thus, The *H_{1b}* is rejected and 8 hypotheses were supported by empirical data.

The higher commitment, the higher knowledge sharing will be. The result indicates that to increase the knowledge sharing, it should be intrinsically built by commitment. The two points related with commitment are the willingness to exert great effort for the organization’s interest and the feeling that there is a relation with the organization’s target so the employee’s target related can be integrated with the organization’s target. Therefore, the organization commitment is a degree on how far an individual can take side on an organization as well as its aims, and the willingness to keep his membership in the organization. Thus, the quality and quantity of interaction among human resources and their willingness and ability to use knowledge can increase. The estimation parameter between shared vision and knowledge sharing shows a significant result with the value of $Cr = 1.120$ and $CR \leq \pm 2.00$ with significance degree 0.05 (5%). So, the *Hypothesis 1b* is rejected. That condition is based on the empirical indication of knowledge sharing as knowledge, understanding, use, and evaluation are not optimally implemented. Then, the higher communication quality, the higher knowledge sharing will be. The result indicates that developing knowledge sharing is built by communication quality. The existence or image of an organization will be affected by the environment of the organization. The transmission pattern of organization messages is reflected in the practices of formalization, information, and communication. The communication quality is the degree of how far the contents which are communicated, accepted, and understood by other parties in a relationship. The consequence then is the habit of an individual who can spread his knowledge to other members within an organization, so it can create value added for the organization.

The hypothesis of the higher commitment, the higher human capital will be. The result identifies that increasing human capital is intrinsically built by

commitment. The commitment aspect in organizational learning requires the human resource to use the organization time to earn knowledge outside their working scope. If the organization does not support the knowledge improvement, the human resources are not motivated to do their learning activities. Such condition increases their willingness to contribute and commit to the organization (human capital). Then, the higher shared vision, the higher human capital will be. The result identifies that improving human capital can be intrinsically developed by shared vision. The success of shared vision depends on the quality and the quantity of interaction among human resources as well as their willingness and abilities to use the knowledge. Such condition can increase the knowledge which is used to create value for the organization. The high motivated and skilled human resources are competitive advantages as they represent the specific human resources of a company which are important, scarce, and inimitable. A company with skillful and knowledgeable human resource has higher human capital and is more possible to create knowledge, make right decisions, and has better technology innovation. The hypothesis of the higher communication quality the higher human capital will be. The result identifies that increasing human capital can be intrinsically developed by communication quality. The interaction frequency affects the trust of a relationship. Furthermore, it is explained that the quality and frequency of communication is a decisive factor in convincing the spirit of reciprocal concern among the members to achieve the common goals. The organizational learning in communication quality can support the human resources to work harder in order to enjoy their works, so the working performance gets higher.

The hypothesis of the higher knowledge sharing, the higher human capital will be. The result indicates that improving human capital is intrinsically built by knowledge sharing. The focus of knowledge sharing is the behavior to spread knowledge to other members within an organization in order to create value added for the company. By efforts and experiences, an organization can build interaction

continuity which recognizes the value of potential opportunities and chooses the elements that will be combined and then facilitate the knowledge sharing. Thus, the human capital can be improved.

The hypothesis of the higher human capital, the higher sustainable competitive advantage will be. The result indicates that developing competitive advantage can be built by human capital. The management of human capital should consider the sources and the flows of knowledge. The flow of knowledge is meant as a process of skills and institutional developments, especially regarding the market. Thus, it can produce goods and services to fulfill the human needs. A group of people who have high motivation and are skilled is competitive advantage as it represents the specific resource of a company which is important, scarce, and inimitable. A company with skillful and knowledgeable human resources has higher human capital and is more likely to create knowledge, take the right decisions, and have better technology innovation.

The hypothesis of the higher knowledge sharing, the higher sustainable competitive advantage will be. The result identifies that improving sustainable competitive advantage is built by knowledge sharing. Knowledge is an important input in the production process which emphasizes the ability of a company to use and combine various knowledge resources in order to change the intangible resources that become product innovation and process. An organization can be realized as social community which specializes itself on speed and efficiency of knowledge creation and transfer. Therefore, knowledge is started by individual and organization to be superior for their skills in integrating cross-individual knowledge towards sustainable competitive advantages.

Conclusion

Based on the hypotheses developed in this study, the problem formulation proposed can be justified through examining Structural Equation Modeling (SEM). It has been conceptualized in this research that the relation between variables which affect and are affected by sustainable competitive advantages comes from 6 constructs that are empirically proposed and supported such as: commitment, shared vision, communication quality, knowledge sharing, human capital, and sustainable competitive advantages. Based on the various significant support from hypotheses examinations, it has been answered the problem formulations of the research. It delivers 5 developments of human capital and knowledge sharing, so the sustainable competitive advantages can be actualized. The 5 developments encompass the following steps: 1) The steps in the model of human capital and knowledge sharing to realize the

sustainable competitive advantages are done by developing human capital which is built by the improvement of knowledge sharing. 2) The steps in the model of human capital and knowledge sharing to realize the sustainable competitive advantages, are conducted by developing human capital. 3) The steps in the model of human capital and knowledge sharing to realize the sustainable competitive advantages are conducted by developing knowledge sharing which is improved by commitment. 4) The steps in the model of human capital and knowledge sharing to realize the sustainable competitive advantages are conducted by developing knowledge sharing which is improved by communication quality. 5) The steps in the model of human capital and knowledge sharing to realize the sustainable competitive advantages are conducted by developing knowledge sharing which is improved by shared vision.

Afterward, the theoretical implication of the model of human capital and knowledge sharing to actualize the sustainable competitive advantages of SMEs in Central Java is reflected on some findings in this research, such as: 1) Based on the hypothesis testing, the variable of knowledge sharing is influenced by organizational learning with commitment dimension and communication quality. Human resources with high commitment have a strong willingness to work in the organization in order to contribute for the achievement of the goals. They then fully involve in working since is the channel for contributing in achieving the goals of the organization. Human resources with high commitment will put full efforts for the interest of the organization. On the other hand, the communication quality leads to what extent the communicated content is received and understood by other parties within a relationship. The quality of communication can be explained as an improvement of formal and informal communication during the working process. The consequence is developing one's behavior to share the knowledge to the other members within an organization in order to create value added for the company. 2) The support of hypothesis of human capital is influenced by the organizational learning with the commitment dimension and communication quality. Organizational learning enables the human resource to act through various ways according with the surroundings. Otherwise, the action of the people enables themselves to learn. Thus, improving the knowledge is used to create value for the organization. 3) The support of hypothesis of human capital is influenced by knowledge sharing which depends on the quantity and the quality of interaction among the employees and willingness as well as ability to use the knowledge.

The organization should support the purposes of the employees and the organization, then interpreting them into technical and promoting the employees. The knowledge in the individuals is difficult to verbalize, hence it needs to be articulated and stated into implicit knowledge form. This condition will stimulate the human resource contribution with the management (human capital). 4) The support of hypothesis of sustainable competitive advantage is influenced by knowledge sharing and human capital. The knowledge-based organization starts from individual, then the company becomes superior for their ability to integrate the interpersonal knowledge.

Based on the research findings, the managerial implication priorities of the model of human capital and knowledge sharing to realize the sustainable competitive advantages are as follows. 1) Organizational learning is not only about the total of knowledge, but also emphasizes the interaction pattern among human resources. It aims to achieve common goals and support in creating and sharing the knowledge to increase the organization's capability. 2) Human capital is directed to support the human resource to contribute their knowledge for the benefit of the organization. People can disincline to share their knowledge as they are afraid of losing their ownership, positions or superiority. Thus, for the organization's interest the managers have to emphasize the development of capability and commitment (willingness to contribute for the success of the company). Therefore, human capital should involve the competence of human resource (for instance, skills, knowledge, and capabilities) and their commitment (their willingness to dedicate their life and works for the company). 3) Knowledge sharing is focused on the human behavior to spread the knowledge to the other

members within an organization, so it can create value added for the company.

The result of examining the full model of SMEs shows that the model is compatible with the data used. However, there are two conformance testing which is marginally accepted, such as Goodness of Fit Index (GFI = 0.874) and Adjusted Goodness of Fit Index (AGFI = 0.839). The result of AMOS Software calculation shows that based on the influence of organizational learning (i.e. commitment, communication quality, and shared vision), the Squared Multiple Correlations are as much as 17.3%, then based on the influence of human capital and knowledge sharing towards sustainable competitive advantage, the Squared Multiple Correlations are as much as 15.8%. Both of the Squared Multiple Correlations have low qualification (McClane, 2002).

The future research agenda

Organizational culture is an integrated pattern of human behavior which is related to adjustment problems or the integration of internal and external conditions. Thus, organizational culture takes a role in the development of organizational learning in an attempt to improve the innovative performance. Culture becomes a main variable in the development of organizational performance. Thus, the future research about organizational culture in the process of the improvement of sustainable competitive advantages is needed in order to develop the findings about the concept of sustainable competitive advantages. Then, based on the limitation of the third study, that Squared Multiple Correlations have a low qualification, being a black box of an interesting study area.

References

1. Amit, R. and Schomaker, P.J.K. (1993). Strategic Asset and Organizational Rent, *Strategic Management Journal*, pp. 33-46
2. Brown, J.S. & Duguid, P. (1991). Organizational learning and communities-of-practice: toward a unified view of working, learning, and innovation, *Organization Science*, 2 (1), pp. 40-57.
3. Calcantone, R.J., Cavusgil, S.T. and Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance, *Industrial Marketing Management*, 31, pp. 515-524.
4. Chaterina, L., Wang Harveen Chugh (2014). Entrepreneurial Learning: Past Research and Future Challenges, *International Journal of Management Reviews*, 16, pp. 24-61.
5. Chiquan, G. (2007). Is Sustainable Competitive Advantage an Achievable Holy Grail: The Relevance Gap between Academia and Business, *Journal of Business and Management*, 13 (2).
6. Clardy, C. (2008). The strategic role of Human Resource Development in managing core competencies, *Human Resource Development International*, 11 (2), pp. 183-197.
7. Collins, C.J. and K.D. Clark. (2003). Strategic Human Resource Practices, Top Management Team Social Networks, and Firm Performance: The Role of Human Resource Practices in Creating Organizational Competitive Advantage, *Academy of Management Journal*, 46 (6), pp. 740-775.
8. Cameron Cockrell and Dan N. Stone. (2011). Industry culture influences pseudo-knowledge sharing: a multiple mediation analysis, *Journal of Knowledge Management*, 14 (6), pp. 841-857.
9. Cooper, D.R., Dan W.C. Emory (1995). *Business Research Methods*, Irwin.

10. Cope. (2005). Toward a dynamic learning perspective of entrepreneurship. *Entrepreneurship, Theory and Practice*, 29, pp. 373-397.
11. Cuming, J.L. and Theng, B.S. (2006). The Keys to Successful Knowledge Sharing, *Journal of Management General*, 131 (4).
12. Dess, G.D., Lumpkin, G.T., Covin, J.G. (1997). Entrepreneurial Strategy Making and Firm Performance: Test Contingency and Configurational Models, *Strategic Management Journal*, pp. 677-689.
13. Don Vande Walle & Larry L. Cumming (2004). A Test of the Influence of Goal Orientation on the Feedback-seeking Process, *Journal of Applied Psychology*, 182, pp. 390-400.
14. Edvinsson, L. (1996). Developing a model for managing intellectual capital, *European Management Journal*, 14 (4), pp. 356-364.
15. Ferdinand, Augusty, T. (1999). *Strategic Pathways Toward Sustainable Competitive Advantage: Unpublished DBA Thesis*, Southern Cross, Lismore, Australia.
16. Ferdinand, Augusty, T. (2000). *Structural Equation Modelling Dalam Penelitian Manajemen*. BP Undip Semarang.
17. Ficke H. Rawung, Nikolas F. Wuryaningrat and Lenny E. Elvinita (2015). The Influence of Transformational and Transactional leadership on Knowledge Sharing: An Empirical Study on Small and Medium Business Indonesia, *Asian Academy of Management Journal*, 20 (1), pp. 123-145.
18. Galunic, D.C. & Rodan, S. (2008). Resource recombination in the firm: knowledge structures and the potential for schumpeterian innovation, *Strategic Management Journal*, 19, pp. 1193-1201.
19. Gautam Ray, Barney, J.B. and Waleed, A.M. (2004). Capabilities, Business Process and Competitive Advantage: Choosing the Dependent Variable in Empirical Test of the Resources Based – View, *Strategic Management Journal*, 25, pp. 23-37.
20. Grant Robert M. (1991). The Resource-based Theory of Competitive Advantage: Implications for Strategy Formulation, *California Management Review*, 33 (3), p. 114.
21. Hair, J.R.F., Joseph, R.E., Anderson, R.L., Tatham Dan Black, W.C. (1992). *Multivariate Data Analysis with Readings*, Macmillan.
22. Hitt, M.A. (2006). Direct and moderating effects of human capital on strategy and performance in professional service firms: a resource-based perspective, *Academy of Management Journal*, 44 (1), pp. 13-28.
23. Hsu, C.I., Carol, M.N., Lawler, J.J. (2007). Toward a Model of Organizational Human Capital Development: Preliminary Evidence from Taiwan, *Asia Pacific Business Review*, 13 (2), pp. 251-275.
24. Junfeng, Z.C., Dan Benedetto, D.T. (2009). Product Development Strategy Product Innovation Performance, and the Mediating Role of Knowledge Utilization: Evidence from Subsidiaries in China, *Journal of International Marketing, American Marketing Association*, 17 (2), pp. 42-58.
25. Kang, Y.J., Kim, S.E. and Chang, G.W. (2009). The Impact of Knowledge Sharing on Work Performance: An Empirical Analysis of the Public Employees' Perceptions in South Korea, *International Journal of Public Administration*, 31, pp. 1548-1568.
26. Kogut, B. & Zander, U. (1996). What do firms do? Coordination, identity and learning, *Organization Science*, 7, pp. 502-518.
27. Lado, A.A. and Marry C. Wilson. (1994). Human Resources System and Sustained Competitive Advantage: A Competency-Based perspective, *Academy of Management Review*, 19 (4), pp. 699-727.
28. Lane, P.J. & Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning, *Strategic Management Journal*, 19, pp. 461-477.
29. Liao, L.F. (2006). A learning organization perspective on knowledge-sharing behavior and firm innovation, *Human Systems Management*, 25, pp. 227-236.
30. Lin, K.M. and Wang, M.W. (2005). The Classification of Human Capital according to the Strategic Goals of Firms: An Analysis, *International Journal of Management*, 22 (1).
31. Liebowitz and I. Megbolugbe (2005). A set of frameworks to aid the project manager in conceptualizing and implementing knowledge management initiatives, *International Journal of Project Management*, 21, pp. 189-198.
32. Menon, A., Bharadwaj, S.G., Adidam, P.J., Edison, S.W. (1999). Antecedents and Consequence of Marketing Strategy Making: Model and Test, *Journal of Marketing*, 63, pp. 18-40.
33. Menon, A., Bharadwaj, S.G. and Roy Howell (1996). The Quality and Effectiveness of Marketing Strategy: Effect of functional and dysfunctional conflict in intraorganizational relationship, *Journal of Marketing*, 24 (4), pp. 299-313.
34. Mine Karatas O. Zkan (2011). Understanding relational qualities of entrepreneurial learning: Towards a multi-layered approach, *Entrepreneurship & Regional Development*, 23 (9-10), pp. 877-906.
35. Muhammad Mursaleen, Lutfullah Saqib, Kellie W. Roberts, Muhammad Asi (2015). Islamic Work Ethics as Mediator between Trust and Knowledge Sharing Relationship, *Pakistan Journal of Commerce and Social Sciences*, 9 (2), pp. 614-640.
36. Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-creating Company*, New York: Oxford University Press.
37. Nordtvedt, L.P., Kedia, B.L., Datta, D.K. and Rasheed, A.A. (2008). Effectiveness and Efficiency of Cross-Border Knowledge Transfer: An Empirical Examination, *Journal of Management Studies*, 45, p. 4.
38. Norus, J. (2006). Building Sustainable Competitive Advantage from Knowledge in the region: The Industrial Enzymes Industry, *European Planning Studies*, 14 (5).

39. Peng, X. and Ramesh, B. (2008). Impact of Knowledge Support on the Performance of Software Process Tailoring, *Journal of Management Information Systems*, 25 (3), pp. 277-314.
40. Peyman Akhavan, S. Mahdi Hossein (2015). Determinants of Knowledge Sharing in Knowledge Networks: A Social Capital Perspective, *The IUP Journal of Knowledge Management*, 8 (1), pp. 2-19.
41. Pennings, J.M., K. Lee and A. Van Witteloostuijn (1998). Human Capital, Social Capital, and Firm Dissolution, *Academy of Management Journal*, 41 (4), pp. 424-440.
42. Peter Geib Ruth Lumb (2007). Navigating for Sustainable Competitive Advantage, *The International Trade Journal*, 21 (3).
43. Pitt, L.F. and Kannemeyer (2000). The Role of Adaptation in Microenterprise Development: a Marketing Perspective, *Journal of Developmental Entrepreneurship*, 5 (2).
44. Rani Geetha & Venkatapathy (2005). Performance and HRD: A Studi Among Various Type of Banks, *South Asian Journal of Management*, 52, pp. 467-477.
45. Reed, K.K., Srinivasan, N.D., Dan Doty, D.N. (2009). Adapting Human and Social Capital to Impact Performance: Some Empirical Findings from the U.S. Personal Banking Sector, *Journal Of Managerial issue*, 21 (1), pp. 36-57.
46. Red, R. and D.E. Fillipi, R. (1990). Causal Ambiguity Barrier Imitation and Sustainable Competitive Advantage, *Academy Management Review*, pp. 88-102.
47. Sekaran Uma (1992). *Research Methods for Business: A Skill Building Approach*, Second Edition, John Willey & Sons, Inc.
48. Sinkula, J.M. (1994). Market Information Procesing and Organizational Learning, *Journal of the Academy of Marketing Sceince*, 58, pp. 35-45.
49. Sinkula, J.M. and Noordewier, T. (1997). A Framework for market-based Organizational learning: Linking Values, Knowledge, and Behavior, *Journal of the Academy of Marketing Sceince*, 25 (4), pp. 305-318.
50. Sinkula, J.M. and Noordewier, T. (1999). The synergistic effect of market orientation and learning orientation on organizational performance, *Journal of the Academy of Marketing Science*, 27 (4), pp. 411-427.
51. Smalla, C.S. and Sageb, A.P. (2006). Knowledge Management and knowledge sharing: A review, *Information Knowledge Systems Management*, 5, pp. 153-169.
52. Smith, M.E., Lyles, M.A. and Eric, W.K. (2008). Tsang Inter-Organizational Knowledge Transfer: Current Themes and Future Prospects, *Journal of Management Studies*, 45, p. 4.
53. Song, J.H. (2008). The effects of learning organization culture on the practices of human knowledge-creation: an empirical research study in Korea, *International Journal of Training and Development*, 12, p. 4.
54. Steffen, W. and Stephan, J. (2008). The Role of Human Capital and Managerial Skills in Explaining Productivity Gaps Between East and West, *Eastern European Economics*, 46 (6), pp. 5-24.
55. Subramaniam, M. and M.A. Youndt (2005). The Influence of Intellectual Capital on the Types of Innovative Capabilities, *Academy of Management Journal*, 48 (3), pp. 450-463.
56. Teece, D.J., G. Pisano and A. Shuen (1997). Dynamic Capabilities and Strategic Management, *Strategic Management Journal*, 18 (7), pp. 510-533.
57. William G. Zikmund (1995). *Business Research Methods*. Third Edition, The Driden Press.
58. Yang, J. (2008). Antecedents and Consequences of Knowledge Management Strategy: the case of Chinese high technology firms, *Production Planning & Control*, 19 (1), pp. 67-77.
59. Youdt, M.A. and S.A. Snell (2004). Human Resource Configuration, Intellectual Capital and Organizational Performance, *Journal of Managerial Issues*, 16 (3), pp. 335-361.
60. Zhang, H. and Run, J. (2006). Value Added of Human Complementary Capital, *The Journal of American Acadey of Business*, 1 (9).