




THE EFFECT OF KNOWLEDGE ACQUISITION ON COMPETITIVE ADVANTAGE: THE MEDIATION ROLE OF INNOVATION IN INDONESIA'S BATIK SMEs

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ABSTRACT

Article History

Received: 19 July 2021

Revised: 23 August 2021

Accepted: 21 September 2021

Published: 6 October 2021

Keywords

Knowledge acquisition
Innovation
Competitive advantage
SMEs.

The purpose of this study is to investigate the effect of knowledge acquisition on competitive advantage by examining the mediating effect of innovation. A total of 100 batik small and medium enterprises (SMEs) in Central Java were sampled, and the data were analyzed with SPSS AMOS 23 structural equation modeling (SEM). The results show that knowledge acquisition does have an effect on innovation. Furthermore, innovation is proven to have an effect on competitive advantage. The mediation test shows that innovation plays a full role in mediating the relationship between knowledge acquisition and competitive advantage. Meanwhile, knowledge acquisition does not have a direct effect on competitive advantage.

Contribution/Originality: This study is one of very few studies that have investigated the relationship between knowledge acquisition, innovation and competitive advantage, which emphasizes innovation as a mediator between knowledge acquisition and competitive advantage in the context of batik SMEs in Central Java, Indonesia.

1. INTRODUCTION

The increasing number of organizations offering similar goods and services to consumers has increased the level of competition. The intensity of competition can become unsustainable, but organizations can still enjoy some healthy competition if they have a level of advantage over their competitors. This advantage, also known as a competitive advantage, results in greater sales/margin generation, as well as retention and attraction of more than one customer over its competitors. Competitive advantage, in its simplest form, is the advantage an organization enjoys over its competitors. Such advantages are created by offering consumers greater value, either in the form of reduced prices or in the provision of higher quality services and products that can justify higher prices.

Firms always strive to create and exploit competitive advantages to ensure sustainability. With globalization, liberalization and better information, the need for competitive advantage becomes more important. Hamel & Prahalad (1990) stated that the key to achieving this competitive advantage is innovation. Therefore, innovation is a major focus in ensuring the competitiveness and sustainability of an organization to survive in the long term by utilizing existing resources (Muthuveloo, Shanmugam, & Teoh, 2017). The resource-based view (RBV) explains that the creation of corporate value through knowledge management will increase competitive advantage (Barney,

1991). Knowledge management, as the most important capital, has replaced physical and financial capital in the era of knowledge-based economies (Chen, Zhu, & Xie, 2004). In a knowledge-based economy, organizations need to use an intangible asset approach, such as organizational knowledge and human resource competencies, in order to develop competitive advantage (Bontis, Dragonetti, Jacobsen, & Roos, 1999). Furthermore, the management of intangible assets through knowledge has been widely used by large companies, because it has been proven that these resources can create value and competitive advantage (Khalique, Bontis, Shaari, Yaacob, & Ngah, 2018; Martini, Paolucci, & Pellegrini, 2003; Montequín, Fernández, Cabal, & Gutierrez, 2006).

Innovation is often defined as changing what a firm offers (product/service innovation) and how a firm creates and delivers its products/services (process innovation) (Liao, Fei, & Chen, 2007). Firm resources must be utilized as much as possible to create innovation in the form of improving the quality of products, services, and processes. Corporate organizations that have highly skilled and knowledgeable human resources are more likely to create knowledge, make better decisions and have better innovations. Therefore, organizations that effectively acquire knowledge are effectively able to create and maintain competitive advantage (Deeds & Hill, 1996). Another factor that can affect competitive advantage is knowledge management. This is one of the factors that will affect the success of an organization. The relationship between knowledge management and innovation in ensuring high-level organizational success is not well known (De Guimaraes, Severo, & De Vasconcelos, 2018). Knowledge acquisition is one of the means that can be used to support the achievement of a sustainable competitive advantage (SCA) for an organization and achieve excellent managerial performance (De Guimaraes et al., 2018). Knowledge acquisition is one of the dimensions of knowledge management. This element is very important for intellectual development and innovation (Liao & Barnes, 2015), including generating, collecting, evaluating, modeling and validating information (Mohannak, 2014). Information gathering can provide knowledge in empowering companies to lead innovation practices and organizational development (Liao & Barnes, 2015; Waribugo, Wilson, Afkan, & Etim, 2016).

In the context of small and medium enterprises (SMEs), these businesses are currently facing new strategic difficulties (Afriyie, Duo, & Musah, 2018). SMEs need to manage knowledge acquisition issues and have the option of finding a balance between knowledge acquisitions and activities. For SMEs, the concept of intangible assets is starting to attract more attention, especially in developing countries, because it turns out that these resources have a very strong influence on organizational success (Khalique et al., 2018). The existence of intangible assets is very important for SMEs because these strategic resources have a major influence on the future existence of a company (Montequín et al., 2006). In addition, the activity of SMEs can increase significantly if they adopt increasingly dynamic knowledge sources (Xie, Zou, & Qi, 2018). Furthermore, the characteristics of SMEs often impede evidence of the differentiation and influence of the resources and competencies required within the firm to generate new opportunities (Pentina, 2015). In previous studies, it has been explained that management knowledge, innovation and competitive advantage form a positive relationship. Knowledge management can produce innovation, and innovation can produce competitive advantage. However, theories are not always the case in practice, where the relationship between the three concepts is highly dependent on the situation and conditions of each organization. Several empirical studies on transitional and emerging markets have documented an inconclusive relationship between knowledge acquisition, innovation and competitive advantage. However, several separate works have shown that knowledge acquisition has a positive effect on innovation (Ngoc & Anh, 2020; Papa, Dezi, Gregori, Mueller, & Miglietta, 2020; Siregar, Suryana, Ahman, & Senen, 2019; Waribugo et al., 2016). Furthermore, innovation provides a positive direction for competitive advantage (Abd Aziz & Samad, 2016; Abou-Moghli, Al Abdallah, & Al Muala, 2012; Dogan, 2016; Herman, Hady, & Arafah, 2018; Linda, Patrisia, Thabrani, & Yonita, 2020). However, there are some studies that have produced results that do not support the theory. Studies conducted on companies in Sudan show that knowledge acquisition does not significantly affect competitive advantage quality (Abker, Mohamed, Ibrahim, & Eltayeb, 2019). A study on 130 companies in Vietnam showed that codification had a negative impact on innovation (Ngoc & Anh, 2020). Furthermore, a study of 320 food and

beverage companies in Nigeria showed that knowledge creation had a negative effect on innovation (Victoria, Babatunde, Priscilla, & Goodluck, 2020). This study seeks to fill the gap in existing literature by integrating the three concepts in a model in the context of Indonesian batik SMEs. It is hoped that this study can complement the literature in the field of competitive advantage. In this paper, we build on previous studies related to the relationship of knowledge acquisition, innovation and competitive advantage to investigate the direct effect of knowledge acquisition on competitive advantage; the direct effect of knowledge acquisition on innovation; the direct effect of innovation on competitive advantage; and the mediation effect of innovation on the relationship between knowledge acquisition and competitive advantage.

2. LITERATURE REVIEW

2.1. Knowledge Acquisition

Knowledge acquisition can be defined as learning through an experience involving the acquisition, assimilation, adaptation and strengthening of knowledge conceptualization, explanation, interpretation and problem solving (Patalas-Maliszewska & Śliwa, 2017). Meanwhile, according to Johnson (2017), knowledge acquisition is defined as the ability to collect, understand, and obtain foreign information that is fundamental to the success of tasks within an organization (Johnson, 2017). Knowledge gathering summarizes how an entity obtains information from suppliers, customers or clients, competitors, and open research institutions and incorporates them into their development practices either directly or indirectly. He, Ghobadian, & Gallear (2013). Furthermore, companies are required to seek new knowledge and information both internally and externally (Xue, 2017). This knowledge can be obtained through discussions, collaborations with professional experts, collaborations with other companies, following or joining formal networks, and through formal systems created by companies.

2.2. Innovation

Innovation comes from the Latin word “novus” (new). The main characteristic of innovation is novelty and change through new ways of doing or producing something. Innovation is defined as a mental process to create something new, whether in the form of products, materials, services or processes. In fact, innovation is an analysis or combination of several concepts that did not exist before (Kao, 2002). Innovation is a change in the process or development of knowledge to achieve better results. Gray, Matear, & Matheson (2002) stated that a firm's ability to innovate will guarantee its ability to compete. The degree of innovation of a firm can be identified from the type of innovation, such as new products, new production methods, or the exploitation and development of new markets (Schumpeter & Redvers, 1934). Each of these dimensions can be developed into a statement item (Liao et al., 2007): product innovation related to new product development; market innovation related to the development of new markets or market segments and new marketing methods; and related process innovations are new elements that are adopted into new production operations or services to improve efficiency and quality.

2.3. Competitive Advantage

Porter (1985) believes that competitive advantage arises from creating value for customers that exceeds the costs incurred by the firm. Value is the buyer's willingness to pay for what the firm offers. Therefore, superior value can be obtained at lower prices for the same benefits, or unique benefits at a higher price. Competitive advantage also means providing customers with lasting and valuable benefits that competitors cannot offer (Simon, 1996). Kotler (2000) defines competitive advantage as the ability of an organization to perform in one or more ways that are difficult for current or potential competitors to imitate. Furthermore, Kotler & Keller (2003) explain that competitive advantage can be obtained by offering lower prices or by providing greater benefits because the price is higher. Competitive advantage is a factor, or a combination of factors, that directly or indirectly affects the stability or growth of an organization, which includes active participation in optimally utilizing available resources (Al-

Najjar, 2016; Xue, 2017). Al-Najjar explains that competitive advantage is a relative positional advantage in the market that ensures a firm outperforms its competitors by implementing a unique strategy that is incomparable. He further states that competitive advantage is something that is driven by valuable, rare, non-substitutable and inimitable resources that arise as a result of the integration of unique resources and capabilities. Based on these concepts, a firm will have a competitive advantage that can be measured by several dimensions, such as having limited resources, product uniqueness (product quality) and competitive prices (Song & Parry, 1997).

2.4. Knowledge Acquisition and Competitive Advantage

Gathering knowledge from suppliers, employees and customers is essential for an organization to ensure sustainable growth. This accumulation of information can improve organizations' understanding of the skills and experiences of their employees and enable organizations to manufacture products that meet customers' needs (Yang, 2008). Several previous studies have shown that knowledge acquisition can have a positive impact on competitive advantage. Agbim, Zever, & Oriarewo (2014) found that knowledge acquisition is significantly related to the competitive advantage of firms in Nigeria. Furthermore, Muchanji & Makokha (2018) also showed that there is a significant relationship between knowledge acquisition and the competitiveness of savings and loan cooperatives. The findings of Abker et al. (2019) show that there is a positive relationship between knowledge management and competitive advantage in Sudanese industrial firms, and that knowledge acquisition is not significant to competitive costs. These studies underline that organizational knowledge is the most important source of competitive advantage. Therefore, the following hypothesis is proposed:

H1: Knowledge acquisition has a positive effect on competitive advantage.

2.5. Knowledge Acquisition and Innovation

A variety of knowledge can be obtained from competitors, suppliers, buyers, research institutes and consultants through interactive, social and collaborative processes with alliances or network partners (Xie et al., 2018). The diverse pool of knowledge can be used as valuable input into the innovation process in terms of products, processes, markets, and management, thereby enhancing enterprise innovation. According to Nonaka, Toyama, & Nagata (2000), knowledge can be defined as information or data that individuals can easily collect, codify and store for future use. The literature provides evidence that the acquisition of knowledge can contribute to increased enterprise innovation (Ngoc & Anh, 2020; Pattinson & Preece, 2014; Siregar et al., 2019; Xie et al., 2018). Therefore, in this study, the second hypothesis is proposed:

H2: Knowledge acquisition has a positive effect on innovation.

2.6. Innovation and Competitive Advantage

Innovation is the main driving force for the economic growth of a nation; innovation is the key to competitive advantage. When we think of a firm as a collection of resources, skills, and competencies, then the effect of innovation is to change the firm's internal resources to be more adaptive and more able to learn and exploit new ideas. Increased flexibility is very important in the face of changing market conditions. The existence of innovation can offer superior value compared to competitors and can influence the purchase intentions and behavior of target customers, resulting in a competitive advantage (Morgan, Kaleka, & Katsikeas, 2004). This enables a firm to beat the competition, secure a market leader position, and create a market performance (Eng & Okten, 2011). Several previous studies have provided evidence that innovation can lead to competitive advantage (AlQershi, Diah, Latiffi, & Ahmad, 2020; Distanont & Khongmalai, 2018; Kamboj & Rahman, 2017; Linda et al., 2020; Udriyah, Tham, & Azam, 2019). Therefore, the third hypothesis is proposed:

H3: Innovation has a positive impact on competitive advantage.

2.7. Mediation Effect of Innovation on the Relation between Knowledge Acquisition and Competitive Advantage

Companies that have a lot of knowledge will have a greater opportunity to innovate, which can then be used for excellence in competition. The implementation of innovation is believed to improve a firm's competitive advantage (Cooper, 1998; Damanpour & Gopalakrishnan, 2001; Liu, 2005). Several previous studies have shown that knowledge acquisition has a positive effect on innovation (Ngoc & Anh, 2020; Papa et al., 2020; Pattinson & Preece, 2014; Siregar et al., 2019). Furthermore, innovation also leads to competitive advantage (AlQershi et al., 2020; Distanont & Khongmalai, 2018; Kamboj & Rahman, 2017; Linda et al., 2020; Udriyah et al., 2019). By combining these two statements, the following fourth hypothesis is proposed:

H4: Innovation mediates the relationship between knowledge acquisition and competitive advantage.

3. METHOD

In this study, a sample of 100 batik businesses in Central Java was used. Data were collected via questionnaires with structured questions using a Likert scale. Data were analyzed by applying the structural equation modeling (SEM) technique via SPSS AMOS 23. Validity and reliability were determined based on the loading factor value of 0.600, construct reliability (CR) of 0.700, and an average variance extracted (AVE) of > 0.500. The model fit test was conducted based on chi-square, probability, the goodness of fit index (GFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). Furthermore, hypothesis testing was carried out based on the estimates of each relationship by comparing the t-value of the analysis results and the specified t-value limit (1.960). The last test was the mediation effect test, which was determined based on the value of the indirect effect based on the results of the Sobel test calculation using the Sobel test calculator.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

Table 1 shows an overview of the items from each construct. The knowledge acquisition construct of all items has an average value above three (the median value of all answer options). These results illustrate that the degree of knowledge acquisition is good. In the innovation construct, there are two items whose average value is below three, namely innovat1 (product innovation) and innovat3 (process innovation). These results indicate that the levels of product innovation and process innovation in batik SMEs are lower. Next, in the competitive advantage construct, there is one item whose average value is below three, namely com_adv1 (quality advantage). This shows that the quality of existing products is not a source of competitive advantage for batik SMEs in Central Java.

Table 1. Results of descriptive statistics.

No.	Item	N.	Minimum	Maximum	Mean	Std. Deviation
1	know_acq1	100	1.00	5.00	4.3000	0.87039
2	know_acq2	100	1.00	5.00	3.2200	0.95959
3	know_acq3	100	2.00	5.00	4.4900	0.75872
4	know_acq4	100	3.00	5.00	4.4300	0.63968
5	know_acq5	100	3.00	5.00	4.3100	0.72048
6	know_acq6	100	2.00	5.00	3.6000	0.87617
7	innovat1	100	2.00	4.00	2.8500	0.62563
8	innovat2	100	2.00	4.00	3.0100	0.59450
9	innovat3	100	2.00	4.00	2.6800	0.61759
10	com_adv1	100	2.00	4.00	2.4600	0.53973
11	com_adv2	100	2.00	5.00	3.5100	0.78490
12	com_adv3	100	2.00	5.00	3.2100	0.80773
Valid N (list wise)		100				

Table 2. Results of measurement model.

No.	Symbol	Item	Factor Loading	CR	AVE
Knowledge Acquisition					
1	know_acq3	Our firm makes changes to batik products through discussions with employees	0.642	0.779	0.543
2	know_acq4	New ideas and approaches in making batik are being tried continuously	0.809		
3	know_acq5	Our firm has systems and procedures that support innovation	0.751		
Innovation					
4	innovat1	Our firm regularly makes product changes	0.856	0.832	0.625
5	innovat2	Our firm regularly makes service changes	0.720		
6	innovat3	Our firm regularly makes changes to methods, processes and equipment	0.790		
Competitive Advantage					
7	com_adv2	Our firm regularly creates products and services that the market regard as unique	0.926	0.752	0.625
8	com_adv3	Our firm's resources are better than those of our competitors	0.607		

4.2. Measurement Model

At the validity and reliability analysis stage, it shows that there are several statements whose loading factors are less than required, namely know_acq1, know_acq2, know_acq6 and com_adv3, with respective marginal values of 0.332, 0.194, 0.260 and 0.253. The items for know_acq1, know_acq2 and know_acq6 are measurements of knowledge acquisition, and the results illustrate that knowledge management in batik SMEs is not significant for knowledge that has been sourced from outside the firm, such as collaboration with external parties and cooperation with professionals from formal institutions. This is a weakness of SMEs. Likewise, for the competitive advantage item com_adv1, it shows that the product is not a source that can be favored because all SMEs have similar product quality. Because these items were unable to explain the construct, they were not included in the subsequent analysis. After the analysis, the measurement model results from each construct were found to be valid and reliable or meet the required values (loading factor > 0.600, construct reliability (CR) > 0.700, and average variance extracted (AVE) > 0.500), as shown in Table 2.

Figure 1 shows the model fit from the analysis results. This measurement is considered to have a good data-model fit with a chi-square value of 26.242; a probability value of 0.070, which is greater than the required value (≥ 0.050); a GFI value of 0.940, which is greater than the required value (≥ 0.900); a Tucker–Lewis index (TLI) value of 0.946, which is greater than the required value of ≥ 0.900 ; and an RMSEA value of 0.074, which is smaller than the required value of ≤ 0.800 . Therefore, we can conclude that the proposed model is fit for use in this study.

4.3. Hypothesis Assessment

Table 3 contains the results of the structural analysis. The effect of knowledge acquisition on competitive advantage showed a negative result, with an estimated value of -0.254 and a CR value of -1.751 > -1.960, which is not significant at $0.080 > 0.050$. Therefore, H1 is rejected. This implies that knowledge acquisition does not have a direct effect on competitive advantage. In the case of batik SMEs, this illustrates that an increase in knowledge gained from internal sources is unable to increase competitiveness.

The effect of knowledge acquisition on innovation is positive, with an estimate value of 0.555, a t-value of 4.115 > 1.960 and a significance value of $0.000 < 0.050$. Therefore, H2 is supported. This implies that knowledge acquisition has a positive impact on innovation. These results support the previous theory that knowledge can contribute to the improvement of corporate innovation (Xie et al., 2018). These results also support the results of

previous studies that concluded that the acquisition of knowledge can increase a firm's ability to produce innovative solutions (Ngoc & Anh, 2020; Papa et al., 2020; Pattinson & Preece, 2014; Siregar et al., 2019).

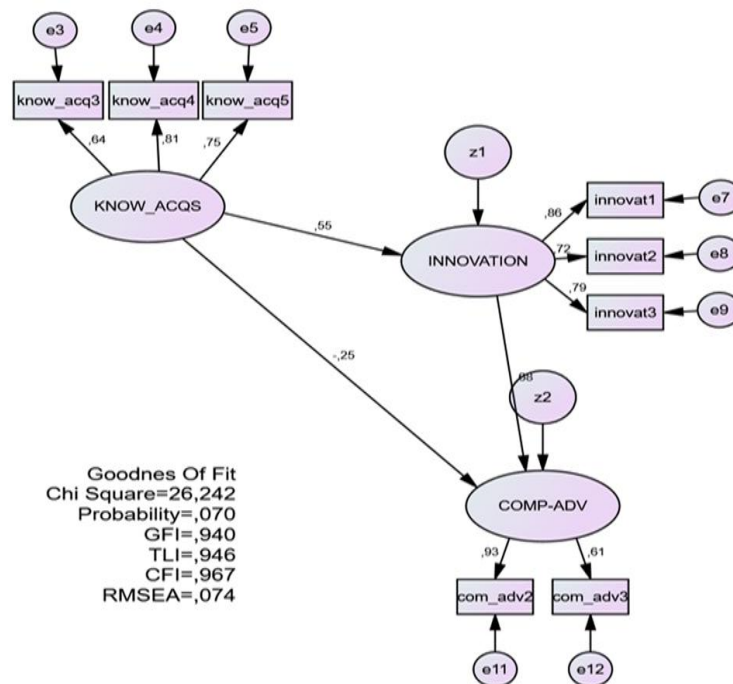


Figure 1. Path analysis between knowledge acquisition and competitive advantage.

Next, the effect of innovation on competitive advantage also showed positive results, with an estimate value of 0.682, a t-value of 4.643 > 1.960 and a significance value of 0.000 < 0.050. Therefore, H3 is supported. This implies that innovation can have a positive influence on competitive advantage. These results prove that innovation provides different levels of competitiveness in terms of quality and price so that companies can beat their competitors and attract new customers (Eng & Okten, 2011). These results support previous studies that state that innovation can lead to competitive advantage (AlQershi et al., 2020; Distanont & Khongmalai, 2018; Kamboj & Rahman, 2017; Linda et al., 2020; Udriyah et al., 2019).

Table 3. Results of structural analysis.

	Estimate	S.E.	t	P	Conclusion
Knowledge acquisition → Competitive advantage	-0.254	0.216	-1.751	0.080	H1: rejected
Knowledge acquisition → Innovation	0.555	0.148	4.115	0.000***	H2: supported
Innovation → Competitive advantage	0.682	0.199	4.643	0.000***	H3: supported
Knowledge acquisition → Innovation → Competitive advantage	0.378	0.152	2.482	0.013**	H4: supported

Note: *** significant at 0.01, ** significant at 0.05, *significant at 0.10.

Finally, the mediating effect of innovation on the relationship between knowledge acquisition and competitive advantage shows positive results. To test this mediating effect, the t-value and the significance value were used based on the Sobel test calculation. The results of the Sobel test showed an estimate value of 0.378, a t-value of 2.482 > 1.960 and a significance value of 0.013 < 0.050. Therefore, H4 is supported. This result implies that the higher the knowledge acquisition, the higher the degree of innovation, which means a further increase in competitive advantage. We know from the H1 test that the direct effect of knowledge acquisition on competitive advantage is not significant, and the results of the H4 test show that the mediation effect of innovation on the relationship between knowledge acquisition and competitive advantage is significant, then the effect is complete

mediation (Baron & Kenny, 1986). Thus, knowledge acquisition cannot have a direct effect on competitive advantage, so any effect must be through innovation. Increased knowledge that does not produce innovation will not produce a competitive advantage. Therefore, the role of innovation in batik SMEs is very important to link knowledge acquisition with a competitive advantage. The findings of this study support the knowledge-based view (KBV) (Grant, 1991; Grant, 1996; Nonaka & Takeuchi, 1995), which explains that knowledge is an asset that must be transferred into innovation in order to create competitive advantage and improve organizational performance. This study also supports the resource-based view (RBV), which explains that knowledge as an intangible resource that can create value and competitive advantage by encouraging superior performance (Barney, 1991; Grant, 1991; Peteraf, 1993). Knowledge, as an intangible asset, becomes an important factor in creating competitiveness, especially for medium-sized companies. This shows that an organization's ability to innovate is closely related to its ability to utilize knowledge resources (Delgado-Verde, Martín-de-Castro, Navas-López, & Cruz-González, 2011).

5. CONCLUSION

Knowledge acquisition by batik SMEs for each dimension has been clearly shown. In the innovation construct, there are two dimensions (product innovation and process innovation) that indicated unfavorable conditions. Meanwhile, in the competitive advantage construct, there is one dimension (quality advantage) that showed adverse results. Knowledge acquisition affects innovation but does not have a direct impact on competitive advantage. Innovation has a fully mediating role in the relationship between knowledge acquisition and competitive advantage. Based on the results of this study, it is suggested that batik SMEs should expand cooperation with external parties, which is currently lacking, especially collaboration with formal, informal and professional institutions. This is important because knowledge acquisition has been proven to produce innovation and can further increase competitive advantage. For further research, this study can be extended to SMEs in other sectors. Furthermore, it is necessary to study the collaboration aspect associated with SME performance.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Acknowledgement: All authors contributed equally to the conception and design of the study.

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