

# **The Marketing Mix Strategy in Influence to the Competitive Advantage**

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## **Abstract**

Marketing mix related to the importance and contribution of the elements on the marketing mix that shows how these elements can provide a source of competitive advantage. Marketing mix strategy have high impact to the competitive advantage but each elements of marketing mix have different contribution. The objective of this paper is to examine the influence of the marketing mix to the competitive advantage partially and simultaneously in Indonesia telecommunication services companies. The test statistic using path analysis and the result show that the elements of marketing mix strategy increasing to the competitive advantage simultaneously and significantly.

## **Keywords**

Marketing mix, competitive advantage, telecommunication service companies

## **1. Introduction**

Marketing is the process of communicating value of product or services to customers, including fulfilling the needs and desires of customers to obtain customer satisfaction. Marketing mix is the general concept in marketing that still used in business today. Marketing strategy carried out by consolidation between elements of marketing mix to form the best alignment between the company's internal capabilities with external environment. Marketing mix elements as internal capabilities are important factor resources to influence to the competitive advantage.

According Porter (1985) the competitive advantage stems from a firm's ability to leverage its internal strengths to respond to external environmental opportunities while avoiding external threats and internal weaknesses. This is marketing mix strategy is the one of internal strengths companies. Generally the competitive advantage is a company's efforts to obtain, maintain and manage its valuable resources to generate superior customer value. This is strengthened by Christensen (2010) opinion that competitive advantage is whatever value a business provide that motivates its customers (or end users) to purchase its products or services rather than those of its competitors and that poses impediments to imitation by actual or potential direct competitors.

Thomson (2008) argues that a competitive strategy concerns the specifics of management's game plan for competing successfully and achieving a competitive edge over rivals. There are many routes to competitive advantage, but they all involve giving buyers what they perceive as superior value – a good product at a low price; a superior product that is worth paying more for; or a best-value offering that represents an attractive combination of price, features, quality, services, and other appealing attributes.

The description and literature study the above show strength relationship between marketing mix and competitive advantage. How it is happen in telecommunication service companies being one of the discussion in this paper. Nowadays the competition between telecommunication service companies in Indonesia very tight, it is because many operators player in this business. They have to compete in obtain and maintain their customer maximally. The companies have to providing the best marketing mix strategy to achieve competitive advantage.

Although the seven elements of the marketing mix (7 P) equally important and related to each other, but each element will give a different impact on the competitive advantage. How much the influence of each element of marketing mix to the competitive advantage is the research question?

This paper will examine the impact of each element of the marketing mix strategy (7P) to the competitive advantage in telecommunication service companies in Indonesia. So it will be known which elements of the marketing mix that have a major impact on competitive advantage.

## 2. Methodology

The unit of analysis in this study is organizations as well as telecommunication service companies which describes marketing mix strategy and competitive advantage. The elements of marketing mix consist of 7 P is product, price, promotion, place, people, physical evidence, process such as proposed by Bradley (1995), Zeithaml & Bitner (2006) and Rust et al (1996).

Best (2009) suggested that competitive advantage consist of three sub variables cost advantage, differentiation, and marketing advantage. According Porter (1985) competitive advantage consist of cost leadership and differentiation. In this study competitive advantage is measured into two variables namely cost advantage and differentiation advantage. The cost advantage is measured by efficiency of marketing cost and efficiency of operational cost, while differentiation advantage is measured by indicators of superior product, superior services, and brands excellent.

The main research variables are marketing mix strategy and competitive advantage. The type of research is causal since it tends to reveal relationship between dependent variable namely competitive advantage and independent variable namely marketing mix.

Based on the time horizon, this research is cross-sectional study. The study can be done in which data are gathered just once, perhaps over a period of days or weeks or months, in order to answer a research question as stated by Uma Sekaran (2009) and Malhotra (2002). The data were collected by questionnaires. A questionnaire is a previously formulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives. Variables are measured by ordinal scale with 5 Likert scale.

The statistical test used is Path Analysis with the correlation coefficient. The sample comprises some members selected from the population. The minimum sample size determined iteratively with several steps or iteration. The first iteration using the formula:

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{(U'_p)^2} + 3 \quad (1)$$

While

$$U'_p = \frac{1}{2} \ln \left\{ \frac{1+\rho}{1-\rho} \right\} \quad (2)$$

In the second iteration formula used is

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{(U'_p)^2} + 3 \quad (3)$$

While

$$U'_p = \frac{1}{2} \ln \left\{ \frac{1+\rho}{1-\rho} \right\} + \frac{\rho}{2(n-1)} \quad (4)$$

Description

$\rho$  = correlation coefficient smallest expected

$Z_{1-\alpha}$  = constants obtained from the norm distribution table

$Z_{1-\beta}$  = constants obtained from the norm distribution table

$\alpha$  = error type 1

$\beta$  = error type 2

The smallest correlation coefficient ( $\rho$ ) was estimated at 0.40,  $\alpha = 0.05$  and  $\beta = 0.05$ ; the obtained sample size (n) of at least 62. So in this study the samples studied is 84 telecommunication service companies as respondents.

Path analysis is used to determine the influence of one variable to another variables both directly and indirectly. The amount of the influence independent variables to the dependent variable called path coefficients ( $P_{yx}$ ).

### 3. Result and Analysis

The processing data to calculation of the path diagram of the seventh sub variables marketing mix consist of product, price, place, promotion, people, physical evidence, and process, to the competitive advantage in causal relationship. The result obtained path coefficients for each of sub variables of the marketing mix strategy to the competitive advantage in the table below.

Table 1: Path Coefficient Product, Price, Place, Promotion, People, Physical Evidence, and Process to Competitive Advantage

Variabel	Koefisien Jalur	t <sub>hitung</sub>	<b>R<sup>2</sup> = 0,4826</b>
X <sub>2.1</sub>	0,0967	0,7424	
X <sub>2.2</sub>	0,0476	0,5262	
X <sub>2.3</sub>	-0,1836	-1,3325	
X <sub>2.4</sub>	0,2989	2,8264	
X <sub>2.5</sub>	0,2100	1,8995	
X <sub>2.6</sub>	0,2373	1,9357	
X <sub>2.7</sub>	0,2308	2,1126	

This table show the seventh sub variables of marketing mix namely product, price, place, promotion, people, physical evidence, and process which influence to the competitive advantage at 48.26% (R<sup>2</sup>) on telecommunication service companies. The residual at 51,74% as error model as influence from another factor outside of the seventh sub variables of marketing mix.

The calculation of the mathematical equations between the seventh sub variables of product, price, place, promotion, people, physical evidence, and process to the competitive advantage on telecommunication service companies described as equation 5.

$$\begin{aligned}
 Y = & 0.09672 * X_{21} + 0.04762 * X_{22} - 0.1836 * X_{23} + 0.2989 * X_{24} + 0.2100 * X_{25} \\
 & (0.1303) \quad (0.09050) \quad (0.1378) \quad (0.1058) \quad (0.1106) \\
 & 0.7424 \quad 0.5262 \quad -1.3325 \quad 2.8264 \quad 1.8995 \\
 & + 0.2373 * X_{26} + 0.2308 * X_{27}, \text{ Errorvar.} = 0.5174, R^2 = 0.4826 \quad (5) \\
 & (0.1226) \quad (0.1093) \quad (0.08393) \\
 & 1.9357 \quad 2.1126 \quad 6.1644
 \end{aligned}$$

The equation 5 mean that competitive advantage was affected by product at 0.09672, price 0.04762, place (-0.1836), promotion 0.2989, people 0.2100, physical evidence 0.2373, and process at 0.2308. There are two types of influence namely positive and negative. The sub variables which impact positively to the competitive advantage from the biggest successive are promotion, physical evidence, process, people, product and the last price. The sub variables negatively impact is place, this is caused by distribution system for business telecommunication in Indonesia are properly managed by professional distribution company.

The structural diagrams equations between the seventh sub variables of product, price, place, promotion, people, physical evidence, and process to the competitive advantage described as figure 1.

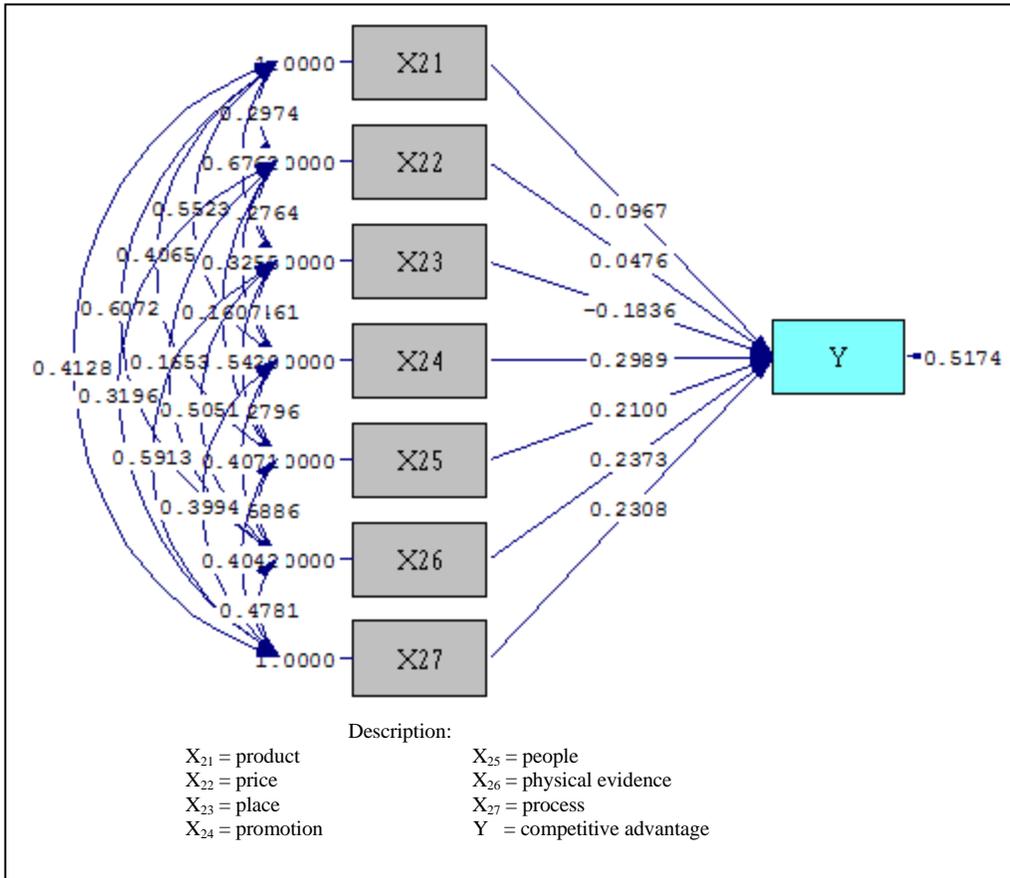


Figure 1: Path Diagram Sub Variables Product, Price, Place, Promotion, People, Physical Evidence, and Process to the Competitive Advantage.

Based on the path diagram picture 1 will be tested the influence of product, price, place, promotion, people, physical evidence, and process to the competitive advantage simultaneously. Thus determined research hypotheses to examined each independent variables and dependent variable with statistic hypotheses formula as below.

- $H_0 : \text{All } \rho_{X_{2i} Y} = 0$       Product, price, place, promotion, people, physical evidence, and process do not influence to the competitive advantage simultaneously.  
 $i = 1, 2, \dots, 7$   
 $H_a : \text{Any } \rho_{X_{2i} Y} \neq 0$       Product, price, place, promotion, people, physical evidence, and process influence to the competitive advantage simultaneously.  
 $i = 1, 2, \dots, 7$

Hypothesis testing is done through F-test statistics with provision that reject  $H_0$  if  $F_{\text{count}}$  greater than  $F_{\text{table}}$ , or otherwise accept  $H_0$  if  $F_{\text{count}}$  less than or equal to the  $F_{\text{table}}$ . With the value of the coefficient determination ( $R_2$ ) in Table 1 can be calculated F value with the following formula.

$$F_{\text{count}} = \frac{(n - k - 1)R^2_{Y(X_{21} \cdot X_{22} \cdot \dots \cdot X_{27})}}{k(1 - R^2_{Y(X_{21} \cdot X_{22} \cdot \dots \cdot X_{27})})} \quad (6)$$

$$F_{\text{count}} = \frac{(84 - 7 - 1) \times 0.4826}{7 \times (1 - 0.4826)}$$

$$= 10.13$$

From F table with significance level at 0.05 and degrees of freedom (7, 76) obtained value of  $F_{table}$  by 2.149. Because of  $F_{count}$  (10.13) is greater than  $F_{table}$  (2.149). With the error rate of 5% it was decided to reject  $H_0$  and accepted  $H_a$ . Then with confidence level at 95% can be concluded that the variables of marketing mix strategy consist of product, price, place, promotion, people, physical evidence, and process influence to the competitive advantage simultaneously.

The hypothesis testing result that marketing mix strategy through product, price, place, promotion, people, physical evidence, and process simultaneously is the main factor which could increasing competitive advantage. The marketing mix strategy is one of sources factor as internal capabilities that could increasing competitive advantage. Then telecommunication service companies have to design and enhance their marketing mix strategy to achieve competitive advantage related to their competitor.

The further will be done testing the influence of the product, price, place, promotion, people, physical evidence, and process in influence to the competitive advantage partially.

#### 4.1 Partially Testing: The Influence of Product to the Competitive Advantage

The hypotheses is done that product influence to the competitive advantage partially. Therefore determined research hypotheses to tested both variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho_{YX_{21}} &= 0 && \text{Product do not influence to the competitive advantage partially.} \\ H_a : \rho_{YX_{21}} &\neq 0 && \text{Product influence to the competitive advantage partially.} \end{aligned}$$

The data processing result as shown in Table 1 that value of  $t_{count}$  product to the competitive advantage by 0,7424. While from t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{table}$  value of 1.991. Because  $t_{count}$  sub variable product (0.7424) lower than  $t_{table}$  (1.991). Then with the error rate 5% it was decided to accept  $H_0$  and reject  $H_a$ . So with confidence level 95% can be concluded that sub variable product do not influence to the competitive advantage partially and significantly.

The hypothesis testing result that product in the marketing mix strategy could not increasing competitive advantage partially. This result rather odd because product should be important element on the marketing mix strategy. This mean that telecommunication services companies currently do not focus on development their product. So the sources of competitive advantage not be obtained from product development but based on another element on the marketing mix. This is controversial as high-tech companies the sources of competitive advantage should come from product development. Therefore important for telecommunication services companies to swift their sources of competitive advantage to the product to provide superior customer value.

#### 4.2 Partially Testing: The Influence of Price to the Competitive Advantage

The design hypothesis that price influence to the competitive advantage partially. Thus defined research hypotheses to testing each independent variables and dependent variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho_{YX_{22}} &= 0 && \text{Price do not influence to the competitive advantage partially.} \\ H_a : \rho_{YX_{22}} &\neq 0 && \text{Price influence to the competitive advantage partially.} \end{aligned}$$

The result of data calculating result in Table 1 show that value of  $t_{count}$  price to the competitive advantage by 0,5262. While from t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{table}$  value of 1.991. Because  $t_{count}$  sub variable price (0.5262) lower than  $t_{table}$  (1.991). Then with the error rate 5% it was decided to accept  $H_0$  and reject  $H_a$ . So with confidence level 95% can be concluded that sub variable price do not influence to the competitive advantage partially and significantly.

The result show that price do not increasing to competitive advantage partially, even though price is an important element of the marketing mix strategy. This is caused by the tight tariff competition offered by telecommunication service companies currently which pushing tariff war situation.

The low price should be basic term to offer telecommunication services to customers. That is encourage each companies to offer low price, so price became not sensitive anymore to increasing competitive advantage. It mean that the companies could not rely only on the price.

#### 4.3 Partially Testing: The Influence of Place to the Competitive Advantage

The design hypothesis that place influence to the competitive advantage partially. Thus defined research hypotheses to testing each independent variables and dependent variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho_{YX_{23}} &= 0 && \text{Place do not influence to the competitive advantage partially.} \\ H_a : \rho_{YX_{23}} &\neq 0 && \text{Place influence to the competitive advantage partially.} \end{aligned}$$

The data processing results such as in Table 1 show that value of  $t_{\text{count}}$  place to the competitive advantage by -1,3325. While from the t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{\text{table}}$  value in 1.991. Because of  $t_{\text{count}}$  sub variable place (-1.3325) less than  $t_{\text{table}}$  (1.991), then with the error rate 5% it was decided to accepted  $H_0$  and rejected  $H_a$ . So with confidence level 95% can be concluded that sub variable place do not influence to the competitive advantage partially and significantly.

Place is the only one sub variable in marketing mix which negative impact to the competitive advantage. This is mean that improving on place could not increasing competitive advantage. The existing condition place is the distribution channels system in telecommunication service companies well established either through scheme of modern channel or companies-owned outlets. The companies have no constraint to enter into existing distribution channels and enable ease of access to serve their customers. So not necessary for companies to improving their place or distribution channel.

#### 4.4 Partially Testing: The Influence of Promotion to the Competitive Advantage

The design hypothesis that promotion influence to the competitive advantage partially. Thus defined research hypotheses to testing each independent variables and dependent variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho_{YX_{24}} &= 0 && \text{Promotion do not influence to the competitive advantage partially.} \\ H_a : \rho_{YX_{24}} &\neq 0 && \text{Promotion influence to the competitive advantage partially.} \end{aligned}$$

The data processing results in Table 1 show that value of  $t_{\text{count}}$  promotion to the competitive advantage at 2,8264. While from the t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{\text{table}}$  value at 1.991. Because of  $t_{\text{count}}$  sub variable promotion (2,8264) greater than  $t_{\text{table}}$  (1.991), then with the error rate 5% it was decided to rejected  $H_0$  and accepted  $H_a$ . So with confidence level 95% can be concluded that sub variable promotion influence to the competitive advantage partially and significantly.

Promotion is an important element of marketing mix strategy which could be improving competitive advantage. The element of promotion in the marketing mix strategy is an important in orders to communicate the positioning to their customers and market relationship. Promotion adds services significance and also shape as well as help customers to make better judgments on telecommunication services offered. It mean that the sources of competitive advantage companies based on promotion, even so it is not ideal condition if just dependent on promotion.

#### 4.5 Partially Testing: The Influence of People to the Competitive Advantage

The design hypothesis that people influence to the competitive advantage partially. Thus defined research hypotheses to testing each independent variables and dependent variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho_{YX_{25}} &= 0 && \text{People do not influence to the competitive advantage partially.} \\ H_a : \rho_{YX_{25}} &\neq 0 && \text{People influence to the competitive advantage partially.} \end{aligned}$$

The data calculating results in Table 1 show that value of  $t_{\text{count}}$  people to the competitive advantage at 1,8995. While from the t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{\text{table}}$  value at 1.991. Because of  $t_{\text{count}}$  sub variable people (1,8995) lower than  $t_{\text{table}}$  (1.991), then with the error rate 5% it was decided to accepted  $H_0$  and

rejected  $H_a$ . So with confidence level 95% can be concluded that sub variable people do not influence to the competitive advantage partially and significantly.

People about attempts to view the employees of an organization as an element of the marketing mix strategy due to recognizing the contributions each person in attracting and retaining customers, the role of people as service representatives will directly affect customer perception on service quality of the companies. But the result show that people could not improving competitive advantage directly and partially. Companies have to strive to maintain and improving element people even so currently could not contribute on competitive advantage.

#### 4.6 Partially Testing: The Influence of Physical Evidence to the Competitive Advantage

The design hypothesis that physical evidence influence to the competitive advantage partially. Thus defined research hypotheses to testing each independent variables and dependent variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho YX_{26} &= 0 && \text{Physical evidence do not influence to the competitive advantage partially.} \\ H_a : \rho YX_{26} &\neq 0 && \text{Physical evidence influence to the competitive advantage partially.} \end{aligned}$$

The data calculating results in Table 1 show that value of  $t_{\text{count}}$  physical evidence to the competitive advantage at 1,9357. While from the t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{\text{table}}$  value at 1.991. Because of  $t_{\text{count}}$  sub variable physical evidence (1,9357) less than  $t_{\text{table}}$  (1.991), then with the error rate 5% it was decided to accepted  $H_0$  and rejected  $H_a$ . So with confidence level 95% can be concluded that sub variable physical evidence do not influence to the competitive advantage partially and significantly.

This mean that physical evident could not increasing competitive advantage directly. Physical evidence in services marketing mix aimed to tangible component of services area or other objects around it to give effect to the customer's impression about service quality. The existing physical evidence have been in good condition, even increasing in the physical evidence will not influence to the competitive advantage. However telecommunication service companies must strive to maintain physical evidence because it affects customer satisfaction.

#### 4.7 Partially Testing: The Influence of Proses to the Competitive Advantage

The design hypothesis that process influence to the competitive advantage partially. Thus defined research hypotheses to testing each independent variables and dependent variables with statistic hypotheses formula as follows.

$$\begin{aligned} H_0 : \rho YX_{27} &= 0 && \text{Process do not influence to the competitive advantage partially.} \\ H_a : \rho YX_{27} &\neq 0 && \text{Process influence to the competitive advantage partially.} \end{aligned}$$

The data calculating results in Table 1 show that value of  $t_{\text{count}}$  process to the competitive advantage at 2,1126. While from the t table in the error rate 5%, and degrees of freedom 76 obtained  $t_{\text{table}}$  value of 1.991. Because of  $t_{\text{count}}$  sub variable process (2,1126) greater than  $t_{\text{table}}$  (1.991), then with the error rate 5% it was decided to rejected  $H_0$  and accepted  $H_a$ . So with confidence level 95% can be concluded that sub variable process influence to the competitive advantage partially and significantly.

Process have characteristics that can be clearly and strategic managed in the marketing mix strategy in order to strengthen and change the positioning. Process in marketing mix strategy could increasing to competitive advantage. Its mean that process is one of sources competitive advantage therefore the companies have to maintain and improve process in their business in order to achieve competitive advantage.

## 5. Conclusion

Marketing mix strategy is one of important factor in influencing competitive advantage. Each elements of marketing mix consist of product, price, place, promotion, people, physical evidence, and process have different effect to competitive advantage. Together all elements in marketing mix related each other and influencing competitive advantage simultaneously and significantly. All elements of marketing mix have positively impact except place that have negative impact to the competitive advantage.

The partially testing for each elements in influencing to the competitive advantage show different result there are influencing or not influencing to the competitive advantage. Product is not influencing to the competitive advantage

partially. This is controversial as high-tech companies the sources of competitive advantage should be from their product. Thought one of elements in the competitive advantage is differentiation that should be from distinctive product development.

Price is the second element of marketing mix which not influencing to the competitive advantage partially. It is also controversial because price is one of main element in the competitive advantage. This mean the companies could not achieve competitive advantage currently. Another elements of marketing mix which not influencing to the competitive advantage partially are place, people, and physical evident.

There are two elements of marketing mix which influencing to the competitive advantage partially namely promotion and process. The companies only have two elements of marketing mix that really support their competitive advantage.

Although all elements of marketing mix influencing to the competitive advantage simultaneously but only two element of marketing mix that influencing partially are promotion and process. The companies have to improving elements of marketing mix especially for elements that not yet influencing to the competitive advantage. The competitive advantage of companies still in not so good categories so that the companies necessary to improve their competitive advantage.

For further research direction this research model need to be included another factors internal capabilities as resources based view and external factors such as customers, competitors, suppliers, regulations. So that the error rate in the research model can be reduced.

## References

- Best, R. J. (2009). *Market-Based Management: Strategies for Growing Customer Value and Profitability*. 5<sup>th</sup> ed. USA. Pearson Education, Inc.
- Bradley, Frank. (1995). *Marketing Management: Providing, Communicating and Delivering Value*. Hertfordshire. Prentice-Hall International (UK) Limited.
- Christensen, H. K. (2010). Defining customer value as the driver of competitive advantage. *Strategy & Leadership*. Vol. 38 No. 5, pp 20-25.
- Chumaidiyah, E. (2010). The Conceptual Design of Competitive Advantage For Telecommunication Services Business In Indonesia Through Core Competence Approach. *Proceedings International Conference on Telecommunication (ICTel)*. IT Telkom, Bandung, Indonesia.
- Chumaidiyah, E. (2010). Kompetensi Inti dan Strategi Bauran Pemasaran dalam Meningkatkan Keunggulan Bersaing Pada Perusahaan Jasa Telekomunikasi. *Jurnal Telekomunikasi*. Terakreditasi Nasional – Dikti, Edisi Desember Volume 15 no. 2.
- Chumaidiyah, E. (2010). Kajian Pemikiran tentang Pengaruh Teknologi, Kemampuan Teknik dan Kegiatan R&D terhadap Keunggulan Kompetitif pada Industri Berbasis Teknologi Tinggi. *Proceedings of Ritektra*, Fakultas Teknik Unika Atma Jaya, Jakarta. Indonesia.
- Chumaidiyah, E. (2010). Theoretical Framework : The Influence of Technology, Technical Skill and Research & Development Capability To Competitive Advantage. *Proceedings The International Conference on Industrial Engineering And Business Management (ICIEBM)*. UIN – Sunan Kalijaga, Yogyakarta, Indonesia.
- Chumaidiyah, E. (2011). Theoretical Framework : The Influence of Core Technical Competence and Core Marketing Competence to Competitive Advantage. *Proceedings The 2<sup>nd</sup> International Conference on Industrial Engineering And Operations Management (IEOM)*. Kuala Lumpur, Malaysia.
- Chumaidiyah, E. (2012). Teknologi, Kemampuan Teknis, dan Kapabilitas R&D dalam Meningkatkan Bauran Pemasaran Pada Perusahaan Jasa Telekomunikasi. *INDECT 2012*. FRI – IT Telkom, Bandung, Indonesia.
- Chumaidiyah, E. (2012). The Technology, Technical Skill, and R&D Capability in Increasing Profitability on Indonesia Telecommunication Service Companies. *Proceedings International Conference on Small and Medium Enterprises Development (ICSMED)*, Unpar, Bali, Indonesia.
- Chumaidiyah, E. (2012). The Technology, Technical Skill, and R&D Capability in Increasing to the Competitive Advantage in Indonesia Telecommunication Service Companies. *Proceedings The 3<sup>rd</sup> International Conference on Industrial Engineering and Operations Management (IEOM)*. Istanbul, Turkey.
- Chumaidiyah, E. (2012). The Technology, Technical Skill, and R&D Capability in Increasing to the Marketing Performance in Indonesia Telecommunication Service Companies. *Proceedings The 10<sup>th</sup> Triple Helix Conference (THC)*. Bandung, Indonesia.

- Chumaidiyah, E. (2013). Marketing Mix Strategy in Increasing Marketing Performance in Indonesia Telecommunication Services Companies. *Proceedings IEEE International Conference of Information and Communication Technology (ICoICT)*. Bandung, Indonesia.
- Malhotra, Naresh K. (2002). *Basic Marketing Research: applications to contemporary issues*. International Edition. Upper Saddle River, New Jersey. Pearson Education, Inc.
- Porter, M. E. (1985). *Competitive Advantage*. Boston, MA: Free Press.
- Rust, R.T., Anthony J. Z., and Timothy L. K. (1996). *Services Marketing*. New York. Harper Collins College Publishers.
- Sekaran, Uma. (2009). *Research Method For Business: A Skill Building Approach*. New York. John Wiley & Sons, Inc.
- Thompson, A. A., Strickland, A. J., and Gamble, J. E. (2008). *Crafting and Executing Strategy: The Quest for Competitive Advantage Concepts and Cases*. New York. McGraw-Hill.
- Zeithaml, V. A., and Bitner, M. J. (2006), *Services Marketing: Integrating Customer Focus Across the Firm, 5<sup>th</sup> Edition*. Boston. McGraw-Hill Higher Education.

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