

commerce site selected on the merchant from point 7 to point 11.

The Decision Support System Application gives customers the convenience to be able to select the merchant located in every marketplace e-commerce sites on the desired product. This provides convenience for customers so that customers do not need to visit e-commerce site one by one. In addition, also with Decision Support System Application allows customers in determining the product based on rating and sorting in accordance with the wishes of the customer. For example, customers will find cheap goods at the location nearest the customer, so the cost of shipping goods will be cheaper.

B. The Proposed of Decision Support System Model

If at point A talks about how the customer process to purchase a product with a decision support system, then in this section (B) will discuss the design model decision support system itself. Decision support system this model is a depiction of system process that can be done to guide application developer in making Decision Support System Application. Decision support system of the proposed model is in the following picture:

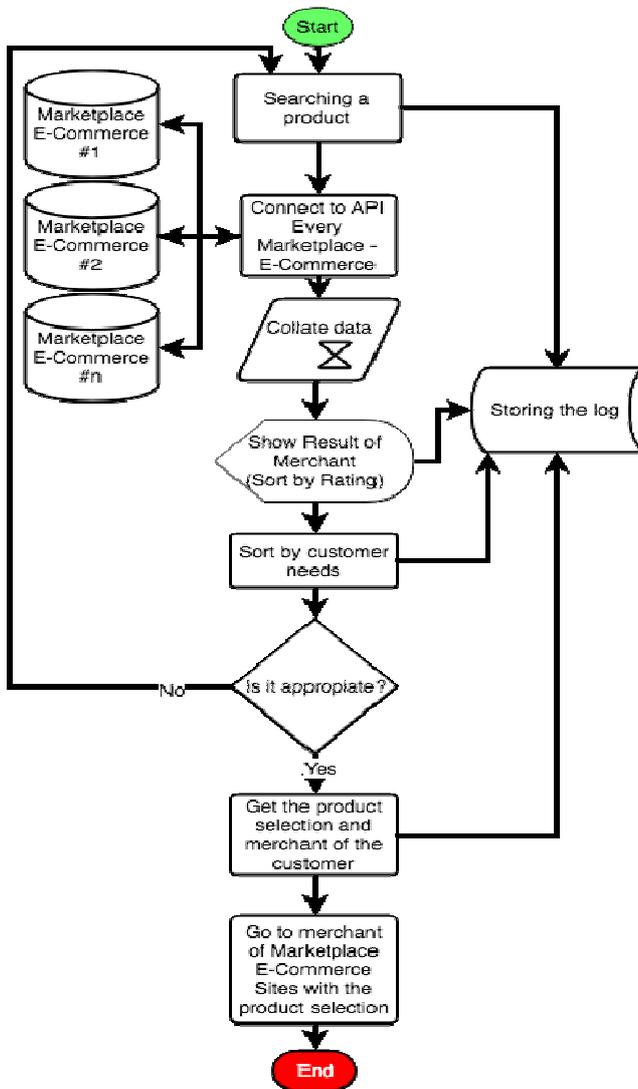


Fig. 3. Decision support system model for customer

Decision support system application will receive requests from customers to search the product. When a customer searches for a product, the product will be logged as a record for the application and for future needs.

Decision support system application will connect to the API (Application Program Interface) to each marketplace e-commerce site that has been registered on the decision support system application. In this case, before the decision support system is made, has an agreement between the decision support system with an existing marketplace e-commerce site and make agreements to perform API Connection for data in the e-commerce site can be read data. In this case, the API will only read the data without doing a write on the data.

After reading the data through the API to any existing marketplace e-commerce site it will display the data results by default is sort by rating. In addition to displaying to the customer, then the decision support system application also does store log to decision support system database. Views by sort by rating will be displayed every marketplace e-commerce site per each column. For to make sure the customer can read the data result easily and well.

Customer will see the result if customer not according to sort by rating, the customer can do sort by customer needs such as sort by price, location order, and also see every existing review and comment from every merchant at every marketplace e-commerce site in each column. If the customer is in accordance with the expected needs, then the customer can do the next process. However, if the customer does not want to continue then the customer can repeat from the beginning. Every customer does sort of customer need, then decision support system application will do storing the log for the next requirement.

Customer will determine the product selection on one merchant that is in one of the marketplace e-commerce sites. In this process, the decision support system application will perform the log of customer selection on the decision support system database. After the customer chooses the product, the decision support system application will lead to the e-commerce site that has been selected by the customer and then the customer continues to conduct transactions on the e-commerce site.

With this model, customer can begin the process of purchasing a product, without having to search for products in each existing marketplace e-commerce sites, but simply starting from the application of decision support systems to facilitate customers looking for a product. Product with the first criterion is the quality of the product. Merchant in each marketplace e-commerce site of the market are at the highest rating. This makes it easier for customer to find products with good commercial service quality based on the merchant's classification. Once the customer obtains a merchant with good quality of service, the user can make the classification according to the needs. This provides convenience and value for users to be more specific as necessary for the user.

IV. CONCLUSIONS

With the application of decision support system then allows customers to select products according to expectations and see by rating, review, and comment. Customers can be facilitated with the initial option to view desired products

easily from various marketplace e-commerce sites and various merchants that sell products on one application is decision support system application. Model made is expected to facilitate application developer in making decision support system application.

Limitations of this study are still not enough reference is very supportive of decision support system application. After doing the literature review, there is no similar application and similar research to support this research. It can be said that this research is a new research and needs to be developed for further especially on decision support system in e-commerce by focusing on the integration of review and comment from every e-commerce site in Indonesia.

Research that can be done for next research is to develop logs that have been stored in the decision support system database so that it can be developed as a big data for subsequent data processing. In addition, research can also be further developed into other e-commerce needs, not just for review and comment, but also for other needs.

ACKNOWLEDGMENT

Thank Bina Nusantara University Research Technology Transfer Office who funded this research until publication of this research.

REFERENCES

- [1] "Debenhams dan Lotus Tutup, MAP Kembangkan Toko Online." [Online]. Available: <https://finance.detik.com/berita-ekonomi-bisnis/3701031/debenhams-dan-lotus-tutup-map-kembangkan-toko-online>. [Accessed: 29-Jan-2018].
- [2] S. H. Ha, S. Y. Bae, and L. K. Son, "Impact of online consumer reviews on product sales: Quantitative analysis of the source effect," *Appl. Math. Inf. Sci.*, vol. 9, no. 2, pp. 373–387, 2015.
- [3] E. Constantinides, "Influencing the online consumer's behavior: the Web experience," *Internet Res.*, vol. 14, no. 2, pp. 111–126, 2004.
- [4] Y. Diao, Y. He, and Y. Yuan, "Framework for Understanding the Business Model of Social Commerce," *Int. J. Manag. Sci.*, vol. 2, no. 6, pp. 112–118, 2016.
- [5] B. Perkins and C. Fenech, "Deloitte Consumer Review: The growing power of consumers," pp. 1–16, 2014.
- [6] Q. Chen and N. Zhang, "Does e-commerce provide a sustained competitive advantage? An investigation of survival and sustainability in growth-oriented enterprises," *Sustain.*, vol. 7, no. 2, pp. 1411–1428, 2015.
- [7] B. J. Corbitt, T. Thanasankit, and H. Yi, "Trust and e-commerce: A study of consumer perceptions," *Electron. Commer. Res. Appl.*, vol. 2, no. 3, pp. 203–215, 2003.
- [8] R. Epstein, "The Truth about Online Consumers," *Sci. Am. Mind*, vol. 20, no. 3, pp. 54–61, 2009.
- [9] J. Norcini, "The power of feedback," *Med. Educ.*, vol. 44, no. 1, pp. 16–17, 2010.
- [10] A. Panagopoulos, E. Koutrouli, and A. Tsalgaidou, "Modeling and Evaluating a Robust Feedback-Based Reputation System for E-Commerce Platforms," *ACM Trans. Web*, vol. 11, no. 3, pp. 1–55, 2017.
- [11] J. G. Vargas-hernández, "Strategies for the Adoption of E-commerce," vol. 3, no. 4, 2015.
- [12] B. Shen and X. Han, "Factors Affecting Customer Experience in Mobile Social Commerce: A Conceptual Model," no. Icss, pp. 177–182, 2016.
- [13] A. Upadhayaya, "Electronic Commerce and E-wallet," vol. I, no. March, pp. 37–41, 2012.
- [14] X. Guo and A. López, "Mobile Decision Support System Usage in Organizations," *Proc. Ninet. Am. Conf. Inf. Syst. Chicago, Illinois, August 15-17, 2013.*, pp. 1–7, 2013.
- [15] E. W. T. Ngai and A. Gunasekaran, "Mobile commerce: Strategies, technologies, and applications," *Decis. Support Syst.*, vol. 43, no. 1, pp. 1–2, 2007.
- [16] Xin Li, J. Liu, and Fangfang Zhang, "Different effects of provider recommendations and consumer reviews on consumers' shopping efficiency for different product types," in *2016 13th International Conference on Service Systems and Service Management (ICSSSM)*, 2016, pp. 1–6.
- [17] S. Gao, "Mobile decision support systems research: A literature analysis," *J. Decis. Syst.*, vol. 22, no. 1, pp. 10–27, 2013.
- [18] P. D. Haghghi, "The new era of mobile decision support systems," *J. Decis. Syst.*, vol. 22, no. 1, pp. 1–3, 2013.
- [19] K. Z. Zhang and M. Benyoucef, "Consumer behavior in social commerce: A literature review," *Decis. Support Syst.*, vol. 86, no. April, pp. 95–108, 2016.
- [20] S. M. Mudambi and D. Schuff, "What Makes a Helpful Online Review? A Study of Customer Reviews on Amazon.com," *MIS Q.*, vol. 34, no. 1, pp. 185–200, 2010.