

Understanding E-Commerce Market Using Cluster Analysis: A Case Study of the CRM Programs of Online Shopper

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Abstract

The purpose of this research was to segment customers of e-commerce platform based on their preference on Customer Relationship Management (CRM) programs and socio-demographic. The study surveyed 100 respondents who have bought products from e-commerce platform. The research employed cluster analysis to group customers of e-commerce platform with similar characteristics and preferences. Using CRM programs as measurement variables, the results suggested three groups of customers, they are, Lifestyle driven segment, Selective driven segment and Penny-wise driven segment. The results also showed Lifestyle driven segment as the most dominant type of customers who strongly driven by lifestyle trend and dominated by millennial. Understanding the differences between these three group segments should provide company with important information to successfully create a proper CRM programs for each segment. Therefore, effective Customer Relationship Management (CRM) programs can help a company to retain customers. The recommendation to improve CRM program effectiveness based on each cluster preferences are provided in the paper.

Keywords: Segmentation; Cluster analysis; Customer relationship management.



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1. Introduction

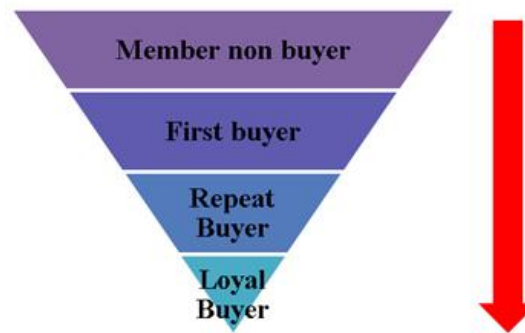
As the largest population in Southeast Asia, Indonesia become the hottest e-commerce market in the world. Attracting both global and local e-commerce companies' interests, Indonesia experience fast growing e-commerce scene for the past few years. Thus, Indonesian is now experiencing changes in consumer consumption habits and pattern, from offline to online shopping. In addition, the growth of middle and affluent consumer (MAC) also influences the Indonesian shopping patterns. It is predicted there will be 43.89 million online shoppers by 2020 (eshopworld.com). Tough online sales transaction contributes only 1% of all sales in Indonesia, e-commerce is expected to expand in high double digit in the coming years (Spireresearch.com). There are various e-commerce companies in Indonesia that offer thousands of product categories. To win this fierce competitions among e-commerce companies, an e-commerce company should be able to maintain its customer loyalty. Therefore, it is very important to build good relationships with customers.

In the late nineties, the concept of Customer Relationship Management (CRM) has brought into attention among academics and practitioners. This new concept has directing companies' attention toward more vital aspects, such as the importance of keeping current customer, as well as building long-term relationships with customers. Therefore, company should directed its attention to CRM and investing necessary infrastructure to the advancement of Information Technology (Soliman, 2011). By investing to greater advance of technology, it will help company in better dividing market territories, enhancing communications with customers, providing an environment rich with information so as to contribute in improving efficient strategies to deal with customers (Shah *et al.*, 2013; Soliman, 2011). In the recent study by Nucleus Research Report, 65% of companies are meeting or exceeding their sales quotas by using mobile CRM solutions, while only 22% of companies that are not using these mobile solutions can meet or exceed their sales quotas; 74% of business using CRM report better customer relationships (EcommerceCRMSoftware.com)

Considering its role, various companies form a CRM division that specialized to manage and maintain their relationship with their customers. The objective of implementing CRM is to build long-term relationships with customers and ensure that they continue to do business with the company without turning off to other competitors (Soliman, 2011).

Looking at the trend and growth, it is undeniable that currently Customer Relationship Management (CRM) becomes a company core business strategy because CRM integrates internal and external network processes to create and deliver value to target customers (Buttle and Maklan, 2015).

Various CRM programs are developed by some companies such as reward points, birthday program, win back program, appreciation program, etc. Some of these CRM programs are not applied to all customers. Some companies categorize their customers to several types of membership and each types are indulged with different treatments.

Figure-1. Example of E-commerce Membership

Source: Blibli.com

Consumers as the person who has the main voice requires managers and employees to adapt customers' perspectives to improve their CRM processes. Thus, it can be said that the company that implement CRM systems should focused and prioritize customer's expectations. In this regard, segmentation of potentially profitable customers, becomes significantly important. Market segmentation is the process of dividing market into smaller groups according to needs, characteristics, or behavior that may require different or mixed marketing strategies (Kumar and Werner, 2012). Each type of customers display different character and preferences. Therefore, ideally, company should design a specific marketing programs for each type of customers (Kotler *et al.*, 2014). Using the CRM elements, this study is aimed to segment customers who buy products from e-commerce platform into several clusters. This study will provide a deeper understanding of each cluster based on socio-demographic and customers preferences on CRM programs. The recommendations to improve e-commerce companies CRM programs that will eventually improve CRM effectiveness are provided in the paper.

2. Literature Review

Customer Relationship Management is a process to manage customer's detail information and customer "touch point" to maximize customer loyalty. Customer touch point means each attributes faces by customers towards brands and products (Kotler and Keller, 2009). Basically, the objectives of a company adopting CRM is to increase customer retention and satisfaction. By doing an effective CRM program, a business could maintain loyal customer as well as, reducing cost, as CRM enables business to have specific and focus information of its customers (Dyantina *et al.*, 2012). CRM divided its component into three important components, they are people, process and technology. People becomes the first factor in implementing effective CRM because CRM manage interrelations between people. Process becomes the second factor because all business functions should focusing on the customers. CRM process includes identifying customers according to their profiles and buying behavior, then differentiate customer by segmenting according to their profiles and buying behavior, interact with customers by creating strategy that promoting customer loyalty, and the last step personalize product or CRM programs according to customers wants.

Figure-2. CRM Process

Source:

Technology become the third factors by creating customers database from operating system until interact with customers. Currently digital marketing become one form of technology utilization to create organization and customer relationship.

2.1. Market Segmentation

Market Segmentation is a process to divide market into several category of consumers with similar needs and characteristics (Schiffman and Wisenblit, 2014). By segmenting the market, limited sources could be managed more optimal to produce products that fulfill market demands, as well as deciding a more effective way of promotion. Segmentation that oriented to increase marketing could contribute a significant profit for businessman and customers (Sudaryono, 2016). Some literature did not provide plausible definition between customer segmentation and market segmentation and what are the difference between them; therefore in generally we can understand that market segmentation used in high level strategy, whereas customer segmentation provide details view. Customer segmentation becomes one of the most significant methods in marketing studies where numerous methods are available to determine customers groups (Walters and Bekker, 2017). As can be seen, customer population can be divided into different segments based on two segmentation basis, namely socio-demographic and behavior:

- Socio demographic segmentation divided populations into several segments of different sizes based on customer profile such as demography (age, education, occupations, etc), geography and psychography.
- Behavioral segmentation divided populations into several segments of different sizes based on consumer preference of CRM Programs.

In conducting market segmentation, researcher should consider MASDA (Measurable, Accessible, Substantial, Differentiable, and Actionable) aspects in order to avoid improper analysis of targets (Kumar and Werner, 2012).

As this study aims to segment customer of e-commerce using several variables as measurement, a detail of variables and indicator are shown in table as follow:

Table-1. Measurement variables

Authors	Variables	Indicator
(Buttle, 2009)	Socio-demographic	Demographic
		Geographic
		Psychographic
(Kumar and Werner, 2012)	Elements of a CRM System	Web-based contacts
		Mobile-based contacts
(Alhaiou <i>et al.</i> , 2009)	At-Purchase/e-CRM Constructs	Payment Methods
	Post-Purchase/e-CRM Construct	Problem Solving
		Order Tracking
(Buttle, 2009)	Business-to-consumer prospecting	Advertising
		Message
		Media
(Magatef and Tomalieh, 2015)	Types of Loyalty Programs	Points System
		Vouchers
		Birthday Gift
		Merchandise
		Member Access
(Karam and Saydam, 2015)	Buying Decision Making	Need Recognition
		Information Search
		Alternative Evaluation
		Purchase Decision
		Post-Purchase Decision

3. Research Methodology

3.1. Participants

Descriptive analysis was used to determined respondents characteristics where 45% of respondents was males while 55% was females. The largest group of age was between 20-35 years old = 50%, below 20 years old = 2%, age between 36 – 40 years old = 23%, age between 41 – 45 years old = 24%, and age above 45 years old = 1%.

3.2. Research Design and Procedures

Surveys was conducted to customers who have shopped online at least once within last three months while the survey was conducted. Online questionnaires was developed with 100 samples gathered. Five-point rating scales from 5 (strongly agree) to 1 (strongly disagree) asking respondents to indicate their preferences towards each questions. This study are examined using cluster analysis and cross tabulation. This study uses cluster analysis to categorize respondents into several clusters based on the similarity of attributes defined. While cross tabulation is used to categorize the respondents based on their socio-demographic. Online questionnaire was developed with 100 customers who have shopped online at least once within last 3 months while this study was conducted.

4. Results and Findings

Cluster analysis was employed using ANOVA test from K-means dan Chi-square test. The results classified respondents into three groups, that is, Lifestyle Driven Segments, Selective Driven Segments, Penny-wise Driven Segments. Details of each group are shown in table as follow:

	1	2	3
	Lifestyle Driven Segments	Selective Driven Segments	Penny-wise Driven Segments
Age	20-35	41-45	20-35
Education	Bachelor	Bachelor	Bachelor
Job	Employee	Employee	Employee
Status	Married	Married	Single
Income	401-600 USD	601-800 USD	601-800 USD
Open with	Computer/Laptop	Apps	Computer/Laptop
Elements of a CRM System (Communication tools preffered)	E-mail, Live chat	Telephone	SMS
Payment method	Internet Banking	Debit/Credit Card	Transfer Bank

Business to consumer prospecting	E-mail, Social media, Website, SMS	Advertising, Print Media, Social media	Online Banner, E-mail
Problem Solving	Online	Offline	Online
Order Tracking	Online	Offline	Online
Loyalty Programme	Give merchandise	Point System	Discount Voucher
	Special member offer	Early bird Access	Buy 1 Get 1 Voucher
	Give birthday gift		Free Shipping Voucher
Preferred category of products	Gadget & Electronic	Sport	Fashion
		Culinary	
		Home & Living	
Motivation to purchase	Incidentally see the promo	Want to use voucher	Looking for these products in certain e-commerce
	The product is only sell in certain e-commerce	Want to collect points	Free Shipping
	The offered price is cheaper	Customer Service 24 jam	
	Quality guaranteed		
	Interesting Offers		
Information Source	Advertising	Friends/Relative	Social media

As seen in the table above, the research results show that every group shows some differences that can be given an explanation as follows:

The consumers in segment 1, **Lifestyle Driven Segments**, appears to be strongly driven by lifestyle trend. They often buy gadgets and electronic products indicating that customers in this segment keeping pace with technology development. Customer in this segment prefer to do all transaction process online including use internet banking as they preferable payment method. They favorite CRM programs are giving merchandise, birthday gift and special membership offer indicating they like to be treated as special customers. Lifestyle Driven Segments is dominated by adult aged between 25 – 35 years old with average income around 401 – 600 USD per month. In term of size, the Lifestyle Driven Segments is the largest of the three segments, representing 49% of all respondents. The implication for marketers who targeted this segment as their key target market should provide customers with product lookbook which include up-to-date trend especially in technology. With the use of CRM database and technology, a company can deepens their relationship with customers in this segment by sending unexpected moment gift such as when the customers celebrating birthday, because customers in this segment wants to be treated as special customers.

The consumers in segment 2, **Selective Driven Segments**, are very selective customers. When taking decisions, they seek advice from friends or relatives. Mostly dominated by age from 41-45 years old and married with average income 601- 800 USD per month, they often buy home living and sport products, as well as, culinary vouchers. Customer in this segment prefer to do some part of the transaction process offline. They favorite CRM programs are point system and early bird access indicating they want to be priority customers. In term of size, the Selective Driven Segments representing 20% of all respondents. For marketers who targeted this segments as their key target market should understand that customers in this segment are mostly from baby boomers generations. This means their technology literacy is less than other segments, thus a firm should provide detail guidance when interact with this segment. In addition, customers in this segment also want to be treated as priority customers, thus a firm can offer them an early bird access or information priority of new and exclusive products that soon-to-be launched.

The consumers in segment 3, **Penny-wise Driven Segments**, are more likely to do impulsive buying. Their purchase motivation appears strongly driven by promotion. Thus, their favorite CRM programs are Discount Voucher, Buy 1 Get 1 Voucher and Free-Shipping Voucher. Dominated by age between 20-35 years old and single with average income 601 – 800 USD per month, they favorite category product is fashion. Customer in this segment are not loyal to any e-commerce company because they are looking for the best offers from any e-commerce. In term of size, the Penny-wise Driven Segments representing 31% of all respondents. Marketers who targeted this segment as their key target market should apply strategy by partnering with celebrity or influencer to engage their loyalty. Hold an events or invite them on a product launching could be another way to engage customers in this segment.

5. Discussion

The purpose of this study was to provide a deeper understanding of customers who buy products form e-commerce platform by segmenting them into several clusters. Using CRM Programs as variables, this study provides insight into a variety of different customer preferences on CRM programs and developed a CRM based segmentation of individuals who buy products from e-commerce platform. In addition, this study also provides socio-demographic profile for each segments developed.

The result of our study suggest customers who buy products from e-commerce platform are not a homogeneous group, instead they are divided into three cluster, they are Lifestyle driven, Selective driven and Penny-wise driven segments. To increase customer loyalty, a firm should distinguish CRM programs for each cluster, because each segment shows different character and preferences.

For example, Lifestyle driven segment which is the largest customers in e-commerce platform, strongly driven by lifestyle trend thus a firm might develop a Product Lookbook to provide customers the most up-to-date trend especially in technology. Furthermore, Penny-wise driven segments are the most impulsive buying customers yet the most disloyal customers, their CRM program preference are vouchers, thus a firm should involve them into more engagement programs such as invite them into events or product launching so that they feel more engaged to a firm. Lastly, Selective-driven segment are the most careful customers when considering to buy a product. They seek advice from friends and relatives. Considering their age between 41-45 years old, this segment more likely not exposed into advance technology thus some of their transaction process are done offline. Therefore, a firm should consider to treat this segment as priority customer as they display a higher loyalty than other segments.

6. Conclusions and Recommendation

Segmentation of customers of e-commerce platform with the CRM programs as measurement variables in this study can be conclude as follow:

1. Customers who buy products from e-commerce platform are not a homogeneous group. Their preference of CRM programs are used to distinct each segment behavior. Three clusters are distinguished in this study, they are, Lifestyle driven, Selective driven and Penny-wise driven segments.
2. Lifestyle driven segment which is the largest customers in e-commerce platform appears to be strongly driven by lifestyle trend. Dominated by age between 20-35 years old, customers in this segment tend to keeping pace with technology development thus they often buy gadget and electronic products. They favorite CRM programs are giving merchandise, birthday gift and special membership offer indicating they like to be treated as special customers.
3. Selective-driven segment are dominated by age between 41-45 years old. They are very selective when considering to buy a product thus they seek advice from friends and relatives. Customers in this segment are more likely not exposed into advance technology thus some of their transaction process are done offline. They favorite CRM programs are point system and early bird access indicating they want to be priority customers.
4. Penny-wise driven segment are dominated by age between 20-35 and single. Customers in this segment are the most impulsive buying customers yet the most disloyal customers. Their CRM program preference are vouchers, thus they are more likely to be price sensitive.

To increase customer loyalty, a firm should distinguish CRM programs for each cluster, because each segment shows different character and preferences. Thus the result of this research provide input to improve e-commerce company CRM programs effectiveness for each cluster:

1. Lifestyle driven segments: Provide customers in this segment a Product Lookbook which include the most up-to-date trend especially in technology. In addition, a firm might send unexpected moment gift because customers in this segment like to be treated as special customers, thus by sending them unexpected gift make them feel special.
2. Selective driven segment: As customers in this segment want to be treated as priority customers, thus a firm may offer them an early bird access. Firm can provide information of new and exclusive products that soon to be launched. Provide them with this early bird access and extra point if they buy the products.
3. Penny-wise driven segment: as customers in this segments are the most impulsive buying customers yet the most disloyal customers, their CRM program preference are vouchers, thus a firm should involve them into more engagement programs such as partnering with celebrity or influencer to engage their loyalty. Invite them into events or product launching could be another way to engage customers in this segment as they will feel become part of the firm.

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