# CONJOINT ANALYSIS OF CONSUMER PREFERENCES REGARDING B2B PRODUCT SALES THROUGH MOBILE APPLICATION

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**ABSTRACT**

*Conjoint analysis is a multivariate analysis technique that can be used to determine the relative importance level based on customer's perception. Due to the need of business expansion, PT Cellcius made use of media through usage of mobile application and researcher decided to conduct conjoint analysis study on consumers' preference regarding B2B product sales through mobile application. Through mobile application, B2B product transaction became simpler and more efficient whereby this application has several supporting features such as live chat feature with the company's product consultant to get faster and more accurate response, supporting features such as calculator and technical dictionary that is aimed to ease target customer's task of calculating number of material needed for the project and price, feature to track the real time progress of building projects and reward and exchange point feature of points collected from purchase of material from the researcher's company. The research question of this study is about consumer's preference on PT Cellcius latest mobile application. This study was conducted using descriptive quantitative approach through the distribution of questionnaires to company owner, contractor, and consultant who purchased PT Cellcius B2B product. Conjoint analysis result showed that ease of sales communication attribute was the attribute deemed most important by all respondents, and for the second attribute deemed important by the owners was reward, and for consultant and for consultant and contractor it was feature attribute. The third favorite attribute for owner was feature, and consultant and contractors prefer reward point. Last attribute deemed most important by all respondents was real time project status update attribute that could track the latest progress of the project.*

**Keywords**:B2B, Feature, Communication, Reward, Status.

## INTRODUCTION

Currently online product sale transaction in Indonesia has been rapidly growing compared to previous years. This happened most likely due to the growth of internet technology in Indonesia in addition to the ease of access to internet for the society using their individual gadgets. Society can now own and purchase all their needs and want using online transaction easily, and as time goes by, naturally resulted in conventional transaction trend being left behind.

PT Cellcius Indoperkasa is a building material manufacturer, specifically in the fields of insulation technology. PT Cellcius Indoperkasa deals in the B2B sales industry, whereby

sales process is done through assignment of sales force directly to building consultant and contractors, engineering heads, and end user. Due to the increase in online purchases, as well as the ease and convenience in doing online transaction therefore in this study the researcher attempted to connect online transaction with PT Cellcius Indoperkasa B2B business product. In order to gain actual result, variable and attribute used in this study was based on demand or direct request of PT Cellcius Indoperkasa customers.

The research targets used in this study were building contractors and consultants, and end users who used PT Cellcius B2B product. In this study, conjoint analysis method was used to determine consumer's preference in each online transaction offered by PT Cellcius Indoperkasa for their B2B product through mobile application. Research question used was what sorts of feature and service combination most preferred by consumers or customers ofPT Cellcius Indoperkasa by using mobile application for sales transaction process of B2B Zelltech product online.

## RESEARCH METHODS

The method used in this study was descriptive quantitative, whereby the point used was when Zelltech product consultant met with the customers to follow up. Questionnaire sample collection was done in 8 cities spread in Indonesia starting from April 1 2019 to June
2019. Sample collection technique used was saturated sampling or cencus, whereby saturated sampling is used when all member of the population was made into sample due to the relatively small number of population in this study. Therefore, the sample used in this study was 150 respondents who purchased PT Cellcius Indoperkasa product. Respondents used were company owners, contractors, and consultant who purchased PT Cellcius Indoperkasa products.
The variable measurement used were four variables/ attributes in which each attribute had 2 levels. First attribute used was ease of communication with sales team consisting of live chat level to WA Messenger. Second attribute used was features to help customer, which were technical calculator and technical dictionary. Third attribute used was project status update, which consisted of delivery status update level and installation level, and last attribute used was reward in the form of product and discount

Data analysis used in this study was conjoint analysis. Conjoint analysis is a multivariate analysis technique that can be used to determine the relative importance level based on customer's perception brought by certain products and the utility derived from the related attribute (Sarwono, 2016). Below are the stages used to design and utilize conjoint analysis in general:

1. Formulating Research Question

   Research question is aimed to determine attribute and level, attribute and level, which would be used to design stimuli based on the problem explained in the introduction.
2. Determining Stimuli

   Product combination used consisted of combination of attribute and level where there were 4 attributes with 2 levels each, which resulted in 16 stimuli.
3. Preference Evaluation

   Preference evaluation on the attribute combinations used in this study was done through scoring or ranking based on the number of stimuli formed. Combination ranked number
   1 was derived as the respondent's most preferred combination, and rank 16 means the respondent's least preferred combination.
4. Conducting Conjoint Analysis

The base conjoint analysis model used in this study was mathematical, formulated as follow:

$$U(x) = \sum_{i=1}^{mki} \sum_{j=1} a_{ij} x_{ij}$$

Where:
$U(x)$ = All utility of one alternative

$aij$ = utility $j$ and attribute $i$

$ki$ = number of attribute level $i$

$m$ = number of attributes

$x_{ij}$ = is 1 if attribute*i* and attribute level*j* exist and 0 if attribute*i* and level

Importance level of each attribute is defined as the difference between the maximum utility level and minimum utility level mathematically as formulated below,

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$$l_i = \{\max(a_{ij}) - \min(a_{ij})\}$$

Relative importance level of each attribute against other attribute can be formulated as follow:

$$W_i = \frac{I_i}{\sum_{i=1}^{m} I_i} \times 100\%$$

1. Result Interpretation

Result interpretation was done on all levels of attribute importance based on the existing value. Pearson's test and Kendall's tau were used to explain the correlation between actual values with the estimated values. If the significance value is higher than 0.05, it could be concluded that there was no strong correlation between the estimated values and the actual values. Hypotheses used were as follow:
H0: No strong correlation between estimation and actual condition

H1: There is a strong correlation between estimation and actual condition
esting:

If the probability value (significance) > 0.05, then H0 can't be rejected

If the probability value(significance) < 0.05, then H0 is rejected.

**Results**

Descriptive statistics analysis was used to determine the respondents' characteristics in this study. Respondents' characteristic is aimed to understand the study objective required by the respondent. Based on table 1 it could be known that majority of PT Cellcius Indoperkasa customers are male, which were 132 customers, and the remaining were women, which were 18 respondents. In this study the respondents used consisted of owner or company owners, contractors and consultants that uses PT Cellcius products. Based on the age characteristic in Table 1 it could be seen that majority of the respondents are aged between 40-49 years, as many as 70% of respondents.

Conjoint analysis was used in this study to understand what sorts of feature and service combination that is most preferred by customers using mobile application as transaction platform for PT Cellcius Indoperkasa Zelltech B2B products. Attribute and level used were based on transaction conditions and respondents' choices when using PT Cellcius Indoperkasa products and services. In Table 2 there are levels and attributes used in this study, and the combination obtained was a result of the multiplication of the number of levels for each attribute which was 2 x 2 x 2 x 2 = 16 stimuli as shown in table 3. From the
16 stimuli combination, respondents were asked to give ranking scale from 1 to 16. Based on table 3, it could be seen that each stimuli could explain each combination of attribute and level.
Conjoint analysis utility level can explain the assessment level of each types of respondent and overall respondents on the attribute and level used. If the utility level is positive then it can be said that the respondent favored the attribute level offered. Based on table 4 it could be seen that the utility level of the attribute most important to owner customers that used PT Cellcius B2B product was ease of sales communication using live chat with the utility level of 0.960, technical calculator feature with utility level of 0.285, installation status updated with utility of 0.08, and reward point in the form of discount with utility of 0.098.

For respondents in consultant category who used PT Cellcius B2B product, it wasknown through importance level of each attribute in Table 4 that the most preferred by consultants is the ease of communication using WA Messenger with utility level of 1.295, technical calculator feature with utility level of 0.713, product delivery status update with utility level of 0.057, and reward point in product form with utility level of 0.145. Table 4 also showed the importance level of attributes most preferred by contractors, in which ease of communication with sales preferred is live chat with utility level of 2.245, technical calculator feature with utility level of 1.232, product delivery status update with utility level of 0.722, and reward point in product form with utility level of 0.165.

Table 4 also showed the importance level of attribute most preferred by overall respondents which were ease of communication with sales using live chat with utility of 0.637, technical calculator feature with the highest utility of 0.743, product delivery status update with utility of 0.233, and reward point in product form with utility of 0.071.

Importance level for overall respondents in Table 5 shows that from the four attribute used in this study, ease of communication with sales has the highest importance level compared to the other attributes, with value of 69.44% for owners, 61.07% for consultants, 45.64% for contractors, and 58.72% for overall respondents that used PT Cellcius B2B product. Second most important attribute for owners was reward point, with importance value of 15.12%, and for consultants, contractors and overall respondents it was known that the second most important attribute is feature, with 17.26% for consultants, 25.04% for contractors, and 17.40% for overall respondents.

The third attribute deemed most important for owners was feature attribute that ease owners job in checking projects with value o 9.89%, as for consultants, contractors and overall respondents it was known that the third most important attribute is reward point with 12.52% and for consultants, 14.05% for contractors and 13.90% for overall respondents. The last attribute with the lowest importance value for owners is project status update attribute whereby the importance value is only 5.55%, and for consultants, contractors and overall respondents the least important attribute is project status update with values of 9.14% for consultants, 15.27% for contractors, and 9.99% for overall respondents.

Result of production accuracy for overall respondents is shown in table 6, where the Pearson's R value for owners, consultants, contractors and overall respondents are 0.872, 0.813, 0.924, and 0.834 whereas the Kendall's Tau forowners, consultants, contractors and overall respondents are 0.650, 0.667, 0.817, and 0.633. The results of the Pearson's R and Kendall's Tau for each types of respondents and overall showed higher value compared to 0.5, which means that there was a strong correlation between estimation and actual condition. Aside from the correlation values from Pearson's R andKendall's Tau, the significance level for Pearson's R and Kendall's Tau also need to be tested. Table 6 displayed the significance value for each Pearson's R and Kendall's Tau which were all 0.000 and 0.000 for each type of respondents and overall respondents. This value is smaller than the recommended significance level of 0.05. This means that there was a significant strong correlation between estimation and actual condition.

**Discussion**

Conjoint analysis is one analysis technique that can be used to determine the relative importance level based on customer's perception. In order to decide on good marketing strategy, accurate and good conjoint analysis is needed. Table 5 shows that ease of sales attribute is the attribute most preferred or deemed most important by each type of customers of PT Cellcius B2B product be it owners, consultants or contractors. Second most important for each type of respondents differ; for company owners they prefer reward point attribute, whereby consultants and contractors chose feature attribute that can ease their job. Third most favored attribute for owners is feature attribute, and for consultants and contractors the third most important is reward point. The attribute deemed least important by owners, consultants and contractors customers of PT Cellcius B2B products is project status update.

Therefore, researcher would like to mention statement by Quester and Smart (2013) that stated that customer involvement would influence customer behavior. The aforementioned statement by

Quester and Smart (2013) was proved to be highly correlated to empirical fact in the field, where according to Table 6 that showed the significance value of each Pearson's R and Kendall's Tau, the values are smaller than the significance level used (5%). Therefore, it could be concluded that there was a strong and significant correlation between the estimation and actual condition.

Managerial implication that could be applied from the conjoint analysis result of this study is to expand the scale of mobile application usage in PT Cellcius Indoperkasa in order to serve more customer, from local, national to international scale periodically and to add new features that can ease customer in accessing mobile application and to conduct transactions for PT CelliusB2B products so that the services in the application can really be taken advantage of by customers.

Limitations of this study include the different location and time used in the study, which could result in slight inaccuracy of the results. Therefore, researcher hope that the reader and other researchers can develop this study so that it could yield more accurate result
and to improve marketing strategies in different companies.

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