

Factors Affecting Consumers' Decision for E-Hotel Booking

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Abstract—With more accessibility to the Internet and modernization of e-payment systems, the approach to address the travel requirements has dramatically changed over the years. The service offered by the Online Travel Agents (OTAs) has a huge impact on a very competitive online marketplace. The purpose of this research is to observe, examine, and analyze key factors which a consumers' decision to use a particular travel agent website for e-hotel booking can be predicted. The data are compiled using IBM SPSS. The key methods are applied for data analysis in addition to other statistical methods including factor analysis and multinomial logistic regression analysis. The analysis of data reveals a positive association of website quality factors, product related factors, and consumer relationship factors with consumers' decision to book from a certain travel agent website. Viewing the big picture, consumer relationship factors are found to be more influential as compared to website quality and product related factors. Moreover, the researchers reveal product price as the most influential variable, but it indicates no statistical significance with consumers' decision. There are many different price products which are available across different travel agent websites. The convenience of payment method is found to be a significant attribute associated with the consumers' decision to book from a travel website. In addition, attributes of travel products variety and online reviews provided by the travel websites are observed to be statistically significant. This research indicates the trends of consumer decision-making for e-hotel booking in Indonesia.

Index Terms—Online Travel Agent (OTA), Website Quality, Product, Consumers Relationship, Consumer Decision

I. INTRODUCTION

TOURISM is one of the rapidly progressing industries by using e-commerce or more recently m-commerce. Nowadays, the Internet is extensively used for making hotel bookings due to the multiple advantages it offers to consumers. For example, the Internet provides convenience regarding saving time

for booking a hotel. It provides accessibility to travel agent websites from any place and at any time. Moreover, it provides a good comparison of prices which allows consumers to make informed choices.

Purchase of travel products, particularly hotel bookings, is among the top purchases that consumers make online [1]. Current projections indicate the global revenue of US\$238.142 million in online travel booking market [2]. Indonesia as an emerging economy among other Asian economies, and with the rapid increase in internet adoption [3], presents some e-commerce opportunities. Currently, the revenue in online travel booking for Indonesia aggregates to US\$2.938 million. Hotels are the largest market segment which occupies a market volume of US\$2.215 million [2]. Popular brands in Indonesia which offer third-party online hotel booking intermediary services to consumers are Traveloka, Agoda, Pegipegi, Booking.com, and others [4].

Despite the increasing trend of hotel booking through Online Travel Agents (OTAs), there is limited research regarding the factors influencing the consumers' decision to purchase travel products through online travel websites. There is a need to explore further the factors that ultimately lead to online hotel bookings. The objectives of this research are to understand how the factors related to website quality, travel product and consumers relationship influence the consumers' decision to book a hotel via a certain OTA website.

II. LITERATURE REVIEW

A. Website Quality Factors

Shopping on an e-commerce website or booking a hotel deal from an OTA website involves the interaction of the consumers with the website. Hence, the website quality has played a certain part in consumers' decision-making process. The existing research indicates that the website quality is a logical foundation for building consumers' trust and forming their intention to

purchase [5]. Previous research found that there were several factors which contributed to the success of a website. Those factors were secure payment methods with built-in controls to protect consumers data; a range of varying prices for the available products so that consumers might have an option to make a choice for product or service within their price limit; user friendly websites which were easily accessible, easy to use, organized in terms of information and content, and offered good speed and navigation features to the consumers [6].

The quality of an e-commerce website is measured in available information quality on a website. It provides the consumers with latest and accurate information about products and services [7]. It is suggested that when consumers shop hospitality products, the information quality about the product from the website has a significant effect in determining their intention to purchase that product [8]. The information quality on a website which is also related with playfulness (elements of information design in which a consumer experiences involvement and engagement) and attractiveness feature increases consumers satisfaction and tends to fulfill their expectations from a website. Therefore, it contributes to the success of websites [9]. The quality of written, graphical, or other content which presents information on a website has been found to be a factor contributing to consumers' decision to book a hotel from a particular website [10].

When it comes to booking from a hotel website or a travel agent website, the interaction of consumers is with the company's website. In this case, the service quality which the consumers experience is important. The overall evaluation of quality regarding the functionality of a website is known as service quality. The layout of the website, the quality of website content, and the way a website handles its consumers are several factors which have an effect on service quality of a website [11]. Website responsiveness describes how well a website responds to consumers queries and provides service to consumers and the navigational and information search response [11, 12]. In addition, fast loading, quick response, and timely and reliable service are generally perceived to enhance the service quality of the website.

Moreover, while shopping on the Internet, the consumers are generally concerned with the security and privacy of their data and information. Security issues may cause many online shoppers to negate their intentions to purchase products and leave the websites without buying [13]. Security and privacy as the key elements affecting consumers' buying behavior are also found to affect online sales [14]. A secure online payment system enriches the quality of travel agent

websites to a large extent [15].

B. Product Related Factors

In booking a hotel deal, there are certain factors which are solely related to the product, but it can be the function of the information system. These factors include price, availability of a variety of rooms, brands and related options, hotel/room images, and the product payment method.

Product price is a general term. However, in case of this particular research, it is defined as the amount of money to be given as payment for purchasing a certain hotel deal from a travel agent website. In almost all cases, consumers are concerned with the price of the product which they consider to purchase from a travel website including hotel accommodations [16]. While shopping online, consumers are exposed to reference prices or competitor prices in addition to the price offered by their selected vendor. This is where consumers form their perceptions of a product price by comparing the offered price with the available reference prices across other shopping websites [17]. Consumers also tend to have an internal price standard (memory based standard) which they often use as a reference for comparing the offered prices and making a judgment. Thus, if the product price offered by hotel booking website is higher than their internal reference standard, they will perceive the price as 'high' and be more likely to leave the booking website [18] and move to another travel agent website.

Product variety describes the existence of a variety of travel product on a travel agent website. It can be the various types of hotel rooms and hotel brands, flight tickets, car rentals, vacation packages, and others. Many consumers are interested in finding other travel related products on the same website while booking a hotel online. This allows consumers to have convenience [19] of finding various elements of their trip on the same website. The more diversity of hotel rooms, hotel brands, and other available travel products on travel agent websites compared to hotel websites results in an increased tendency of attracting potential consumers [20].

Product design is perceived from a travel website in the form of hotel images and room images. Usually, it is the design which forms the initial impression of the product on consumers. It defines both the appearance and functionality of the product. Design plays a role of a strategic device in developing an organization's branding strategies [21]. Consumer decisions in majority purchases are not only based on a rational analysis of the available choices but are also influenced by other factors. The available images on the shopping websites

trigger emotional states of the consumers [22] who may also influence their purchase decision. The perception of hotel design from an aesthetic sense influences consumers' intention to book a reservation for a hotel room and triggers their purchase behavior [23].

When the consumers interact with an e-commerce website for purchasing a product, they go through a series of steps in the buying process which requires the consumers to pay for the product (product payment). Travel agent websites offer different currencies for payment and various payment methods. Consumer purchase intention which leads to the final purchase decision increase when there are many available numbers of payment options across a travel agent website [24]. Consumers likely choose a payment method which is most convenient for them. Travel agent websites have different payment policies. Some of the travel agent websites do not charge the consumers at the time of making a reservation. However, it requires the consumers to provide their credit card information as it is required by the hotel they book. Security statements relating to product payment which are provided by the travel agent website increase the perceptions of security, trust, and influence consumers' intention to purchase [25].

C. Consumer Relationship Factors

The consumers' experiences of a certain website help in building their relationship with the company's website [20]. If this experience is positive in fulfilling the expectations of consumers, the consumers will return to the website again to make a purchase which subsequently strengthens the consumers' relationship.

In all business including online business, consumer satisfaction is essential. Considering the online context, Ref. [26] investigated three elements of website design. Those are information design (organizing and presenting information to the consumers), navigation design (easy to use and concise navigation system), visual design (aesthetic appeal and attractiveness of a website), and the relationship with consumers trust and satisfaction. The conclusion led to a significant relationship between all three design elements and consumers satisfaction across different cultures. The website quality is the foundation for information satisfaction as perceived by consumers. Therefore, it added to the overall satisfaction with the website and leading the intentions to purchase behavior [27].

Consumer loyalty exists when consumers decide to repurchase from a certain website. Reference [28] gave a concept of an interesting framework for consumers. It incorporated trust (consumers certainty or confidence in a product or brand) as a central attribute

influenced by perceived value (worth of product based on consumers opinion), service quality (consumers' functional expectation of an offered service), and consumers satisfaction (degree of consumers' fulfilment of expected value of a product). There were direct associations of service quality with perceived value, satisfaction, and trust. Meanwhile, there was an indirect association with consumer loyalty with trust as a mediator.

Furthermore, the framework presented the direct associations of perceived value, trust, and satisfaction with consumer loyalty. Briefly, if the consumers experience a good service quality, they will develop a positive perception about product value which builds their trust. This trust leads to consumer satisfaction which raises the repurchase intention or consumer loyalty. Many travel websites offer loyalty programs to acquire and retain their consumers [20].

Consumers purchase products, use them, and form an opinion about the product which may be positive or negative. Online reviews refer to consumers' reviews about their experience of a product or service. These reviews help other consumers in making decisions to purchase the product. The quality of online reviews tends to affect consumers' relationship. Exposure to negative online review results in unfavorable consumers' attitudes towards a company or brand and influences the consumers' relationship [29]. In the case of hotel booking, positive reviews develop a favorable consumers' attitude towards a hotel [30] and have a positive consequence towards consumers' buying behavior [31]. The way a travel agent website presents and manages consumers' reviews affects the consumers' booking decision.

D. Demographics

In this research, demographic factors are also considered. A business can be benefitted by targeting consumers with a certain demographics such as gender or age. Internet usage is influenced by gender, age, and level of education [32, 33]. All businesses including online are prone to be affected by demographics.

III. RESEARCH METHOD

The proposed research framework for this research is a modified version of research done by [20] in China. The framework is modified in line with the research objectives. Factors like product design and demographics are an addition to the proposed framework for this research. Figure 1 shows the research framework.

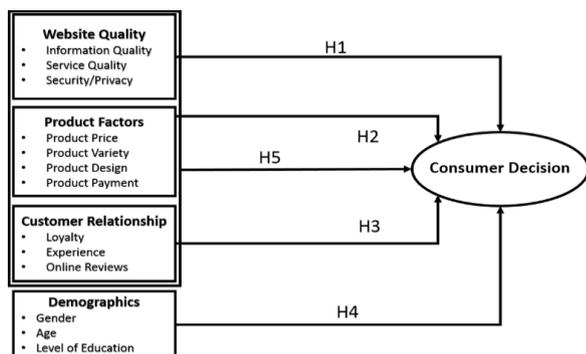


Fig. 1. The framework of the research.

A. Hypotheses

From the research framework in Fig. 1, five hypothesis statements are formulated for this research. Those are:

H1: Website quality factors have a positive association with consumers' decision to book a hotel from a certain travel website.

H2: Product related factors have a positive association with consumers' decision to book from a certain travel website.

H3: Consumer relationship factors have a positive association with consumers' decision to book from a certain travel website.

H4: Website quality, product related, and consumer relationship factors, all have a positive association with consumers' decision to book from a certain travel website.

H5: Consumers' decision to book a hotel from a certain travel agent website differs across demographics of gender, age, and level of education.

Table I presents the variables with the identified indicators and corresponding references.

B. Population, Sample, and Data Collection

The targeted population of this research includes consumers from Indonesia who have made online hotel bookings recently or formerly through the travel agent websites or other travel related websites. The sampling technique used is probability sampling in which the sample is obtained by simple random sampling type. Reference [34] recommended sample size of 100 or more for factor analysis to proceed. The sample size

TABLE I
RESEARCH VARIABLES, THEIR INDICATORS, AND REFERENCES.

Variable	Indicator	Reference
Website Quality	Availability of details	[8]
	Accuracy of information	[7]
	Better post-purchase service	[25]
	Fast response to inquiries	[11]
	Data privacy and security	[20]
Product Related	Low price benefits	[16]
	Required price on budget and perceived quality	[5]
	Several products for comparison	[20]
	One stop shopping	[19]
	Availability of hotel and room images	[23]
Consumer Relationship	Pre-payment policies	[6]
	Variety of payment options	[24]
	Previous usage experience	[20]
	Positive reviews	[30]
Demographic	Loyalty program	[28]
	Gender, age, and level of education	[32, 33]

for this research is flexible from a minimum of 200 obtained by Slovin's formula [35] up to a maximum of the highest available sample size to minimize error. A questionnaire is formulated as the research instrument. Data are collected using online and offline approach. The contents of the questionnaire consist of 17 items for measuring factor related variables as presented in Table II. The questionnaire ends by collecting information for demographic variables and some information about respondents' previous experiences of online hotel booking. The level of importance of the factors is measured on 5-point Likert scale. The scale varies as shown in Table III.

IV. RESULTS AND DISCUSSION

Statistical Package for Social Sciences (SPSS) software is used as a tool for data analysis. Descriptive Statistics are used to find out respondents' demographic characteristics. Reliability analysis is done by calculating Cronbach's Alpha coefficient value.

Meanwhile, the validity is tested using Bivariate correlation. Sampling adequacy is tested using Kaiser-Meyer-Olkin (KMO) test. Then, Bartlett's test of sphericity is conducted to indicate the strength of the relationship between variables. Factor analysis is done for individual constructs using Confirmatory Factor Analysis (CFA) in SPSS AMOS. Moreover, the complete model and hypothesis are tested using Multinomial Logistic Regression Analysis in SPSS.

A. Demographic Profile

The demographic profile of respondents is shown in Table IV. From 205 respondents, 59.5% are male and 40.5% are female respondents. The majority of

TABLE II
QUESTIONNAIRE FORMULATION.

Outcome variable: Consumer Decision		
Dec	Name of travel agent website	Respondents are asked to indicate a hotel booking website which provides them with the best experience.
Measures of Website Quality		
WQ1	Information quality	This website presents more clear and detailed information on products and services.
WQ2	Information quality	I can get more accurate and reliable information about travel products from this website such as information on room availability, hotel location, and others.
WQ3	Service quality	This website provides better post-purchase service such as confirmation email and detail information like how to get to the hotel from the airport.
WQ4	Service quality	This website is fast in responding to my inquiries.
WQ5	Security/privacy	This website provides me with more satisfaction with my data privacy and security.
Measures of Product Related Factors		
PP1	Product price	This website offers a good price.
PP2	Product price	This website offers a good value for my money in terms of my needs and perceived quality.
PV1	Product variety	There are more available options on this website for my destination which also meet my requirements on quality and budget.
PV2	Product variety	I can get an opportunity of one-stop shopping on this website to fulfill my travel requirements (hotel room, flight ticket, and car rental).
PM1	Product payment	This website is more flexible in its pre-payment policies with a small amount or no payment at the time of making a room reservation.
PM2	Product payment	The payment method required by this website is more convenient for me.
PD	Product design	The website gives me more information through hotel images and traveler photos provided to decide on a particular choice.
Measures of Consumer Relationship Factors		
CR1	Consumer loyalty	Being a registered member of this website, I book a hotel here more conveniently.
CR2	Consumers experience	My previous experience of using this website makes me use it again.
CR3	Online reviews	This website provides me with more genuine/trustworthy user feedback of the hotels.
Please mention another factor that you consider important while booking a hotel online		

TABLE III
LIKERT SCALE FOR THE QUESTIONNAIRE.

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

participants about 45.4% are 26 years to 35 years. In the level of education, the majority of the respondents about 42.9% have a university degree.

Travel agent websites that are stated by the respondents as the most preferred or having the best experience for hotel booking are in Table V.

It has been observed in Table V that from 205 respondents, 111 respondents tend to book via Traveloka. It is followed by 35 respondents choosing Agoda, 21 respondents choosing Booking.com, 11 respondents choosing Pegipegi, 8 respondents choosing Trivago, and 3 respondents choosing Hotels.com. The rest of the respondents mention the hotel's websites. Figure 2 represents the graphical output of the mean value and percentage of variance for website quality, product related, and consumer relationship factor.

In Fig. 2, it can be seen that consumer relationship

TABLE IV
DEMOGRAPHIC PROFILES OF THE RESPONDENTS.

Demographic Profile	Frequency	Percentage (%)
Gender		
Male	122	59.5
Female	83	40.5
Age		
25 or Below	32	15.6
26–35	93	45.4
36–45	48	23.4
46–55	26	12.7
Above 55	4	2.0
Level of Education		
Secondary	5	2.4
Higher secondary	30	14.6
University Degree	88	42.9
Postgraduate Degree	71	34.6
Doctorate	6	2.9

factors are more influential than other factors. It has a high mean compared to website quality and product related factors. Moreover, consumer relationship factors show greater variance in data than other factors.

Table VI shows the ranking of factors which are important when respondents book from the travel agents websites. This ranking is in accordance with the calculated mean value of the attributes.

TABLE V
THE POPULARITY OF WEBSITES.

Website	Frequency	Percentage(%)
Traveloka	111	54.1
Agoda	35	17.1
Booking.com	21	10.2
Pegipegi	11	5.4
Trivago	8	3.9
Hotels.com	3	1.5
Airy	2	1.0
Expedia	2	1.0
Google.com	2	1.0
Nusatrip	1	0.5
Orbitz.com	1	0.5
Priceline.com	1	0.5
Red doorz	1	0.5
Swadee.com	1	0.5
Tiket.com	1	0.5
Trip.com	1	0.5
TripAdvisor	1	0.5
Via.com	1	0.5
Hotel's websites	1	0.5

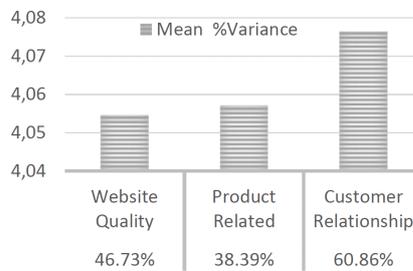


Fig. 2. Mean value and variance of website quality, product related, and consumers relationship factors.

Table VI indicates that the attribute price has the highest mean value. This attribute is not directly related to information technology. It represents the price of the hotel room which the consumers find from travel agent website. Among the information technology related factors, the most influential attribute is the website quality in accuracy and reliability of information about travel products like room availability and location. The second most influential attribute is the convenience of the payment method offered by the travel agent website.

B. Validity and Reliability

The validity of each item in the questionnaire is tested by bivariate correlation. To identify whether a questionnaire item is valid or not, the value of significance for each item and the correlation value for total item score is observed and compared with r-table. For all items, a significance value of $0.000 < 0.05$ and correlation value $> r$ -table is observed. Therefore, the items are concluded as valid. By calculating Cronbach's alpha, the researchers test the reliability

TABLE VI
THE RANKING OF ATTRIBUTES IN ORDER OF THEIR LEVEL OF IMPORTANCE.

Rank	Attribute	Mean
1	This website offers a good price.	4.3
2	I can get more accurate and reliable information about travel products from this website such as information about room availability and hotel location.	4.3
3	The payment method required by this website is more convenient for me.	4.3
4	My previous experience of using this website makes me want to use it again.	4.2
5	This website presents clearer and detail information on products and services.	4.2
6	There are more available options on this website for my destination which also meets my requirements on quality and budget.	4.2
7	This website offers better value for my money in terms of my needs and perceived quality.	4.2
8	The website gives me more information through hotel images and traveler photos provided to decide on a particular choice.	4.1
9	This website provides better post-purchase service like confirmation email and information on how to get to the hotel from the airport.	4.1
10	Being a registered member of this website, I book a hotel here more conveniently.	4.0
11	This website provides me with more genuine/trustworthy user feedback of the hotels.	4.0
12	This website is fast in responding to my inquiries.	3.9
13	I can get an opportunity of one-stop shopping on this website to fulfill my travel requirements (hotel room, flight ticket, and car rental).	3.8
14	This website provides me with more satisfaction with my data privacy and security.	3.8
15	This website is more flexible in its pre-payment policies with a small amount or no payment at the time of making a room reservation.	3.6

TABLE VII
CRONBACH'S ALPHA.

Factor	No of items	Cronbach's Alpha
Website quality	5	0.715
Product related	7	0.712
Consumer relationship	3	0.674
Overall	15	0.842

for website quality, product related, and consumer relationship factors. The result is in Table VII.

Reference [34] suggested the acceptable value of Cronbach's Alpha as 0.7 for confirmatory research and 0.6 for exploratory research. As seen in Table VII, Cronbach's Alpha values for all the factors are acceptable. In consumer relationship factor, the value is 0.674 which is equal to 0.7.

Table VIII shows values for KMO and Barlett's test for all the constructs. KMO measures the sampling adequacy. It examines whether the sample size is large enough to contribute to the precision and accuracy of results. Reference [36] recommended value of 0.5 for KMO as the minimum. The values of KMO for all factors in Table VIII are more than 0.5. It indicates an acceptable level of sampling adequacy. Bartlett's test of

TABLE VIII
KMO AND BARLETT'S TEST OF SPHERICITY.

Website Quality Factors		
KMO measure of sampling adequacy		0.688
Bartlett's test of sphericity	Approx. Chi-Square	203.067
	Df	10
	Sig.	0.000
Product related Factors		
KMO measure of sampling adequacy		0.742
Bartlett's test of sphericity	Approx. Chi-Square	247.642
	Df	21
	Sig.	0.000
Consumer Relationship Factors		
KMO measure of sampling adequacy		0.641
Bartlett's test of sphericity	Approx. Chi-Square	99.162
	Df	3
	Sig.	0.000

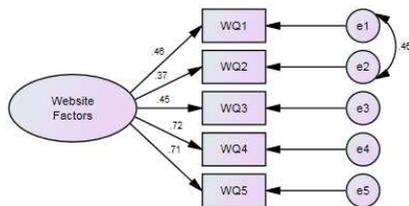


Fig. 3. CFA for website quality factors.

sphericity is significant in all cases. Thus, it confirms the meaningfulness of factor analysis.

C. Confirmatory Factor Analysis (CFA)

CFA is done using SPSS AMOS. The analysis measures the extent to which hypothesized data fits the model. Figure 3 represents the path diagram for CFA of website quality factors. The diagram has one latent variable and five observed variables (WQ1–WQ5). The circles represent the error variables which are not directly observed. The numbers on the linear dependencies between the latent variables and the observed variables show the regression weights. The values of standardized regression weights for all variables are approximately equal to or greater than 0.4. Therefore, all variables are considered for further analysis.

Figure 4 shows the path diagram for CFA of product related factors by describing a single latent variable, seven observed variables (PP1–PD1) and seven unobserved error variables (e1–e7). The values of standardized regression weights are approximately equal to or greater than 0.4. These values lie within the recommended range instead of a single variable (PV2) with regression weight of 0.29. It is shown on the linear dependency between latent variable and variable (PV2). However, this variable is still retained for analysis due to its theoretical significance.

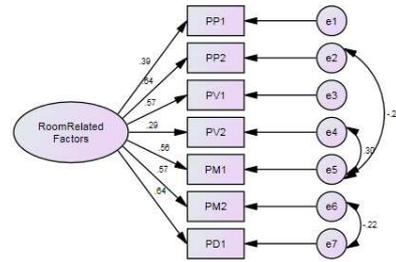


Fig. 4. CFA for product related factors.

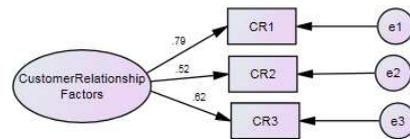


Fig. 5. CFA for consumers relationship factors.

Figure 5 presents the path diagram for CFA of consumer relationship factors. It describes a single latent variable, three observed variables (CR1–CR3), and the corresponding error variables (e1–e3). The values of standardized regression weights are approximately equal or greater than 0.4. The values of standardized regression weights (0.7 or higher) are ideal [34].

D. Multinomial Regression Analysis

Multinomial logistic regression is conducted to know the effect of independent variables of website quality, product related, and consumer relationship factors on the outcome of the dependent variable of consumer decision. The nature of the consumer decision variable, in this case, is nominal. Decision variable represents six categories. These six categories are based on consumers' decision to use different travel websites. The order of categories is relevant to the number of responses obtained for each category. For example, category 1 represents the decision for Traveloka (111 responses), category 2 for Agoda (35 responses), category 3 for Booking.com (21 responses), category 4 for Pegipegi (11 responses), category 5 for Trivago (8 responses) and category 6 for others (all remaining responses = 19).

Multinomial logistic regression provides a chance to know whether the effect of website quality, product related, and consumer relationship is the same or different for all categories of decision variable. It is by choosing a reference category and making a series of comparisons of other categories with the reference category. Although many categories can be chosen as a reference, in this research, Traveloka is specified as the reference category because many participants choose

TABLE IX
MODEL FITTING INFORMATION FOR WEBSITE QUALITY FACTORS.

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	421.741			
Final	377.197	44.543	25	0.009



Fig. 6. Multinomial logistic regression model of website quality factors.

Traveloka as their preferred website for hotel booking. Thus, it depicts a general trend.

E. H1 Hypothesis Testing

Table IX shows the results of the multinomial regression analysis of website quality across the decision variable. In Table IX, -2 log likelihood value decides whether the independent variable affects the dependent variable [37] or not. If -2 log likelihood values for intercepting only and final model are the same, the result is not significant. In this case, -2 log likelihood values are different, and the chi-square value is computed as $421.741 - 377.197 = 44.543$.

Moreover, a significance value of 0.009 is noted. Since this value is less than 0.05. The hypothesis that there is a positive association of website quality with consumers' decision for booking the hotel through a certain OTA website is accepted.

Moreover, Fig. 6 presents graphical model obtained from parameter estimates the resulting in multinomial logistic regression of website quality factors. Furthermore, from the output of multinomial logistic regression of website quality, statistical significance (Sig. value = 0.013) is seen across the 'others' decision category for variable of WQ4.

F. H2 Hypothesis Testing

Table X presents the results of multinomial regression analysis of product related factors across the decision variable. Table X reports varying log likelihood values for intercept only, and the final model giving a chi-square value of $504.703 - 429.782 = 74.921$.

TABLE X
MODEL FITTING INFORMATION FOR PRODUCT RELATED FACTORS.

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	504.703			
Final	429.782	74.921	35	0.000



Fig. 7. Multinomial logistic regression model of product related factors.

TABLE XI
MODEL FITTING INFORMATION FOR CONSUMER RELATIONSHIP FACTOR.

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	231.042			
Final	202.242	28.800	15	0.017

The significance value is 0.000. Since this value is less than 0.05, the hypothesis that there is a positive association of product related factors with consumers' decision for booking a hotel through a certain OTA website is accepted. Figure 7 presents the regression model obtained from a parameter regarding multinomial logistic regression of product related factors.

Additionally, from the output of multinomial logistic regression of product related factors, statistical significance is across decision categories: Booking.com for PV2 (Sig. value = 0.009) and PM2 (Sig. value = 0.048); Pegipegi for PV1 (Sig. value = 0.017), PM1 (Sig. value = 0.005), and PM2 (Sig. value = 0.004).

G. H3 Hypothesis Testing

Table XI shows the results of multinomial regression analysis of consumer relationship factors across the decision variable. In Table XI, -2 log likelihood values with and without taking consumers relationship variable into account are different. It is a chi-square value of $231.042 - 202.242 = 28.800$ and significance value of 0.017. Since this value is less than 0.05, the hypothesis that there is a positive association between



Fig. 8. Multinomial logistic regression model of consumers relationship factors.

TABLE XII
OVERALL MODEL FITTING INFORMATION.

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	533.922			
Final	478.131	55.791	25	0.000

consumers relationship factors with consumers decision for booking a hotel through a certain OTA website is accepted.

Then, Fig. 8 presents model obtained from parameter estimates the multinomial logistic regression of consumer relationship factors. Moreover, statistical significance is observed across decision category: Booking.com for CR2 (Sig. value = 0.008) and others for CR3 (Sig. value = 0.012).

H. H4 Hypothesis Testing

Table XII presents the results of multinomial regression analysis of all factors (WQ + PF + CR) across the decision variable. The model fitting information in Table XII shows different values for -2 log likelihood and the significance value of 0.000. Since this value is less than 0.05, the hypothesis that there is a positive influence of website quality, product related, and consumer relationship factors on consumers' decision to book a hotel from a certain OTA website is accepted.

Multinomial regression estimates (number of categories -1) the multiple linear regression functions. The result can be defined as follows:

$$\text{Agoda} = -1.178 + 1.165 \cdot \text{WQ} + 1.4153 \cdot \text{PF} + 1.870 \cdot \text{CR}, \quad (1)$$

$$\text{Booking.com} = -2.095 + 1.166 \cdot \text{WQ} + 1.249 \cdot \text{PF} + 1.411 \cdot \text{CR}, \quad (2)$$

$$\text{Pegipegi} = -2.345 + 0.661 \cdot \text{WQ} + 0.962 \cdot \text{PF} + 0.742 \cdot \text{CR}, \quad (3)$$

$$\text{Trivago} = -3.087 + 0.887 \cdot \text{WQ} + 1.496 \cdot \text{PF} + 0.958 \cdot \text{CR}, \quad (4)$$



Fig. 9. The logistic regression model of website quality, product factors, and consumers relationship factors.

TABLE XIII
TEST OF HOMOGENEITY OF VARIANCES.

Demographic factor	Levene Statistic	df1	df2	Sig.
Gender	6.095	1	203	0.014
Age	2.243	4	198	0.066
Level of education	6.682	4	195	0.000

and

$$\text{Others} = -2.379 + 0.403 \cdot \text{WQ} + 1.33 \cdot \text{PF} + 0.829 \cdot \text{CR}, \quad (5)$$

where WQ is website quality, PF is product related, and CR is consumer relationship.

Figure 9 gives a graphical representation of regression model obtained from parameter estimates resulting from the multinomial logistic regression of website quality, product related, and consumers relationship factors.

I. One-Way ANOVA

1) H5 Hypothesis Testing: To test hypothesis H5, a series of one-way ANOVA is conducted for each of the selected demographic variables of gender, age, and level of education. ANOVA is based on the notion of variance [38]. Before conducting ANOVA, it should be ensured that the assumptions of population normality and homogeneity of variance are met. Table XIII gives the results of the test of homogeneity of variances.

The decision rule for Levene's test is that if it is $p \leq 0.05$, the variances are significantly different. Meanwhile, if the value is $p > 0.05$, the values are not significantly different [39]. Table XIII reveals that for age factor, it is $p = 0.066 > 0.05$. Hence, the variances are not significantly different. It can be seen that the population variances for each age group are approximately equal. Tables XIV–XVI present the analysis of variance across gender, age, and level of education.

TABLE XIV
ONE-WAY ANOVA TEST FOR THE GENDER.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.777	1	4.777	1.780	0.184
Within Groups	544.911	203	2.684		
Total	549.688	204			

TABLE XV
ONE-WAY ANOVA TEST FOR THE AGE.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	33.799	4	8.450	3.295	0.012
Within Groups	507.767	198	2.564		
Total	541.567	202			

TABLE XVI
ONE-WAY ANOVA TEST FOR THE LEVEL OF EDUCATION.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.396	4	5.099	1.943	0.105
Within Groups	511.684	195	2.624		
Total	532.080	199			

TABLE XVII
RESULTS OF HYPOTHESES TESTING.

Results of Hypothesis Testing		
H1	Website quality has a positive association with consumers' decision	Supported
H2	Product related has a positive association with consumers' decision	Supported
H3	Consumers relationship has a positive association with consumers' decision	Supported
H4	Website quality, product related, and consumers relationship are positively associated with consumers' decision	Supported
H5	Consumers' decision to book from a certain travel agent website differs across demographic factors of gender, age, and level of education	Partially Supported

Table XV reveals a significance value of 0.012 which is less than 0.05. Hence, it is significant. Consequently, the assumption that consumers' decision for a certain travel agent website differs across different age groups is accepted. Tables XIV and XVI reveal a greater significance value than 0.05 and is not significant. Thus, the assumption that consumers decision for a certain travel website differs across different genders and levels of education is not accepted. Moreover, Table XVII presents the summary of hypothesis testing results.

As noted in Table XVII, H1, H2, H3, and H4

are supported. The results of the hypothesis H1 are consistent with the research conducted by Ref. [25]. The quality of e-commerce website design has a positive effect on consumers' online purchase intentions. Moreover, the results of H2 are consistent with the research of [20], who supported the same hypothesis in hotel websites. Then, the results of H3 state that consumer relationship factors have a positive effect on the purchase decision. This result is in line with previous research of [40]. According to Ref. [40], if the consumers are satisfied with the initial purchase, they will show a positive attitude towards their intention to repurchase from the same website.

When means of data are compared, the price is found to be the most influential variable. It has the highest mean value. Although it is not hypothesized, variables of product price, product payment, product variety, and online reviews are tested independently for statistical significance. It is noted that the factor price is not significantly associated with consumers' decision to book a hotel from a certain travel agent website. Instead, the product payment is found to be a significant factor affecting consumers' decision to book from a certain travel agent website. This factor can be utilized by travel websites to increase the rate of bookings. Reference [6] stated that payment method influenced the consumers' purchase intention.

In addition, product variety which is a dimension of product related factors has a positive association with consumers' decision. This indicates the availability of various options for rooms, travel packages, promotions, and other facilities like flight ticket or car rental across different travel websites. It also differentiates them from one another and influence consumers' decision. The online review is also positively associated with consumers' decision to book from a certain travel website. This is consistent with research done by Ref. [41], who stated that online reviews provided a great deal of information to consumers. It was meaningful and useful for them in deciding while booking a hotel online.

Based on the results of this research, travel agent websites are suggested to give considerable importance to the factors according to the order of their influence on consumer's decision related to their statistical significance. The quality of the travel agent website is an important information technology related factor. Products and services which are purchased online cannot be felt or touched, so consumers only depend on the available information on the website. If this information is clear, detail, and closer to consumers' expectation, they will likely intend to purchase from that website. Thus, an improvement in the navigational structure of websites, functionality, informa-

tion/content quality and reliability, and data security and privacy may result in an increased number of consumers for a travel website. Another important and significant factor which is suggested to travel agent websites is the payment method. It is a factor that many travel websites can utilize to increase the rate of bookings because the whole process between potential consumers and the third party concludes with the due payment. As observed from the results of data analysis, from 205 respondents, about 54% are Traveloka users. In addition to other factors, this increased number of respondents compared to other websites may be a reason of various payment options provided by Traveloka. Therefore, a travel agent website may be benefitted with an increase in potential consumers by offering a range of payment methods through various credit and debit cards to alternative payment methods.

V. CONCLUSION

This research proposes a model giving an insight into the relationship of factors that the consumers consider important in booking a hotel online and their decision to book via a certain travel agent website. The results of data analysis and hypothesis testing indicate that website quality, product related, and consumer relationship is positively associated with consumers' decision for hotel booking through a travel agent website. Moreover, consumers relationship factors are found to be more influential followed by product related and website quality. At the attribute level, the price is found to be the key attribute followed by the attributes of information quality and convenience of payment method. Among the demographic factors, consumers' decision to book from a travel agent website is found to differ across different categories of age.

This research has some limitations. Therefore, it is appropriate to offer some recommendation that may be beneficial for future research on this topic. The first limitation of this research is the sample size. In this research, it is 205 and can be increased further to minimize the error. Larger sample size can lead to more conclusive results by minimizing the probability of error. The second limitation is that there may be other factors related to consumers' decision to use a certain travel agent website for online hotel booking. During the survey, the respondents are asked to mention the additional factors that may affect decision making for online hotel booking. The respondents mention factors like free cancellation or refund on cancellation, local currency and availability of more options for payment, consumers care, promotions, offers, and discount coupons as additional factors that can affect decision-making. The future work can recognize and indicate

more factors which influence consumers' decision. The future researcher can consider the factors as mentioned by the participants of this research. Another recommendation is to model product related factors as individual factors and find more indicators. It is because grouping it under one factor creates complexity as the theoretical interrelation between these factors is less obvious.

REFERENCES

- [1] K. Cassedy, "Know your online customer: Forrester research creates technographics," 2002. [Online]. Available: <https://www.hospitalitynet.org/news/4010740.html>
- [2] Statista: The Statistics Portal, "Online travel booking." [Online]. Available: <https://www.statista.com/outlook/262/120/online-travel-booking/indonesia#market-revenue>
- [3] United Nations Global Pulse, "Pulse Lab Jakarta." [Online]. Available: <https://www.unglobalpulse.org/jakarta>
- [4] Nusaresearch, "Online hotel & ticket booking sites in Indonesia: Omnibus popular brand index 2014," 2014. [Online]. Available: [https://nusaresearch.com/upload/userfiles/files/Topline_Online%20Hotel%20%26%20Ticket%20Booking%20Site\(1\).pdf](https://nusaresearch.com/upload/userfiles/files/Topline_Online%20Hotel%20%26%20Ticket%20Booking%20Site(1).pdf)
- [5] C.-H. Lien, M.-J. Wen, L.-C. Huang, and K.-L. Wu, "Online hotel booking: The effects of brand image, price, trust and value on purchase intentions," *Asia Pacific Management Review*, vol. 20, no. 4, pp. 210–218, 2015.
- [6] J. Wong and R. Law, "Analysing the intention to purchase on hotel websites: A study of travellers to Hong Kong," *International Journal of Hospitality Management*, vol. 24, no. 3, pp. 311–329, 2005.
- [7] H.-F. Lin, "The impact of website quality dimensions on customer satisfaction in the B2C e-commerce context," *Total Quality Management and Business Excellence*, vol. 18, no. 4, pp. 363–378, 2007.
- [8] J. Jaavelaainen, "Preferring offline bookings: An empirical study of channel choice motives of online information seekers," in *16th Bled eCommerce Conference*, Bled, Slovenia, June 9–11, 2003, pp. 80–94.
- [9] C. Liu, K. P. Arnett, L. M. Capella, and R. D. Taylor, "Key dimensions of web design quality as related to consumer response," *Journal of Computer Information Systems*, vol. 42, no. 1, pp. 70–82, 2001.
- [10] R. R. Perdue, "Internet site evaluations: The influence of behavioral experience, existing images,

- and selected website characteristics," *Journal of Travel & Tourism Marketing*, vol. 11, no. 2-3, pp. 21–38, 2002.
- [11] A. Ahmad, O. Rahman, and M. N. Khan, "Consumer's perception of website service quality: An empirical study," *Journal of Internet Commerce*, vol. 15, no. 2, pp. 125–141, 2016.
- [12] G.-G. Lee and H.-F. Lin, "Customer perceptions of e-service quality in online shopping," *International Journal of Retail & Distribution Management*, vol. 33, no. 2, pp. 161–176, 2005.
- [13] G. J. Udo, "Privacy and security concerns as major barriers for e-commerce: A survey study," *Information Management & Computer Security*, vol. 9, no. 4, pp. 165–174, 2001.
- [14] C. Ranganathan and E. Grandon, "An exploratory examination of factors affecting online sales," *Journal of Computer Information Systems*, vol. 42, no. 3, pp. 87–93, 2002.
- [15] R. Law and K. Leung, "Online airfare reservation services: A study of Asian-based and North American-based travel web sites," *Information Technology & Tourism*, vol. 5, no. 1, pp. 25–33, 2002.
- [16] R. Law and T. Chung, "Website performance: Hong Kong hotels," *Hospitality Review*, vol. 21, no. 1, pp. 33–46, 2003.
- [17] H.-W. Kim, Y. Xu, and S. Gupta, "Which is more important in internet shopping, perceived price or trust?" *Electronic Commerce Research and Applications*, vol. 11, no. 3, pp. 241–252, 2012.
- [18] S. Steinbrink, "Consumer response to travel site performance," 2010. [Online]. Available: <https://www.phocuswright.com/Free-Travel-Research/Consumer-Response-to-Travel-Site-Performance>
- [19] P. O'connor and G. Piccoli, "Marketing hotels using global distribution systems revisited," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 44, no. 5-6, pp. 105–114, 2003.
- [20] J. N. Liu and E. Y. Zhang, "An investigation of factors affecting customer selection of online hotel booking channels," *International Journal of Hospitality Management*, vol. 39, pp. 71–83, 2014.
- [21] R. Brunner, S. Emery, and R. Hall, *Do you matter? How great design will make people love your company*. Upper Saddle River: FT Press, 2008.
- [22] P. Desmet, "Designing emotions," phdthesis, Delft University of Technology, 2002, unpublished.
- [23] J. Baek and C. M. Ok, "The power of design: How does design affect consumers' online hotel booking?" *International Journal of Hospitality Management*, vol. 65, pp. 1–10, 2017.
- [24] Y.-H. Chen, I.-C. Hsu, and C.-C. Lin, "Website attributes that increase consumer purchase intention: A conjoint analysis," *Journal of Business Research*, vol. 63, no. 9-10, pp. 1007–1014, 2010.
- [25] I. Wen, "An empirical study of an online travel purchase intention model," *Journal of Travel & Tourism Marketing*, vol. 29, no. 1, pp. 18–39, 2012.
- [26] D. Cyr, "Modeling web site design across cultures: Relationships to trust, satisfaction, and e-loyalty," *Journal of Management Information Systems*, vol. 24, no. 4, pp. 47–72, 2008.
- [27] M. Gregoire, M. Jeong, and H. Oh, *An Internet marketing strategy study for the lodging industry*. Ames, Iowa: Iowa State University, 2001.
- [28] L. C. Harris and M. M. Goode, "The four levels of loyalty and the pivotal role of trust: A study of online service dynamics," *Journal of Retailing*, vol. 80, no. 2, pp. 139–158, 2004.
- [29] S. H. Lee, H. Ro *et al.*, "The impact of online reviews on attitude changes: The differential effects of review attributes and consumer knowledge," *International Journal of Hospitality Management*, vol. 56, pp. 1–9, 2016.
- [30] C. M. Cheung and D. R. Thadani, "The impact of electronic word-of-mouth communication: A literature analysis and integrative model," *Decision Support Systems*, vol. 54, no. 1, pp. 461–470, 2012.
- [31] I. Ajzen and M. Fishbein, *The handbook of attitudes*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers, 2005, ch. The Influence of Attitudes on Behavior, pp. 173–221.
- [32] S. Beldona, A. M. Morrison, and J. O'Leary, "Online shopping motivations and pleasure travel products: A correspondence analysis," *Tourism Management*, vol. 26, no. 4, pp. 561–570, 2005.
- [33] M. A. Bonn, H. L. Furr, and A. M. Susskind, "Using the internet as a pleasure travel planning tool: An examination of the sociodemographic and behavioral characteristics among internet users and nonusers," *Journal of Hospitality & Tourism Research*, vol. 22, no. 3, pp. 303–317, 1998.
- [34] J. F. Hair, R. E. Anderson, R. L. Tatham, W. C. Black, and B. J. Babin, *Multivariate data analysis*. New Jersey: Prentice Hall, 2010.
- [35] S. Ellen, *Slovin's formula sampling techniques*. Fort Worth: Dryden Press, 2012.
- [36] S. Glen, "Kaiser-Meyer-Olkin (KMO) test for sampling adequacy," 2016. [On-

- line]. Available: <https://www.statisticshowto.datasciencecentral.com/kaiser-meyer-olkin/>
- [37] A. Schippers, "A multinomial logistic regression analysis," 2009. [Online]. Available: <http://www.let.rug.nl/nerbonne/teach/rema-stats-meth-seminar/presentations/Multinomial-Log-Regr-Schippers-2009.pdf>
- [38] M. Khelifa, "One-way ANOVA: SPSS for windows intermediate & advanced applied statistics." [Online]. Available: <https://www.zu.ac.ae/main/files/contents/research/training/One-WayANOVA.pdf>
- [39] R. D. J. Crifo, "Levene's test." [Online]. Available: <http://biotoolbox.binghamton.edu/Biostatistics/Biostatistics%20Student%20Tutorials/Levene%20Test/Levene.pdf>
- [40] C. Kim, R. D. Galliers, N. Shin, J.-H. Ryoo, and J. Kim, "Factors influencing internet shopping value and customer repurchase intention," *Electronic Commerce Research and Applications*, vol. 11, no. 4, pp. 374–387, 2012.
- [41] I. C. C. Chan, L. W. Lam, C. W. Chow, L. H. N. Fong, and R. Law, "The effect of online reviews on hotel booking intention: The role of reader-reviewer similarity," *International Journal of Hospitality Management*, vol. 66, pp. 54–65, 2017.