Factors Affecting Customer Loyalty of Automotive Lubricant Products E-Commerce Platform in Malaysia

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Abstract. This paper investigates the factors affecting customer loyalty of Malaysia's automotive lubricant product's e-commerce platform within the context of VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) elements in the market, including the impact of COVID-19 and internet penetrations on customer preferences. Regardless of the industry, it is very important for the growth of any business to identify service process quality, service result quality, service recovery quality, and customer engagement as the prime determinants of consumer loyalty, especially in a VUCA environment characterized by rapid changes, unpredictable market dynamics, and complex consumer behaviors. This study adopts a quantitative approach, and the survey uses a total of 274 respondents as a sampling population who are used to purchasing automotive lubricant products from e-commerce. This research uses JASP (version 0.17.1) as a statistical tool for data analysis. Few statistical analysis methods have been adopted to construct a model of analysis. This study's insights can serve as a roadmap for automotive lubricant companies operating in the e-commerce domain to navigate the VUCA environment successfully. By implementing the research's recommendations, businesses can enhance customer loyalty, build brand advocacy, and ultimately achieve sustainable competitive advantage in the marketplace.

Keywords: E-commerce Platform of Automotive Lubricant, E-service Quality, Customer Loyalty, Customer Engagement.

1   Introduction

The automotive lubricant industry has been significantly impacted by the COVID-19 pandemic in early 2020, which disrupted supply chains, consumer behaviors, and market demand. Internet penetrations and young consumers' preferences have further transformed the landscape, as more people rely on e-commerce platforms for purchasing automotive lubricant products due to convenience and accessibility. One of the ways to address the challenges posed by VUCA (Volatility, Uncertainty, Complexity and Ambiguity) in the automotive lubricant industry is through leveraging e-commerce platforms. E-commerce provides a digital space that allows businesses to adapt quickly to

changing market conditions, reach a broader customer base, and offer personalized experiences to meet individual preferences. As consumers increasingly prefer online shopping, businesses can enhance their customer engagement strategies and implement effective service recovery measures to build brand loyalty and trust.

The importance of CRM in the oil and gas industry is growing as this approach helps organizations to identify and retain the most profitable customers and also improves the profitability of less profitable customers. In other ways, it explains that CRM deals with identifying, satisfying, retaining and maximizing the value of a company's best customers [1]. Customer satisfaction leads to repeat purchases, brand loyalty, and positive word of mouth which is the foundation of any successful business [2]and because of the intangible characteristic, the service quality is difficult to evaluate compared to goods quality and the customer perceived expectations with the service performance and the process of service delivery [3]. In the retail industry, companies are obliged to meet customer demands consistently because of the increasing demands of customers to have things their way and at the time they want. Customer Relationship Management (CRM) strongly focuses on the management and development of profitable customer relationships [1]

It's important for organizations to understand the impact of service quality; their ability to execute order fulfilment service dependably and accurately, in differentiating similar physical products and services [4]. By doing so, an organization can attract and satisfy customers which in the long run helps to establish long-term relationships with customers. Therefore, understanding the relationship between service quality and customer loyalty is crucial to predict customer relationship outcomes [5]. The research on the relationship between service quality and customer loyalty is important for the retail industry to identify the relationship pattern among those variables and make strategies to retain their profitable customers [6].

2   Literature Review

2.1   Customer Loyalty

Loyalty is described as a consistent purchase of a product or service from the same firm [7]. [8] described the attitude and devotion of a customer to an e-commerce store that leads to repurchase behaviour referred to as loyalty. Customer loyalty is defined as the relationship between a consumer's attitude toward a brand or business and subsequent purchases from that brand or shop [9]. According to [10] and [11], customer loyalty may be characterized in three ways: the desire to maintain purchasing, increase purchases, and promote the store, depending on customer happiness, perceived product quality, perceived service quality, perceived value, and perceived comparable pricing.

2.2   E-commerce Platform Service Process Quality and Customer Loyalty

Ensuring long-term client satisfaction and involvement, e-commerce must deliver great service and build an intriguing marketing strategy [1]. E-commerce allows for faster, more flexible, and cost-effective market access not only locally, but also globally [12]. It is critical for any modern business to evaluate the quality of its e-commerce service to improve it over time and compare it to competitors and best practices [12]. Many characteristics and dimensions of the quality of e-commerce services have been highlighted by academics: Customer service, process management, simplicity of use, information quality, and website design are all factors to consider [13]; security and responsiveness [14]; assurance, ease, dependability, and responsiveness [15]. Website navigation and clear information arrangement, ease of use, content, real-time support, reliability, security, design, and searchability are all important factors [13] interactivity, reactivity, and utility [14]. Therefore, the following hypothesis is proposed.

H1: The service process quality of automotive lubricants e-commerce platform has a positive impact on customer loyalty.

2.3   E-commerce Platform Service Result Quality and Customer Loyalty

Quality service, according to [16] is critical in e-commerce to increase channel utilization and customer loyalty. The idea of service quality refers to the degree to which a customer's expectations and reality about the services they receive differ. According to [17] and [16] the key strategy for any organization's success and survival is to give exceptional services to customers, which influences customer satisfaction and attitudinal loyalty. Positive consumer experiences with e-commerce attributes are expected to increase customers' enthusiasm for participating in e-commerce. As a result, the higher the level of involvement, the better the overall customer experience [18]. Therefore, the following hypothesis is proposed.

H2: The service result quality of automotive lubricants e-commerce platform has a positive impact on customer loyalty.

2.4   E-commerce Platform Service Recovery Quality and Customer Loyalty

According to [19], if service dissatisfaction is unavoidable due to the service's unique characteristics, and organizations are unable to completely prevent all disappointments, businesses must investigate techniques for efficiently dealing with service failures. Remember the phrase "the customer is always right"? Exceeding consumer expectations is the cornerstone to any successful business. Consumers that are displeased with your products or services may cause your business to suffer. You have not only lost their repeat business, but they will also not suggest you to a friend. A positive review might be extremely beneficial to your company but what if you're compelled to use a caustic one? The goal of service recovery is to reduce negative reviews while increasing customer happiness. Service failure occurs when the quality of service falls short of the consumers' expectations [20].

One of the most major causes of customer loss for most firms is service failure. A prompt reaction to service failure not only keeps dissatisfied customers loyal to the company, but it also enhances the possibility that the connection will be sustained [21]. The management may be able to convert a disgruntled client into a happy and loyal customer by providing great customer service recovery. Failure to provide excellent customer service does not have to be the end of relationship with client since the management must know how to set things right and turn a bad situation around. Accept responsibility for the problem and seek a solution as soon as possible. After that, fix the problem and provide the client with a bonus. Then, inquire about the buyer's satisfaction and follow up with them. Therefore, the following hypothesis is proposed.

H3: The service recovery quality of automotive lubricants e-commerce platform has a positive impact on customer loyalty.

2.5   E-commerce Platform Customer Engagement and Customer Loyalty

Customer engagement initiatives provide value to the lives of customers [22]. The idea is to make connections, and transparency is critical. To truly engage your audience, you must first listen to what they say and then comprehend how they respond to it. The level of service quality perceived by the client at various stages of the e-commerce platform may impact consumer engagement. One-time purchases are converted into loyal repeat customers through effective customer interaction. Engagement denotes a higher level of relational connection and hence plays an important role in determining consumer outcomes, particularly loyalty-related outcomes [23]. According to [23] and [24] define customer engagement as "a psychological process" that promotes customer loyalty and is primarily concerned with the building and development of customer connections that may affect consumer choice regarding brands, goods, or organizations.

Low-engagement services emphasise the importance of precisely planned actions to generate new revenue and are not relied on personal and customised relationships between the client and the supplier [24] .Therefore, the following hypothesis is proposed.

H4: The customer engagement of automotive lubricants e-commerce platform has a positive impact on customer loyalty.

From the hypothesis development, research framework are developed as Figure 1.
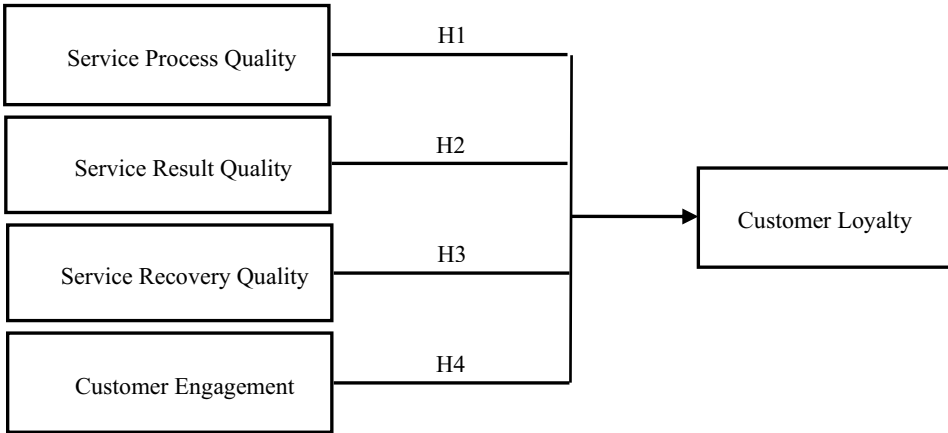
Fig. 1. Research Model

3   Methods

The target population of this study is an individual who used to purchase or buy things via an e-commerce platform in Malaysia. This study uses non-probability sampling, which is a quick, simple, and low-cost method of gathering data [25]. It is crucial to identify this group properly when selecting the sampling frame or sampling plan since it has an impact on the sampling method, practicality, and sample size [26]. From the target population of people who use to purchase or buy things via e-commerce plat-forms, our sampling size focuses on the consumer who purchased automotive lubricant products via e-commerce platforms for the past 12 months.

The research instrument is the process of gathering and measuring information variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes [27]. To increase the validity and reliability of the information gathered, the respondents are asked about their willingness to participate in the questionnaire prior to the questionnaire. JASP (version 0.17.1) was used as a statistical tool analysis to estimate the measurement and structural models for data analysis.

This survey was conducted using a Google Form link, which is one of the most popular online survey methods for data collection [28]. The official survey was distributed from December 2022 to January 2023 via WhatsApp and Telegram. The investigation employed a non-random sample survey. The targeted sample size for this study was 300 public participants, however we received 276 responses, which is a significant amount of data. Out of 276, 2 responses were excluded because they contained incorrect information. There were 274 valid survey responses from the e-commerce customers who purchase lubricant items in response to a survey. The accuracy of the sample was 99.3%. [Table 1] below displayed the demographic of the survey respondents.

3.1   Measurement Items and Scaling Framework

Table 1. Measurement Items and Scaling

Constructs	Measures	Reliability of the Constructs
Service Process Quality (SPQ)	The website's design provides visitors with an understanding and too complicated. *(SPQ-1)* The website's search engine is well-organized and located for automobile lubricants products. *(SPQ-2)* Your personal information will not be misused by the website. *(SPQ-3)* The website will be able to provide sufficient and up-to-date information about automobile lubricant products. *(SPQ-4)* Transactions are processed fast on the Internet. *(SPQ-5)*	0.982
Service Result Quality (SRQ)	The website was able to supply automotive lubricant products when you need them. *(SRQ-1)* The website delivered information on automotive lubricants products that are consistent with their advertising. *(SRQ-2)* The website that promotes automotive lubricants products is in good working order and easily searchable. *(SRQ-3)* The online business is capable of delivering on its promises. *(SRQ-4)*	0.984
Service Recovery Quality (SRC)	The website's customer service team can resolve your issues in a polite and timely manner. *(SRC-1)* If there are any issues with the transaction, the website owner/merchants will take the initiative to rectify the error and follow up on the matter promptly. *(SRC-2)* The website will reimburse you for any losses incurred as a result of the website's quality issues. *(SRC-3)*	0.982
Customer Engagement	I spend a significant amount of time browsing automotive lubricants on e-commerce sites. *(CE-1)*	0.857

	You will be drawn to anything related to this company. *(CE-2)*	
	You enjoy telling your friends about your automotive lubricant products online shopping experience. *(CE-3)*	
Customer Loyalty	This store should be your first pick if you need to buy automotive lubricant online. *(CL-1)*	0.915
	You consume more on this store than on other e-commerce sites. *(CL-2)*	
	You prefer this store over e-commerce sites that sell the vehicle lubricants. *(CL-3)*	

4   Results And Discussion

The data provided pertains to a group of respondents' characteristics and preferences when it comes to selecting e-commerce platforms for purchasing automotive lubricant products. The sample consists of 274 individuals, with 89.4% identifying as Male and 10.6% as Female. Age-wise, respondents are distributed as follows: 24.5% fall within the 21 - 30 years range, 37.2% are aged 31 - 40 years, 30.3% are between 41 - 50 years, 5.8% are 51 - 60 years old, and 2.2% are 61 years and above. Occupation-wise, 86.5% are employed for wages, 6.2% are self-employed, 1.1% are students, 4.7% are retired, and 1.5% are homemakers. In terms of education, 6.9% have a High School background, 29.2% have a Diploma, 59.5% hold a Bachelor's Degree, 4.0% have a Master's Degree, and 0.4% have a Doctorate Degree. When selecting e-commerce platforms, the preferences include Shopee Mall (45.3%), Petronas Official Store (17.2%), Lazada Marketplace (12.0%), Shell Lubes Official Store (9.1%), BHPetrol Malaysia Official Store (8.8%), Caltex Malaysia Official Store (3.6%), Petron Malaysia Official Shop (3.3%), Liqui Moly (0.4%), and Mannol Oil Lubricant (0.4%). This data provides insights into the demographic and platform preferences of individuals in their pursuit of automotive lubricant products through online channels.

Table 2. Demographics of the survey respondents (N = 274)

Item	Characteristics	Number of Samples (N)	Percentage (%)
Gender	Male	245	89.4%
	Female	29	10.6%
	Total	**274**	**100%**
Age	21 - 30 years	67	24.5%
	31 - 40 years	102	37.2%

	41 - 50 years	83	30.3%
	51 - 60 years	16	5.8%
	61 and above	6	2.2%
	Total	**274**	**100%**
Occupation	Employed for wages	237	86.5%
	Self-employed	17	6.2%
	Student	3	1.1%
	Retired	13	4.7%
	Homemaker	4	1.5%
	Total	**274**	**100%**
Education	High School	19	6.9%
	Diploma	80	29.2%
	Bachelor's Degree	163	59.5%
	Master's Degree	11	4.0%
	Doctorate Degree	1	0.4%
	Total	**274**	**100%**
Selection of e-commerce platform to purchase automotive lubricant products	Shopee Mall	124	45.3%
	Petronas Official Store	47	17.2%
	Lazada Marketplace	33	12.0%
	Shell Lubes Official Store	25	9.1%
	BHPetrol Malaysia Official Store	24	8.8%
	Caltex Malaysia Official Store	10	3.6%
	Petron Malaysia Official Shop	9	3.3%
	Liqui Moly	1	0.4%
	Mannol Oil Lubricant	1	0.4%
	Total	**274**	**100%**

Table 3 encompasses several variables, each characterized by its number of items, mean, standard deviation, and Cronbach's alpha reliability coefficient. The SPQ comprises five items, with respondents yielding a mean score of 4.155 and a standard deviation of 0.534. Its high Cronbach's alpha of 0.892 indicates strong internal consistency among the items. Similarly, the SRQ comprises four items, with a mean score of 3.99 and a standard deviation of 0.498. Its Cronbach's alpha is 0.871, again suggesting good

internal consistency. The SRC variable, with three items, has a mean of 4.029 and a standard deviation of 0.569, coupled with a Cronbach's alpha of 0.879. On the other hand, the CE variable, consisting of three items, demonstrates a mean score of 3.813 and a standard deviation of 0.591, with a slightly lower Cronbach's alpha of 0.699. Lastly, the CL variable, also comprising three items, records a mean of 3.489 and a higher standard deviation of 0.753, yet maintains a respectable Cronbach's alpha of 0.785.

Table 3. Mean and Standard Deviation & Cronbach's Reliability for IVs and DV

Variables	No. of Items	Mean	Standard Deviation	Cronbach Alpha
SPQ	5	4.155	.534	.892
SRQ	4	3.99	.498	.871
SRC	3	4.029	.569	.879
CE	3	3.813	.591	.699
CL	3	3.489	.753	.785

Table 4 Pearson's correlation matrix reveals the relationships between the Independent Variables (IVs) and the Dependent Variable (DV). Notably, the SRQ demonstrates a moderately positive correlation (r = .438) with the DV, while the SRC exhibits a similar correlation (r = .341). Similarly, the CE variable displays a moderately positive correlation (r = .503) with the DV, whereas SPQ indicates a relatively weaker positive correlation (r = 0.215) with the DV. These correlation coefficients collectively illuminate the extent and direction of associations between variables.

Table 4. Pearson Correlation: All IV's and DV

		SPQ	SRQ	SRC	CE	CL
(SRQ)	Pearson's r	.645***				
(SRC)	Pearson's r	.586***	.674***			
(CE)	Pearson's r	.547***	.563***	.61***		
(CL)	Pearson's r	.215***	.438***	.341***	.503***	

Note. All tests are one-tailed, for the positive correlation (*** p < .001, one-tailed)

Multiple linear regression was used to test if SPQ, SRQ, SRC and CE are significantly predicting CL. From table 5,6 and 7, it was found that of SPQ, SRQ and CE significantly predicted customer loyalty but SRC did not significantly predict customer loyalty. Refer [Table 5-7], the fitted regression model as follow:
  CL = .72 -.351*SPQ +.559*SRQ + .581*CE.

Table 5. Multiple Linear Regression Analysis of all IV and DV

					Model Summary[b]				
						Change Statistics			
Model	R	R²	Adjusted R²	RMSE	R² Change	F Change	df1	df2	p
1	.569a	.324	.314	.624	.324	32.267	4	269	< .001

a. Predictors: (Intercept), Service Process Quality, Service Result Quality, Service Recovery Quality, Customer Engagement
b. Dependent Variable: Customer Loyalty

Table 6. ANOVA (Multiple Linear Regression for all IV and DV)

Model		Sum of Squares	df	Mean Square	F	p
H₁	Regression	50.228	4	12.557	32.267	< .001
	Residual	104.684	269	0.389		
	Total	154.912	273			

Table 7. Coefficient of all IV and DV

	Coefficients[a]							
	Unstandardized		Standardized				Collinearity Statistics	
Model	β	Standard Error	β	t	p		Tolerance	VIF
(Intercept)	.72	.337		2.136	.034			
SPQ	-.351	.098	-.249	-3.575	< .001		.517	1.934
SRQ	.559	.114	.37	4.89	< .001		.439	2.276
SRC	-.054	.099	-.041	-.545	0.586		.453	2.206
CE	.581	.085	.456	6.804	< .001		.559	1.788

a. Dependent Variable: Customer Loyalty

The findings suggest that respondents' perceptions of service quality (SPQ), the company's ability to recover from service failures (SRQ), and the overall customer experience (CE) significantly influence customer loyalty. These results align with previous research emphasizing the importance of these factors in driving customer loyalty. However, the lack of a significant relationship between respondents' scores on the SRC and customer loyalty indicates that service reliability might not be as strong a predictor of customer loyalty in this context. It is possible that other variables or external factors not considered in this study may impact customer loyalty differently.

The empirical findings revealed that customers evaluate service quality differently, with service process quality being closely related to their perception of good service. Service Process Quality: Respondents considered service process to be the most important factor when evaluating e-commerce platforms. They valued accessibility, flexibility, efficiency, security/privacy, customization/personalization, and site aesthetics. A significant percentage of respondents indicated that e-commerce acceptance depends on the perceived usefulness and accessibility of the platform. Respondents also found service result quality to be crucial when evaluating e-commerce platforms. The study highlights the significance of service quality factors, particularly service process, result, and recovery, in influencing customer loyalty in the automotive lubricants e-commerce platform. It emphasizes the need for businesses to focus on providing a seamless and engaging customer experience to build long-term relationships and drive loyalty.

4.1   Implications to Management

This result suggests that online commerce stores should design marketing strategies that emphasize the dependability, trustworthiness, and timeliness of web-based services in order to increase customer purchase intentions. Online commerce stores can dedicate their resources to the important electronic service quality features identified by this study. For instance, improving the level of dependability, security, and timeliness of services is crucial for both attracting and keeping online customers since these factors have a significant influence on consumer satisfaction and purchase intentions. Despite this, research has revealed that many internet users are concerned about possible dangers to their privacy. Typically, customers have the option of purchasing automotive lubricant products directly, i.e., workshops, parts stores, or choose to have their vehicle serviced by an authorized service center as long as it is covered by warranty.

4.2   Implications to Policymaker

More perceived market orientation and e-commerce trustworthiness among respondents are related to higher site quality ratings. A person is also more likely to engage in e-commerce if they have a higher level of confidence in it. Positive "word of mouth", money-back guarantees, and partnerships with respected business partners are the top three risk-reduction techniques [30]. Internet customers take security very seriously and view it as a big problem. Security is the capacity of an internet company to keep track of and maintain the confidentiality of data transmissions. In order to promote confidence and allay customer concerns about transactions that may be easily hacked and personal data misuse, security assurances are crucial. Consumers may be willing to disclose their personal information if security concerns can be addressed and expectations are satisfied [1].

4.3 Limitations of the Study

The sample and selection of respondents is the most important shortcoming of this study. The target population, in this case, are the respondents who have experience purchasing automotive lubricant products via e-commerce platforms. The sample size of 274 people of all ages and genders may not be indicative of the whole population of automotive lubricant product e-commerce buyers. The sampling approach is non-probability, convenience sampling, which limits the extrapolation of findings to the entire population. As a result, we propose that future research use probability sampling. The study makes use of a standardized questionnaire with closed-ended questions that provide respondents with only a few possible answers.

5 Conclusion

The automotive lubricants market in Malaysia experienced significant changes in demand and market share, driven by factors such as motor vehicle ownership, usage patterns, and technological advancements in synthetic base oils. There are uncertainties surrounding the sales volume of passenger and commercial vehicles, influenced by promotional campaigns, year-end incentives, and external factors like floods and virus outbreaks. The research focuses on the relationship between service quality and customer loyalty in the retail industry, which involves analyzing multiple variables and understanding the impact of service attributes on customer satisfaction and retention. The research aims to identify the relationship pattern between service quality and customer loyalty in the retail industry, as well as major service quality dimensions that are important for managers. It seeks to provide clarity on strategies to retain profitable customers in the face of ambiguous consumer preferences and changing market dynamics. Overall, the research paper acknowledges the VUCA elements in the automotive lubricants market and the retail industry, highlighting the need for businesses to adapt to the volatile, uncertain, complex, and ambiguous nature of the market to effectively satisfy customers and maintain profitability.

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