Sales Forecasting with Exponential Smoothing for Webrooming–Showrooming Strategy at Yumna Batik

Syarthini Indrayani[1], Mira Mira[2], Nur Mayasari[3], Wiwid Astuti[4], Resky Angguna Anastasya[5], Nur Amalia Agus Mulyadi[6]
University of Muhammadiyah Makassar, Makassar, Indonesia[1,2,3,4,5]
mira@privietlab.org[2*]

Abstract

Purpose: This study explores the effectiveness of webrooming and showrooming as marketing strategies in increasing sales, revenue, and customer satisfaction at Yumna Butik in Makassar. It aims to forecast sales trends and analyze consumer shopping behaviors using sales forecasting methods

Methodology/approach: A quantitative exploratory approach was employed, utilizing secondary data on sales through webrooming and showrooming. The research applied the Single Exponential Smoothing (SES) method to forecast sales and identify shopping patterns. Interviews with sales representatives and analysis of sales transaction records were conducted to understand consumer behavior and spending trends.

Results/findings: The findings reveal a significant monthly increase in sales volume, influenced by strategic store locations, competitive pricing, and high-quality customer service. Among the products analyzed, hijabs were identified as the highest-selling item. The majority of customers preferred webrooming over showrooming, emphasizing the practicality of online searches followed by in-store purchases.

Conclusion: The study concludes that webrooming is more effective than showrooming in driving customer purchases at Yumna Butik. Implementing both strategies, supported by accurate sales forecasting, enables better business planning, customer engagement, and revenue growth.

Limitations: This study focuses on a single business and specific products, which may limit generalizability. Future research could incorporate advanced software such as RShiny for more detailed and dynamic sales forecasts.

Contribution: This study demonstrates the relevance of integrating webrooming and showrooming strategies to enhance sales and customer satisfaction. It also highlights the utility of SES in predicting sales trends and improving inventory management, offering actionable insights for fashion retailers.

Keywords: *Sales Forecasting, SES, Showrooming, Webrooming.*

How to Cite: Indaryani, S., Mira, M., Mayasari, N., Astuti, W., Anastasya, R, A., Mulyadi, N, A, A. (2025), The Role of ESG in Moderating Corporate Tax Avoidance and Firm Value. *Studi Akuntansi, Keuangan, dan Manajemen* (5) 1 257-268.

1. Introduction

Sales is the activity that exerts the most significant influence on a company's survival (Kurniawati, Jamiyla, & Pratiwi, 2017; MULYADI, 2016). Defines sales as activities comprising transactions for goods or services, both credit and cash. The primary source of cash for a company originates from sales, which serves as the focal point in achieving the company's objective of maximizing profits. Consequently, it is crucial for companies, through marketing managers in Padang, to generate forecasts for both short-term and long-term periods regarding the magnitude or volume of sales to be attained in

the future. Sales forecasting is predicated on historical data as a foundation or reference for projecting future sales data. The underlying assumption is a cause-and-effect relationship, positing that past occurrences will recur in the present. This cause-and-effect relationship is not explained when deriving the statistical model. With this assumption, past sales patterns are used as a basis for forecasting future sales; provided that the past cause-and-effect relationship has not changed (Rahayu & Yulianto, 2018). For this reason, one way to do this in the era of digitalization is to use the internet as a promotional and marketing medium. This means that the internet has become a medium for people to search for preferences, which is practical for searching for information. Seeking information before purchasing is not a new event in consumer behavior but has become a trend (Menon, Barani, & Suganthalakshmi, 2018) . It was further explained that consumers carry out searches at stage (Prasetijo & Ihalauw, 2005) . Searching for information becomes new when it involves the internet. Webrooming is a term used when consumers search for product information online and then make purchases in stores, while consumers who visit stores to get information about products and make purchases online are defined as showrooming (Thangavel & Om, 2015) .

Yumna Butik as a business that carries out offline and online transactions is an example of using the Internet for commercial trading activities. Through a site created specifically as a "place" for its business, Yumna Butik can carry out promotional and marketing activities on the Internet. The convenience of today's technological world means that people, especially teenagers, consume Instagram social media more often because there are so many online shops that offer attractive goods and services, so that teenagers who initially don't want to buy become willing to buy because they see promotional photos or videos uploaded by producers. Yumna Butik in its sales focuses on young consumers as the driving force for the development of its business. This is based on young consumers actively accessing sites on social media such as Instagram so that media platforms are considered the fastest growing means of distributing global cultural products (Fahlevi et al., 2023).

Social media such as Facebook, Instagram, WhatsApp , online which are easily accessed using smartphones such as iPhone and Blackberry , are used by producers of goods and services to do business. For this reason, one of the planning methods that can be used is the Basket Analysis (MBA) Method . The Basket Analysis (MBA) method is often used by the marketing sector to see associations between objects. This technique is used to analyze the contents of a shopping basket to obtain information on what products are most frequently purchased by consumers so that they are selected. After the products are selected, sales forecasting can be used to observe sales patterns, profit patterns, and sales planning (Bakri, Halim, & Astuti, 2018). Most previous research only focused on research regarding webrooming and showrooming , such as: Hartini and Hidayati (2021) with the topic The Effect of Webrooming on *Confident* , Smart Shopping Feeling, User-generated Content , and Search Process Satisfaction , where the research results explain that consumers try to minimize uncertainty when shopping for beauty products, one of which is through webrooming . Furthermore, Asmara (2016) conducted research on trends webrooming and showrooming in the city of Salatiga. The research results showed that 50.8 percent of respondents had done webrooming .

Other research conducted (Gensler, Neslin, & Verhoef, 2017) found that showroom learning is more popular because the quality is better than the average online shopping , where consumers hope to get better offers and products that better suit their needs. This research is development research conducted by Nesar and Sabir (2016) with the title evaluation of customer preferences regarding webrooming and showrooming with research results showing that the majority of customers shop online because the experience of some of them is exploitation, comparing prices to get the best offer. There are 3 (three) main reasons why customers buy offline , namely: Products, return policies and discounts (this includes 24 hour availability and time savings). Other research that focuses only on the MBA context is: Research by Bakri et al. (2018) conducted research on product marketing strategy information systems using the market method based analysis and sales forecasting with results using MBA companies can see consumer spending habits so they can organize and optimize product positions and sales Forecasting is used to view sales parameters to anticipate or manage finances and stock. From several problems stated above, researchers are interested in linking webrooming and showrooming consumer shopping patterns , forecasting sales using the Market concept. based Analysis , so that Yumna Butik can find out

the tendency of customers to choose shopping methods using webrooming or showrooming , how many sales there are and the availability of existing goods. In the future, further research could use software to conduct sales Computerized forecasting using RShiny. Based on the problems that have been described, the relevance of this research can be seen in the roadmap:

Figure 1. Research Roadmap

This Figure 1 illustrates the progression of research on webrooming and showrooming, showcasing how these consumer behaviors have evolved and been studied over time. Starting from earlier studies, research by Bakri et al. explored product marketing strategies using market-based analysis and sales forecasting, emphasizing the importance of understanding consumer behavior patterns to optimize sales strategies. This laid the foundation for further studies, such as Asmara's work, which examined trends in webrooming and showrooming in Salatiga, revealing that over half of the respondents engaged in webrooming behaviors. Later, Hartini and Hidayati expanded this understanding by exploring the psychological factors influencing webrooming, such as confidence, smart shopping feelings, and user-generated content, highlighting how webrooming helps reduce uncertainty in purchasing decisions, particularly for beauty products.

The research roadmap culminates in recent efforts to forecast shopping tendencies using advanced techniques like exponential smoothing. These studies aim to bridge consumer behavior insights with practical applications, such as predicting shopping patterns and informing inventory and sales strategies. The introduction ties these developments to the growing importance of sales forecasting as a tool for business sustainability, especially in the digital age. The integration of digital platforms, such as Instagram, plays a crucial role in shaping consumer habits, with businesses like Yumna Butik leveraging social media to target young, tech-savvy customers. By connecting webrooming and showrooming behaviors to market basket analysis and computerized forecasting, the roadmap and introduction provide a cohesive narrative about the relevance of these trends in understanding and predicting consumer behavior. This research progression underscores the need for businesses to adapt to evolving shopping behaviors by utilizing digital tools and data-driven strategies.

2. Literature Review and Hypothesis Development
2.1 Webrooming
Webrooming is a character or behavior of consumers who check a product online , before they make a final decision to buy the product offline (Arora & Sahney, 2017; Nesar & Sabir, 2016) stated that webrooming is an activity carried out by consumers by searching for product information online and then making purchases offline at the store . In this webrooming process , customers first search for products on the internet and make a decision to make a purchase from the store. Before shopping, customers collect all the related information from the website about the product like price and features and more. Customers make comparisons between brands available in stores and online (Sahir et al., 2021), if they find a product cheaper in store than the product they would buy immediately. They can

also check whether the store displays the same and correct information or not (Fahlevi et al., 2024). The benefits of webrooming (Vijayakumar, 2020) are as follows:
1. Interaction with retail showroom sales people
2. Customers can see, touch and feel the products and also try them out
3. Product delivery can be done on the same day
4. Easily return products faster

2.2 Showrooming

Showrooming refers to the practice wherein consumers visit a physical retail establishment to examine products and compare prices, subsequently making the purchase online. This shopping behavior involves customers utilizing brick-and-mortar stores to evaluate products before ultimately procuring them through e-commerce channels. The primary objective of this approach is to conduct price comparisons between online marketplaces and physical retail outlets, as online prices tend to be more economical than those offered in physical stores.

2.3 Sales Forecasting

According to Stevenson and Chuong (2014), the meaning of *forecasting* or forecasting is the basic input in the operations management decision making process in providing information about future demand with the aim of determining how much capacity or inventory is needed to make staffing decisions, the budget that must be prepared, ordering goods from suppliers and partners from the supply chain who are needed in making a plan. Sales forecasts represent the estimated number of sales anticipated to occur in the future, addressing elements of uncertainty. In the business environment, organizations frequently encounter uncertain situations that may impede their operational activities. Although companies may develop plans based on forecasts, predictions founded on rational analysis using specific techniques yield more favorable outcomes than the absence of any planning.

A sales forecast is defined as a technical projection of potential subscription demand for a specified period, incorporating various assumptions, according to Adisaputro and Asri (2003). This definition encompasses considerations regarding the quantity of products to be produced in the future, as well as estimates of other relevant factors. Typically, the production volume is determined by the company's capacity to sell its products, as reflected in the sales forecasts generated. The methodology employed in this research is the Exponential Smoothing method. This method is a moving average method that gives stronger weight to the latest data than the initial data (Bakri et al., 2018). This becomes very useful if the latest changes in the data are more the result of actual changes (such as patterns seasonal) rather than just random fluctuations with a moving average forecast alone is sufficient (Pramita & Tanuwijaya, 2010). This research uses the Forecast package which has been prepared in the R database with ets and forecast functions (Agrawal et al., 2022). The general equation used in calculating forecasting using the Smoothing exponential smoothing method is as follows:

$$F_{t+1} = F_t + \alpha \times (X_t - F_t)$$

Where F_{t+1} = Forecasting results for period t + 1
F_t = Previous period
α = Smoothing constant
X_t = *Demand data* in period t

2.4 Previous Research

Bakri et al. (2018) which focuses on the application system that will be created to make it easier for business people to optimize sales using sample data. The research results found that this Application System consists of two main menus, namely the *Market Basket Analysis menu* and *sales menu*

forecasting , so real time data is needed which is large and requires an organized system because the number of supermarkets with digital cashier systems makes it possible to store sales transaction data.

A. Halim and Kusufi (2012) which focuses on MBA to test sales trends for certain products, so organized sales information is needed to provide an overview and assist analysis in strategic decision making . Muzakir and Adha (Muzakir & Adha, 2016) looked at the combination of consumer purchases using MBA, where 4 product combinations were carried out based on the largest support x confidence value with the results in the form of possible transaction figures related to the product being sold. If you use 1 combination, you get a blockket with a support value of 0.5625. If the combination is done twice, the blongket and songket combination is obtained with a support value of 0.375. Kartikasari, Dimyati, and Sukarno (2018) which focuses on consumer behavior in deciding to purchase goods. The research shows *webrooming* has a positive impact on *branded clothing purchasing decisions* . These impacts include : (a) *Webroomers* You can enjoy your time more when you buy *branded clothing* offline *, (b) The perception of* good quality arises from being able to know the appearance of the product directly.

Gensler et al. (2017) which focused on phenomena related to the determinants of online shopping. The research results indicate that: (1) Showroom shopping is more in demand due to its superior quality compared to average online shopping, where consumers anticipate obtaining better offers and products that more closely align with their requirements. (2) Online quality and prices have a positive impact on showrooming, whereas price expressions on quality have no effect. (3) Showrooming is negatively correlated with costs, suggesting that online shopping is more convenient and efficient. (4) Showrooming is negatively associated with product waiting time, where discrepancies in delivery times exist. (5) Showrooming is positively correlated with the value of information gathered in the shop. (6) Showrooming enables sellers to provide higher quality and more reliable services. (7) Personal perception is positively related to showrooming, which reinforces the notion that consumers experience frustration when they are unable to locate desired items.

3. Methodology
The research methodology employed is quantitative, utilizing an exploratory approach. Exploratory research aims to address inquiries regarding an object or problem, thereby facilitating a comprehensive understanding of existing phenomena(Arsyah & Pakri, 2024; Emita et al., 2021). This study encompasses descriptions of consumer spending patterns and patterns of goods availability, with the objective of extracting valuable information from a dataset using data mining techniques through the application of the proposed design.

The relevant types of data used in this research are qualitative data in the form of interview data with Yumna Butik sales and cashiers and quantitative data , namely data in the form of numbers where the data is obtained from the Yumna Butik data base in the form of sales data, sales data and quantity and type of goods. . In terms of source, the relevant data used in this research is secondary data, namely primary data, which is data that is taken directly from information using unstructured interviews regarding the type of goods and condition of the company, and secondary data is needed in this research. as writing support. This data source was obtained from various sources of information that have been published and from companies. To collect secondary data, a Yumna Butik based data study was carried out , such as data on sales, purchases and quantity of goods.

3.1 Data Collection Technique
The data collection procedure is carried out by collecting documentation data through:
3.1.1 Interview
This is a data collection technique where the researcher directly dialogues with the sales department and cashier to gather information regarding the type of product and conditions existing at Yumna Butik. The details of the respondents to confirm several research needs are:

Table 1 Number of Respondents

No	Description	Number of people)
1	Cashier	2
2	Service/SPG department	2
3	Cust o mer	3
	Total	7

3.1.2 Observation
Namely carrying out direct observations and systematic recording of the objects to be studied. The observation that the researcher will carry out is by observing and recording the cycle of goods in and out, sales trends with *webrooming orders* and *showrooming* and the number of requests and sales of products at Yumna Butik.

3.1.3 Documentation.
Documentation, namely this technique, is carried out by collecting some written data both from literature and notes regarding the object being studied. There is documentation data, namely by collecting and utilizing data based on Yumna Butik sales.

3.2 Data Analysis Method
The data analysis methodology employed in this study is as follows: This research utilizes a quantitative approach with the objective of describing the research results in an impartial manner.

3.3 Sales Forecasting
The method used in this research is the *Exponential method Smoothing* . This method is a moving average method which gives stronger weight to recent data than initial data (Y. K. E. Halim & Astuti, 2015) . This becomes very useful if recent changes in the data are the result of actual changes (such as seasonal patterns) rather than just random fluctuations where a moving average forecast alone is sufficient (Wijaya, Arifin, & Subiyanto, 2013). This research uses the Forecast package which has been prepared in the R database with ets and forecast functions (Hyndman & Athanasopoulos, 2018). The general equation used in calculating forecasting using the smoothing method *Exponential Smoothing* are as follows:

$$F_{t+1} = F_t + \alpha \times (X_t - F_t)$$

Where F_{t+1} = Forecasting results for period t + 1
F_t = Previous period
α = Smoothing constant
X_t = *Demand data* in period t

4. Result and Discussions
4.1 Sales Calculations Forecasting
When calculating sales forecasting, it is necessary to determine single exponential smoothing. Single Exponential smoothing is forecasting with just one smoothing. If the smoothing parameter is not close to zero, the influence of this initialization process quickly becomes less significant as time passes. However, if it is close to zero the initialization process can play a significant role over a long period of time. In the following, forecasting will be used using the exponential smoothing method with $\alpha = 0.1$ to $\alpha = 0.9$, where the value of the parameter α is between $0 < \alpha < 1$ with trial and error (according to the steps taken in solving Brown's one-parameter linear method)

Next is the calculation of the average error made by the forecasting model over time which is a measure of how accurate the forecast is. The forecasting calculation above was carried out using the MAPE Forecasting Error (mean absolute percentage error) method. The results of Double Exponential

Smoothing forecasting will be calculated mark the mistake use size MAPE error (mean absolute percentage error). Below, the DES calculation is carried out for each product at the Yumna Boutique Makassar Store.

Table 2. Sales forecasting calculation table using *Single Exponential Smoothing (SES)* For Mukenah

Month	Request (Xt)	Ft α =0.1	APE	(Xt - Ft)	(Xt -Ft)
April	214	12			
May	211	32.20	84.74%	243.20	214
June	198	50.08	74.71%	147.92	210
July	110	64.87	41.03%	45.13	189
August	109	69.38	36.34%	39.62	110
September	124	73.35	40.85%	50.65	111
October	132	78.41	40.60%	53.59	125
November	139	83.77	39.73%	55.23	133
December	154	89.29	42.02%	64.71	141
Jan	167	95.76	42.66%	71.24	155
Feb	213	102.89	51.70%	110.11	172
March		113.90			
	MAPE	881	494.37%	881.39	1,557.90
	MSE	3430.33	49.44%		155.79

Source: Yumna Butik data processed (2023)

The calculation results forecasting For May period to the future will be predicted that is as many as 214 items and for March with the product is Sale Mukenan special mature as many as 213 items in April no done calculation, due April is base calculation (Initiation), and the same way done For period furthermore . And sales in March are expected to increase by 172 items considering that this month is the beginning of Ramadan.

Table 3. Sales forecasting calculation table using Single Exponential Smoothing (SES) for the Hijab

Month	Request (Xt)	Ft α =0.1	APE	(Xt -Ft)	(Xt -Ft)
April	750	12			
May	390	85.80	78.00%	475.80	714
June	960	116.22	87.89%	843.78	447
July	1050	200.60	80.90%	849.40	969
August	420	285.54	32.01%	134.46	987
September	680	298.98	56.03%	381.02	446
October	880	337.09	61.69%	542.91	700
November	1200	391.38	67.39%	808.62	912
December	1350	472.24	65.02%	877.76	1,215
Jan	1920	560.02	70.83%	1359.98	1,407
Feb	2600	696.01	73.23%	1903.99	1,988
March		886.41			
	MAPE	8178	673.00%	8,177.73	9,785.00
	MSE	3430.33	67.30%		978.5

Source : Yumna Butik data processed (2023)

The calculation results forecasting For May period to the future will be predicted that is as many as 750 items and for March with the product is Sale all Types of hijab (Inner Pashmina , Inner 4-Segi, Bergo, Sport Hijab, Pasmina Kringkel) as many as 2,600 items in April no done calculation , because April is base calculation (Initiation), and the same way done For period furthermore . For sales in month March

predicted will increase by 1988 items, and of course sale of this hijab become prima donna , p This Of course just in the background back with background behind the shop that was the initial focus is as provider wholesale and retail hijabs, moreover Again many variations of hijab with various models and sizes and very affordable prices For all circles .

Table 4. Sales forecasting calculation table using Single Exponential Smoothing (SES) for Ciput

Month	Request (Xt)	Ft α =0.1	APE	(Xt -Ft)	(Xt -Ft)
April	67	12			
May	82	17.50	78.66%	99.50	69
June	89	23.95	73.09%	65.05	83
July	91	30.46	66.53%	60.55	89
August	94	36.51	61.16%	57.49	91
September	103	42.26	58.97%	60.74	95
October	123	48.33	60.71%	74.67	105
November	132	55.80	57.73%	76.20	124
December	139	63.42	54.37%	75.58	133
Jan	151	70.98	53.00%	80.02	140
Feb	164	78.98	51.84%	85.02	152
March		87.48			
	MAPE	735	616.06%	734.82	1,080.70
	MSE	3430.33	61.61%		108.07

Source: Yumna Butik data processed (2023)

The calculation results forecasting For May period to the future will be predicted that is as many as 67 items and for March with the product is Sale For all type chip as many as 164 items in April no done calculation, due April is base calculation (Initiation), and the same way done For period furthermore.

Table 5. Sales forecasting calculation table using Single Exponential Smoothing (SES) for Bros

Month	Request (Xt)	Ft α =0.1	APE	(Xt -Ft)	(Xt -Ft)
April	87	12			
May	92	19.50	78.80%	111.50	88
June	102	26.75	73.77%	75.25	93
July	115	34.28	70.20%	80.73	103
August	136	42.35	68.86%	93.65	117
September	162	51.71	68.08%	110.29	139
October	160	62.74	60.79%	97.26	162
November	172	72.47	57.87%	99.53	161
December	202	82.42	59.20%	119.58	175
Jan	224	94.38	57.87%	129.62	204
Feb	254	107.34	57.74%	146.66	227
March		122.01			
	MAPE	1064	653.17%	1,064.07	1,468.70
	MSE	3430.33	65.32%		146.87

Source: Yumna Butik data processed (2023)

The calculation results forecasting For May period to the future will be predicted that is as many as 92 items and for March with the product is There were 254 brooch sales in April done calculation , because April is base calculation (Initiation), and the same way done For period furthermore

4.2 Calculation of the best Predicting Value using MAPE

Single exponential smoothing is done by calculating the difference between predicted values and actual data values. MAPE is calculated by averaging the absolute differences between predicted and actual values. The results of the MAPE Single Exponential Smoothing test, if the MAPE value is smaller, it is considered that it will provide the best predicting value. Based on the data obtained for 4 types of products (mukenah, hijab, ciput and brooch), the lowest MAPE value is for the mukenan product, namely with a MAPE value of 494 or 49%. When compared with the MAPE values for three other products such as: Ciput (MSPE value 616 or 61%), brooches (MAPE value 653 or 65%) and hijab (MAPE value 673 or 67%) so overall the smallest MAPE value is for the mukenah product. .

4.3 Consumer Tendency Patterns in making purchases

4.3.1 Sales data

The following sales data analysis was carried out to identify that of the total sales made by Yumna Butik, the majority of customers choose to shop by *Webrooming* or *Showrooming*.

Table 6. Total sales of Yumna Boutique

Product	Items	%
Mukena	1,771	11.4
Headscarf	12,200	78.3
Ciput	1,235	7.9
Brooch	380	2.4
Amount	15,586	100

Based on the data in the table above , it can be seen that amount highest sales namely on hijab products (p This because the hijab is the initial focus in opening of Yumna Boutique), will but along walking time and magnitude request will product else , then yumna boutique expand and do addition product For fulfil market (customer) needs .

4.4 Sale Webrooming

Webrooming sales ie How customer see availability product go online and buy it directly in the shop book the . Yumna boutique Alone in sale own Instagram @yumnabutik can do it accessed , where inside it available all products sold , so customers / customers Can look for preference or models of hijab, mukenan , ciput , brooch and several product others in the shop . It is further explained in the webrooming behavior of purchases made in stores. The product categories purchased in the store can be seen in the following table:

Table 7. Sales *Webrooming*

Product	Webrooming	%
Mukena	1,504	11.00
Headscarf	10,980	80.31
Ciput	926	6.77
Brooch	262	1.92
Amount	13,672	100.00

Source: Yumna Butik data processed (2023)

Referring to the table above, the highest value pertains to hijab products (80%), followed by Mukenah (11%), Ciput (6%), and Bros (1.9%). The store-bought products fall into the categories of shopping goods and specialty goods. The best-selling product in this context is the hijab, which is classified as a shopping good. Webroomers in this study experience a sense of enjoyment when shopping at physical stores. The feeling of enjoyment while shopping at stores is more comfortable and assured, as consumers can sort and select products in accordance with their needs and desired style, allowing for direct assessment of product quality. This condition suggests that the comfort of online search manifests in perceived ease and speed for consumers in gathering product information online, which becomes a

preference in deciding whether to purchase a product. Consequently, when visiting stores, the shopping time utilized tends to be more efficient.

4.5 Sale Showrooming

As explained in review theory that showrooming sales is condition Where customer see the goods / products you want purchased at the official outlet store (directly go to the shop) and buy it through online marketers (Instagram, Facebook, WhatsApp) and several other social media For get price more cheap . Showrooming behavior is described through searches for information about products carried out in stores.

Table 8 . Sale *Showrooming*

Product	Showrooming	%
Mukena	267	13.95
Headscarf	1220	63.74
Ciput	309	16.14
Brooch	118	6.17
Amount	1,914	100.00

Source: Yumna Butik data processed (2023)

Refer to the total sales table that is a total of 15,586 product items , then by 23% of customers more choose do purchase showrooming . Sales Value more showrooming low If compared to with webrooming, p That happen because customer as soon as I arrived at the shop more Like choose and go straight transaction Because more effective and become It's a habit to check goods direct buy . Reason for looking information " while road road " shows that there is element style life in showrooming behavior . Habit road path to related Indonesian society with window shopping behavior , terlenih Again typical happy Sulawesi people with traveling and liking crowd ie of course assessed influence habit in shop or pattern tendency shop using showrooming.

4.6 Discussion

Based on the results of the analysis carried out, the results obtained are:

4.6.1 Sales Forecasting use Single Exponential Smoothing (SES)

The sales forecasting analysis conducted using Single Exponential Smoothing (SES) for all product categories (mukenah, hijab, ciput, and brooch), revealed a significant monthly increase in sales volume. This growth can be attributed to the boutique's strategic location, competitive pricing, and high-quality customer service offered by Yumna Butik. This assessment aligns with customer feedback, as exemplified by Mrs. Ani, who commented on the affordability and quality of hijab products available at Yumna boutique during an interview.

4.6.2 prediction parameter values in sales

Based on the results of sales forecasting calculations, it is evident that the product with the highest prediction value corresponds to the most frequently sold item. Furthermore, the prediction parameter value for the subsequent period with the lowest Mean Absolute Percentage Error (MAPE) is associated with the Mukenah product.

4.6.3 Patterns of consumer tendencies in deciding to use webrooming or showrooming when shopping at Yumna Butik Makassar

Analysis of data pertaining to webrooming and showrooming shopping behaviors revealed that total sales amounted to 15,586 product items. The results indicated that 87% of customers exhibited a preference for webrooming in their purchasing decisions (investigating products online before making in-store purchases), while 23% of customers demonstrated a preference for showrooming. This percentage distribution suggests that the majority of product sales at Yumna Butik Makassar were

attributed to customers who favored webrooming as their preferred approach in determining whether to purchase a product.

5. Conclusions

Based on the research results and findings, it can be concluded that sales volume each month increases significantly ($p < 0.05$). This increase is primarily influenced by strategic store locations, competitive pricing, and high-quality services provided by Yumna Butik. Regarding the product assessment, which yielded the highest predictive value based on data processed for four product types (mukenah, hijab, ciput, and brooch), the lowest Mean Absolute Percentage Error (MAPE) value was observed for the mukenah product, with a MAPE value of 494 or 49%. When compared with the MAPE values for the three other products—ciput (MAPE value 616 or 61%), brooches (MAPE value 653 or 65%), and hijab (MAPE value 673 or 67%)—the overall smallest MAPE value was for the mukenah product. Furthermore, in terms of the tendency to decide between webrooming and showrooming, the majority of customers opted for webrooming when conducting purchase transactions.

The implications of this progression are significant for businesses navigating the digital economy. It highlights the need for businesses to invest in technology and data-driven strategies to stay competitive, particularly by integrating tools like social media analytics and sales forecasting models. Furthermore, understanding webrooming and showrooming behaviors enables businesses to better align their online and offline operations, ensuring a seamless consumer experience. For example, businesses can use insights from these studies to design targeted marketing strategies, improve inventory management, and enhance customer satisfaction. These findings underscore the transformative potential of integrating digital tools with traditional retail practices, offering a pathway for businesses to innovate and thrive in an era defined by rapidly changing consumer expectations.

References

Adisaputro, G., & Asri, M. (2003). Anggaran perusahaan

Agrawal, R., Wankhede, V. A., Kumar, A., Luthra, S., & Huisingh, D. (2022). Big data analytics and sustainable tourism: A comprehensive review and network based analysis for potential future research. *International Journal of Information Management Data Insights*, *2*(2), 100122. https://doi.org/10.1016/j.jjimei.2022.100122

Arora, S., & Sahney, S. (2017). Webrooming behaviour: a conceptual framework. *International Journal of Retail & Distribution Management, 45*(7/8), 762-781.

Arsyah, T. D., & Pakri, P. (2024). Leveraging Human Capital for Performance Enhancement in Indonesia Technology Sector. *Journal of Economics and Business Letters*, *4*(3), Article 3. https://doi.org/10.55942/jebl.v4i3.323

Asmara, Y. E. (2016). *Trend Perilaku Webrooming dan Showrooming: Studi Kasus Pada Masyarakat Kota Salatiga.* Program Studi Manajemen FEB-UKSW.

Bakri, R., Halim, A., & Astuti, N. P. (2018). Sistem informasi strategi pemasaran produk dengan metode market basket analysis dan sales forecasting: swalayan kota Makassar. *Jurnal Manajemen Teori dan Terapan, 11*(2), 89-106.

Emita, I., Syamsudin, & Sugeng, I. S. (2021). The effect of professional competence and organizational culture on performance english teacher. *Priviet Social Sciences Journal*, *1*(2), Article 2. https://doi.org/10.55942/pssj.v1i2.102

Fahlevi, M., Asdullah, M. A., Raza, F. A., Watto, W. A., Aljuaid, M., & Aziz, A. L. (2024). The influence of information and communication technology on trade in developing countries and partners. *Cogent Business & Management*, *11*(1), 2320814. https://doi.org/10.1080/23311975.2024.2320814

Fahlevi, M., Hasan, F., & Islam, M. R. (2023). Exploring consumer attitudes and purchase intentions: Unraveling key influencers in China's green agricultural products market. *Corporate and Business Strategy Review*, *4*(3), 74–87. https://doi.org/10.22495/cbsrv4i3art8

Gensler, S., Neslin, S. A., & Verhoef, P. C. (2017). The showrooming phenomenon: it's more than just about price. *Journal of interactive marketing, 38*(1), 29-43.

Halim, A., & Kusufi, M. S. (2012). Public sector accounting: Regional financial accounting. *Edition Four. Salemba Four. Jakarta.*

Halim, Y. K. E., & Astuti, D. (2015). Financial Stressors, Financial Behavior, Risk Tolerance, Financial Solvency, Financial Knowledge, dan Kepuasan Finansial. *Jurnal Finesta, 3*(1), 19-23.

Hartini, S., & Hidayati, S. N. (2021). Pengaruh Webrooming terhadap Confident, Smart Shopping Feeling, User-generated Content, dan Search Process Satisfaction.

Hyndman, R. J., & Athanasopoulos, G. (2018). Peramalan: Prinsip dan Praktik (edisi ke-2).

Kartikasari, M. D., Dimyati, M., & Sukarno, H. (2018). Pengaruh green marketing dan pengetahuan terhadap keputusan pembelian dengan mediasi minat membeli konsumen Sariayu Martha Tilaar di Kota Jember. *E-Journal Ekonomi Bisnis Dan Akuntansi, 5*(2), 172.

Kurniawati, D., Jamiyla, J., & Pratiwi, T. S. (2017). Analisis anggaran penjualan sebagai alat perencanaan laba pada pt wahana persada karton palembang.

Menon, V., Barani, G., & Suganthalakshmi, T. (2018). Mapping customer shopping attitude towards webrooming technique. *International Journal of Pure and Applied Mathematics, 119*(12), 991-1003.

MULYADI. (2016). *Sistem Akuntansi*

Muzakir, A., & Adha, L. (2016). Market basket analysis (mba) pada situs web e-commerce zakiyah collection.

Nesar, S., & Sabir, L. B. (2016). Evaluation of customer preferences on showrooming and webrooming: an empirical study. *Al-Barkaat Journal of Finance & Management, 8*(1), 50-67.

Pramita, W., & Tanuwijaya, H. (2010). Penerapan metode exponential smoothing winter dalam sistem informasi pengendalian persediaan produk dan bahan baku sebuah cafe.

Prasetijo, R., & Ihalauw, J. J. O. I. (2005). Perilaku Konsumen.

Rahayu, E. I. H., & Yulianto, A. (2018). Analisis Peramalan Permintaan Mobil Mitsubishi Xpander Dengan Tiga Metode Forecasting. *Cakrawala-Jurnal Humaniora, 18*(2), 249-256.

Sahir, S. H., Sugito, S., Hasibuan, A., & Fahlevi, M. (2021). Customer Experience Management: The Online Travel Agencies in Indonesia. *ICIC Express Letters Part B: Applications*, *12*(4), 369–375.

Stevenson, W. J., & Chuong, S. C. (2014). Manajemen Operasi Perspektif Asia.

Thangavel, N., & Om, P. C. (2015). Webrooming: wooing customers back to garment retail stores.

Vijayakumar, L. (2020). Mindfulness, Perception And Behavior Of Accounting Students In Higher Education Towards Professional Accountancy Qualifications. *PalArch's Journal of Archaeology of Egypt/Egyptology, 17*(12), 996-1006.

Wijaya, A., Arifin, M., & Subiyanto, T. (2013). Rancang Bangun Sistem Informasi Perencanaan Persediaan Barang.