

# TECHNOLOGICAL TRANSFORMATION ON CONSUMER BEHAVIOR

A Review of the Beauty Industry

Novy Anggraini Sudibyو – Anita Boros

## Abstract

*The industrial revolution changed consumer behavior in shopping. Online shopping has now become a lifestyle nowadays, not only for primary needs but also for cosmetics and personal care. Consumers emphasize more to the sustainability issues of the products they want to buy. Consumers are also becoming increasingly concerned and aware of the negative impacts caused by the use of cosmetics. This issue has gained consumers' awareness and made them switch to cosmetics made from natural ingredients. However, there is a lack of research contributions to the sustainability of natural cosmetics, especially those related to consumer behavior in online shopping. Key findings reveal that technology has become an integral component of the beauty industry, facilitating personalized experiences, virtual try-ons, and direct-to-consumer interactions. Social media platforms and influencer marketing have emerged as powerful drivers of consumer behavior, influencing product discovery, evaluation, and purchase decisions. Additionally, the proliferation of e-commerce platforms and mobile applications has enhanced convenience and accessibility, albeit intensifying competition among beauty brands. Moreover, there is a growing emphasis on sustainability and transparency in consumer preferences, with technology playing a pivotal role in enabling informed choices and eco-conscious shopping behavior. This study underscores the transformative impact of technology on consumer behavior within the beauty industry and emphasizes the importance of understanding and adapting to these changes for businesses to thrive in a rapidly evolving digital landscape. Suggestions must be implemented at the company level in order to create a digital marketing strategy to expand the market and reach more consumers. At the institutional level, it can add research references related to this field.*

**Keywords:** consumer behavior, marketing strategy, sustainability cosmetics, beauty industry

**JEL:** M31

## Introduction

Industrial revolution always changes from time to time along with human evolve. This change gives positive and negative impact to society. The positive impacts are an increase in the world economy, which is accompanied by increasingly advanced technology, global market access, and changes in human behavior. The negative impacts include the disappearance of the original culture of a country and being able to create a country's ability to compete due to a lack of available resources (Polishchuk&Bujdosó, 2023). The Industrial Revolution has had a great impact on the modernization of not only economic systems, but also social and political systems. Improved living standards, rapid population growth, and the right of citizens to partake in the political process are evidence of the prolific impact of the Industrial Revolution (Palmer, 2005).

There are four stages in the world industrial revolution which has different metamorphosis. In summary, during the first industrial revolution, the steam engine was invented which allowed mass production of goods. The industrial revolution 2.0 uses electricity which makes production costs cheaper. In 1970 the discovery of computer technology became the basis for the development of

the industrial revolution 4.0 with internet of things (IoT) technology as the backbone of today's movement and connectivity of humans and machines (Păvăloaia & Necula, 2023); (Fadillurrahman et al., 2021) particularly when it comes to artificial intelligence (AI) (Fornazarič, 2023; Guha et al., 2021). Some authors give highlights the significance of interactions between humans and technology for instance: augmented technologies (Grewal et al., 2020); and AI (Shankar et al., 2021; Wilson & Daugherty, 2018).

A new phase of globalization has already begun as the 4.0 industrial revolution, and the world is preparing for the industry 5.0. The notion of the Fifth Industrial Revolution, also referred to as 5IR, incorporates the concept of harmonious interactions between people and machines, with a particular emphasis on the well-being of all parties involved (i.e., society, organizations, employees, and customers) (Noble et al., 2022). People's assets and thoughts in an urban society are the concentration of this new evolution, with the shifting of industries to IoT-compatible smart facilities employing cognitive processing and cloud-based communication systems (Sharma & Singh, 2020). Industrial revolution 4.0 is a new chapter from the previous era where enormous changes occurred and affected human behavior in it. The role of technology has become very large in this era. The industrial revolution 4.0 provides its own opportunities and challenges for each country. In order to successfully enter this era, every country is expected to be able to quickly adapt to all changes, especially changes in increasingly sophisticated technology.

In Indonesia, the industrial revolution brought major changes in the development of the economic and trade sectors. The manufacturing industry has become the global trend initiate for industry 4.0. The enactment of Industry 4.0 targets accomplishing Indonesia's ideal national aspirations of reaching among the top ten economies in 2030, bringing the industry net export rate to 10%, increasing productivity of labor within wages, and distributing 2% of GDP to R&D and technology innovation fields (about seven times more than the remaining allocation) [11].

The growth of the Fourth Industrial Revolution has had a beneficial impact on Indonesia. Nevertheless, Indonesia's economic growth, which is experiencing a decreasing trend yet is still in the vicinity of 5%, will continue to increase while unemployment and poverty rates continue to drop. At the same time, the Human Development Index (IPM) continues to increase (Ilyas et al., 2019). Such a shift in the industrialization strategy, from import substitution to export promotion in the mid-1980s, has had an important bearing on stimulating the industrial sector to contribute an even greater role in the unfolding story of Indonesian financial growth (Adam, 2001).

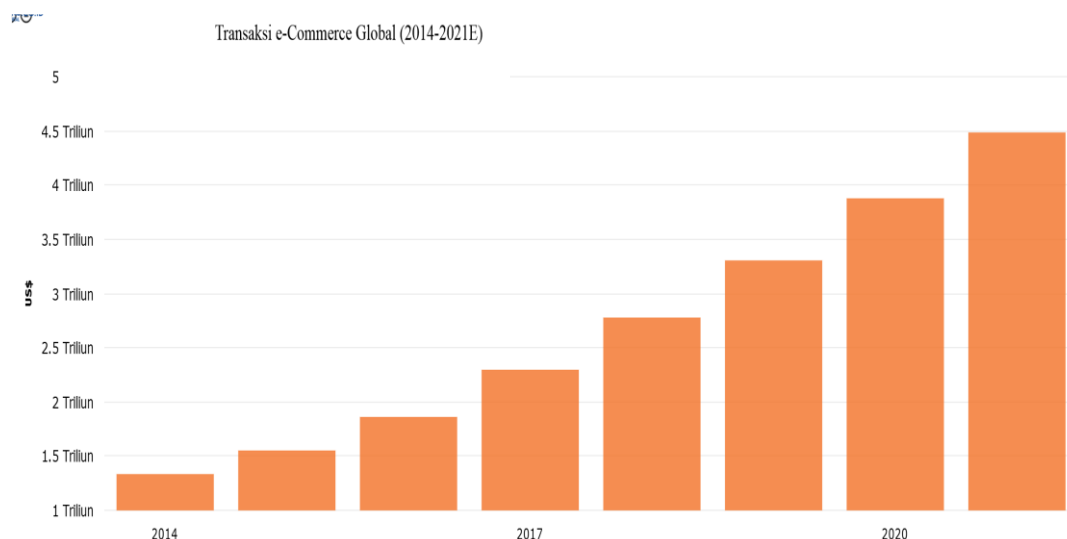
The industrial era's 4.0 evolution has been defined by an increase in technological developments rapidly. This technological development caused a switch in many areas of human life, including in shopping behavior. In this era, consumers prefer shopping online which they feel can provide convenience and comfort in transactions and even tend not to have to go out of the house to be able to buy something, saving time and cost (Akroush & Al-Debei, 2015). Online shopping is an experience whereby consumers directly buy goods, services, and so forth from a merchant by using a third-party provider over the Internet (C.K.Sunitha & Gnanadhas, 2014).

Technology can change people's lifestyles to become more consumptive by offering shopping applications. Applications that support all matters and provide convenience for the community have developed to the maximum and have even been able to replace human tasks. Start-up companies engaged in technology are starting to appear in Indonesia, which offer all the conveniences only via mobile phones. One example of developing technology is the existence of e-commerce such as Tokopedia, Shopee, and others. E-commerce offers convenience in shopping, especially for people who are busy and don't have much time to shop. In one application you can get various products and can even compare one to another. Easiness is also obtained in payment and delivery transactions. Just by sitting in front of a laptop or mobile phone, the products can come and be delivered to the address. The (new) digital innovations influence all elements of businesses, including their operations, procedures, systems, and structures. As a result, business models have changed and will continue to alter in response to digital advances.

Digitalization influences buyers since the techniques of interacting, collecting, and sharing knowledge regarding products and/or services, as well as getting and using them, have significantly transformed (Skiera et al., 2010). Naturally, it's possible to think about purchasing online, conveniently exploring online and assessing product offerings from multiple suppliers, posting and reading online reviews to be well-educated, or participating in exhibiting, essentially collecting knowledge in person regarding certain products in advance of buying online (Gensler et al., 2017). Moreover, the new media empowers customers to promote and disseminate their offerings. The number of internet consumers keeps growing as the service becomes more efficient and comfortable. Online purchasing can reduce both travel and other associated expenditures (Yousefi & Tang, 2012).

The results of research from multinational companies in the field of management consulting, Accenture, showed that 41% of the 6,000 consumers in the US shop by visiting retail stores first to check or try the chilled items, then buy them via online at the lowest price. Customers may easily compare product costs and quality over the Internet in contrast to stores within geographical regions (Azeez & Al-Khafaji, 2014). According to K. Al Fagih (Al Fagih, 2022) The developing countries perceive internet purchases to be more essential considering their difficulties and higher usage. This behavior makes the number of consumer visits to modern shopping centers has diminished, especially with all its practicality, making consumers do not need to move from their places and have more time to do other things. During pandemic Covid 19, consumer buying behavior changed from offline to online. The COVID-19 pandemic is influencing individuals' daily routines and disrupted their work, socialization, and economic activities (Nicola et al., 2020). Purchasing behavior before and during the Covid-19 pandemic made the 18–30-year-old segment more active in shopping because it was supported by better physical conditions (Li et al., 2020).

According to data released on the SWA website, the number of online transactions increased from 9.4% in 2013 to 11.6% in 2015. This was influenced by an increase in smartphone products at affordable prices, and cheaper data access. It was projected that e-commerce activities will increase by more than 230% in 2021 compared to 2014, which was USD 4.48 trillion, or Rp. 60,467 trillion, from USD 1.8 trillion. As the number of e-commerce transactions expands, likewise will the number of consumers who shop online.



**Figure 1: E-commerce global transaction (2014-2021estimated)**

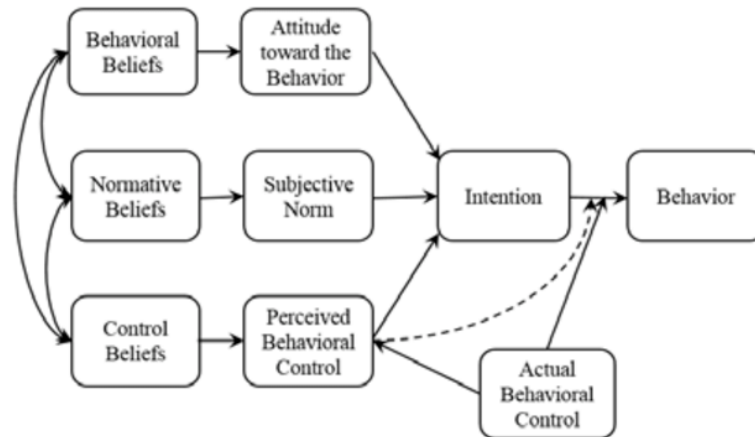
*Source: SWA, 2015*

International trends reveal a trend toward e-commerce. Hence, the growing prominence of e-commerce is genuinely an internationally recognized phenomenon. Based on The Guardian data in Forbes (2010) reveals in 2010, UK has the largest e-commerce market and China's e-commerce market is also growing. According to statistics, sales made through the Internet across China exceeded about USD36.6 billion in 2009. Numerous additional nations, which include South Korea, Japan, Brazil, France, Germany, and Russia, have grown a thriving e-commerce sector over the past few years. Moreover, The Russian e-commerce business was projected to be worth between USD23 and USD30 billion by 2015. Following a report, e-commerce sales in Brazil are expected to reach USD17.3 billion by 2016. The region of the Middle East is likewise facing a surge in e-commerce (Adnan, 2014). Based on the research conducted by iPrice regarding consumer behavior when shopping online in the Southeast Asian region with a focus on Indonesia, the percentage of people who use smartphones has been growing gradually and appears to be following the rise in the amount of those who spend money through online platforms and apps. As reported by iPrice, the average increase in mobile device visitors in Southeast Asia for the past year has exceeded 19%. In addition, the data samples by e-commerce in Indonesia indicate that roughly 87% of visitors originate in consumption (Maulana, 2018). Trust, price, convenience, and availability are the most important factors influencing consumers shopping online stores, nonetheless, other variables that involve security, product quality, website design, and consumer behavior also have an impact (Harahap, 2018).

During the Covid-19 outbreak, prohibitions on leaving the house and lockdowns have driven up the need for purchasing things online. DVJ Insights (2021) executed multiple research studies during the coronavirus virus outbreak and restrictions, and their results proved people began to spend more. Consumers began to buy particular products more regularly than elsewhere. Consider chewing gum and deodorant, which are purchased in smaller quantities than chocolate and liquor ice. Besides that, consumers purchased more games, exercise gears, bicycles or other outdoor physical equipment, home office supplies and hardware, hair dye goods, and postcards (DVJ 2021).

### ***Theory of Planned Behavior***

The standard neoclassical theory of economics believes that we, as buyers (sellers), are rational and act rationally when purchasing (selling) a product or service. Nevertheless, presuming rational behavior does not adequately explain why someone should purchase a product or service based on their feelings about it. In addition, the literature on behavioral economics and applied psychology demonstrates that our rational behavior is occasionally overtaken by our personal opinions about a product or service, which leads to potentially unreasonable actions (Camerer & Loewenstein, 2004; Mullainathan & Thaler, 2000). According to I. Ajzen (Ajzen, 2015) this hypothesis can account for decisions involving the buying of just one item, several brands of the exact same product, or selecting between quite distinct products.



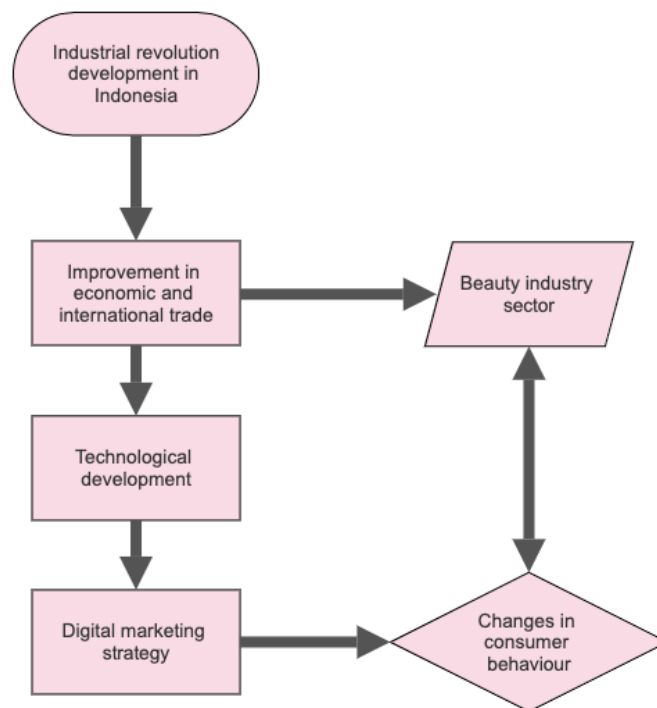
**Figure 2: The theory of planned behavior diagram**

*Source: I. Ajzen, 2015 (Ajzen, 2015)*

Planned behavior theory also explains consumer online shopping behavior. Based on the research (Gu & Wu, 2019), Consumers have the requisite behavioral goals according to the theory of planned behavior and tend to be involved in online purchasing behavior. According to research, social media, in addition to the influence of friends and family, has an impact on purchasing decisions.

### ***Conceptual Framework***

The development of the industrial revolution in Indonesia led to the development of the Indonesian economy and the expansion of international trade in various sectors, including the beauty industry. Role of technology is also able to make changes in consumer behavior, so business' owners need to create new marketing strategies, especially digital marketing strategies to address the challenging in consumer demands, including developments in the local beauty industry.



**Figure 3: Conceptual framework**

Economic growth in Indonesia resulted in the development of the local beauty industry. This is marked by the emergence of various new beauty brands that are able to fulfil consumer needs and wants. This development has also led to changes in consumer behavior in shopping for beauty products. Deloitte's (2020) survey found that a minimum of 70 percent of the market preferred middle-class cosmetics. Around 30 percent of the market acquired middle-lower cost products ranging from 3,18 – 6,35 USD, between 6,35 – 12,7 USD, or 38 percent obtained middle-class items, while 12 percent purchased middle-upper class products ranging from 12,7 – 31,76 USD.

## **Material and method**

This study employed a qualitative descriptive method with a literature study strategy by collecting various literature and research findings relevant to the topic discussed in this article from different sources. The literature was then assessed by carefully reviewing it and generating conclusions using 7Ps marketing mix which is a development of 4Ps marketing mix (Harrington et al., 2017). Kotler and Fox's seven marketing mix elements (Product, Price, Place, Promotion, People, Process, and Physical evidence) were adapted by Ivy and AlFattal (2010) into the 7Ps (Mallik & Achar, 2020) to generate in the beauty market concept.

Marketing mix can be used to analyze consumer needs and create the right marketing strategy. The marketing mix is an ensemble of countless small components grouped to facilitate managerial tasks (Kalyanam & McIntyre, 2002). McCarthy's marketing mix has been generally embraced throughout time by companies and researchers, establishing an important component of marketing theory and practice. This widespread adoption may be supported by its ease of use and comprehension, making it a beneficial tool for both marketing decision-making and education (Grönroos, 1994; Jobber, 2001; Yudelso, 1999).

## **Results**

### ***Market Structure in Beauty Industry***

In the beauty industry in Indonesia, the prevailing market structure is differentiated oligopoly where industry players produce products that are different in style even though they look similar (homogeneity). Based on (Goestjahjanti, 2016) which compared two large cosmetics companies, it was found that the market structure of the consumer goods cosmetics industry is a tight oligopoly market structure where the Hirschman-Herfindahl Index (HHI) increases from year to year and reaches > 1,800. The research also measures industry performance in the form of product differentiation management capabilities, market research and development, ownership of extensive industrial networks, collaboration in cosmetic industry networks, participation in making trade regulations, high advertising spending as a means of maintaining market leader position, also the entry of new players, and the accuracy of market information.

Based on the market segment, the beauty industry in Indonesia is divided into personal care, skin care, cosmetics, and fragrances where the total revenue according to Statista.com, is projected in 2021 3.2 billion, 2.1 billion, 1.7 billion, and 0.4 billion USD respectively. This makes the beauty

industry more potential to growth even after pandemic Covid 19, predicted to increase by 9% in 2026 according to Global data, especially in natural and organic products.

There are several players in this industry. The first biggest market is PT Paragon Technology and Innovation, Indonesian company that serves Indonesia's middle class. The second place goes to L'Oréal S.A as a worldwide cosmetics company that targets mid and upper-income consumers in Indonesia. The next is Mandom Corp, a joint venture of Japanese and Indonesian cosmetics manufacturers that target customers with smaller incomes for global and domestic markets. Also, Ori-flame Cosmetics S.A., an international cosmetic distributing company in the fourth place. Other major competitors, both local and International are Viva Cosmetics Ltd, PT Rembaka, PT Kimia Farma Tbk, PT Kosmetikatama Super Indah, Marta Tilaar Group, and Tempo Scan Group. The top two are enormous players that can control the market and can set market prices that followed by others small companies. If one company lowers its product price, other companies will also follow suit in order to compete. This pricing strategy is also a determining factor because there are many competitors so that consumers can easily switch to other brands with lower prices and the same quality. Pricing is also related to consumers' ability to buy a beauty product.

International brands and imported beauty products still dominated in this industry. However, local beauty products have recently become prominent in the vicinity marketplace, there are PT Paragon Technology and Innovation, PT Dalea Kreasi Nadisanti, PT Lizzie Parra Kreasi, PT Mica Jaya Pratama, PT Keva Cosmetics International, PT Mustika Ratu Tbk., PT Gloria Origita Cosmetics, and others. The Indonesian Ministry of Trade also promotes the growth of the cosmetics sector and its exports, since cosmetics and personal care have moved up to the top ten prospective export products in Indonesia, adhering to its present leading ten commodities. Although cosmetics manufacturing is one of Indonesia's most important sectors, there has been little strategic research into it. Only two basic research studies on Indonesia's cosmetics industry evaluation have been published throughout the last 10 years, which were conducted by (Herdyanti & Mansoor, 2020) about acne skincare opportunities and (Ferdinand & Ciptono, 2022a) regarding shipping cosmetics to Bali. The majority of the cosmetics business literature is created by a market research firm, describing market size, segmentation, key players, trends, opportunities, problems, regulations, sales statistics, and performance (Ferdinand & Ciptono, 2022b).

The market structure in the beauty industry is a differentiated oligopoly market because the products produced in this industry are final products, and consumers can directly buy these products. Another reason is that the products produced by each manufacturer are different even though they are the same type. The difference can be seen in the quality, shape, color, and even packaging. For example: in cosmetics segment, there are two local Indonesian brands from different company, Rollover Reaction (PT Dalea Kreasi Nadisanti) and Esqa (PT Keva Cosmetics International), both released cushion powder products, however, in terms of packaging, the ingredients, colors, and textures are different.

One of the considerations for consumers in Indonesia is halal cosmetics. As a country with the largest Muslim population in the world, halal cosmetics are also things manufacturers need to consider when entering the Indonesian market. When one of the producers creates a brand and claims the product that they produce is halal and sets a price, then other companies also create halal beauty products and compete in this market niche at competitive prices. This further emphasizes that the beauty industry market is indeed a differentiated oligopoly market.

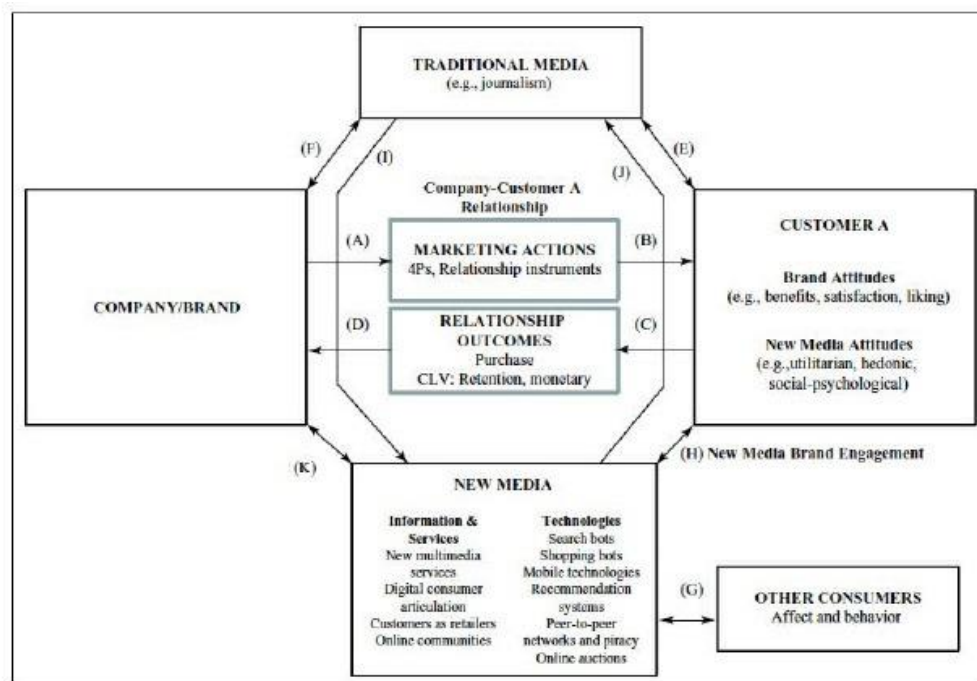
In a differentiated oligopoly market, an appropriate marketing strategy is needed because the competition in this market is also tight. Market price determination also influences each other between one company and another. This decline must be accompanied by the right strategy so that the company continues to make a profit and sales continue to increase.

The assumptions underlying In an oligopoly market, the seller sets the price. Sellers are not merely price makers; every company understands that its activities will affect the prices and output of other companies, and vice versa. Second, sellers operate strategically. The third assumption is that access to the market might be easy (free entrance) or hard (restriction), and the fourth assumption is that the buyer is a price taker. Each purchase cannot impact the market price.

### ***Technological Development and Digital Marketing Strategy***

The development of industry 4.0 has resulted in technological developments has been at the highest stage, thus can even replace human's role. Internet technology has also become part of the life of this generation so that it is able to change people's lifestyles. To be able to continue to survive and win the competition, companies must also adapt and change marketing strategies from traditional to digital, in order to expand the market and increase sales, as well as get maximum profit.

In implementing the new marketing strategy policy, the company continues to use the marketing mix as a basic tool for management to make decisions that can cover all aspects of the business including product, price, promotion, place, physical evidence, people, and process. Based on market structure analysis and consumer behavior theory combined with the marketing mix, the digital marketing strategy can be formulated as follow:



**Figure 4. Pinball framework**

*Source: B. Skiera, et al., 2010 (Skiera et al., 2010)*

- **Product**

The product component of the marketing mix refers to goods and services. In the beauty sector, the product can be any solid product, including face masque, cream, serum, toner, or a series of services, such as skin care, and facial massage (Wang, 2022). In order to get a large market, the company must consider the quality of the products to create a strong brand identity (Selase & Chovancová, 2011) and to meet consumer preferences and perceptions. The study explained that there is a positive relationship between customer perceptions of service quality



and behavioral intentions, this also enhances their connection with the organization (Zeithaml & Bitner, 2003). Likewise, when service-quality evaluations are inadequate, customers' behavioral intentions are negative. In this era, technological advancements have led to the development of innovative products, such as smart beauty devices, personalized skincare solutions, and sustainable formulations. Brands need to continually innovate and offer products that meet evolving consumer preferences, including clean beauty, cruelty-free options, and inclusive shades.

- *Price*

The question will be, “How much the price that consumers willing to pay for a beauty product?”. market share, competition, material prices, product identity, and the customer's perceived value of the product are all characteristics that influence consumer decisions (Selase & Chovancová, 2011). In differentiated oligopoly, pricing is influenced by competitors and actors in the beauty industry. If the price of a product is set too high, consumers will look for the same product with the same quality from other companies, but if the price is set too low, the company will not get profit. Therefore, the initial pricing strategy becomes a critical point for the company, especially for small companies that are just developing in this industry. Thus, the pricing strategy in the beauty industry can be determined based on company objectives. If the company wants to maximize profits by increasing sales, then the company can set lower prices than competitors to attract more consumers. If the company wants to focus on non-price aspects by highlighting quality, materials, or other aspects, then the company can create a different segment with target consumers in this segment. Hence, the beauty industry can use competition-based pricing as pricing strategy, especially in the digital marketplace.

- *Promotion*

In a differentiated oligopoly market structure, promotion contributes a vital function in introducing products to the market and winning the competition. An effective strategy that can be carried out is in the form of a non-price promotion strategy to increase the number of consumers and increase company profits. For a company to earn sales and profits, product benefits should be presented to consumers, which can be accomplished through the firm's promotion approaches. The communication mix is an enterprise's comprehensive marketing communications program, which includes techniques like advertising, personal selling, sales promotion, and public relations (Selase & Chovancová, 2011). Technological tools such as augmented reality (AR) for virtual try-ons and artificial intelligence (AI) for personalized recommendations enhance promotional efforts and engagement with consumers.

- *Place*

Sephora and SaSa cosmetics retail stores are currently the most popular in the beauty sector. This type of store can aggregate products from several brands, making it easier for buyers to choose from and saving time. Customers may be unwilling to go to brand stores to buy items if they are far apart (Wang, 2022). In this digital era, consumers can buy the products through the internet. Website, marketplace, social media and others are the place consumers will go to when shopping online. Brick-and-mortar stores remain important for experiential shopping and brand presence, while online channels offer convenience and accessibility. Technology facilitates omnichannel strategies, seamless shopping experiences, and data-driven insights into consumer behavior across different touchpoints.

- *People*

The people aspect includes front-line sales and customer service representatives, who immediately affect how customers view the products and services offered (Selase & Chovancová, 2011). According to (Wang, 2022), Many cosmetic brands offer skin care and brow trimming services in addition to product sales. To increase the overall quality of staff, many brands will unify their clothing and undertake unified training before they begin work, allowing them to give better services to clients. Employees' attire will also reflect the corporate culture. Personnel in the beauty industry include brand ambassadors, beauty consultants, and customer service

representatives. Brands invest in training staff to provide expert advice, personalized recommendations, and exceptional customer service. Technology aids in CRM systems, chatbots for customer support, and virtual consultations, ensuring a seamless interaction between consumers and brand representatives.

- *Process*

Being "easy to do business with" is an important aspect of the mix. Clarity Marketing (2005) emphasizes the importance of proper processes for products with high touch and intangible characteristics. The process portion of the marketing mix must be viewed from the perspective of consumers. In the beauty sector, the activity process may include engaging in the brand's regular welfare activities, such as new product launches and brand spokesperson meetings. Through these activities, the brand can better create relationships with customers, creating a more solid brand image in the minds of consumers (Wang, 2022). Technology streamlines processes such as online ordering, payment, and delivery tracking, enhancing convenience for consumers. Brands optimize processes through data analytics, A/B testing, and continuous improvement to provide a frictionless shopping experience.

- *Physical evidence*

The marketing mix encompasses all the tangible, visible touch points that customers will encounter before making a purchase (Clarity Marketing, 2005). It includes items like employee looks and clothes, as well as photographs from the business brochure. The beauty industry relies heavily on the equipment used to perform services (Wang, 2022). For example, if customers see that the equipment for skin management is very clean or advanced, it will certainly make these consumers feel that the brand is very professional, which will also make them more willing to spend money for the brand. Technology enables interactive displays, digital signage, and immersive experiences to create memorable brand interactions. Brands leverage AR and virtual reality (VR) technologies to provide virtual tours of stores, product demonstrations, and interactive packaging experience.

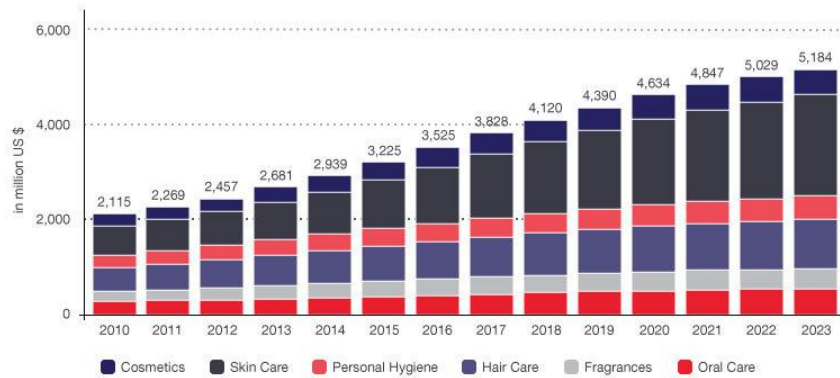
The 7P marketing mix strategy in the beauty industry is heavily influenced by technological advancements, driving innovation across product development, promotion, distribution, and customer experience. Brands that effectively integrate technology into their marketing mix can gain a competitive edge and better meet the evolving needs and preferences of consumers in the digital age.

### ***Change in Consumer Behavior***

Technological transformation changes certainly have a considerable impact on producers and consumers. The development of internet technology makes it easier for consumers to shop online and provides convenience wherever and whenever they want to. This is also facilitated by the existence of online payment facilities, With the advent of remote banking services (Internet banking, mobile banking), financial service clients' independence has grown dramatically (up to self-sufficiency). A client is given the chance to use financial services on his own, without the assistance of a bank professional. In the digital economy, a financially knowledgeable consumer can become a "bank for oneself" [37].

Consumers can use technology to verify labels, research product attributes, compare pricing, evaluate brand promises, consider options, ask questions, and understand their legal rights. According to research, people evaluate their Internet buying experiences based on their impressions of product information, payment methods, delivery terms, service offered, the risk involved, privacy, security, personalization, visual appeal, navigation, entertainment, and enjoyment (Burke,

2002; Mathwick et al., 2002; Parasuraman & Zinkhan, 2002). The consumer-technology interface is considerably influencing consumer shopping behavior, which has also been one of the Marketing Science Institute's (MSI) research goals for 2018–2020.



**Figure 6. Growth of Cosmetic Market Value in Indonesia 2010-2023**

*Source: The Central Statistics Bureau, 2018*

The Central Statistics Bureau (Badan Pusat Statistik) provided statistics on the import value of cosmetics and toilet equipment, including beauty equipment, skincare, and manicure/pedicure, up to USD 22.674 million (exchange rate of IDR 14,500 = about IDR 3.29 trillion). This value climbed by over 30% compared to the import value of cosmetics in 2016, which was USD 175.48 million (IDR 2.54 trillion). The Central Statistics Agency said that the import value of beauty products, including cosmetics, care products, and soap, reached USD 431.2 million in January-July 2018, a 31.7% rise over the previous year. According to Nielsen's Global Connected Commerce study includes a detailed breakdown of the most profitable industries by country, with South Korea taking the lead in fashion (77%), beauty items (66%), non-food household groceries (52%), packaged grocery food (51%), and fresh groceries (37%). The beauty industry is one of the items that are often purchased online.

Technology not only makes consumers switch to online shopping but is also able to educate consumers about the use and positive and negative impacts of the products they buy. With this technology, consumers can easily get information about cosmetics that are dangerous for humans and the environment, so that consumers are slowly starting to become aware of the use of the ingredients contained in the cosmetics they sell. Consumers are starting to look for information about sustainability in beauty products, which ultimately influences the decision-making process to purchase these products. Prices have become less sensitive for consumers who prefer to protect the environment and sustainability and switch to environmentally friendly beauty products. The IBM Institute for Business Value gathered data from 28 countries, with 18,980 respondents indicating that above 60% would be willing to change their buying habits in order to minimize the adverse effect of their decisions on the environment, whereas 80% declared sustainability is important to them. A substantial proportion of the last group of respondents stated that they were eager to allocate more money to purchasing environmentally friendly and sustainable products (Haller et al., 2020).

This technological transformation, the beauty industry can experience regular improvements from year to year. So, companies must be able to adapt quickly and be able to predict current and future consumer wants and needs. Based on planned behavior theory that consumer behavior in making decisions is influenced by the surrounding environment and social media, companies can

take advantage of this to formulate new digital marketing strategies. The beauty industry is undergoing a profound transformation driven by changing consumer behavior influenced by digitalization, personalization, sustainability, wellness, and health-consciousness. Brands that adapt to these shifts and embrace innovation will be better positioned to meet the evolving needs and preferences of today's consumers.

## Conclusions

The development of the industrial revolution had a positive impact in so many ways and was able to change consumer behavior to become more consumptive in utilizing technology. Technology is able to make it easy for someone to get or buy the goods they need without leaving the house. For companies, this also provides the advantage of being able to reduce promotion costs and increase marketing widely and globally.

Technological transformation causes changes in consumer shopping behavior, by offering various easiness and conveniences in shopping. Business owners can also take advantage of this opportunity to expand the market and increase sales. In the beauty industry, technology plays an important role because with the existence of internet technology and mass media, consumers can get more information about beauty products. Thus, this change led the company to create new digital marketing strategies in order to reach more consumers. Moreover, this is also can have positive impacts on economic growth locally, nationally, and even globally.

Overall, technology has become an essential component of the beauty sector, enabling personalized experiences, virtual try-ons, and direct-to-consumer connections. Furthermore, social media platforms and influencer marketing have transformed the way customers discover, assess, and buy beauty goods, emphasizing the significance of online reviews and user-generated content in influencing consumer decisions. Furthermore, the rise of e-commerce platforms and mobile applications has improved convenience and accessibility, allowing consumers to shop at any time and from any location. However, it has increased rivalry among beauty firms, needing novel approaches to distinguish-out in a competitive digital industry.

In conclusion, the technological transformation in the beauty sector have had a significant impact on customer behavior, encouraging a trend towards digitalization, convenience, personalization, and sustainability. Understanding these shifting and adopting tactics will be important for beauty firms to remain successful in an increasingly technologically driven industry.

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## Authors

Novy Anggraini Sudibyo

ORCID: 0000-0002-4660-573X

PhD Student

Doctoral School of Economic and Regional Sciences, Hungarian University of Agriculture and Life Sciences (MATE)

Páter Károly str. 1, Gödöllő, H-2100, Hungary

Sudibyo.novy.anggraini@phd.uni-mate.hu

Anita Boros

ORCID: 0000-0001-5330-9050

full professor

Department of Agricultural Economics and Policy, Institute of Agricultural and Food Economics,  
Hungarian University of Agriculture and Life Sciences (MATE)

Páter Károly str. 1, Gödöllő, H-2100, Hungary

boros.anita@uni-mate.hu

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