

Analyzing the Influential Factors of O2O Business Using the Technology Acceptance Model

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ABSTRACT

The online-to-offline (O2O) business model involves bringing customers from online to offline sales platforms. This study explores the key success factors (KSFs) of the cosmetics industry in adopting the O2O business model. The structure and level of KSFs in O2O strategies were analyzed using the Technology Acceptance Model (TAM). Perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention to use were included in the KSF construct. Survey data were collected from industry experts. Possible KSFs were analyzed by the Delphi method and the Analytic Hierarchy Process. The respective weights of 19 strategic themes in four KSF dimensions were statistically estimated. Main findings suggest that “repeated use” is the most important KSF dimension because only repeated consumption of the product can generate long-term cash flows to the firm. Moreover, the product’s “functional effectiveness” is the most important strategic theme in the repeated use dimension. This study proposes managerial strategies for a firm to adopt O2O in the cosmetics industry and suggests further research on the strategic implications.

Keywords: Online-to-offline; Cosmetics industry; Technology acceptance model; Key success factors.

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1. INTRODUCTION

Global sales statistics reveal that the total revenues generated in the cosmetics industry exceeded \$19 billion in 2017 (Pellevoisin *et al.*, 2018). In particular, exclusive make-up and skin care products experienced steady growth in the same period (IPSOS Global, 2017). With respect to export, the IPSOS Global (2019) market survey reveals that, due to the development of the East Asian economies, Taiwan-based cosmetics manufacturers were committed to developing their own brands and expanding their overseas markets, which allowed the Taiwanese cosmetics industry to grow at an average annual rate of 15% over the past five years. The 30.8% average annual growth rate of the Taiwanese cosmetics industry’s exports to the Mainland China is particularly remarkable.

Retail sales statistics from the IPSOS Hong Kong Consumer Marketing Database (2018) reveal that approximately 62.5% of the sales channels for women’s cosmetics were operated by large shopping malls and superstores in 2016, showing that physical storefronts were the primary channel and a strategic must-have for international

cosmetics brands. Nevertheless, by 2018, the share of women's cosmetics sales taking place at physical malls and department stores decreased to 55.7% of the total sales, while the share of online sales increased from 14% in 2016 to 28.5% in 2018. This dramatic shift in sales channels suggests that the development of online retail channels has made it possible for cosmetics companies to develop online shopping sites for marketing their products as well as for a transition from physical to online sales channels.

In fact, the development of e-commerce has brought many physical stores online, allowing them to develop more extensive online operations through the O2O (online-to-offline) business model, i.e., the clicks-and-mortar model. Such online operations include marketing, customer relationship management, and generation of actual revenues, which establishes a new generation of "e-tailers." The mobile Internet and smart phone booms have contributed to the growth of e-commerce (Goolsbee & Klenow, 2018).

This study is motivated by the fast-expanding online sales and services in the cosmetics industry. As a matter of fact, e-commerce in general has been growing rapidly despite the recent global economic downturn. In the future, "clicks-and-mortar", "mobile wallets", and "APPS" are expected to be three major development trends for e-commerce to achieve a seamless online-offline integration as well as to satisfy the demand from the "Generation-Z" consumers. Apparently, there is an increasing number of companies simultaneously maintaining both online and offline operations (Kim & Kim, 2009).

In the cosmetics industry, while physical channels still play an important role in providing customer experience (Kumar, 2005), the shift of the sales-consumption pipeline between online and offline channels requires adjustments in response to local market changes within the global spectrum of consumption channels (Khraim, 2011). At the same time, the industry must respond to the increasing labor costs, varying market demand, intensifying market competition, and decreasing profit margins (Rahman, Basri & Rahman, 2011). Therefore, cosmetics companies are actively expanding their online presence to give diverse consumption choices, which is considered necessary to increase product turnover and revenues (Jones, 2010). This study explores the O2O strategy using consumer-acceptance and decision-making models in the cosmetics industry. To adopt the O2O business model, it is necessary to consider the time costs incurred by the company and its customers in learning how to use the new technological services. Specifically, if O2O services provided by cosmetics companies overlap their existing brick-and-mortar services, the frequency and necessity of certain online services and their impacts on sales have to be carefully examined (Sahota, 2014). This study contributes to managerial assessments on the factors leading to a firm's successful adoption of the O2O business model.

2. LITERATURE REVIEW

2.1 E-Commerce and O2O Transaction Models

With e-commerce as the foundation, the concept of O2O business was first proposed by Ramper (2011), who formulated a marketing model integrating the "online" and "offline" sales platforms. Simply speaking, the O2O business model involves bringing customers from online to offline sales platforms. In recent years, cross-marketing between online and offline sales platforms in this manner has been increasingly

developed. For instance, an offline storefront not only creates an additional marketing channel but also effectively integrates a brand's online store with its brick-and-mortar operations (Bravo, Iversen, & Pina, 2011). Therefore, O2O, also known as Omnichannel, is a fusion of online and offline retail channels. It can be described as a "consumer-oriented," "C2B" revolution in the retail market.

While O2O is similar to the B2B, B2C, and C2C e-commerce strategies, the concept of O2O is different from other e-commerce strategies as O2O advocates the integration of virtual and physical stores that brings online customers to local and other regional bricks-and-mortar stores through online marketing and payment systems. The purchased products and services are then consumed by offline entities (Jones, 2010).

For instance, O2O sends messages about offline discounts, offerings, and service reservations to online customers, thereby converting them to offline customers. The three key constituents of the O2O business model are consumers, experience stores, and the O2O system platform. Through the O2O business model, consumers receive discount offerings and comprehensive information from the Internet and then go to the physical stores where they can experience the actual services and products. As offline sellers can reach a larger population of prospective customers on the Internet, the O2O system platform makes it easier for the sellers to collect their customers' transaction histories, preferences, and key consumption patterns from the flows of customers through online advertisements and push transaction mechanisms. The analyses of customer data and other market information can produce valuable analytics for increasing business opportunities and spurring profitability (Du and Tang, 2014). For instance, Permatasari and Kuswadi's (2017) study on Indonesia's e-commerce illustrated that consumers may choose physical stores to make their first purchases of a product to minimize risks. After the first purchases, consumers are more likely to re-purchase the same product online. Therefore, the O2O business model reduces the operating costs associated with physical stores and, at the same time, effectively increases consumers' trust in online shopping. As shown in Figure 1, to go beyond past online/offline applications and provide customers with integrated services, brand owners can use O2O application modules for developing a variety of multichannel marketing that is consistent with the interests of the target demographic.

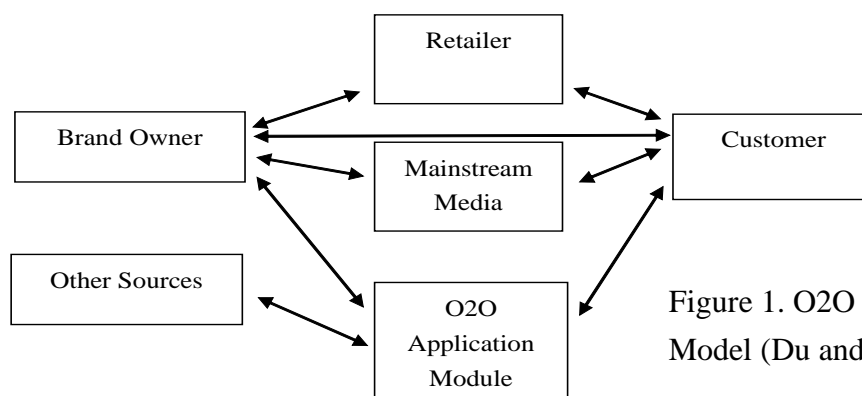


Figure 1. O2O Transaction Model (Du and Tang, 2014)

2.2 Technology Acceptance Model (TAM)

TAM explains individuals' behaviors in terms of technology acceptance from the cognitive and psychological perspectives that are related to the technology's usefulness and ease of use. "Intention to use" is created before the system user establishes his/her usage behavior, and such intention to use is affected by the user's behavioral attitude toward the system. The behavioral attitude is in turn affected by the "perceived

usefulness” and “perceived ease of use”. It is also based on the premise that a user perceives the usefulness and ease of use of the information system after being affected by certain external variables. The intention to use the system is thus established through the above mechanism, which is called the behavioral intention to use. According to Davis *et al.* (1989), TAM explains individuals’ behavioral intentions through attitudes and subjective norms, which can be used to predict their actual behaviors. Therefore, with respect to the use of a new technology in establishing behavioral rules, consumers who have their own ideas about the use of a new technology are influenced by each other in expressing their own ideas, which will in turn affect their intention to use the technology. In other words, TAM is an extension of the rational choice theory. Both perceived usefulness and perceived ease of use are functional values of rational decision-making. If other factors are added at the psychological level, the cognitive emotional value facilitates perceptual understanding and exerts impacts on the behavioral intention with regard to “repeated use”. While many studies confirmed the structure of TAM, there are still studies pointing out that the TAM structure can be affected by individuals’ personality factors. The study by Hariwibowo (2017), for instance, shows that the relationships between various variables in TAM and those between different personality types are different. The real effects of TAM must be viewed from the introduction of a new technology into a business model, which can eliminate the differences caused by personality factors (Ariff, Min, Zakuan and Ishak, 2013). In addition, Ngugi *et al.* (2020) argued that the structure of TAM effectively explains banks’ innovative financial technology promotion model, and at the same time, generates practical suggestions for banks to develop Fintech. The conceptual framework of TAM is depicted in Figure 2.

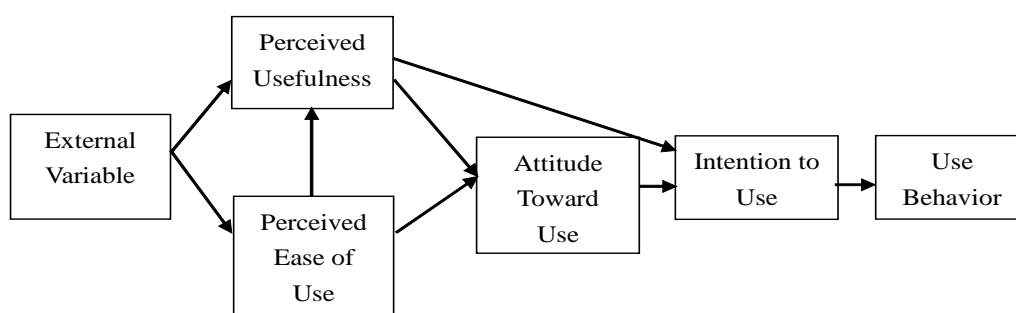


Figure 2. Technology Acceptance Model (Davis, 1989)

2.3 Key Success Factors (KSFs)

KSFs are derived from the concept of “limiting factors,” which was proposed by an organizational economist, Commons (1934; cited in Khan & Fasih, 2014). KSFs can be applied in the management of economic systems as well as in the context of negotiation. KSFs can also be applied in management decision-making theories as the analysis of decision-making involves “strategic factors”. Regardless of how a company is operated, it always has a few or several sets of key factors serving as the foundation of its competitive advantages. The idea of KSFs is used to describe the requisite factors enabling an organization to achieve its goals, i.e., the vital factors or activities required to ensure an organization’s success.

In other words, KSFs are the primary factors (including those under planning and actually implemented) needed to successfully achieve an organization’s goals. If road mapping is used as a metaphor for an event, KSFs are the necessary activities and

actions (including inactions) that must be performed to achieve the goals. However, what are the most critical success factors? Kim and Jung (2008) proposed the following critical KSFs' characteristics: First, KSFs bring a firm what it lacks, and; second, in addressing what a firm lacks, KSFs require the firm to employ substantial thoughts and resources. There is currently not a standard definition for KSFs that are closely linked to a company's existing capabilities. However, according to evidence-based business management research, KSFs must be confirmed by rigorous research procedures. Hofer and Schendel (1978) proposed steps for the identification of KSFs, which include the following. (1) Identifying the factors related to the competitive environment of a particular industry. (2) Each factor is weighted according to its relative importance. (3) Ranking the firm's competitiveness in the industry by giving a score to each factor. (4) Aggregating the weighted scores of all factors. (5) Comparing the aggregate score with the actual market share of the firm to discover its strategic priorities. Bullen and Rockart (1981) asserted that KSFs for specific issues of a particular nature can be identified through interviews with "key persons," and that the target tasks can be subsequently determined based on management procedures. Individual KSFs are then sorted according to experiences and needs under the actual situation. Finally, the collected data are analyzed and screened, which facilitates a summarization of the KSFs for achieving specific goals. In this study, statistical methods were employed to collect quantitative data from key individuals. Respective weights of influential factors were calculated from the data using a hierarchical analysis to clarify the relative importance of each factor.

2.4 Key Success Factors of Cosmetics Industry O2O and TAM

The traditional TAM framework explores consumer behavior and predicts "rational" behavior (Chen *et al.* 2011). The model predicts consumers' "repeated consumption" intentions by considering the implications of consumer behavioral intentions, including cognitive behavior, attitudes, and emotions (Kumar, Massie & Dumonceaux, 2006). The present study considers not only the behavioral intentions of consumers but also the costs implementing the O2O business model, such as infrastructure construction and information security, incurred in the cosmetics industry. In addition, "consumption experiences" must be linked to consumer behavior (Hashim & Musa, 2014). Past literature, e.g., Brandt *et al.* (2011), shows that there are six dimensions of KSFs for cosmetics vendors to conduct website marketing, which include the overall planning of the production and online systems, the online system design, the customers' use of the product, the costs of resources, the information technology mastery, and the online marketing strategies. According to Dayan and Kromidas (2011), for high-end organic cosmetics companies, there are five factors related to marketing success and end-user product use, which are: real-time services (efficiency); e-commerce shopping interface design (innovation); privacy and data protection (security); after-sales services (quality); and customer loyalty (customer response). Choshin and Ghaffari (2017) explored the KSFs for SMEs developing e-commerce services in tandem with physical services, which include customer satisfaction, cost assessment, knowledge acquisition, and basic software and hardware construction. Zhang *et al.* (2017) explored the KSFs for e-commerce interface platform operators (Alibaba and JD) and proposed that the KSFs include user-centered strategies, cross-domain integration, data-driven operations, shortened service timelines, and the potential benefits to the industry. Du and Tang (2014) argued that the success factors of O2O come from the management and service quality, and that KSFs can be defined in terms of service quality represented by the

visibility, credibility, responsiveness, security, and rationality of services. Yousaf *et al.* (2012) conducted a brand loyalty research in the cosmetics industry and found that the only way to build brand loyalty is to ensure that the product is effective to the consumers and that the marketing strategy is simple enough for the consumers to understand. Finally, Wu *et al.*'s (2015) used a complete TAM model to explore the ongoing consumption behavior across the physical and virtual pathways, which is similar in structure to the present study.

3. RESEARCH FRAMEWORK AND METHODOLOGY

3.1 Research Framework

Based on the four key factors of TAM as the second dimension of the KSF construct proposed by Brandt *et al.* (2011), Dayan and Kromidas (2011), and Choshin and Ghaffari (2017), a total of 16 strategic themes are established as the primary analytical framework of this research. The research framework of this study is shown in Figure 3. This study collected data using a survey questionnaire based on the analytic hierarchy process (AHP), in which each assigned factor is weighted on the basis of strategic comparison. Moreover, four dimensions were considered in the research framework based on implications from TAM on the OSO business model's KSFs. Working definitions for the strategic themes were developed as shown in Tables 1 and 2. Figure 4 presents our evaluation criteria at various tiers, which were created after the construct and the dimensions had been established.

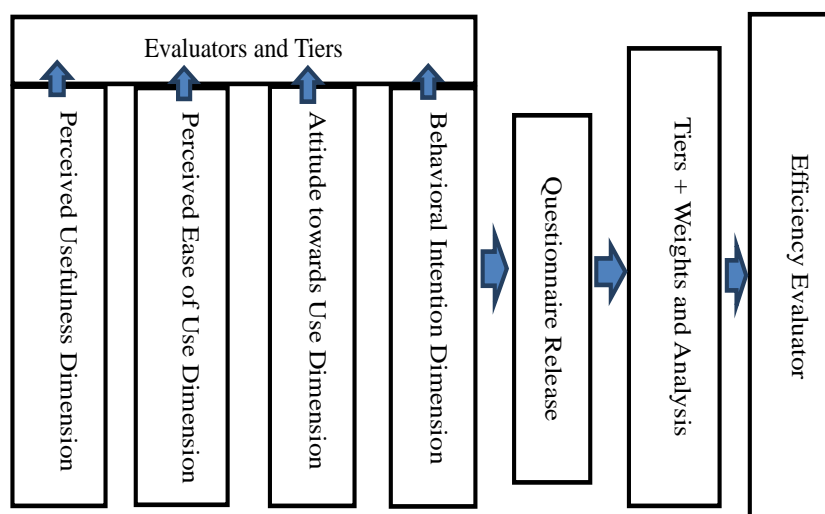


Figure 3. Construct Architecture

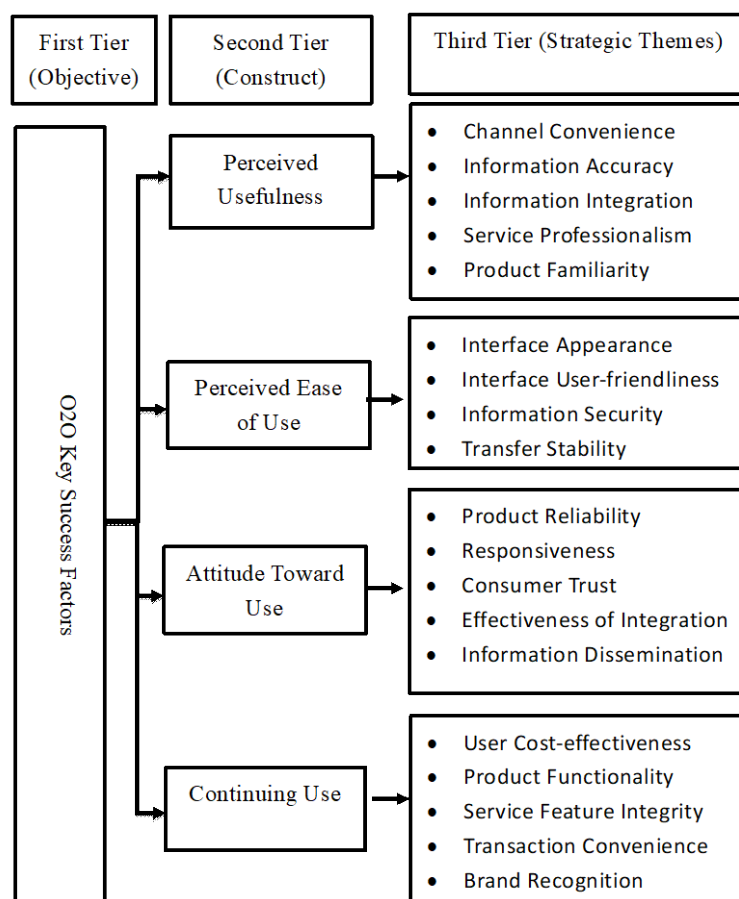


Figure 4. Indicators and Weighting Analysis Architecture

Table 1. Working Definitions of Second-tier KSF Constructs

Item	Operational Definition	Reference
Perceived Usefulness	User experience of O2O services, the degree to which the product or service use increases convenience or makes it easier to live.	Davis (1989)
Perceived Ease of Use	The degree to which users perceive that O2O is easy to learn or use.	Davis (1989)
Attitude toward Use	The perception on the part of key people that users should or should not engage in this activity.	Fishbein, M. & Ajzen, I. (1975).
Behavioral Intention to Use	The intention on the part of users that they will use a service or buy a product in the future.	Bhattacharjee (2001)

Table 2. Working Definitions of Third-tier KSF Strategic Theme

Dimension	Strategic Theme	Operational Definition	Reference
Perceived Usefulness	Channel Convenience	Buying products more quickly and efficiently	Wu, Zhao, and Tzeng (2015)
	Information Accuracy	Product description and price matching between virtual and physical channels	Choshin and Ghaffari (2017)

	Information Integration	There is consistency between product descriptions on the physical and virtual channels as well as among the information on brand, usage and manufacturing date	Choshin and Ghaffari (2017)
	Service Professionalism	Presence of interactive online features on the virtual channel, and sales information is consistent with that of the physical channel	Du and Tang (2014)
	Product Familiarity	Interface and content of the virtual channel are comparable with those of the physical store	Brandt, Cazzaniga & Hann (2011) Dayan & Kromidas (2011)
Perceived Ease of Use	Interface Appearance	Virtual channel interface meets industry and branding standards	Hernand <i>et al.</i> (2009)
	Interface User-Friendliness	Interface is streamlined and easy to use	Davis (1989)
	Transfer Stability	The server response from the virtual channel interface is stable (responses are sent within 10 milliseconds of receiving the signal)	Dayan & Kromidas (2011)
	Information Security	Passes ISO and e-commerce reliability certifications	Pavlou and Gefen (2004), Choshin and Ghaffari (2017)
Attitude Toward Use	Product Reliability	Products purchased through virtual channel are of the same quality as those purchased through physical channel	Choshin and Ghaffari (2017)
	Responsiveness	Quick response from the virtual access interface (received within 12 hours)	Choshin and Ghaffari (2017)
	Consumer Trust	Brands and products, as well as quality and after-sales service on both channels are trustworthy in consumers' eyes	Davis (1989)
	Effectiveness of Integration	The overall management of online and offline integration is consistent, and online and offline sales management practices match	Choshin and Ghaffari (2017)
	Information Dissemination	Customer information acquisition and push marketing integrate CRM for physical consumers and virtual consumers	Du and Tang (2014), Dayan & Kromidas (2011)
Repeated use	User Cost-Effectiveness	Prices are lower on the virtual path than the physical path	Du and Tang (2014), Choshin and Ghaffari (2017)
	Product Functionality	Virtual and physical channels are consistent and effective for both products and services	Choshin and Ghaffari (2017)
	Service Feature Functionality	The virtual path features are sound	Dayan & Kromidas (2011)
	Transaction Convenience	Virtual channel shopping is smooth and easy	Choshin and Ghaffari (2017), Pavlou and Gefen (2004)

Brand Recognition	Product characteristics of physical and virtual channels are consistent with branding	Wu, Zhao, and Tzeng (2015)
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3.2 Data Collection Method – Modified Delphi Technique

The Delphi technique is a method to collect information from collective decisions made by an expert group. To answer a research question, consensus regarding the knowledge and opinions of experts can be reached by repeated interviews (or questionnaires) and filtering out interferences (Babbie, 2012). The Delphi method utilizes the results from the decision-making process of an expert group that does not require a large sample. However, the sample should be sufficiently representative and subjectively judged to accurately measure the experts' opinions.

The modified Delphi technique employed by this study aims to address the original Delphi method's shortcomings, which are time consuming, difficult to control, and inconsistent opinions within the expert group. The modified Delphi uses a large number of questionnaires compiled from the literature to replace the integration of questionnaires for soliciting expert opinions. This method is relatively less time consuming and allows the expert group to focus its attention on the main research issues.

This study employed the modified Delphi method with a five-point scale (1 to 5) respectively representing "unimportant", ..., "absolutely important". The following enumerates the steps of implementing this method (Babbie, 2012):

Step 1: Summarize the purposes and requirements of the questionnaire based on a literature review. After these aspects are established, a questionnaire is designed using scales proposed in the literature.

Step 2: Form a team of experts. Confirm that the experts are familiar with the research topic. Explain the topic in detail so that the experts can quickly grasp the crux of the issue and facilitate smooth progress throughout the process.

Step 3: Distribute the questionnaires and collect them once they are completed. After deciding on the conditions and criteria for the entire Delphi research program, the questionnaires are distributed to the experts.

Step 4: Analyze the experts' opinions. After collecting the opinions from the expert group, the opinions are quantitative analyzed. The experts are asked to provide supplementary information and/or amendments.

Step 5: Confirm the consistency of the expert questionnaire.

3.3 Data Analysis Method – Analytic Hierarchy Process (AHP)

AHP is a decision-making method developed by Saaty in 1971. It can be used under uncertain situations to determine what should be done with regard to solving problems with multiple evaluation criteria. It provides a framework for analyzing multiple-attribute decision-making problems. To apply AHP, a complex case is divided into hierarchically ordered attributes, where the relative importance of each attribute is represented by a subjective judgment value. The results are then integrated, from which an attribute priority can be determined (Saaty, 1980; cited in Babbie, 2012). The AHP analytical steps are briefly summarized as follows (see Stamenkov and Dika, 2015):

Step 1: Confirm the problem.

Step 2: Establish a hierarchical architecture. There should be no more than seven evaluation elements in each tier (Saaty, 1980).

Step 3: Establish a pairwise comparison matrix in each tier. After establishing the

goals, the second-tier criteria (i.e., the primary criteria), and the third-tier criteria (i.e., the secondary criteria), establish the importance of comparison for each pair of criteria within the pairwise comparison matrix.

Step 4: Calculate the feature vectors and values. Obtain the relative weights of the elements in each tier.

Step 5: Calculate the purpose and criteria weights. The largest eigenvector obtained from the matrix becomes the weight of each criterion.

Step 6: Conduct a consistency check. The values in the pairwise comparison matrix are taken as the judgment values of the decision makers according to subjective opinions. However, due to the judgement hierarchy and external factors, it is difficult for the decision makers to reach consistency under the judgment of pairwise comparisons. Therefore, it is necessary to perform a consistency check on the values.

This study used the Expert Choice 2000 decision support software to implement AHP. The purpose of the hierarchical analysis method is to turn a complex problem into hierarchical comparisons, which are organized in an orderly manner to simplify the complex problem. After inputting each layer of questionnaires and establishing the weight for each item, the questionnaires were combined and described, the importance of the conditions was set, a sensitivity analysis was performed, and the inconsistency (I.R.) value of AHP was calculated. Finally, a weight matrix was derived for further analysis and discussion.

4. DATA ANALYSIS

4.1 Description of Samples

By distributing paper and online questionnaires, we collected views and data from a list 30 respondents as shown in Table 3. This group of 30 respondents (including marketing and business managers, administrative staff members, and salespeople) came from cosmetics companies that have adopted the O2O business model. All of the respondents are cosmetics industry practitioners who were operating both physical and online businesses. After analyzing the results from the completed questionnaires, the respective weight of each item in each dimension was estimated for the hierarchical analyses to be presented in the next section.

Table 3. Respondents

Questionnaire Distribution	Actual Recovery	Explanation
Marketing Managers	5 Individuals	Usually in charge of marketing
Administrative and Sales Personnel	21 Individuals	Regularly perform administrative and sales operations
Asset Managers	4 Individuals	Regularly implement and use online services

4.2 Hierarchical Analysis

4.2.1 Analysis of Dimension

Findings from the survey analysis show that, among the four KSF dimensions of O2O

in the cosmetics industry, the “repeated use” dimension is the most important one with a weight of 0.356. This finding suggests that the repeated use dimension is the most valuable KSF of O2O adoption in the cosmetics industry. The final acceptance of TAM depends on whether the research object can be used for its intended purpose. For the cosmetics industry, repeated purchase and brand loyalty are the most important factors for the company to survive. In addition to smoothly introducing products to the market, O2O can also be employed to create an integrated online and offline supply chain aiming to increase the rate of repurchase. The weight of the next most important dimension, i.e., the perceived usefulness dimension, is 0.248. That is to say, to increase the rate of repeated use, consumers must find the product they have purchased to be effective at the personal level, which is essentially the end value created by the product itself at the beginning of consuming the product. If the product effectiveness is insufficient, obstacles will be built up and result in ultimate failure in the product market. The third most important dimension is the perceived ease of use dimension, which has a weight of 0.200. This dimension is related to the integration of physical and virtual stores, which must be made easy for consumers to obtain product information, consistent prices, equitable discounts, and products with stable quality. This implies that, if the convenience characteristics of e-commerce are not synchronized with the physical store services through which consumers can shop and pay, the integration of online and physical stores (i.e., O2O) is unlikely to be successful. Finally, the attitude toward use dimension has the lowest weight of 0.196, indicating that the physical storefront experience remains to be the main source of consumer trust in purchasing cosmetics, and that the importance of such consumer experience is not very much affected by other factors. In other words, the effectiveness of O2O integration hinges on piggybacking the advantages of physical stores, gaining consumer trust, and providing the convenience of e-commerce through which consumers can conveniently repurchase the same product. The four-dimensional analysis has an C.R. value of 0.0040, which fulfills the consistency requirement relative to the critical value of 0.1 for Saaty’s consistency ratio (CR). The estimated weights of the four dimensions are reported in Table 4.

Table 4. Weights of the KSF Dimensions

Dimension	Weight	Ranking
Perceived Usefulness	0.248	2
Perceived Ease of Use	0.200	3
Attitude Toward Use	0.196	4
Repeated use	0.356	1

4.2.2 Strategic Theme Analysis

After analyzing the four dimensions, this study further analyzed the weights and ordering of the 19 strategic themes within the four dimensions. The C.R. values of the four dimensions of strategic themes are 0.0173, 0.0015, 0.0013, and 0.0031, respectively, which fulfill the consistency requirement. The earmarked samples are consistent with the CR of the study and thus are taken as representatives. The results of analysis are reported in Table 5.

Table 5. Ranking of the 19 Strategic Theme's Weights from Four Dimensions

Tier One Dimension	Tier Two Strategic Themes	Dimension Weights	Dimension Rankings	19 Theme Weights	19 Theme Rankings
Perceived Usefulness	Channel Convenience	0.198	3	0.058	8
	Information Accuracy	0.198	3	0.058	8
	Information Integration	0.168	5	0.049	13
	Service Professionalism	0.214	2	0.062	5
	Product Familiarity	0.221	1	0.064	3
Perceived Ease of Use	Interface Appearance	0.217	4	0.04	16
	Interface User-Friendliness	0.283	1	0.052	10
	Transfer Stability	0.226	3	0.041	15
	Information Security	0.274	2	0.05	12
Attitude Toward Use	Product Reliability	0.267	2	0.049	13
	Responsiveness	0.183	3	0.034	17
	Consumer Trust	0.274	1	0.051	11
	Effectiveness of Integration	0.154	4	0.029	18
	Information Dissemination	0.121	5	0.022	19
Repeated use	User Cost-Effectiveness	0.172	5	0.059	6
	Product Functionality	0.271	1	0.092	1
	Service Feature Functionality	0.188	3	0.064	3
	Transaction Convenience	0.194	2	0.066	2
	Brand Recognition	0.174	4	0.059	6

Perceived Usefulness

There are five strategic themes in the perceived usefulness dimension. The most important theme is “product familiarity” with a weight of 0.221, which is followed by the “service professionalism” theme with a weight of 0.214. The one with the lowest weight is “information integration” with a weight of 0.168. From the consumers’ perspective, when designing the O2O path consistency, the seller must impress the consumers with its professional experience and information on both the physical and virtual store services that demonstrate the seller’s familiarity with the products. The seller’s familiarity with the products reflects the professionalism of the services provided. This implies that the detailed descriptions of the product, e.g., user

instructions and ingredient descriptions, must be sufficient to persuade the consumers that the product is effective.

Perceived Ease of Use

There are four strategic themes in the perceived ease of use dimension. The most important theme is the “user-friendly interface” with a weight of 0.283, which is followed by the “information security” theme with a weight of 0.274. The theme with the lowest weight is “interface appearance” with a weight of 0.217. Apparently, an online store relies on reliable Internet connectivity that allows consumers to directly experience the online interface and provide the consumers with favorable conditions for extended use. The ease of use of an interface is determined by necessary elements required for online shopping, including a place for storing consumers’ favorites, a shopping cart, a streamlined shopping process, and online payment authentication. These are necessary elements required to keep an online store to run smoothly. That is probably the reason why an easy-to-use interface is given the highest weight by the respondents. Moreover, privacy settings and third-party payment authentication are essential for information security, which plausibly explains why the information security theme has the second-highest weight in this dimension.

Attitude Toward Use

There are five strategic themes in the attitude toward use dimension. The most important strategic theme is “consumer trust” with a weight of 0.274, which is followed by “product reliability” with a weight of 0.267. The theme with the lowest weight is “information dissemination” with a weight of 0.121. To increase revenues, the product should be trustworthy to consumers, where the physical store is the main source of consumer trust. The trusted experience of physical consumption will lead the consumers to the online platform where they can buy the same product at a lower price. The online consumption process has considerable advantages for the repeated sale of a product. However, consumers’ trust on a product still depends on the reliability of the product itself, which is not a management characteristic coming from O2O; rather, such reliability stems from the management of outbound warehouses and the logistics of ordering and shipping. The lowest weight received by the information dissemination theme is not surprising because consumers are exposed to active sources of information every day in the information society.

Repeated use Dimension

The “repeated use” dimension is found to be the most important one among the four dimensions. There are five strategic themes in the repeated use dimension. The most important theme is “product functionality” with a weight of 0.271, which is followed by the “transaction convenience” theme with a weight of 0.194. The third most important theme is “service feature functionality” with a weight of 0.188, which is followed by the “brand recognition” theme with a weight of 0.174. The theme with the lowest weight is “user cost-effectiveness” with a weight of 0.172. These findings suggest that the power of repeated use and purchase mainly comes from the effectiveness of the product *per se*. A plausible explanation is that information about product reliability is obtained from consumer experience in first purchase at a physical store. Therefore, the O2O business model must deliver physical shopping convenience that effectively lives up to the reliability expectation required for repeated use, which also explains why a convenient transaction process is the second most important

strategic theme in this dimension. Moreover, there must be a corresponding function, e.g., information services provided by physical and online stores, to meet consumers' needs and expectations. Repeated use itself also requires a certain degree of customer loyalty with brand recognition. Competition among cosmetics companies based on product features is intense because of the high similarity between products from different cosmetics brands. Therefore, in addition to the reliability and functionality of the product itself, there should also be a focus on the company's reputation and brand name for distinguishing the company's products from those of competitors. Finally, an objective of O2O is to lower the costs incurred by consumers. The overall clicks-and-mortar product costs and prices can be lowered by more efficient O2O logistics, while consumers' time spent on shopping and comparison can be reduced by more a more efficient virtual sales channel.

To summarize the findings from Table 5, the top three most important KSF strategic themes are all in the repeated use dimension. The least important strategic themes are information dissemination, effectiveness of integration, and attitude toward use.

5. CONCLUSION AND RECOMMENDATIONS

From a hierarchical analysis on the KSFs of O2O adoption in the cosmetics industry, this study derived 4 dimensions and 19 strategic themes serving as performance indicators to reveal what the cosmetics industry needs to address in adopting the O2O business model. Nevertheless, findings from the hierarchical analysis do not necessarily imply that cosmetics companies should avoid the dimensions/themes with the lowest weights. Instead, they are suggested to be better informed about the determinants of the performance indicators and the resources required for effective O2O adoption.

Among the four dimensions of O2O KSFs in the cosmetics industry, the dimension of "repeated use" is the most important one, which is followed by the "perceived usefulness" dimension, the "ease of use" dimension, and the "attitude toward use" dimension. The Technology Acceptance Model (TAM) postulates a causal relationship between the variables considered in the analysis of this study. At the same time, it can also be shown that the relative importance of the usefulness, ease of use, and attitude to use dimensions stems from the causality implied by TAM. In other words, companies adopting the O2O business model need to focus their strategies on the relative importance of different KSFs.

The top three strategic themes, including product functionality, transaction convenience, and service functionality, are all highly valued in O2O practices. Moreover, all of these strategic themes are in the repeated use dimension. In summary, immediacy, efficiency, practicality, and stability are the four major pillars of O2O adoption in the cosmetics industry. Based on the ranking the 19 KSF strategic themes in terms of their weights, a large degree of attention must be given to the roles of various strategic themes in sustaining the O2O model implementation and identifying the key factors determining the future trend.

Adopting the O2O business model is not only a "future trend" but also a "current progression". The click-and-mortar business model and e-commerce will each become dominant consumption modes. Firms' market shares are subject to the fact that the pie is enlarging while a multitude of competitors are diluting each individual firm's sales.

Competitiveness is likely to be enhanced by market segmentation and price reduction. Thus, it is necessary to focus on customer needs and grasp the key to generate repeated purchase. According to statistics provided by the Ministry of Economic Affairs, the cosmetics industry's future development trend will be a harbinger of the overall market growth. Moreover, every stage of business development is expected to have a different strategic focus. TAM may be an appropriate conceptual model for interpreting the initial stage of business development. At the core of TAM, acceptance (i.e., the willingness to accept an innovation or a new product) is used as an alternative concept to the willingness to buy. Future research can be conducted to explore other theoretical models of KSFs suitable for subsequent stages of business development.

A limitation of this study is that it does not consider the varying characteristics across different types of cosmetics products. To take that possibility into consideration, adopting the O2O business model for different product categories may involve different local services, consumer habits, consumer demographics, and cultures. Future research may conduct more specific qualitative case analyses based on the KSF dimensions proposed in this study.

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