Impact of social media on consumer behaviour

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Abstract: The goal of this paper is to research empirically the role of social media in consumers' decision-making process for complex purchases – those characterised by significant brand differences, high consumer involvement and risk, and which are expensive and infrequent. The model uses the information search, alternative evaluation, and purchase decision stages from the classical EBM model. A quantitative survey investigates up to what degree experiences are altered by the use of social media. Results show that social media usage influences consumer satisfaction in the stages of information search and alternative evaluation, with satisfaction getting amplified as the consumer moves along the process towards the final purchase decision and post-purchase evaluation. The research was done among internet-savvy consumers in South-East Asia, and only considered purchases that were actually made by consumers, not including searches that were abandoned.

Keywords: social media; consumer decision-making; EBM model; EKB model; information search; complex purchase; online consumer behaviour; consumer satisfaction.

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1 Introduction

In this paper, a study is made of the decision process of consumers for complex purchases, with a special emphasis on how this process is influenced by possible use of social media. Complex buying behaviour in this context refers to expensive infrequent purchases with high consumer involvement, significant brand differences, and high risk.

Social media is a relatively recent phenomenon. Over the last decade, the World Wide Web has seen a proliferation of user-driven web technologies such as blogs, social networks and media sharing platforms. Collectively called social media, these technologies have enabled the growth of user-generated content, a global community, and the publishing of consumer opinions (Smith, 2009). This movement now dominates the way we use the web and has given rise to popular platforms like Facebook, YouTube, Instagram and Twitter, where people connect, produce and share content.

The social media revolution has led to new ways of seeking and obtaining information on the multitude of products and services in the market. It has enabled consumers to connect and discuss brands with each other quickly and easily (Powers et al., 2012). Consumer opinions on products and services are now increasingly dominated by strangers in digital spaces, which in turn influence opinions in the offline space (Smith, 2009). Social media have empowered consumers, as marketers have no power over the content, timing or frequency of online conversations among consumers (Mangold and Faulds, 2009).

The use of social media by consumers is anxiously followed by marketers, but not much is known about how it influences the consumers' decision-making. Many studies focus on consumer behaviour in the online shopping environment, but without consideration of the effects of the internet on the different phases of consumers' decision process (Darley et al., 2010). This research explores how the presence and abundance of these new information sources is influencing the decision process of consumers for complex purchases.

The classical EBM model (Engel et al., 1990) is chosen to study the consumers' decision process due to its simplicity and versatility. The model consists of five stages: need recognition, information search, alternative evaluation, purchase decision, and post-purchase evaluation. The research seeks to ascertain the relevance of the model in the context of social media usage.

A quantitative survey was used to retroactively attempt to explore aspects of the phases in the decision process. A total of 158 participants completed the survey, and their responses were used to analyse the decision-making process of their complex purchase instances.

2 Literature review

2.1 History and classification of social media

The creation of social networking sites like MySpace in 2003 and Facebook in 2004 led to the popularity of the term 'social media'. The term 'Web 2.0' was also first used around this time to describe the new use of the internet as a platform where content is no longer created and published by individuals, but is continuously modified by many users in a participatory and collaborative manner (Kaplan and Haenlein, 2010). Web 2.0 led to

the introduction of collaborative projects, Wikis and interactive blogs; thus facilitating the creation of user networks, and the flow of ideas, information and knowledge among users (Constantinides, 2014).

User generated content (UGC) refers to media content that is publicly available and created by end-users (Kaplan and Haenlein, 2010) and, according to OECD (2007), it should have been created outside professional routines, without a commercial market context. The latter refers to the content creator; the topic of the UGC can be (and often is) a commercial product or service regarding which the discussants volunteer their opinions.

From these concepts of Web 2.0 and UGC, social media can be defined as a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of UGC (Kaplan and Haenlein, 2010). Social media can be categorised into: collaborative projects (Wikipedia, blogs), content communities (YouTube), social networking (Facebook), virtual game worlds (World of Warcraft), and virtual social worlds (Second Life) (Kaplan and Haenlein, 2010). Nowadays, e-commerce and professional review sites also accommodate UGC, for instance, Amazon and dpreview.com.

2.2 Social media as electronic word-of-mouth

The concept of word-of-mouth (WOM), introduced in the 1950s, has been revitalised by the internet. According to Arndt (1967), WOM is a "person-to-person communication between a receiver and a communicator whom the receiver perceives as non-commercial regarding a brand, product, or service."

WOM is a primary source of information for consumer buying decisions, shaping attitudes, perceptions and expectations of brands, products and services (Kimmel and Kitchen, 2014), and impacting all phases of consumer decision-making: from product awareness to selection and post-purchase evaluation.

WOM has gained new prominence today as a result of greater inter-connectedness of people on social media (Kimmel and Kitchen, 2014). Online or electronic word-of-mouth (eWOM) is a form of WOM where internet users provide reviews and ratings to all kinds of products, brands and services on review sites (Bronner and Hoog, 2010). It is defined as "any positive or negative statements made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet" (Hennig-Thurau et al., 2004). Electronic WOM can be disseminated in many ways, on social media platforms or the comments sections on e-commerce sites; and the information disseminated is rarely available through company-led marketing communications.

Content generated by internet users, who are also consumers, is generally perceived to be independent of commercial influences (Bronner and Hoog, 2010). This trust makes consumers go to forums, blogs and other unbiased social media sources to gather information for purchase decisions (Powers et al., 2012).

2.3 Variations in purchase decision behaviour

Kotler and Armstrong (2014) classified buying behaviour along two axes: high or low consumer involvement, and significant or few brand differences. The four types of purchase behaviour they discerned are summarised in Table 1.

Table 1 Types of purchase behaviour

Purchase behaviour	*Characteristics*	*Examples*
Complex buying	High consumer involvement	Car
	Significant brand differences	Laptop
	Expensive	
	Infrequent	
	High risk	
Dissonance-reducing	High consumer involvement	Carpet
	Few brand differences	Furniture
	Expensive	
	Infrequent	
	High risk	
	Price sensitive	
Habitual buying	Low customer involvement	Household goods
	Little brand difference	Groceries
	Frequent or repeat purchases	
Variety-seeking buying	Low customer involvement	Cookies
	Significant brand differences	Restaurant
	Brand switching for variety	

Source: Kotler and Armstrong (2014)

Complex buying involves high risk, and hence information gathering and evaluation of product choices assume greater importance. It differs from dissonance-reducing behaviour, also high risk, in that there are significant brand differences, and would have the consumer passing through all stages of the decision process. Therefore, this research focuses on complex buying situations where the influence of social media is presumed to be most visible.

2.4 Consumer buyer behaviour

There are many ways to model consumer behaviour, depending on the goal of the research, but a useful method is the decision-process approach which studies the events that precede and follow a purchase, and that explains the way decisions are made (Karimi, 2013). Consumer decision-making could be defined as the "behaviour patterns of consumers, that precede, determine and follow on the decision process for the acquisition of need satisfying products, ideas or services" (Du Plessis et al., 1991). Consumer models have ranged in their complexity, with the simplest ones including the economic model (where consumers follow the principle of maximum utility and spend minimum amount for maximum gains), the psychological model (based on Maslow's hierarchy of needs, where individuals are motivated by their strongest needs), the Pavlovian learning model (behaviour brought about by practice, learning and experience), and sociological model (buying influenced by society or social norms). Towards the end of the 1960s, several complex models were developed, for instance Nicosia (1966), Engel

et al. (1978) and Howard and Sheth (1969). These three models are sometimes referred to as the 'grand models' of consumer behaviour.

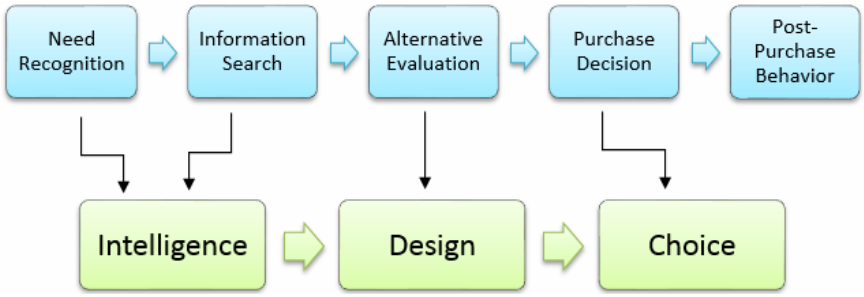
The Nicosia (1966) model had four fields of actions in the decision process: consumer attitude-formation, information search and evaluation, the act of purchase, and post-consumption feedback. The Howard and Sheth (1969) model also had four sets of variables: inputs (stimuli); perceptual and learning constructs; outputs (consumer behaviour, purchase decision); and external variables (social, psychological and marketing factors). The EKB model, later renamed EBM (Engel et al., 1990), has four parts: information input, information processing, decision stages, and decision process variables. The decision process of consumers consists of five sequential phases: need recognition, search for information, alternative evaluation, purchase (choice), and outcomes (post-purchase), which are each influenced by individual characteristics, environmental influences and psychological processes.

The three grand models captured the stages of the purchase process but differed in their emphasis on different variables and their presentation. However, they were criticised as being too complex, with many poorly defined variables, vague and complex interrelationships, and lack of empirical support (Karimi, 2013). As a reaction, in the 1970s–1980s, simpler models like the theory of planned behaviour (TPB) by Ajzen, and the Bettman model were introduced. The TPB does not address the decision process, while the Bettman model illustrates the process as a decision tree governed by how consumers process external information under the constraint of limited information processing.

2.5 The classical or traditional purchase model

While the grand models were overreaching, they contained a view of the decision process that was concise, plausible, and in agreement with the work of Herbert Simon on decision-making (Simon, 1960). The classical model simplified the grand models by eliminating the numerous variables and their interrelations, and focusing only on the five decision stages of problem recognition, information search, alternative evaluation, purchase decision and post-purchase behaviour. Often referred to as the EKB model or EBM model, this has been one of the most well-known and commonly-used standard model in consumer behaviour research (Karimi et al., 2015).

Figure 1 Stages of the EBM model and Simon's model (see online version for colours)



In the realm of decision science, Simon's model is considered a pioneering decision-making model since 1960. He broke down decision-making into the three stages of intelligence, design and choice. The intelligence phase involves the classification of the problem, and the gathering and processing of information. During the second phase of design activity, alternatives are generated and evaluated; and in the final choice phase, an alternative is chosen. When compared with the classical model, Simon's intelligence phase is a combination of the first two stages: need recognition and information search. The design phase is the third stage of alternative evaluation, while the choice phase coincides with the purchase decision stage.

The five stages of the classical model are described in the following paragraphs.

Stage 0 – need recognition

Need recognition is the first stage of the buyer decision-process. Internal stimuli (like hunger) or external stimuli (e.g., advertisements) make the consumer realise that there is a difference between their current state and their desired state (Kotler and Armstrong, 2014). This is generally regarded as the trigger that initiates a purchase decision process, and is the precursor of all subsequent consumer-initiated activities such as information search, evaluation and purchase. Choices that establish a need for a purchase may depend on many varied individual characteristics. With the many complicated drivers, this stage is sufficiently different from the later stages, and is hence not considered in this study.

Stage 1 – information search

Following need recognition, a consumer undertakes a 'search' into memory to determine if enough is known about the available options to make a choice. If internal knowledge is not sufficient, an external search is required to supplement existing knowledge. Complex buying with its infrequency will involve a greater amount and intensity of search. External search is typically undertaken through personal sources (e.g., friends and family), commercial sources (e.g., advertisements and salespeople), and public media sources (e.g., newspapers, magazines, television, and internet). User reviews on websites like Amazon.com or TripAdvisor are seen as providing a more complete and reliable product assessment (Kotler and Armstrong, 2014). Search continues until enough information of sufficient quality is gathered, but can be constrained by the availability and quantity of information. While low availability certainly limits decision-making, too much information also hinders good decisions due to limits on the consumers' information processing capabilities. Social media adds a new element to information search, and its influences are therefore the main subject of this study.

Stage 2 – evaluation of alternatives

Once information has been collected, the consumer uses it to evaluate and assess the alternative product choices to arrive at a purchase decision. The alternative evaluation and information search stages, though presented separately, are intricately intertwined during decision-making, and consumers often move back and forth between the two.

Alternative evaluation involves the selection of choice alternatives and evaluative criteria. Once determined, the performance of the considered choices are compared along the salient criteria, and finally, decision rules are applied to narrow down the alternatives to make a final selection. This stage leads to the formation of beliefs, attitudes and intentions, leading to the subsequent stage of purchase.

Stage 3 – purchase decision

Purchase decision refers to the final choice or selection made regarding which product to buy. The act of purchase is the last major stage, with the consumer deciding on what to buy, where to buy, and how to pay. Purchase is a function of intentions, environmental influences and individual situations. Some of the influences that can affect the purchase action include the time available for decision-making, information availability and the retail environment. The attitude of family and friends, and unanticipated circumstances such as product availability (size, colour) and stock-outs may also force a re-evaluation (Kotler and Armstrong, 2014).

Stage 4 – post-purchase behaviour

In the post-purchase stage, consumers evaluate the product's performance based on expectations, and reach a state of satisfaction or dissatisfaction. The expectation confirmation theory (Oliver, 1977) explains post-purchase satisfaction as a function of expectations, perceived performance, and confirmation (or disconfirmation) of beliefs. Outcomes are compared against expectations in a subjective evaluation, which takes one of three different forms: positive disconfirmation or satisfaction (performance is better than expected); simple confirmation or neutral response (performance equals expectations); and negative disconfirmation or dissatisfaction (performance is worse than expected). Consumers who invest a lot of time, effort and money into a purchase may experience cognitive dissonance on whether a right decision was made (Kotler and Armstrong, 2014). This makes the consumer search for supportive information to reduce the dissonance, by either positively confirming the choice made, or concluding that it was an unwise decision.

Consumer satisfaction is a result of experiences during all stages of the purchase process, as the outcome in one stage affects the experiences in the other stages (Karimi, 2013). Many studies on consumer satisfaction focus only on satisfaction with the final choice and outcome, and ignore satisfaction with the decision-making process. Both concepts have different underlying dimensions, but together make a significant impact on consumers' overall satisfaction (Karimi, 2013). Hence, it is important to analyse the entire decision process.

2.6 Decision-making styles – satisficing and maximising

First introduced by Simon (1960), decision-making style is the tendency to maximise or satisfice a decision. According to Schwartz et al. (2002), "maximisers desire the best possible result; satisficers desire a result that is good enough to meet some criterion." Maximisers spend more time and effort to search and evaluate options to choose the best possible one with the highest utility; on the other hand, satisficers search and evaluate products only until they find one good enough to meet some criterion or pass their acceptability threshold (Schwartz et al., 2002). Decision-making style has been proven to affect the intensity of the decision process in terms of duration and the number of alternatives and criteria considered, with maximisers undergoing more intensive processes compared to satisficers (Karimi et al., 2015). This work attempts to see if social media use affects consumers with different decision styles differently.

2.7 Impact of the internet on consumer decisions

The enhanced variety and amount of information online has improved the ability of consumers to make better consumption choices (Aksoy and Cooil, 2006), and has opened up new opportunities for information search because of low search costs (Jepsen, 2007). Results on search engines are now often dominated by user content and opinions (Smith, 2009).

The impact of the internet varies on the various stages of decision-making. Initially, the internet supported only the information search stage (Karimi, 2013), but recent trends in social media, online decision aids and recommender systems have extended the internet's influencing role to all the decision stages.

For online decision-making quality, besides time costs and the cognitive costs of acquiring and processing information, other influencing factors include perceived risk, product knowledge and trust. Internet or web skills have also assumed importance: the higher the amount of internet use by consumers, the more likely they will use it for decision-making (Jepsen, 2007). According to Punj (2012), the essential difference in decision quality between offline and online settings can be attributed to the technology available online, including access to the varied sources of information and decision aids, which have the potential to help consumers make better quality decisions.

2.8 Impact of social media on consumer decisions

Several authors have recently studied the influence of social media on consumer behaviour, although generally not from the point of view of the decision process (e.g., Xie and Lee, 2015; Chu and Kim, 2011). Consumers use social media for the benefit of immediate access to information at their convenience (Mangold and Faulds, 2009), helping them to decide what to buy or to know more about new products or brands, when and where they want (Powers et al., 2012). Examples are given by Goh et al. (2013) and Xiang and Gretzel (2010). Online consumer reviews have been shown to have a causal impact on product choice and purchase behaviour by consumers (Yayli and Bayram, 2012).

Social media has brought on a 'participatory culture' where users network with other like-minded individuals to engage in an unending loop of sharing information, monitoring updates, and requesting opinions and ratings on all kinds of products, services and activities (Ashman et al., 2015). The quality of online product reviews, characterised by perceived informativeness and persuasiveness, together with the perceived quantity of reviews, are found to have a significant positive influence on consumers' purchase intentions (Zhou et al., 2013; Zhang et al., 2014). Social media is perceived as a more trustworthy source of information when compared to corporate communications and advertisements. According to Constantinides (2014), there is a general feeling of mistrust towards mainstream media. Therefore, consumers are turning away from traditional media such as television, magazines, and newspapers as sources to guide their purchases (Mangold and Faulds, 2009).

Information overload is a key issue in online decision-making. Social media with its sheer amount of information have led consumers to a state of analysis paralysis, making it difficult to navigate all the available information (Powers et al., 2012). Due to bounded rationality (Simon, 1960; Thaler and Mullainathan, 2008), there is a limit to the amount

of information that can be processed by individuals, and it is not feasible to evaluate all choice alternatives in depth (Karimi, 2013).

2.9 Conclusions about the literature

There is no doubt that social media are now important sources of information for consumers in their purchase decision-making, especially in instances of complex buying behaviour. More and more people are turning to consumer opinions online due to the ease of access, low cost, and the wide availability of information. Peer recommendations on social media are viewed as an eWOM and as more trustable sources of information when compared to advertisements and other marketer-generated information.

3 Research model

The classical model is chosen to study the influence of social media on complex buying decisions due to its simplicity and versatility. Of the five stages, the first stage of need recognition is not considered, as it is often not amenable to the kind of retrospective survey used in the other stages. Therefore, this paper focuses on the decision process of consumers who made an actual purchase after they judged a personal, situational, psychological, or social need for a certain product or service as large enough.

The research model is depicted in Figure 2, showing the stages the consumers go through, independent of the use of social media or not. Each stage has certain similar attributes, indicated in the ellipse. The aim is to research the relationship of the stages, that is, the influence of the information search stage on the evaluation of alternatives; the influence of alternative evaluation on purchase decision; and the influence of the decision stage on post-purchase outcome. The decision process is analysed with respect to the use or non-use of social media.

3.1 Research hypotheses

Based on the literature and the presented model, the following hypotheses are proposed for the research (Tables 2–6):

Table 2 Hypotheses regarding the decision-making model

	Decision-making model hypotheses (DM)
DM1	There is a significant relationship between satisfaction in the first stage of information search and satisfaction in the second stage of alternative evaluation.
DM2	There is a significant relationship between satisfaction in the first stage of information search and satisfaction in the third stage of purchase decision.
DM3	There is a significant relationship between satisfaction in the second stage of alternative evaluation and satisfaction in the third stage of purchase decision.
DM4	There is a significant relationship between satisfaction in the first stage of purchase decision and the post-purchase satisfaction.
DM5	There is a significant relationship between satisfaction in the third stage of purchase decision and the post-purchase satisfaction.

Table 3 Hypotheses regarding social media usage

	Social media usage hypotheses (SM)
SM1	There is a significant positive association between the use of social media and the satisfaction in the first stage of information search.
SM2	There is a significant positive association between the use of social media and the satisfaction in the second stage of alternative evaluation.
SM3	There is a significant positive association between the use of social media and the satisfaction in the third stage of purchase decision.
SM4	There is a significant positive association between the use of social media and the post-purchase satisfaction.
SM5	The social media group spends on average significantly less time on the three decision-making stages when compared to the no social media group.
SM6	The social media group expends on average significantly less effort on the three decision-making stages when compared to the no social media group.
SM7	The social media group finds it on average easier to search for information and evaluate alternatives, when compared to the no social media group.

Table 4 Hypotheses regarding satisficing/maximising

	Satisficing/maximising hypotheses (SatMax)
SatMax1	There is a significant positive association between maximising tendencies and the amount of time and effort spent in the three stages of decision-making.
SatMax2	There is a significant positive association between satisficing tendencies and the satisfaction in the first stage of information search.
SatMax3	There is a significant positive association between satisficing tendencies and the satisfaction in the second stage of alternative evaluation.
SatMax4	There is a significant positive association between satisficing tendencies and the satisfaction in the third stage of purchase decision.
SatMax5	There is a significant positive association between satisficing tendencies and the post-purchase satisfaction.

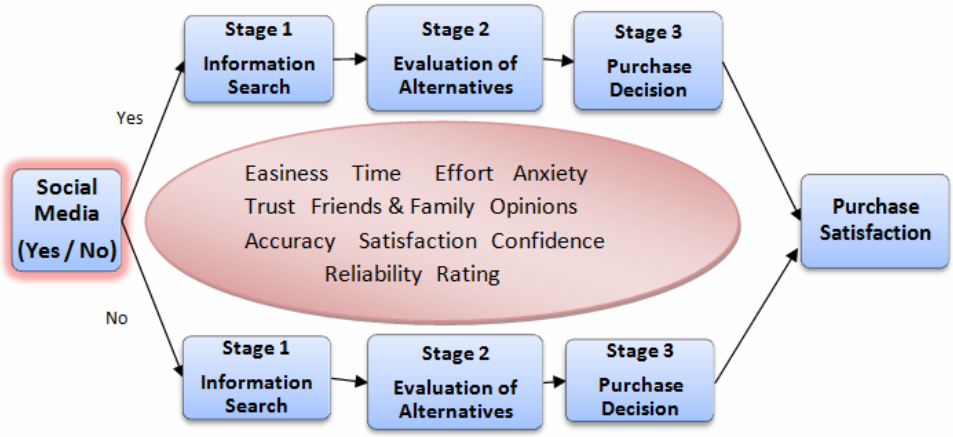
Table 5 Hypotheses regarding internet and social media usage skills

	Internet and social media skills hypotheses (I)
I1	Consumers who are proficient in internet usage are on average significantly more likely to use social media for their purchase decision-making.
I2	Consumers who are proficient in internet usage are on average significantly more likely to have higher satisfaction with the decision-making stages.

Table 6 Hypotheses regarding the quality and quantity of information on social media

	Quality and quantity of information on social media (QQ)
QQ1	Higher perceived quality of information on social media is associated with higher satisfaction with decision-making stages.
QQ2	Greater perceived quantity of information available on social media is associated with higher satisfaction with decision-making stages.

Figure 2 Research model (see online version for colours)



4 Methodology

Retrospective questioning through a questionnaire survey was chosen for the study. The research focuses on complex purchases that require extended problem solving, where social media is more likely to be utilised. To focus on complex buying, respondents were asked in the survey to think of a recent purchase situation involving extended problem solving, such as the purchase of a computer, a mobile phone, a camera, or a vacation package, and to recall the search activities undertaken during decision-making. Respondents were then asked whether or not they had used social media in their decision-making. Those answering 'no' were marked as the 'no social media group'. Those answering 'yes' were further asked to specify how much social media helped them. If social media contributed 30% or less towards their decision-making, and they had to seek out other information sources, the respondents were marked as the 'no social media group'. The rest were all classified as the 'social media group'. Both groups were directed to basically the same questions customised according to their media sources (social media or other). The questions measured the same concepts in the different contexts, and differed only very little in their wording.

As indicated previously, the need recognition stage is not considered; therefore, information search is named here the first stage, alternative evaluation the second stage, and purchase decision as the third stage. The post-purchase stage is regarded as the outcome of these three stages.

Consumer decision quality has no objective measurement and is difficult to operationalise. The approach to measuring decision quality can be objective or subjective (Aksoy and Cooil, 2006). Subjective measures are evaluations of the decision-maker, capturing what is most important to the individual with respect to the decision. Survey questions were designed to measure the subjective evaluations of the respondents regarding the quality of the stages, in order to study the effectiveness of their decision-making.

According to Grant et al. (2007), search behaviour is influenced by information source utility, personal factors and product factors. Information source utility is measured here through the attributes of accuracy and reliability of information. For personal factors, besides the basic questions like age and gender, respondents were asked about their internet usage habits (time spent on internet per day, proficiency in using social media, and participation in online discussions). Product factors are not considered as the research focuses on complex purchases.

To operationalise the three stages of information search, alternative evaluation and purchase decision, measurements included easiness, time, effort, enjoyment and satisfaction. Questions on anxiety, trust, and confidence were included to indirectly measure the perception of risk in the purchase, as it is linked to the degree of search (Kotler and Armstrong, 2014). Consumers' emotional experiences differ for the different stages, with varying levels of emotions like anxiety, joy, trust and confidence felt during each stage (Powers et al., 2012). Questions to measure the satisficing and maximising tendencies of respondents were taken from Schwartz et al. (2002), with their wordings slightly adjusted to make them more in tune with the times. The Likert-scale questions were similarly framed for all the three stages. Additionally, questions were formulated to measure the 'herd behaviour' tendencies of the respondents through the importance placed on the opinions of family and friends, and of other people. Information quality and quantity are among factors that affect decision quality and were measured for social media users. At the end of each stage, respondents were asked about their satisfaction with, and their quality ratings for, the stage. For the final post-purchase evaluation, the survey asked about the overall satisfaction with the purchase, and the perceived quality of the product or service purchased.

The survey was conducted through an online questionnaire created with the Qualtrics survey tool in two languages: English and Thai. Convenience sampling with snowballing (requested forwarding) was used to distribute the online questionnaire through e-mails, messaging applications (WhatsApp and LINE), and social media channels (Facebook and Twitter). Respondents who could not be reached through these channels were personally contacted and asked to fill out the questionnaire on a tablet computer.

5 Results

5.1 Descriptives and univariate variables

A total of 158 respondents completed the survey, 90% from Thailand, N = 104 in English and N = 54 in Thai. Of these 158 respondents, 129 reported using social media and 29 did not use social media at all in their decision-making. The relatively high usage of social media in purchase decisions in Thailand has been reported before (Goodrich and De Mooij, 2013). As indicated in the methodology chapter, respondents for whom the use of social media did not make any noteworthy contribution towards their decision-making (less than 30% helpful) were regarded as the 'no social media group', since they primarily used other media sources. Of the 129 social media users, 16 were below this threshold and were automatically placed in the 'no social media group', bringing the total of this group to N = 45, and the 'social media group' to N = 113. Further, N = 107 for females and N = 51 for males. The age distribution of the respondents was concentrated in the 33–37 years range and the over 48 years range.

Table 7 Number of respondents in the 'social media group' and 'no social media group'

		Frequency	*Percent*	*Valid percent*
Valid	Social media group	113	71.5	71.5
	No social media group	45	28.5	28.5
	Total	158	100.0	100.0

Most respondents spent between 1–2 hours or 3–4 hours per day on the internet for personal use. Most had basic to advanced proficiency in using social media for reading messages (93%), but only 39% contributed to online discussions by providing product reviews or feedback. Users in this survey have self-reported more participation than the 90-9-1 internet rule would suggest. According to the rule, which is popular among internet marketing researchers, 90% of users only read (lurkers), 9% edit or contribute to existing postings (contributors), and only 1% create new content (super-users) (Nielsen, 2006).

Figure 3 Word cloud of popular products considered by survey respondents (see online version for colours)

The questionnaire asked respondents to consider a recent substantial purchase that involved extended decision-making. Products commonly considered were mobile phones (11.4%), hotel packages (7.6%), cars (4.4%), and cameras (3.8%).

Among users of social media, 61% found the quality of information matching their expectations, and 26% found it better than expected. Only 13% reported that the information was worse than their expectations. As for the quantity of information on social media, 44% indicated that it matched their needs, 36% indicated it was more than needed, while 20% felt that the information was less than their needs.

5.2 Differences between the 'social media group' and 'no social media group'

The significant differences between the social media group and the no social media group are summarised in Table 8, as found by applying a t-test with a confidence level α of 0.05.

Table 8 Comparison between 'social media group' and 'no social media group'

No.	*Variable factors*	*Significant difference*	*Inferences*
1	Age	Yes	Younger respondents more likely to make purchase decisions with the use of social media
2	Average hours per day on internet	Yes	Those who spent more time on the internet more likely to use social media for purchase decision-making.
3	Proficiency in reading social media messages	Yes	Active users of social media are more likely to use it in purchase decision-making.
4	Participating in online forums and discussions	Yes	Active participants in social media are more likely to use it in purchase decisions.
5	Easiness or convenience in the use of media	Yes (1, 2) No (3)	Social media users found it easier to search information (stage 1) and evaluate options (stage 2) compared with no social media group; however, easiness was same for both groups in the purchase decision stage (stage 3).
6	Decision-making stages being easier than expected	Yes	Social media users found the decision-making process in all three stages to be easier than expectations.
7	Time taken during the decision-making stages	No	Social media did not reduce time taken for decision-making, relative to non-social media sources.
8	Effort spent during the decision-making stages	No	Social media did not reduce effort during decision-making, relative to non-social media sources.
9	Fun and enjoyment during decision-making	Yes	Social media users had more fun and enjoyment during all three stages.
10	Anxiety during decision-making	No	Social media users and non-users were equally anxious in all three stages.
11	Importance of other people's opinion	Yes (1, 2) No (3)	Social media users placed more importance on other people's opinions while searching information (stage 1) and evaluating options (stage 2) compared to the no social media group. But for final decision-making (stage 3), both groups placed an equal emphasis on other people's opinions.
12	Importance of friends' and family's opinions	Yes (1) No (2, 3)	Social media users placed more importance on the opinions of family and friends while searching for information (stage 1); but for evaluating options (stage 2) and making the final decision (stage 3), both groups placed an equal emphasis on the opinions of family and friends.

Table 8 Comparison between social media group and no social media group (continued)

No.	*Variable factors*	*Significant difference*	*Inferences*
13	Information accuracy and reliability	Yes	Social media users found information more accurate and reliable, in all three stages.
14	Trust on information	No (1, 2) Yes (3)	Trust in information was equal for both groups during the first two stages, but in the third stage of purchase decision, social media users had a greater trust in information than non-users.
15	Confidence in using information	Yes	Social media users felt more confident in using the information that they found, across all three stages.
16	Satisfaction with the media in the three stages	Yes	Social media users indicated higher satisfaction with their media, relative to non-users, in all three stages.
17	Rating of the three stages	Yes	Social media users gave higher satisfaction ratings relative to non-users, across all three stages.
18	Post-purchase satisfaction	No	Social media users and non-users were equally satisfied with their purchases.
19	Frequency of complex decision-making	No	No difference between social media users and non-users.
20	Frequency of going through a decision process that does not result in purchase	No	No difference between social media users and non-users.

5.3 Correlations

In this section, some of the salient correlations between variables are reported. The correlations between satisfaction with a stage and proficiency in reading messages on social media were significant for stages 2 and 3, but not for stage 1 (Table 9). The correlations of the ratings of the stages with the same variable were significant for all three stages. Correlations with the variable about participation in social media were similar, but also significant in stage 1. Therefore, rating of a stage and satisfaction increases in general with increasing social media use.

The hedonistic aspect of search (fun or enjoyment) was positively correlated with higher satisfaction in each of the three stages and the post-purchase stage (Table 10).

Note that the fun in the search stage, where social media makes the most difference, does not translate into higher satisfaction with the purchase decision. This foreshadows one of the conclusions of this work: while social media has a definite influence on the subjective feelings about the decision process in the first two stages, its influence on satisfaction in the post-purchase stage is minimal.

Social media users who found the quality of information as better than expected had greater satisfaction in the three stages (Table 11). The final post-purchase satisfaction was also correlated with a higher than expected quality of information on social media. Those who found the quantity of information on social media to be greater than expectations also reported higher satisfaction, which would seem to contradict the

literature in that information overload did not have any negative effect on decision-making.

Table 9 Correlations between satisfaction and ratings of the stages with proficiency in social media

Correlations			
		How proficient do you consider yourself in reading messages on social media websites?	*Do you participate in online forums or in giving product reviews or feedback on the internet?*
Stage 1 – satisfaction	Pearson correlation	0.123	0.210**
	Sig. (2-tailed)	0.123	0.008
Stage 1 – rating	Pearson correlation	0.286**	0.232**
	Sig. (2-tailed)	< 0.0005	0.003
Stage 2 – satisfaction	Pearson correlation	0.206**	0.188*
	Sig. (2-tailed)	0.009	0.018
Stage 2 – rating	Pearson correlation	0.274**	0.217**
	Sig. (2-tailed)	< 0.0005	0.006
Stage 3 – satisfaction	Pearson correlation	0.287**	0.281**
	Sig. (2-tailed)	< 0.0005	0.000
Stage 3 – rating	Pearson correlation	0.292**	0.189*
	Sig. (2-tailed)	< 0.0005	0.017

Notes: *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). N = 158.

Table 10 Correlations between enjoyment and satisfaction in the three stages

Correlations				
		Searching for information was fun and exciting.	*I enjoyed comparing the different alternatives.*	*I enjoyed deciding which product (or service) to buy.*
Stage 1 satisfaction	Pearson correlation	0.465**	0.409**	0.361**
	Sig. (2-tailed)	< 0.0005	< 0.0005	< 0.0005
Stage 2 satisfaction	Pearson correlation	0.340**	0.516**	0.384**
	Sig. (2-tailed)	< 0.0005	< 0.0005	< 0.0005
Stage 3 satisfaction	Pearson correlation	0.405**	0.492**	0.438**
	Sig. (2-tailed)	< 0.0005	< 0.0005	< 0.0005
Satisfaction with purchase	Pearson correlation	0.160*	0.345**	0.408**
	Sig. (2-tailed)	0.044	< 0.0005	< 0.0005

Notes: **Correlation is significant at the 0.01 level (2-tailed). N = 158.

Table 11 Correlations of quality and quantity of social media information with satisfaction

Correlations			
		The quality of the information that I collected by using social media was:	*The quantity of the information that I collected by using social media was:*
Stage 1 satisfaction	Pearson correlation	0.489**	0.519**
	Sig. (2-tailed)	< 0.0005	< 0.0005
Stage 2 satisfaction	Pearson correlation	0.467**	0.420**
	Sig. (2-tailed)	< 0.0005	< 0.0005
Stage 3 satisfaction	Pearson correlation	0.316**	0.421**
	Sig. (2-tailed)	< 0.0005	< 0.0005
Satisfied with purchase	Pearson correlation	0.312**	0.184*
	Sig. (2-tailed)	< 0.0005	0.037

Notes: **Correlation is significant at the 0.01 level (2-tailed). N = 129.

5.4 Regression analysis

The questionnaire included items for the characteristics of the stages, such as easiness, time, effort, anxiety, herd behaviour (opinions of family, friends, and others), accuracy, trust, and confidence. These were used as independent variables. Quality of the stages was measured by satisfaction with the use of social media or other sources ('satisfaction'), and by the overall rating of the stages ('rating'). Satisfaction was found to be more representative of the stage quality and hence used as the dependent variable.

Regression stage 1 – information search

Taking the satisfaction in stage 1 as the dependent variable, and the other variables (demographics, internet usage, social media yes/no, maximising/satisficing or MvS) as independents, a backward regression analysis was performed. The ANOVA output for the final model after removal of unnecessary predictors shows that not all linear coefficients are zero with $p < 0.0005$. $R^2 = 0.499$, fairly high, and the adjusted $R^2 = 0.465$, showing a sufficient number of cases per independent. Many independents were predictive, as indicated in Table 12.

Table 12 Regression: first stage – information search

Stage 1 – coefficients			
	Standardised coefficients	*t*	*Sig.*
	Beta		
(Constant)		2.882	0.005
MvS 1). When I watch television, I often check other channels to see if something better is playing.	0.149	2.428	0.016
MvS 2). Going to watch a movie is really difficult, I'm always struggling to pick the best one.	–0.128	–2.067	0.040

Table 12 Regression: first stage – information search (continued)

Stage 1 – coefficients			
MvS 3). No matter what I do, I have the highest standards for myself.	–0.127	–2.067	0.040
Social media: yes/no	–0.183	–2.825	0.005
Stage 1 – it was easy to find relevant information on the product (or service).	0.219	3.144	0.002
Stage 1 – finding relevant information took a lot of time.	0.275	3.407	0.001
Stage 1 – finding relevant information took a lot of effort.	–0.165	–2.076	0.040
Stage 1 – searching for information was fun and exciting.	0.226	3.301	0.001
Stage 1 – seeking and collecting information was easier than I expected.	0.241	3.343	0.001
Stage 1 – I have confidence in using the information that I found.	0.172	2.690	0.008

Satisfaction with information search is increased by satisficing (MvS 1–3) and by aspects of the search process that are higher scoring or easier with social media. However, each independent contributes relatively little. The negative coefficient of social media indicates that those who did not use social media reported lesser satisfaction.

Table 13 Regression: second stage – alternative evaluation

Stage 2 – coefficients			
	Standardised coefficients	*t*	*Sig.*
	Beta		
(Constant)		3.363	0.001
How many hours per day on average do you use the internet for personal reasons?	–0.112	–2.070	0.040
Social media: yes/no	–0.165	–2.846	0.005
Stage 1 satisfaction	0.376	5.994	0.000
Stage 2 – evaluating and comparing the various options took a lot of time.	–0.215	–3.047	0.003
Stage 2 – evaluating and comparing the various options took a lot of effort.	0.166	2.349	0.020
Stage 2 – I enjoyed comparing the different alternatives.	0.213	3.409	0.001
Stage 2 – I trust the information I obtained to evaluate and compare the different options.	0.212	2.230	0.027
Stage 2 – I felt confident while evaluating the different alternatives available.	0.168	1.997	0.048

Regression stage 2 – alternative evaluation

For the regression analysis of stage 2, the dependent variable was also satisfaction, while the independents were the other stage variables like in stage 1. Besides these, the satisfaction in stage 1 was also taken as an independent. A backward regression was performed and variables that were not contributing were removed. The ANOVA-test

gave $p < 0.0005$. $R^2 = 0.627$, adjusted $R^2 = 0.599$, which is higher than the R^2 of the first stage. Significant predictors of satisfaction in the second stage and their coefficients are listed in Table 13.

The largest predictor of stage 2 satisfaction is the satisfaction reported in the previous stage. Further, enjoyment, effort, trust and confidence are significant predictors. Satisficing plays no role in this stage, as can be expected from its character.

Regression stage 3 – purchase decision

Regression analysis for the third stage was also run with its satisfaction as the dependent, while the independents included the other stage variables, and the satisfaction in the previous two stages. Variables that were not contributing were removed through backward regression. ANOVA was $p < 0.0005$. $R^2 = 0.643$, adjusted $R^2 = 0.629$, which is higher than those of both the previous stages.

Significant predictors of satisfaction and their coefficients are indicated in Table 14. Like the second stage, satisficing/maximising of the respondents no longer had an effect. However, unlike the first two stages, the use of social media no longer had a significant effect. Significant predictors included the effort (negative), perceived accuracy and reliability of information, and confidence in making the purchase decision.

Summary of the regression analysis

The use of social media in decision-making led to greater satisfaction in the information search and evaluation stages but made no significant difference in the stage of purchase decision. In other words, the level of satisfaction reported by respondents in their purchase decision stage was the same irrespective of whether they used social media or not. However, satisfaction reported in the first two stages were significant predictors of satisfaction in the third stage, showing that satisfaction gets amplified as consumers move along the decision-making process.

Table 14 Regression: third stage – purchase decision

Stage 3 – coefficients			
	Standardised coefficients	*t*	*Sig.*
	Beta		
(Constant)		3.146	0.002
How proficient do you consider yourself in reading messages on social media websites?	0.121	2.414	0.017
Stage 1 satisfaction	0.231	3.668	< 0.0005
Stage 2 satisfaction	0.402	6.077	< 0.0005
Stage 3 – it took me a lot of effort to reach a purchase decision.	–0.153	–3.055	0.003
Stage 3 – accurate and reliable information helped me make my purchase decision.	0.204	3.681	< 0.0005
Stage 3 – I felt confident when making my purchase decision.	0.147	2.549	0.012

The influence of the satisficing/maximising variables in the first stage indicates that maximisers were likely to have lesser satisfaction with their information search than satisficers. This is a confirmation of Simon's theory of satisficing in which optimising by consumers is not possible under bounded rationality due to the sheer amount of information in the market. Maximisers desire the best possible result and are more prone than satisficers to be less satisfied with their decisions.

To conclude, the significant predictors of satisfaction in the three stages are listed in Table 15.

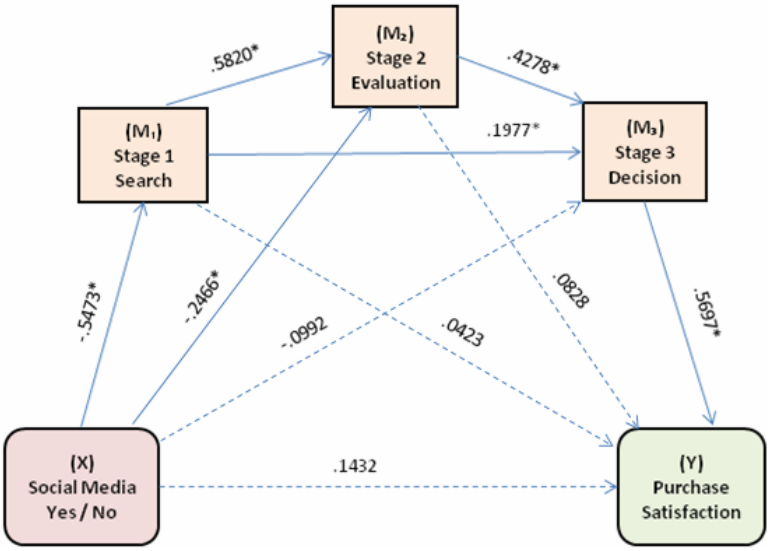
Table 15 Summary of the regression analysis of the three stages

No.	*Dependent variable*	*Significant predictors*
1	Stage 1 satisfaction	Social media, satisficing, time, effort, enjoyment, easiness, confidence
2	Stage 2 satisfaction	Social media, enjoyment, time, effort, trust, confidence, stage 1 satisfaction
3	Stage 3 satisfaction	Effort, confidence, accuracy and reliability, stage 1 satisfaction, stage 2 satisfaction

The Hayes PROCESS macro for SPSS

The best tool to analyse a general overall network model would be structural equation modelling. Unfortunately, the large number of cases needed was impossible to achieve in this research. However, Hayes model 6 template (Hayes, 2012), a macro for SPSS, fitted the network structure and was therefore used to analyse the impact of the use or non-use of social media (independent variable) on the purchase satisfaction (dependent), taking the satisfaction in the three decision stages as the mediators. This led to the following network model (Figure 4).

Figure 4 Hayes PROCESS network model of the research (see online version for colours)



There were no covariates used. Significant coefficients ($p < 0.05$) are marked with an asterisk (*), while the dotted arrows have $p > 0.05$. The total effect model has a low $R^2 = 0.0219$, $p = 0.0635$, which is consistent with no practical influence from the use of social media. The total effect of the use of social media for decision-making on the final outcome of purchase satisfaction, through the mediating decision stages, is –0.1827, $p = 0.0635$, which indicates slightly lower satisfaction when social media is not used. The estimate of the low influence of social media is robust, as indicated by the correlation coefficient of –0.148 between the use of social media and post-purchase satisfaction, at a two-tailed significance of 0.063.

One possible cause for the low total effect of the model could be post-purchase cognitive dissonance, leading to effort justification or trivialisation. In other words, most consumers expressed high satisfaction with their purchases, even though they reportedly experienced less satisfaction during the initial stages of their decision-making. Also, when mediation processes become complex, the direct effect size from the initial independent variable to the outcome tends to get smaller because of additional links in the chain, affected by competing causes and random factors (Shrout and Bolger, 2002).

To exclude the factor of dissonance resolution, the macro was run again with satisfaction in stage 3 as the final dependent. The coefficients are (obviously) the same as in the first model. However, $R^2 = 0.1535$, $p < 0.0005$. The coefficient of the independent variable (use of social media) is now higher, –0.4492, $p < 0.0005$, indicating that the use of social media leads to a higher satisfaction through the first two stages on the third stage of purchase decision.

5.5 Research hypotheses

Table 16 lists the hypotheses of the research with the applied statistical tests and the results (whether supported or not).

Table 16 Results of the hypotheses testing

Hypothesis		*Test*	*Result*
Decision-making model			
DM1	There is a significant relationship between satisfaction in the first stage of information search and satisfaction in the second stage of alternative evaluation.	Regression, PROCESS	Supported
DM2	There is a significant relationship between satisfaction in the first stage of information search and satisfaction in the third stage of purchase decision.	Regression, PROCESS	Supported
DM3	There is a significant relationship between satisfaction in the second stage of alternative evaluation and satisfaction in the third stage of purchase decision.	Regression, PROCESS	Supported
DM4	There is a significant relationship between satisfaction in the first stage of purchase decision and the post-purchase satisfaction.	PROCESS	Not supported
DM5	There is a significant relationship between satisfaction in the third stage of purchase decision and the post-purchase satisfaction.	PROCESS	Supported

Table 16 Results of the hypotheses testing (continued)

Hypothesis		*Test*	*Result*
Social media			
SM1	There is a significant positive association between the use of social media and the satisfaction in the first stage of information search.	Regression, PROCESS	Supported
SM2	There is a significant positive association between the use of social media and the satisfaction in the second stage of alternative evaluation.	Regression, PROCESS	Supported
SM3	There is a significant positive association between the use of social media and the satisfaction in the third stage of purchase decision.	Regression, PROCESS	Not supported
SM4	There is a significant positive association between the use of social media and the post-purchase satisfaction.	PROCESS	Not supported
SM5	The social media group spends on average significantly less time on the three decision-making stages when compared to the no social media group.	T-test, regression	Not supported
SM6	The social media group expends on average significantly less effort on the three decision-making stages when compared to the no social media group.	T-test, regression	Not supported
SM7	The social media group finds it on average easier to search for information and evaluate alternatives, when compared to the no social media group.	T-test, regression	supported
Satisficing/maximising			
SatMax1	There is a significant positive association between maximising tendencies and the amount of time and effort spent in the three stages of decision-making.	Correlations	Not supported
SatMax2	There is a significant positive association between satisficing tendencies and the satisfaction in the first stage of information search.	Regression	Supported
SatMax3	There is a significant positive association between satisficing tendencies and the satisfaction in the second stage of alternative evaluation.	Regression	Not supported
Satmax4	There is a significant positive association between satisficing tendencies and the satisfaction in the third stage of purchase decision.	Regression	Not supported
SatMax5	There is a significant positive association between satisficing tendencies and the post-purchase satisfaction.	Regression, PROCESS	Not supported
Internet usage skills			
I1	Consumers who are proficient in internet usage are on average significantly more likely to use social media for their purchase decision-making.	Correlations	Supported
I2	Consumers who are proficient in internet usage are on average significantly more likely to have higher satisfaction with the decision-making stages.	Correlations	Supported

Table 16 Results of the hypotheses testing (continued)

Hypothesis		*Test*	*Result*
Quality and quantity of information on social media			
QQ1	Higher perceived quality of information on social media is associated with higher satisfaction with decision-making stages.	Correlations	Supported
QQ2	Greater perceived quantity of information available on social media is associated with higher satisfaction with decision-making stages.	Correlations	Supported

6 Conclusions

A key issue for marketers currently is to understand how digital and social media are used in the purchase decision process (Powers et al., 2012), their influence on buyer behaviour, and their role as a marketing tool. The results overall show that the classical model of decision-making is valid in describing the decision process of consumers in this social media age. Stage characteristics positively associated with higher consumer satisfaction are easiness, enjoyment, trust and confidence. Those who enjoyed the decision-making process had greater satisfaction in the three stages and the final purchase. High trust and confidence led to greater satisfaction with the stages and the purchase. Satisficers were more satisfied with their information search, while maximisers had lower satisfaction.

Social media users found decision-making to be easier and enjoyed the process more, when compared to those who used other information sources. They also had greater confidence and satisfaction during the process. Those who perceived the information on social media to be of higher quality and greater quantity than expectations were more satisfied overall. This suggests that information overload did not reduce consumer satisfaction with social media.

Finally, the study shows that the use of social media improved satisfaction for consumers during the initial stages of information search and alternative evaluation but did not help much in improving satisfaction in the purchase decision stage, nor in the post-purchase evaluation. Many consumers are just as satisfied to reach their purchase decisions in the traditional physical stores after having conducted their search and evaluation online; which means that brick-and-mortar shops have not yet lost their significance.

Social media has enabled marketers to access and monitor consumer opinions on a continual instant basis by listening-in and participating in online conversations, and observing what people are discussing in blogs, forums and online communities (Constantinides, 2014). With such vast information freely available on social media, it is up to businesses to harness it positively to improve their product offerings, their customer relationship management, and their profitability.

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