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# A Research Agenda for Evaluating Strength of Internal Preferences and External Influences in Consumer Smartphone Switching

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**Abstract.** This article proposes a research agenda to study what causes consumers to switch smartphone manufacturer and operating system brands. International consumer survey is planned for data collection and structural equation modeling method will be used to extrapolate whether internal preferences play a larger role than external influences in consumers' switching behavior. The effects are expected to be moderated by behavioral control, subjective uncertainty and prior switching experience and controlled with a set of constraint variables. As a theoretical contribution, we propose a new theory to evaluate switching primarily through the latent construct of magnitude of switch. Potential practical implications offer new insights into consumer switching decision-making. These insights could be useful in customer acquisition and lock-in strategy revision for smartphone market players but also in other ecosystems with similar technological characteristics.

**Keywords:** Consumer Research, Smartphone, Social Influence, Structural Equation Modeling, Switching

## 1 Introduction

Mobile phones have become one of the most commonplace information technology (IT) products as the global penetration for mobile phone subscriptions approaches 100% of world population. [1] Overall, the market for mobile phones is quickly becoming saturated and over the past ten years the market also has experienced a paradigmatic change. Especially in the developed countries the market has been taken over by a more advanced concept for mobile communication and computing: the smartphone. By smartphone we adhere to Gartner's definition: *a mobile phone with identifiable, open and multitasking-capable operating system that is supported by freely-installable third-party applications which are produced by a sizeable developer community with the access to application programming interfaces*. [2]

Smartphones are nowadays serving increasingly large masses as they are extending to ever lower price categories as they are eating away the revenues gained from less sophisticated feature phone models. [3][4] Moreover, the younger generations are leading the way with smartphone ownership and the smartphone market seem to be

maturing at a rapid pace, especially in the developed countries; 24 countries have already surpassed 50% smartphone penetration. [5][6][7] Shortening product cycles for mobile phones – consumers in developed markets tend to switch mobile phones every 1.5-2 years [8][9] – also shifts focus; smartphones are not novelty products anymore.

Consumers are gaining more experiences about switching from one device to another, as many have already owned multiple smartphones. Despite the recent calls for more comprehensive examination of consumer-smartphone interaction [10], academic research has not comprehensively looked into switching or migration between different mobile phone products in general or smartphones specifically. Rather, information systems (IS) research has explored paradigms of adoption and usage in relation to mobile phones, smartphones and their various features such as variable type of applications and functionalities. Since the smartphone market is rapidly maturing, from business perspective it becomes increasingly important to understand consumer switching behavior in this market.

Even though the academic interest has not been confined to just the tangible product of smartphone, it is still the most visible and tangible part of the whole set of functionalities and services that is offered to consumers. Smartphones are ubiquitous convergence products that tie together hardware platform (tangible product) and software platform (operating system (OS)) to serve multiple supplementary markets with applications for services and content creation. Hence, they can be described as consumers' access point to a layered technology stack (see e.g. [11][12]) that itself forms an ecosystem of services and supplementary products created by multiple companies "coompeting" with each other in varying degrees within these platforms. The markets beyond the tangible product has grown sizeable in its own right. [13] However, one should note that these markets would not exist without this bundle of the hardware and software platforms.

As the market and features develop for smartphones, the technology bundle of platforms, applications and contents becomes ever more convoluted and more difficult to fully grasp by a consumer. This increasing complexity within the device must be understood also in the context of socially networked consumer perspective; smartphones connects consumers on multiple levels – through different forms of communication, sharing and cooperation via applications and functionalities. However, a consumer may face issues with compatibility; the platform providers – hardware and software producers that is – aim to create exclusivity on their smartphone platforms in order to entice new customers as well as keeping hold of their existing user base through switching costs. Therefore, during switching smartphones consumers often need to think beyond their own desire by contemplating also the impacts of switching to the device compatibility with their various social circles, including different subgroups of friends, relatives and colleagues.

The social connectivity works in multiple layers of services in smartphones. Whereas the basic network layer connectivity (principally voice communication and text messaging [12]) does not really pose any significant restrictions between different manufacturers or service providers, the service layer connectivity (namely various applications [12]) between device and OS brands is far more cumbersome. Not all third party applications are available on all of the smartphone platforms. Moreover, even if the same app is available on multiple platforms, this does not guarantee

connectivity within the service between different platforms. Additionally, the inter-device compatibility is not restricted to certain type of devices. Manufacturers such as Apple and Samsung have introduced whole product families that promise benefits from connecting between these various devices within the same product family, for example, Apple's iPhone, iPad, iWatch, AppleTV, and computers.

Where does this connectivity-driven complexity lead a consumer upon a moment smartphone switching decision? Unless the consumer possesses a comprehensive technological understanding, the answer is often feelings of uncertainty regarding the decision-making. There are a few behavioral patterns to cope in this type of situations; one is to embrace the familiar, a concept which has been also called a status quo bias. [14][15] Therefore, consumers would continue with familiar brands enforcing their prior internal preferences. [16] Another coping mechanism is to adhere and conform to the influences of their social circles. [16][17]

From these tendencies influencing smartphone switching, we can derive our research question: *what are the roles of internal preferences and external influences in consumer smartphone switching*? We approach this question via structural equation modeling by measuring consumer smartphone switching behavior through degrees of changes in terms of both the hardware platform and software platform and construct a dependent variable called magnitude of switch. The possible influences to the magnitude of switch by internal preferences are examined through satisfaction, loyalty, need for variety and alternatives' attractiveness and by external influences through compliance and conformity. Furthermore, we will control possible moderating effects through six personal characteristics: behavioral control, subjective uncertainty, prior switching experiences, alternative awareness, willingness to pay and demographical characteristics.

Rest of this paper is organized as follows: next section will introduce the theoretical grounding for this research plan by conceptualizing switching behavior. The section continues further by presenting the research model constructs as well as explaining the hypotheses about the relationships between these constructs. The following section outlines briefly the planned method for analysis and data collection for this research plan. The final section will depict the proposed theoretical contributions and practical implications of this research once it is finished.

## 2 Theoretical Grounding and Hypothesis Development

### 2.1 Conceptualization of Switching Behavior

Switching – or inhibiting perspective of switching costs – as a concept has a long history in disciplines such as marketing and economics (see e.g. [19][20]). In broad terms switching can be defined as movement from one entity to another. [21] Generally, it can be said that switching involves a switch subject – something from which the movement originates from – and switch object – something that serves as a destination for this switching movement. In the context of consumer smartphone switching it would translate into an event in which an individual acquires a new

smartphone (switch object) to replace a previous one (switch subject). Consumer switching has been also defined in terms of expectation confirmation model [22] so that switching lies between perceived performance of the switch subject and the expectations regarding the switch object. [23]

In general, IS research has traditionally drawn upon more technology-oriented theories such as technology acceptance model derivatives [24][25], innovation diffusion theory [26] and expectation confirmation model [22] when the research subject has concerned examination of behavior occurring during product or service transitions. Conversely, these studies are not concerned with switching per se as they usually examine larger paradigmatic changes with potentially disruptive technologies such as smartphones (see e.g. [27][28]) or mobile commerce and banking services (see e.g. [29][30]). There is also a rather significant conceptual difference between the switch subject and switch object, with the perspective being often more switch object oriented. Switching on the other hand, is concerned more mundane changes where there is relatively little difference between the switch subject and switch object.

As earlier studies have been drawing from the paradigm of adoption, the lack of proper theoretical framework for switching has been recognized in IS research. [31] Recently however, several studies examining consumers' switching behavior in the context of different types of information systems (see e.g. [31][32][33][34][35][36][37]) have utilized a framework originating from human migration literature: a push-pull-mooring framework (PPM). [21] Even though the PPM framework balances out the weight of switch subject and switch object influences on the switching outcome, the model has its shortcomings, as it largely overlooks the possible negative, switching cost inducing influences inherently attributed to the constructs relating to switch subjects and objects. [38]

When using more quantitative methods, such as, structural equation modeling in switching and adoption studies, researchers seem to have tendency to examine inter-device migration in terms of intention to switch (see e.g. [23][27][33][34][35][37]), with post-adoption use or switching of a particular device or system as a dependent variable (see e.g. [11][28][31][32][35]). These measures may be well suited for evaluating intention to adopt a new technology, but they do not translate well to more mundane switching situations. In case of studies examining intentions as a latent construct, there is no certainty if the actual behavior will follow these intentions. On the other hand, with actual behavior measures the examination is often limited to the intensity of use and the switch subject is treated deterministically with a singular end-state option. So far, we have not encountered studies that would have tried to extrapolate the differences in the actual switching act and the switch objects; or what drives people to make differing switching decisions and what makes them to break their rut and try something new.

The anterior perceptions have assumed switching generally as a single-dimensional phenomenon. Therefore, switching research in IS, marketing and economics has concentrated on one-dimensional tangential or parallel switching (see Figure 1). Conversely, switching relating to complex multi-brand technological bundles such as smartphones requires more modes for switching, that is, lateral switching in which only part of the bundle changes. Therefore, we propose magnitude of switch as a new dependent variable for this study.

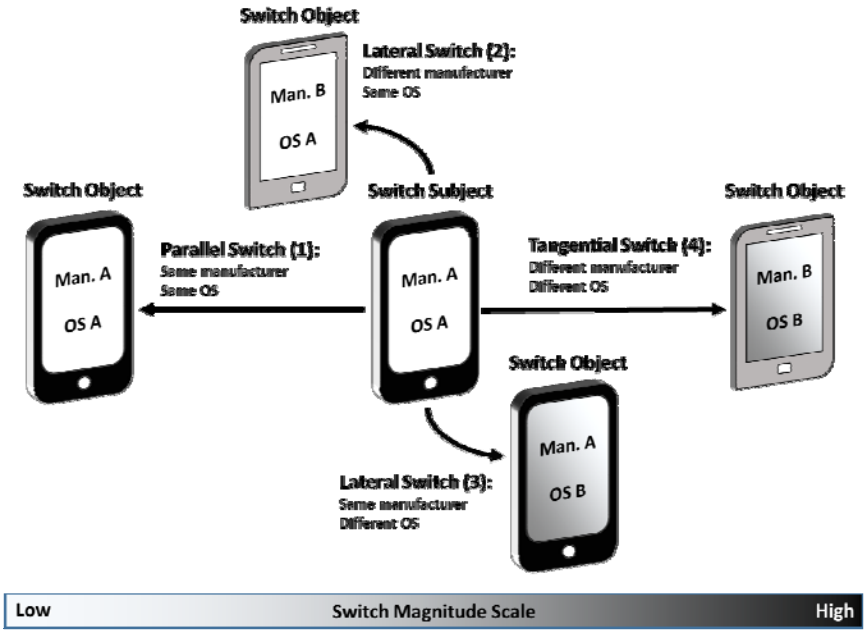


**Fig. 1.** Modes of switching with hardware-software platform combinations

This study takes an ontological position that a switch has occurred and hence tries to extrapolate the reasons of its magnitude rather than just merely account if a switch has occurred or not. Magnitude of switch describes the level of difference between the switch object and switch subject. This difference is measured with two dimensions. First, the hardware platform is manifested for consumers through device manufacturer brands. It is often the most recognizable identifier for consumers when they are evaluating and selecting smartphones. Second, the software platform is identified through OS brand that primarily dictates the functionality and embedded services available. However, for consumers the software platform dimension is not perhaps as recognizable as hardware platform because it is not as tangible. Furthermore, it is also likely that most consumers are not knowledgeable on the meaning of an OS, even if they are familiar with the different brands. For the sake of simplicity, we settle for these two dimensions as we feel they are yet the most recognizable high-level brand attributes for consumers.

The dimensions of magnitude of switch can be depicted with an ordinal categorization in which larger numbers describe a larger magnitude of switch. Therefore, high value in this ordinal categorization represents a high magnitude switch, that is, tangential switch, whereas low magnitude switches are analogous to parallel switches. The rationale behind ordering of the lateral switches is that OS dimension dictates more radically the realms of possibility for use than the manufacturer brand dimension. Therefore, we will account switches relating to the OS

platform affecting more prominently to magnitude of switch. The dependent variable is further illustrated in the Figure 2.

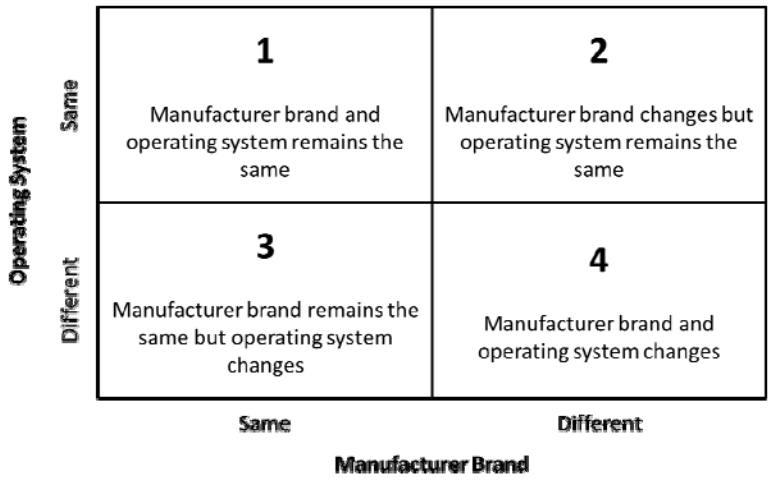


**Fig. 2.** Magnitude of switch: the dependent variable

### 2.2 Internal Preferences

Consumers are often conservative decision makers. Some of this conservativeness can be attributed to status quo bias. [14][15] Status quo bias claims that individuals are inclined to maintain the current state of affairs, which is achieved by either doing nothing or sticking with previous decision-making patterns. [15] In the smartphone-switching context these decisions driven by status quo bias would lead individual to parallel switches. Status quo bias has been also linked to decision uncertainty. [14] In terms of switching, decision making always involves uncertainties as complex new devices can rarely be tested comprehensively prior the acquisition. However, sticking with the same brand as the switch subject will mitigate these uncertainties through prior experiences.

The uncertainty regarding switching decisions can also be amplified by complexity of the device. Complexity refers to individual's difficulty to understand or use a particular product. [26] Difficulty to fully comprehend a complex product can lead to increased risk perception and therefore switching costs. [39][40] Consequently, complexity leads consumers emphasize familiar brands in order to simplify decision-making and reduce uncertainty [16] thus leading them to inherently prefer parallel switches.

As consumers do not usually transfer between complex products effortlessly, what causes them to switch between products and brands? One of the most used measures in switching literature is the satisfaction-dissatisfaction construct. Satisfaction is affect or positive feelings that are evoked when an individual gain utility by using a system or device. [31][41][42] The negative relationship between satisfaction and

switching intentions is well documented. [21] Therefore, we may posit that dissatisfaction towards the incumbent smartphone, the switch subject, influences consumers to be more willing to try other brands. Conversely, high level of satisfaction influences individuals to mitigate uncertainty of switching by conducting parallel switches. We formulate our first hypothesis in the following manner:

**H1:** *Satisfaction decreases the likelihood of high magnitude switch.*

Satisfaction in itself, however, does not fully explain consumers' loyalty to a certain brand. A very loyal consumer can endure lower levels of satisfaction and still remain as a customer of a certain brand. Loyalty has been defined as profound affective dedication toward a brand. [41][43][44] The dedication can be built upon emotional connection in which an individual finds intrinsic value of owning a smartphone of certain brand. Furthermore, the loyalty can be built upon more practical terms such as network benefits in order to avoid any possible compatibility issues. Moreover, a short-term dissatisfaction can be also endured if an individual can discount long-term benefits of remaining loyal to a certain brand. [41] Conversely, individuals that do not view themselves as loyal customers can also be expected to be more inclined to switch between brands. Hence, we can summarize that the influence of loyalty will affect negatively to inter-brand switching and therefore we formulate our second hypothesis in the following manner:

**H2:** *Loyalty decreases the likelihood of high magnitude switch.*

As the first two hypotheses discuss internal preferences in terms of the switch subject, the latter two will be discussing about switch object. Consumers can differ from each other also in a sense that some of them may not look forward to be committed with a single brand. Some may become bored easily and thrive towards seeking new experiences. In the context of switching this type of preferences are often called a need for variety (see e.g. [45]). The need for variety can be characterized with consumers that have a history of trying different products in the past [35] and this history can be also utilized to predict future behavior. [21][45] Therefore, the effect of need for variety is very straightforward; need for variety facilitates inter-brand switching. Hence, we hypothesize:

**H3:** *Need for variety increases the likelihood of high magnitude switch.*

Alternatives' Attractiveness is another construct relating to switch objects. It has been widely used in switching literature with convincing influence to switching behavior in different contexts (see e.g. [21][34][35][46]). Alternatives' attractiveness has been simply defined as compelling characteristics of alternative products. [21][46] It is also somewhat closely related to relative advantage – a perception how much a switch object would be better than the switch subject. [24][26][47]

For the sake of our review, however, we define alternatives' attractiveness more narrowly since in our ontological assumption is that a switch has already occurred. Therefore, with the aforementioned definition a rational decision-maker would be always expected to mark high values for alternatives' attractiveness as they are

always expected to switch for an upgraded smartphone compared to their switch subject. Consequently, we define alternatives' attractiveness as the positive characteristics of other brands compared to the switch subject. As a result, we can expect the alternatives' attractiveness to influence positively to inter-brand switching and postulate our hypothesis as follows:

**H4:** *Alternatives' Attractiveness increases the likelihood of high magnitude switch.*

### 2.3 External Influences

Besides internal preferences, social influences also affect consumers. By social influence we refer to influence from individual's close social circles such as friends, relatives and colleagues. Individuals comply more easily to social influences if they are facing uncertainty. [16][17] In the case of smartphones the complexity of the devices is rapidly increasing and it is subsequently feeding the decision uncertainty. This will result with people reverting into their old behavior patterns (cf. status quo bias [14][15]) or into seeking out advice from other people leading them to be exposed to social influences.

Venkatesh et al. [24] defined social influence through three antecedent constructs: subjective norm [48], social factors [49] and image [47]. These constructs refer to subjective perception of how individual thinks he or she is expected to behave, internalization of individual's social system's culture and interpersonal social agreements, and degree how certain behavior can improve individual's prestige status in a social circle, respectively. Even though these social influence constructs measure a bit different aspects, none of them is really address precisely to what are the hierarchical roles and influences of individual's in these social systems.

In the context of smartphones, many individuals are affected by authoritarian social influences for example in their work environment. Furthermore, authoritarian influence can be in form of opinion leadership or knowledge leadership. On the other hand, the social influences may also be from peers that do not present any clear authority over individual's decision-making. However, when peers are succumbed into hype for example, this mass pressure may also influence individual's decision-making. Therefore, in order to better elaborate these different types of social influences, we apply Cialdini and Goldstein's concepts of compliance and conformity [18].

Compliance refers to acquiescence to a request or persuasion. [18] We use this definition in a sense that it also creates hierarchical differences as we assume that communication in request or persuasion form creates hierarchies between individuals at least in the shape of opinion leadership. Furthermore, a position of authority can be also assumed through, for example, subject expertise, financial control or formal hierarchical position. The reaction of this social influence through compliance is dependent upon an authority's perspective on switch subject. If an authority approves the switch subject, the authority will explicitly or implicitly advocate for acquiring a similar switch object and thus resulting with push towards low magnitude switch. Conversely, if the authority disapproves the switch subject, the effect will be opposite

and the authority will advocate for high magnitude switch. Due to the dependencies upon the switch subject we split social influence hypotheses into two sub-hypotheses as follows:

**H5a:** *Approving communication in social circles will lead to compliance and it will decrease the likelihood of high magnitude of switch.*

**H5b:** *Disapproving communication in social circles will lead to compliance and it will increase the likelihood of high magnitude of switch.*

As opposed to compliance, conformity refers to the behavior in which individual attunes his or her behavior to conform behavior of others. [18] Conformity resembles closely common construct in IS research: subjective norms [24][48]. As opposed to compliance, conformity does not involve a socio-hierarchical aspect. However, it works in a very similar fashion as compliance; depending upon the behavioral example of individual's social circles, the conformity influence can be driving towards either high or low magnitude switches. For instance in a social environment in which other members are using similar smartphones to an individual's smartphone, an individual might be compelled to conform by conducting parallel switch. Conversely, in a social environment with dissimilar smartphone base to the individual's smartphone, the individual might be compelled to conform by conducting a lateral or tangential switch. Therefore, also the conformity hypotheses are split into two and postulated as follows:

**H6a:** *Approving behavioral example in a social environment will lead to conformity and it will decrease the likelihood of high magnitude of switch.*

**H6b:** *Disapproving behavioral example will lead to conformity in a social environment and it will increase the likelihood of high magnitude of switch.*

External influences can also affect our internal preferences. Social influences can also form an indirect aggregate effect to magnitude of switch through internal preferences. We hypothesize that these aggregated social influences operate similarly to compliance and conformity depending on the nature of the social environment; approving social environment inducing behavior towards low magnitude switching and disapproving environment towards high magnitude switching. Therefore, our hypotheses for the aggregated effect of social influences are as follows:

**H7a:** *Approving social environment will moderate internal preferences towards low magnitude switching behavior.*

**H7b:** *Disapproving social environment will moderate internal preferences towards high magnitude switching behavior.*

### 2.4 Personal Characteristics: Moderating and Control Variables

In order to draw comprehensive picture about consumer smartphone switching, there is still some personal characteristics that we expect to moderate and control influences in our framework. For moderating variables we position behavioral control, subjective uncertainty and prior switching experience as these constructs affect our independent variables, whereas we utilize willingness to pay, alternative awareness and demographics as control variables as these variables can create constraints for switching behavior.

Behavioral control refers to individual's perception of internal and external constraints for switching. [24][48] We interpret this construct through formal autonomy of other decision-makers. Decision autonomy, which refers to formal decision-making independence over formal authorities, is a concept that is more familiar from organizational studies [50], but it also is translatable to a consumer setting. Consumers are often part of hierarchical structures that may affect their smartphone switching decisions. Therefore, hypothesize that better perceptual behavioral control moderates the relationship between internal and external effects by decreasing influence of external influences. Hence, we hypothesize:

**H8:** *Behavioral control decreases the effect of external influences.*

Subjective uncertainty can be described as a psychological switching cost that is caused by inability to continue familiar products and being required to risk a possible performance loss with incompletely tested products. [46] Product complexity can further increase this decision uncertainty. [39][40]

There are a few ways to deal with this subjective uncertainty. One is to increase information and understanding regarding the product. However, this may not be easy in rapidly changing, complex and networked market environment. Therefore, individuals are required to possess personal curiosity and experimental attitude with the technological devices. In literature this type of traits are often characterized with constructs such as personal innovativeness with IT [51][52] and self-efficacy [24]. If an individual does not possess this trait, he or she is subjected to larger extent of decision-making uncertainty and hence is also more prone to rely upon social influences of other people. [16][17] Therefore, we propose this moderating effect as follows:

**H9:** *Subjective uncertainty increases the effect of external influences.*

Prior switching experiences establish individual's prior experience conducting smartphone switching. Past switching activity has been found to influence future switching intentions. [53] We posit that the experience in smartphone switching can alleviate possible uncertainties regarding switching as well as the inherent status quo bias. Therefore, prior switching experience would interact with internal effects as it would encourage consumers view their switch subjects more critically as well as embrace the potential benefits gained from high magnitude switches while simultaneously discounting potential drawbacks with successful switching experience. Therefore, we hypothesize:

**H10:** *Prior switching experiences increase the effect of internal preferences.*

As for control variables both willingness to pay and alternative awareness are viewed as a potential constraint variables that can limit the possible switch object choice set of an individual consumer. With willingness to pay we apply Kim and Son's [41] view where the construct is measured with price category intervals. With these measurements we should be able to determine the price sensitivity of individual consumers regarding smartphones. If consumers are very price sensitive, they are potentially missing out a large portion what smartphone market has to offer. For example, Apple principally targets premium pricing. Thus, very price sensitive consumers would leave Apple products out of consideration altogether and consequently limiting their choice options. Therefore, low willingness to pay can be expected to certain extent limit high magnitude switching.

Alternative awareness operates in a similar fashion to willingness to pay; it constraints choice set for potential switch objects. [54] Alternative awareness refers interest of learning and understanding alternative products for a switch subject. [41] The alternative awareness can be also affect by the ease of finding alternatives. [55] If finding alternatives becomes effortful, consumer can start to experience pre-switching search and evaluation costs. [46] Subsequently, these switching costs can lead to reduced number of alternative considered and even waning effort to consider alternatives. [54][56][57] As a result, effortful search for alternatives can lead to diminishing choice set for switch objects and consequently low alternative awareness can be expected to certain extent curtail high magnitude switching.

In addition to willingness to pay and alternative awareness, the sample will be controlled with demographics. With the demographics a basic set of information such as age, gender, nationality, education level, occupation and income level is collected from the consumer sample. We can expect a similar constraining effect from demographics as willingness to pay since people with low income levels have less money at their disposal to invest in smartphones. From the demographical information it is also possible to test some further hypotheses such women being more accepting to social influence when dealing with new technology. [24] As result of presenting the hypotheses for this research plan, Figure 3 illustrates our research model.

## 3 Planned Research Methodology

Our plan is to collect a sample that would be representative of either several developed countries with large smartphone penetration or very comprehensive sample of a single nation of large size and pioneer position in smartphone market development (e.g. USA). The data collection will be conducted in a form of a survey questionnaire through third party consumer research company. If a multi-nation sample option is chosen, the target countries will be selected based upon measures of the cultural dimensions theory [58] or the cultural value typology [59][60][61].

Structural equation modeling and LISREL analysis will be used for as statistical methods.

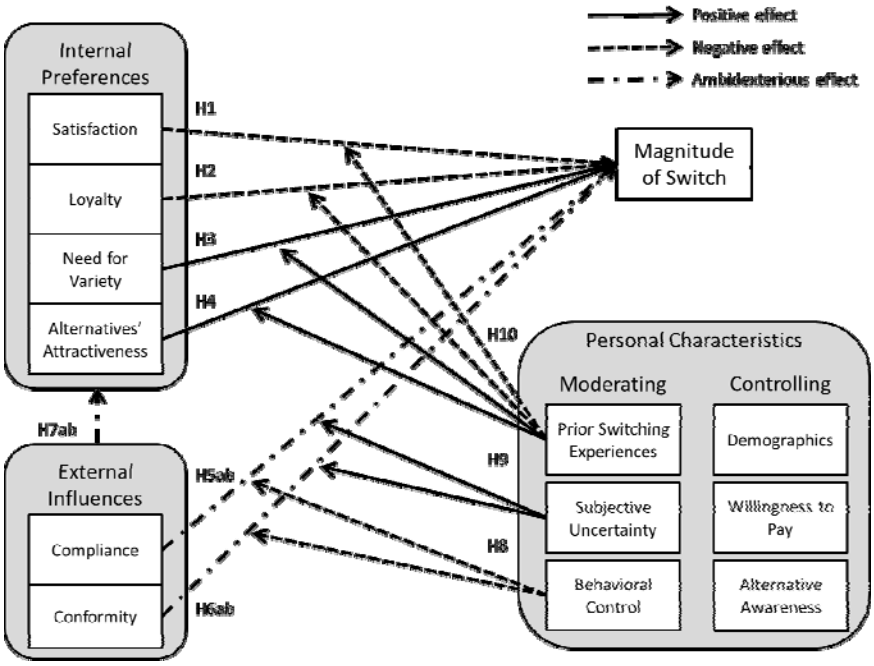


**Fig. 3.** Research model

## 4 Proposed Theoretical and Practical Implications

We expect our study with empirical data to contribute in following manner. First, this paper continues to promote examination of actual behavior rather than intentions in IT switching setting. Second, our dependent variable provides a new multidimensional perspective to examine switching behavior. Third, we provide an elaborated examination of social influences such has not been seen in consumer switching setting before. Fourth, we will make an inference about the role of social influences in a market setting that is rapidly becoming convoluted. Fifth, we attempt to comparatively assess the relative strength of both internal preferences and external influences in terms of multi-dimensional switching behavior.

For practice this study will offer new insights into consumer switching decision-making in rapidly changing technology market. These insights could be useful in customer acquisition and lock-in strategy revision for smartphone markets but also other ecosystems with similar technological characteristics as well as possibly also from market segmentation perspective.

## References


1. International Telecommunication Union (ITU), http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf
2. Gartner, http://www.gartner.com/it-glossary/smartphone
3. Meptec.org, http://meptec.org/Resources/Oct%209%20MEPTEC%20luncheon%20slides.pdf
4. Standard Chartered, https://research.standardchartered.com/configuration/ROW%20Documents/Korea_technology__Smartphones_to_reboot_growth_in_2014_13_11_13_16_49.pdf
5. BBC, http://www.bbc.com/news/business-29339251
6. Ondeviceresearch.com, https://ondeviceresearch.com/blog/global-smartphone-penetration-2014
7. Nielsen, http://www.nielsen.com/us/en/insights/news/2014/mobile-millennials-over-85-percent-of-generation-y-owns-smartphones.html
8. Npd.com, https://www.npd.com/lps/SmartphoneTrackPR/
9. Cellular-news.com, http://www.cellular-news.com/tags/life/smartphone/
10. Jung, Y.: What a Smartphone Is to Me: Understanding User Values in Using Smartphones. Information Systems Journal 24(4), 299-321 (2014)
11. Xu, X., Venkatesh, V., Tam, K.Y., Hong, S.J.: Model of Migration and Use of Platforms: Role of Hierarchy, Current Generation, and Complementarities in Consumer Settings. Management Science 56(8), 1304-1323 (2010)
12. Yoo, Y., Henfridsson, O., Lyytinen, K.: Research Commentary – The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research. Information Systems Research 21(4), 724-735 (2010)
13. Abiresearch.com, https://www.abiresearch.com/press/smartphone-accessory-revenues-valued-at-20-billion/
14. Polites, G.L., Karahanna, E.: Shackled to the status quo: the inhibiting effects of incumbent system habit, switching costs, and inertia on new system acceptance. MIS Quarterly 36(1), 21-42. (2012)
15. Samuelson, W., Zeckhauser, R.: Status Quo Bias in Decision Making. Journal of Risk and Uncertainty 1, 7-59. (1988)
16. Sheth, J.N., Parvatiyar., A.: Relationship Marketing in Consumer Markets: Antecedents and Consequences. Journal of the Academy of Marketing Science 23, 255-272 (1995)
17. Walther, E., Bless, H., Strack, F., Rackstraw, P., Wagner, D., Werth., L.: Conformity effects in memory as a function of group size, dissenters and uncertainty. Applied Cognitive Psychology 16(7), 793-810 (2002)
18. Cialdini, R.B., Goldstein, N.J.: Social influence: Compliance and conformity. Annual Review of Psychology 55, 591-621 (2004)
19. Givon, M.: Variety seeking through brand switching. Marketing Science 3(1), 1-22 (1984)
20. Klemperer, P.: Markets with consumer switching costs. The quarterly journal of economics 102(2), 375-394 (1987)
21. Bansal, H.S., Taylor, S.F., St. James, Y.: “Migrating” to new service providers: Toward a unifying framework of consumers’ switching behaviors. Journal of the Academy of Marketing Science 33(1), 96-115 (2005)
22. Bhattacherjee, A.: Understanding information systems continuance: an expectation-confirmation model. MIS quarterly 25(3), 351-370 (2001)
23. Fan, L., Suh, Y.-H.: Why do users switch to a disruptive technology? An empirical study based on expectation-disconfirmation theory. Information & Management 51(2), 240-248 (2014)
24. Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F.D.: User Acceptance of Information Technology: Toward a Unified View. MIS Quarterly 27(3), 425-478 (2003)

25. Venkatesh, V., Thong, J.Y.L., Xu, X.: Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. MIS quarterly 36(1), 157-178. (2012)
26. Rogers, E.M.: Diffusion of innovations, 5th edition. Free Press, New York (2003)
27. Chun, H., Lee, H., Kim, D.: The integrated model of smartphone adoption: Hedonic and utilitarian value perceptions of smartphones among Korean college students. Cyberpsychology, Behavior, and Social Networking 15(9), 473-479 (2012)
28. Kim, S.H.: Moderating effects of job relevance and experience on mobile wireless technology acceptance: Adoption of a smartphone by individuals. Information & Management 45(6), 387-393 (2008)
29. Wu, J.H., Wang, S.C.: What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. Information & management 42(5), 719-729 (2005)
30. Yu, C.S.: Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. Journal of Electronic Commerce Research 13(2), 104-121. (2012)
31. Bhattacherjee, A., Park, S.C.: Why end-users move to the cloud: a migration-theoretic analysis. European Journal of Information Systems 23(3), 357-372 (2014)
32. Bhattacherjee, A., Limayem, M., Cheung, C.M.: User switching of information technology: A theoretical synthesis and empirical test. Information & Management 49(7), 327-333 (2012)
33. Chang, I., Liu, C.C., Chen, K.: The push, pull and mooring effects in virtual migration for social networking sites. Information Systems Journal 24(4), 323-346 (2014)
34. Chiu, H.C., Hsieh, Y.C., Roan, J., Tseng, K.J., Hsieh, J.K.: The challenge for multichannel services: Cross-channel free-riding behavior. Electronic Commerce Research and Applications 10(2), 268-277 (2011)
35. Hou, A.C., Chern, C.C., Chen, H.G., Chen, Y.C.: 'Migrating to a new virtual world': Exploring MMORPG switching through human migration theory. Computers in Human Behavior 27(5), 1892-1903 (2011)
36. Hsieh, J.K., Hsieh, Y.C., Chiu, H.C., Feng, Y.C.: Post-adoption switching behavior for online service substitutes: A perspective of the push–pull–mooring framework. Computers in Human Behavior 28(5), 1912-1920 (2012)
37. Zhang, K.Z., Lee, M.K., Cheung, C.M., Chen, H.: Understanding the role of gender in bloggers' switching behavior. Decision Support Systems 47(4), 540-546 (2009)
38. Nykänen, J.I.: Synthesis of Consumer Switching Research: A Proposal for Comprehensive Framework. IRIS: Selected papers of the Information Systems Research Seminar in Scandinavia 5 (2014)
39. Burnham, T.A., Frels, J.K., Mahajan, V.: Consumer switching costs: a typology, antecedents, and consequences. Journal of the Academy of Marketing Science 31(2), 109-126 (2003)
40. Holak, S.L., Lehmann, D.R.: Purchase Intentions and the Dimensions of Innovation: An Exploratory Model. Journal of Product Innovation Management 7, 59-73 (1990)
41. Kim, S.S., Son, J.Y. Out of dedication or constraint? A dual model of post-adoption phenomena and its empirical test in the context of online services. MIS quarterly 33(1), 49-70 (2009)
42. Seddon, P.B.: A Respecification and Extension of the DeLone and McLean Model of IS Success. Information Systems Research 8(3), 240-253 (1997)
43. Beatty, S.E., Kahle, L.R.: Alternative Hierarchies of the Attitude-Behavior Relationship: The Impact of Brand Commitment and Habit. Journal of the Academy of Marketing Science 16(2), 1-10 (1988)
44. Oliver, R.L.: Whence Consumer Loyalty? Journal of Marketing 63, 33-44 (1999)
45. Lattin, J.M., McAlister, L.: Using a Variety-Seeking Model to Identify Substitute and Complementary Relationships among Competing Models? Journal of Marketing Research 22, 330-339 (1985)

46. Jones, M.A., Mothersbaugh, D.L., Beatty, S.E.: Switching barriers and repurchase intentions in services. Journal of retailing 76(2), 259-274 (2000)
47. Moore, G.C., Benbasat, I.: Integrating Diffusion of Innovations and Theory of Reasoned Action Models to Predict Utilization of Information Technology by End-Users. Diffusion and Adoption of Information Technology. Chapman and Hall, London (1996)
48. Ajzen, I.: The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes 50(2), 179-211 (1991)
49. Thompson, R.L., Higgins, C.A., Howell, J.M.: Personal Computing: Toward a Conceptual Model of Utilization, MIS quarterly 15(1), 124-143 (1991)
50. Bartlett, C.A., Ghoshal, S.: Managing across borders: The transnational solution. Harvard Business School Press, Boston (1989)
51. Agarwal, R., Prasad, J., A conceptual and operational definition of personal innovativeness in the domain of information technology. Information Systems Research 9(2), 204–215 (1998)
52. Lu, J., Yao, J.E., Yu, C.S.: Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. The Journal of Strategic Information Systems 14(3), 245-268 (2005)
53. Ganesh, J., Arnold, M.J., Reynolds, K.E.: Understanding the Customer Base of Service-Providers: An Examination of the Differences between Switchers and Stayers. Journal of Marketing 64, 65-87 (2000)
54. Heide, J.B., Weiss, A.M.: Vendor Consideration and Switching Behavior for Buyers in High-Technology Markets. Journal of Marketing 59(3), 30-43 (1995)
55. Steffek, L.M.: Relationship Initiation and Progression in the Online Matchmaking Environment: Phenomenology, Idealistic Distortion, and Alternative Dating Partners. Doctoral dissertation, University of Texas at Austin (2010)
56. Weiss, A.M., Heide, J.B.: The Nature of Organizational Search in High Technology Markets. Journal of Marketing Research 30(2), 220-233 (1993)
57. Zauberman, G.: The Intertemporal Dynamics of Consumer Lock-In. Journal of Consumer Research 30(3), 405-419 (2003)
58. Hofstede, G., Hofstede, G.J., Minkov, M.: Cultures and Organizations: Software of the Mind, 3rd ed. McGraw-Hill, New York (2010)
59. Karahanna E., Evaristo, J.R., Srite, M.: Levels of culture and individual behavior: an integrative perspective. Journal of Global Information Management 13(2), 1-20 (2005)
60. Rokeach, M.: The Nature of Human Values. Free Press, New York (1973)
61. Tuunanen, T., Kuo, I.T.: The effect of culture on requirements: a value-based view of prioritization. European Journal of Information Systems, 1-19 (2014).