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DO CONSUMERS CARE ABOUT MOBILE SERVICE PLATFORMS? A CONJOINT ANALYSIS ON CONSUMER PREFERENCE FOR MOBILE PLATFORMS

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A CONJOINT ANALYSIS ON CONSUMER PREFERENCE FOR MOBILE PLATFORMS

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Abstract

Literature on Mobile Platforms focuses predominantly on strategic issues in managing multi-sided platforms as well as economic issues of two-sided markets. Most of this literature is highly conceptual and empirical research on the perceptions, preferences and behaviour of consumers is lacking. Moreover, scholars typically focus on device-related platforms like operating systems and app stores, while platforms developed by mobile operators are seldom discussed explicitly. In this paper, we therefore aim to understand the criteria and expectations of consumers to opt for a specific platform from a device manufacturer or operator. To do so, we developed and executed a questionnaire for conjoint analysis. The data for the conjoint analysis was collected from 88 Chinese researchers and students. The conjoint results show that most respondents strongly prefer mobile operating systems provided by Apple (iOS) and Google (Android) over Nokia (Symbian) and BlackBerry OS. Moreover, application cost is considered to play an important role in the decision making of consumers to opt a platform. The findings of the study indicate that respondents hardly find the provider of the platform important, i.e. they prefer service provider and device provider platforms over operator platforms.

Keywords: Mobile Service Platforms, Mobile OS, Conjoint Analysis, Android, Apple iOS, BlackBerry

1 Introduction

As web companies are entering the mobile communications service market, the easy years for mobile network operators are most definitely in the past. Mobile network operators are on the verge of losing their strategic position in the mobile telecommunications market as well as their revenues from voice and SMS services (Ray, 2011). While some operators have already settled for a bit-pipe model with operational excellence, others are trying to bring new, converged services to the market that can compete with web companies like Google, Facebook, Skype and WhatsApp (Nikou, Bouwman, and De Reuver, 2012). In doing so, operators may leverage their trusted image as well as superior privacy and security arrangements to retain customers (Ala-Laurila, Mikkonen, and Rinnemaa, 2001).

From a user perspective, the accessibility, security and reliability of communication services largely depends on the platforms over which they are offered. While traditional voice and SMS services are offered over fully operator-controlled platforms, web companies typically rely on alternative platforms. Especially the larger service providers like Google and Facebook use their own platforms to provide communication services to end-users. Device and operating system manufacturers like Nokia, and Apple are offering platforms in the shape of app stores as well as software development kits that enable web companies to easily develop and implement advanced communication services (Holzer and Ondrus, 2009). As such, we observe that operators, service providers and device manufacturers are competing to deliver the dominant platform for communication services. Such competition may lead to dramatic declines in prices, but also lead to unclear offers, differences in quality, and too many alternative service offerings to select from.

Academics have jumped on the issue of mobile platforms in the past few years (De Reuver, 2009; Gonçalves and Ballon, 2009, 2011; Gueguen and Isckia, 2009). However, most studies on mobile platforms are highly conceptual in nature, and tend to focus on strategic issues in governing multi-sided platforms or economic analysis of multi-sided markets. How consumers make decisions on adopting mobile platforms has not been researched empirically, as far as we are aware. Empirically studying the consumer perspective is essential in order to understand who will win the battle in the mobile communication services market.

The objective of this study is bringing insight to the criteria consumers apply in choosing a specific platform from a device manufacturer or operator. In order to do so, we execute a conjoint analysis. Conjoint analysis is an appropriate method to assess how end-users value different features that make up an individual product or service while conducting a research, especially in mobile communication ecosystem and marketing (Shin, Kim, and Lee, 2011).

The reminder of this paper is organized as follows. Section 2 discusses different mobile service platforms followed by introduction of the dependent variables. Section 3 provides the methodology and section 4 introduces the results. Finally, section 5 concludes the paper with discussions, conclusion, limitations and directions for further research.

2 Mobile service platforms

Mobile services can be offered through operators' platforms but can also be offered by device manufacturers embedded in the mobile phone or at the systems of service provider.

2.1 Operator-centric platforms

For long, Mobile Network Operators (MNOs) have locked down and controlled the mobile service market (i.e., walled garden strategy) as being the sole platform provider. Service platform offered by MNOs known as operator-centric platform used to be the dominant platform in the mobile communication industry with their 'walled garden strategy' where the data has strictly been available

only for their own purposes. Operators followed a firm policy in controlling the network, service delivery and customer interaction. As a business strategy, MNOs used to take commission fees from mobile application developers and use their own portal as a channel for service distribution and service delivery channel. However, the MNOs' empire in mobile communication market has come to an end recently due to arrival of newcomers in the shape of platform providers such as, Nokia with Ovi, Apple with App store, and proprietary platform –like Google and Skype into the mobile service market. Having lost control over the mobile Internet value networks recently (De Reuver, 2009), operators may also lose their essential role in mobile communication domain as service providers. Consequently, they have been heavily investing to build a reliable mobile network infrastructure and providing a unique end-users relationship.

MNOs have also started to find other business opportunities in their industry –like to become a service integrator (Holzer and Ondrus, 2011). Nevertheless, in recent years, due to decentralized service provision strategy and technological advancement, providing advanced mobile services often requires the collective action of market players –like mobile network operators, content providers, application developers, platform providers and device manufacturers. The organizations involved in developing and offering mobile services can be considered as a value network, where goods, services, revenues, knowledge and intangible benefits are exchanged between organizations (Allee, 2000). Designing and developing advanced mobile Internet services depend on several generic service elements –like secure authentication, convenient billing methods, customer data platforms and localization systems (De Reuver, 2011). In traditional mobile communication systems like GSM, such functionality was integrated into the core of operator network. Today, such generic service elements are embedded into service platforms that need not to be part of the infrastructure. We can assume that the contradiction emerged between competition and collaboration among actors in mobile service ecosystem is mainly due to the strategic choices that the players have to make. They, while on the one hand, have to compete for their dominance toward gaining competitive advantage in the market; on the other hand, have to collaborate in order to sustain their position and presence in the mobile communication ecosystem.

MNOs usually have limited advanced mobile services/applications that can be attractive to the end-users. However, the situation has now been changed, as the operators and external observers have commented that operators should open their assets for the developers (Raivio, Luukkainen, and Juntunen, 2009; Yoon, 2007). Consequently, mobile operators are developing various IMS-based technologies to enable richer communication services and to improve their stronghold. IP Multimedia Subsystem (IMS) is a technology which enables network operators to manage QoS (Quality of Service) and provide communication and multimedia services which are more secure, reliable services in their nature. Vodafone Live is an example of operator-centric platform. In short, operator-centric platforms can be characterized by their guaranteed privacy and security arrangement, their limited number of applications, the closed type of platform and the applications can be obtained either for free or with payment.

2.2 Service provider-centric platform

Software providers such as Google, Facebook and Skype in the form of service provider-centric platform have started to disrupt mobile eco-system environment by offering several mobile communication services. Although Google can also be considered as a device manufacturer e.g., with their Nexus One smart-phone; nevertheless, in the current study, Google is considered as a service provider centric platform only. Often, Internet companies and proprietary platform use their own platform to provide services to the end-users. In this model, the communication client runs on the handset and access to the network and service provisioning are separated. Examples of this model are already on the market from players like Truphone and WhatsApp or Skype. As the communication services are IP-based and independent of the mobile operator, they can be used over cellular and WiFi networks. Depending on the access network, subscribers may need multiple financial relationships

with operators and WiFi providers. The application from the service provider may serve as a basis for the communication services such as voice, instant messaging or video conferencing. Advertisement could be embedded in the application to provide additional revenues. All users have a specific user-id that enables the service provider to collect data about service usage and charge users. Service provider-centric platforms offer 'Best Effort' quality of service, privacy and security, as well as unlimited number of applications. Applications are often offered free, but some of the advanced features of the applications have to be purchased and type of the platform is open.

2.3 Device-centric platforms

At the same pace, device manufacturers –like Nokia, Apple (iPhone), HTC, and Research In Motion (RIM) with BlackBerry are offering high-end application on the user handset, including advanced communication platforms. In device-centric platform, smartphones provide mobile software platforms in the form of mobile operating systems that function as middleware between the hardware of the handset and the applications. There exists multiple major mobile OSs (Operating Systems) on the market. According to (Gartner, 2011), "the worldwide mobile OS market currently is dominated by four major players: Symbian, Android, Research In Motion and iOS". At the end of 2010, major OS market shares were: Symbian OS (40.1%), Android OS (17.7%), iPhone OS (15.4%), Blackberry OS (17.5%) and others (9.4%).

In this scenario these actors also define what specific platform is used to provide services to the users and they may also provide tools and resources in the forms of a Service Development Kit (SDK) to application developers for the development of new services (De Reuver, 2011). While some operating systems are tied to a specific device type, others are not (De Reuver, Bouwman, Prieto, and Visser, 2011). Symbian, Windows Mobile and Android are examples of OS which run in different mobile phones. The three of them subsidize application developers providing free SDK, program languages and other development tools and documentation. They do all this to attract customers to their services and encourage manufacturers to use their OSs in their phones, paying the corresponding fees. BlackBerry OS and Apple iOS are examples of OSs that only run in particular devices (BlackBerries and iPhones). Again the subsidized group is the application developers, receiving SDKs and all the documentation necessary for free or with low charges. The subsidizing group in this case, is the customers that pay for the applications. It is worthwhile mentioning that Blackberry and iPhone need a strong variety of services for their phones in order to become attractive to customers and to be bought. According to (Eisenmann, 2008), in a research about platform openness, a platform is open when no restrictions are placed on participation of its development (e.g., Android), commercialisation or use. Open platforms resemble a situation in which application providers have control over the applications and content but do not have control over the network. Closed platforms resemble a situation that application developers must follow very restricted rules which are defined by the platform's provider – like iOS from Apple. In addition, as Apple follows a 'walled garden' approach does not allow end-users to install applications that are not in their application store.

Applications for smart phones can typically be obtained in app-stores which in a sense contain unlimited amount of advanced application compared to MNOs' application (Ballon, Walravens, Spedalieri and Venezia, 2008). Application stores offer downloadable applications to the users via a storefront that is either embedded in the device or can be found on the Web. These App store are typically provided by device manufacturers like Nokia with Ovi, HTC with Android Market, Windows with Marketplace and Apple with App Store, which are acting as a portal providers, choosing and controlling which services are made available to consumers. Application categories in public application stores include games, travel, productivity, entertainment, books, utilities, education, travel and search. Mobile applications and advanced services available in Apps stores can be obtained free or for a price. Moreover, number of available applications in different App stores is varying in number, while some platforms offer unlimited applications; others may have only limited number of available applications. An application store like Apple is relatively strictly governed (De Reuver, et al., 2010).

In addition, Apple, following a 'walled garden' approach, does not allow users to install applications that are not in their application store. Platforms like Android from Google and Windows Mobile are supposed to be more open, especially as users have freedom to install applications both from the official Windows Marketplace and unofficial online stores.

However, it is necessary to mention here, unlike, in mobile operator-centric model which advanced mobile applications and services are limited in quantity and price variation, device and service provider-centric platform have usually vast majority of price variation and unlimited number of services and application to choose. Therefore, end-users have more flexibility and freedom to select from accordingly.

Security and privacy arrangements of the platforms are considered to be important relevant criterion in the decision making of consumers to opt for a specific OS or platform when subscribing to a Telecom. Platforms provided by operators are considered as capable of guarantee end-users' privacy and security related issues. Having robust core network infrastructures and telecommunication equipments enable operators to exert more control on the security and privacy of service of communication sessions, which is generally still an issue with device manufacturers and service providers. Platform providers such as device manufacturers and service providers are only capable of ensuring the end-users' security and privacy related issues to their best effort delivery.

In addition to the core characteristics of different platforms discussed above, platforms basically differ regarding the operating system, but that may have implications on security and privacy arrangements. Moreover, platforms may also have implications on the type of platform (i.e., open or closed), number of application available (i.e., limited vs. unlimited) within each platform, and application cost, whether it is free or need to be purchased. Therefore, it is necessary to differentiate the main characteristics of each platforms discussed earlier (see table 1). These differences will be used to formulate the conjoint questionnaire to be conducted in this study.

Table 1. Mobile service platforms' characteristics.

Characters	Operator-Centric Platform	Device-Centric Platform	Service Provider-Centric Platform
Operating Systems	NA	Apple (iOS), Nokia (Symbian), BlackBerry OS	Google (Android)
Privacy Arrangement	Guaranteed	Best Effort	Best Effort
Security Arrangement	Guaranteed	Best Effort	Best Effort
Number of Application	Limited	Unlimited	Unlimited
Application Cost	Payable/Free	Payable/Free	Payable/Free
Type of Platform	Closed	Closed/Open	Open

Based on the platform characteristics, we consider various decision making processes at different stages of the customer life cycle, i.e. adopting, switching, using and experiencing a platform (see appendix 2 for more details).

Intention to choose a platform: indicates the extent to which different features in mobile service platforms influence users' intention to choose from different types of mobile platforms (Hammershøj, Sapuppo and Tadayoni, 2009).

Intention to switch to a new platform: by defining this variable, we seek to anticipate what the end-users' intentions toward the substitution to a new platform are. End-users' willingness to change can provide us with insights whether they want to replace their current handsets to a different service platform or not.

Intention (likelihood) to use more applications: advanced mobile services and applications are changing the way we work, live and interact with people. Mobile applications need to offer a new value to its users that the user does not already have. The effect of a platform can be evaluated from different perspectives e.g., number of available applications or popularity. Therefore, we also study the effect of adopting the platform on the intention to use applications supported by the platform (Ballon, 2009).

Willingness to pay more for applications: indicates how much the users are willing to pay for using new mobile applications (Bauer, Reichardt, Barnes, and Neumann, 2005). Willingness to pay has been identified as one of the main variables in many adoption studies (Berman, Battino, and Feldman, 2011).

Intention to download more applications: it is an indication of the platform's attractiveness and the availability of various mobile apps supported by that platform**.** Users tend to have different demands with regard to usage and downloading intention, while some download entertaining applications, other might be interested in downloading communication applications.

Performance enhancement: indicates how adopting a particular platform enhances users' task performance in daily routines. If a platform fit in the users' day-to-day routine, then they might be able to organize their daily tasks much easier, and in more efficient and effective way.

Willingness to pay more for monthly subscription: it is argued that the willingness to pay increases as more and more applications is available on the mobile platform (Urban, 2007).

3 Methodology

Conjoint analysis is a method used to evaluate the different weights consumers place on the variables offered to them in a specific condition. In a conjoint approach a product or service can be modelled as an entity with a set of attributes and level of attributes. Conjoint analysis is supported by the theory of utility (Lancaster, 1966). In conjoint analysis, a product or service can be defined as a combination of a set of attribute levels. Then, the utility value for each attribute level will be estimated that quantifies the value a consumer places on each attribute level. The utility values, contributed by each attribute level, then determine respondents' total utility or overall judgment of a product or service (Green and Srinivasan, 1978). In a conjoint study, respondents are asked to indicate how much they like or prefer alternative product profiles by showing them the product profiles. Conjoint analysis has extensively been used in research to assess the impact of selected product/service characteristics on customer preferences for products/services (Akin, 2011; Green and Srinivasan, 1978; Jeon, Kim, and Sohn, 2010), and in other fields such as, marketing (Min, Kim, Kwon, and Sohn, 2011), health (Bryan and Parry, 2002), and the impact of the cross-cultural differences (Thyne, Lawson, and Todd, 2006). Therefore, a conjoint analysis approach was selected for this study and it is considered to be an appropriate approach to assess end-users' perceptions and to answer the research question. Mobile service platforms in relation to the end-users' perceptions and preferences can be evaluated or analyzed with different types of methods such as, conventional survey and Analytic Hierarchy Process (AHP) which is a decision making tool. However, the main advantage conjoint analysis offers over the other methods is to enable us to extract consumer behaviour into a quantitative measurement whereas other traditional/conventional ratings surveys and decision making tools do not provide the importance and the utility of the different attributes a product or service is composed of (Garver et al., 2011). In that sense conjoint analysis provide insights in the role of the functionalities (attributes) of the platform and other criteria under current study.

3.1 Design of the conjoint instrument

There are several important elements in conjoint analysis that must carefully be addressed. The first element is to choose an appropriate conjoint analysis approach. After an extensive review of the previous studies where the conjoint analysis was the research approach (Jeon, et al., 2010; Kohne, Totz, and Wehmeyer, 2005; Orme and King, 1998; Pagani, 2004; Shin, Kim, and Lee, 2011) , full profile conjoint analysis approach was decided to be used in this study. Full profile conjoint analysis approach presents respondents with realistic description of alternative hypothetical concepts (Green and Srinivasan, 1978). Full profile conjoint makes respondents to order, rank or score a set of profiles, scenarios or cards according to their preferences, one at the time. In a full profile conjoint analysis,

each profile describes a complete product or service and consists of a different combination of levels of all attributes of interest. Full profile conjoint approach helps to collect information on what is important to users and it has the ability to show full platform design to respondents participated to mobile platform study. Moreover, full profile conjoint assumes that all of the attributes are independent from each other.

The second issue that should be taken into account is the identification of attributes, where the product or service features under study are identified. Moreover, for each defined attributes two or more levels should be identified, where the level can be defined as any value the attribute can take. In conjoint analysis the levels of attributes describing a service or product are combined together to form description of hypothetical bundles. Then the respondents are asked to state their preferences for hypothetical alternatives presented to them and later their responses are analyzed based on conjoint analysis. Although, according to the literature and studies in mobile service platforms, it was possible to define several attributes; however, we decided to address the following attributes and their levels in our study. The following seven attributes and their levels are consistent with the platform characteristics and classification made in section 2.3 (see table 1).

Table 2. Attributes and the levels of attributes.

Attributes	Levels			
Privacy Arrangement	Guaranteed	Best Effort Delivery		
Security Arrangement	Guaranteed	Best Effort Delivery		
Number of Application	Limited	Unlimited		
Application Cost	Free	Payable		
Type of Platform	Open	Closed		
Operating Systems	Symbian (Nokia)	iOS (Apple)	Android (Google)	(RIM) BlackBerry OS
Service Platform	Operator-Centric Platform	Service-Provider Centric Platform		Device-Centric Platform

3.2 Conjoint profile cards and orthogonal design

In full profile conjoint approach the combination of all the attributes and levels are considered to be included to the study. In the current study the combination of all the attributes and levels creates 384 (2*2*2*2*2*2*4*3) possible service profiles/concepts. It would be a tedious task for respondents to be asked to rank/rate each of the service profiles. Therefore, according to Orme and King (1998) we considered to have 16 profiles presented to the respondents (see appendix 2). To do so, full profile conjoint analysis uses what is termed a fractional factorial design to present a suitable fraction of all possible combinations of levels of attributes. The resulting set is called orthogonal array. Orthogonal array/design considers only the main effect of each attribute level. In the current study, computer software program (SPSS version 18) was used to generate an orthogonal array, resulting 16 unique cases out of the 384 possible profiles which is small enough to include in a survey and large enough to assess the relative importance of each attributes and their levels. The last issue that needs to be addresses is the utility and part-worth in conjoint analysis. Analysis of the data is done with the conjoint procedure (command syntax) and results in a utility score. These utility scores are called a part-worth, for each attribute level.

3.3 Sampling

The data was collected by making use of a paper-and-pencil questionnaire that was distributed in three different Universities in three different provinces in China in November 2011. In order to check for ambiguous expression and verify the accuracy of the questionnaire, the questionnaire was pre-tested by the number of experts who were familiar with both the conjoint analysis as well as mobile service platforms. Out of 102 distributed questionnaires, we obtained 88 completed responses, the rest of 14

were either incomplete or inaccurate. The potential sample age was 19-70 with the average of 26.8 years old. Respondents were (58% male) and (42% female). Table 3 shows background information.

Table 3. Respondents' background information.

Platform	Android 17%	iOS 4.5%	BlackBerry 2%	Mobile Windows 2%	Symbian 23%	Others 51.5%
Occupation	Working at Telecom 2%		Students 75%	Working at another type of firm 6%		Other 17%
Education	Bachelor 22%		Master 56%	PhD 20%		Other 2%
Smart-phone	Yes: 53%			No: 47 %		
Gender	Female 42%			Male 58 %		
Age	Between 19 and 70 years (Average 26.8)					

4 Conjoint analysis results

In a conjoint analysis by far the most important step is the validity of the conjoint model, to do so; we need to assess the model by checking the values of Pearson's r and Kendall's tau (Sorenson and Bogue, 2005). In our conjoint model all of the obtained values are high enough (above the accepted recommendation value of Pearson's $r \geq 0.80$ and Kendall's tau ≥ 0.70). This indicates that there are strong relationships between the rankings and the utilities. We had seven attributes in our conjoint model and we used simple dummy variable regression analysis to perform the assessment of the attributes. To assess the intention to switch from current platform to a new one, strikingly most of the respondents indicate that they would switch to a new platform. The results reveal that application cost with importance value (37%) and types of operating systems with importance value (23%) by far are the most relevant criteria for the respondents. Our findings also indicate that the utility value for free application is relatively high (0.59), indicating the respondents are strictly concerned about the application cost. Moreover, the utility value for operating systems Apple iOS is (0.35), and for Andriod is (0.22). The analysis suggests that the respondents are willing to switch from their current platforms to another one if the application costs are free and the operating systems are either Apple iOS or Android (see appendix 1). The respondents also prefer service platforms which are proposed either through device manufacturer companies –like (Apple) or via service providers –like (Google). Still, platforms which are provided from network operators are hardly valued by the respondents.

Type of mobile operating system is the most relevant criteria to assess the respondents' willingness to pay more for mobile applications as the importance value for this attribute is relatively high (34%). Within this attribute the Apple iOS is strongly preferred over the other operating systems. Conjoint results for dependents variables with regard to willingness to pay more for mobile applications and willingness to pay more for monthly subscription reveal interesting insights. When dependent variable (willingness to pay more for mobile application) is assessed, the majority of the respondents prefer free application as the utility value for this variable is (0.26). The same is true for the dependents variable (willingness to pay more for monthly subscription), where the utility value is (0.25). It seems, although the respondents are willing to switch from their current platform to another one, the willingness to pay for downloading applications or monthly subscription fee are relatively low. The conjoint results indicate that, the majority of the respondents are expecting their privacy and personal profiles to be guaranteed by platform providers. Relative high utility values in all of the dependent variables for the privacy and security arrangements where these features are guaranteed, proves that assumption (for more information please see appendix 1). The research findings indicate that type of platform (Open vs. Closed) is somewhat important for respondents; they slightly prefer open platform over the closed platform. Platforms proposed by BalckBerry (RIM) and Nokia (Symbian) were the least important platforms based on the respondents' opinions.

5 Discussions, conclusion and limitations

The current study aims to understand the dimensions that play a role in the decision making of consumers to opt for a specific OS or platform when subscribing to a Telecom provider, their usage and expected effects or benefits. The most eye catching finding is that respondents are strongly concerned with the costs of applications and to lesser degree to the type of operating system. In other words, applications' cost is the most relevant criterion for the respondents to decide which platform to choose. However, when they were asked about their willingness to pay more for mobile applications and to pay more for monthly subscription, they indicated that operating systems play important role in their decision. Furthermore, they prefer the most mobile operating systems from Apple (iOS) and Google (Andriod). Strikingly, other mobile operating systems such as Blackberry OS and Nokia with (Symbian) are not valued at all. Decisions of consumers hardly find the provider of the platform important; nonetheless, they prefer service provider and device provider platforms over operator platforms. Similarly, consumers hardly find the security and privacy arrangements important in their choice for a specific service platform.

Undoubtedly, the most important findings of the current research is that, application cost and type of mobile operating systems are the most relevant criteria for participants of this study while deciding which mobile service platforms to choose and switch. Other relevant criterion such as Open vs. Closed (type of platform) and Limited vs. Unlimited (number of applications) are to lesser degree important. The study findings indicate that as long as the applications are free, the respondents do not care about the provider of the service platform or the type of platform (Open vs. Closed) in general. The findings of this study have a number of implications to mobile service platforms providers and application developers. Platforms proposed by device manufacturers such as Apple and service operators-centric such as Google are highly appreciated. The respondents do care about the application costs and type of platforms (Open vs. Closed).

Finally, a number of important limitations need to be addressed. A limitation lies in the fact that the sample, like in formal experiments, is not representative for any population. The current study took placed in China (in three different universities), and conducting similar research in other countries may produce different results due to the cultural difference.

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Appendix 1

Conjoint results for the dependent variable questions (Q1-Q4)

Attributes	Levels of Attributes	Q1, I would choose this platform		Q2, I would switch to this platform from my current platform		Q3, I would use more applications		Q4, I would be willing to pay more for mobile applications	
		Utility	Importance	Utility	Importance	Utility	Importance	Utility	Importance
Operating Systems	Symbian (Nokia)	-.167	23%	-.068	25%	-.133	23%	-.148	34%
	iOS (Apple)	.347		.307		.280		.328	
	Android (Google)	.214		.312		.242		.257	
	BlackBerry OS (BlackBerry)	-.394		-.551		-.389		-.437	
Service Platform	Operator Centric Platform	-.073	4%	-.100	6%	-.018	1%	-.088	9%
	Device Centric Platform	.005		.003		.016		-.027	
	Service Provider Centric platform	.068		.097		.002		.116	
Privacy Arrangement	Guaranteed	.124	8%	.203	12%	.075	5%	.147	13%
	Best Effort	-.124		-.203		-.075		-.147	
Security Arrangement	Guaranteed	.173	11%	.266	15%	.126	8%	.154	13%
	Best Effort	-.173		-.266		-.126		-.154	
Number of Application	Limited	-.154	9%	-.097	5%	-.175	12%	-.090	8%
	Unlimited	.154		.097		.175		.090	
Application Cost	Free	.590	37%	.540	31%	.617	42%	.260	23%
	Payable	-.590		-.540		-.617		-.260	
Type of Platform	Open	.123	8%	.104	6%	.139	9%	-.004	.32%
	Closed	-.123		-.104		-.139		.004	
Pearson's r		.987 p<.000		.998 p<.000		.990 p<.000		.985 p<.000	
Kendall's tau		.912 p<.000		.979 p<.000		.912 p<.000		. 929 p<.000	

Conjoint results for the dependent variable questions (Q5-Q7)

Attributes	Levels of Attributes	Q5, I would download more applications		Q6, I would be able to organize my life much easier, efficient and effective		Q7, I would be willing to pay more for my monthly subscription	
		Utility	Importance	Utility	Importance	Utility	Importance
Operating Systems	Symbian (Nokia)	-.236	21 %	-.316	27 %	-.175	32 %
	iOS (Apple)	.322		.319		.255	
	Android (Google)	.200		.156		.225	
	BlackBerry OS (BlackBerry)	-.286		-.159		-.305	
Service Platform	Operator Centric Platform	.024	2 %	.004	2 %	-.031	5 %
	Device Centric Platform	-.032		.015		-.021	
	Service Provider Centric platform	.008		-.019		.052	
Privacy Arrangement	Guaranteed	.075	5 %	-.019	2 %	.085	10 %
	Best Effort	-.075		.019		-.085	
Security Arrangement	Guaranteed	.098	7 %	.102	9 %	.112	13 %
	Best Effort	-.098		-.102		-.112	
Number of	Limited	-.169	12 %	-.159	13 %	-.053	6 %

Application	Unlimited	.169		.159		.053	
Application Cost	Free	.620	43 %	.418	35 %	.254	30 %
	Payable	-.620		-.418		-.254	
Type of Platform	Open	.146	10 %	.159	13 %	.037	4 %
	Closed	-.146		-.159		-.037	
Pearson's r		.995 p <.000		.994 p <.000		.986 p <.000	
Kendall's tau		.946 p <.000		.912 p <.000		.933 p <.000	

Appendix 2

List of profiles (Conjoints)

Card ID	Operating Systems	Service Platform Provider	Privacy Arrangement	Security Arrangement	Number of Application	Application Cost	Type of Platform
1	BlackBerry OS	Operator-Centric Platform	Best Effort Delivery	Best Effort Delivery	Unlimited	Free	Open
2	iOS (Apple)	Device-centric Platform	Best Effort Delivery	Best Effort Delivery	Limited	Free	Open
3	BlackBerry OS	Operator-Centric Platform	Best Effort Delivery	Guaranteed	Limited	Payable	Open
4	Symbian (Nokia)	Device-centric Platform	Best Effort Delivery	Guaranteed	Unlimited	Payable	Closed
5	Android (Google)	Operator-Centric Platform	Best Effort Delivery	Guaranteed	Limited	Payable	Closed
6	BlackBerry OS	Device-centric Platform	Guaranteed	Best Effort Delivery	Limited	Payable	Closed
7	Android (Google)	Service-provider centric platform	Guaranteed	Best Effort Delivery	Limited	Payable	Open
8	BlackBerry OS	Service-provider centric platform	Guaranteed	Guaranteed	Unlimited	Free	Closed
9	iOS (Apple)	Service-provider centric platform	Best Effort Delivery	Guaranteed	Unlimited	Payable	Open
10	Symbian (Nokia)	Operator-Centric Platform	Guaranteed	Guaranteed	Limited	Free	Open
11	Android (Google)	Device-centric Platform	Guaranteed	Guaranteed	Unlimited	Free	Open
12	Android (Google)	Operator-Centric Platform	Best Effort Delivery	Best Effort Delivery	Unlimited	Free	Closed
13	Symbian (Nokia)	Service-provider centric platform	Best Effort Delivery	Best Effort Delivery	Limited	Free	Closed
14	iOS (Apple)	Operator-Centric Platform	Guaranteed	Best Effort Delivery	Unlimited	Payable	Closed
15	Symbian (Nokia)	Operator-Centric Platform	Guaranteed	Best Effort Delivery	Unlimited	Payable	Open
16	iOS (Apple)	Operator-Centric Platform	Guaranteed	Guaranteed	Limited	Free	Closed

List of dependent variable questions:

	Totally disagree (1)						totally agree (7)
1. I would choose this platform.	①	②	③	④	⑤	⑥	⑦
2. I would switch to this platform Instead of my current platform.	①	②	③	④	⑤	⑥	⑦
3. I would use more applications.	①	②	③	④	⑤	⑥	⑦
4. I would be willing to pay more for mobile applications.	①	②	③	④	⑤	⑥	⑦
5. I would download more application.	①	②	③	④	⑤	⑥	⑦
6. I would be able to organize my life much easier, efficient and effective.	①	②	③	④	⑤	⑥	⑦
7. I would be willing to pay more for my monthly subscription.	①	②	③	④	⑤	⑥	⑦