A STEP TOWARDS CRM - ADOPTING CUSTOMER CENTRIC IN DESIGNING MOBILE APPLICATIONS.

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ABSTRACT:

Customer involvement in software development is essential for building successful software products. Incremental improvements and enhancements of software require an in-depth and continuous understanding of customer needs. Also, mechanisms for managing customer feedback data need to be in place. However, previous research shows that the feedback loops from customers are slow and the process for obtaining timely feedback is challenging. In this study, we investigate customer feedback mechanisms and how customer data can be used to inform continuous improvement of software products. The concept of customer centricity and its benefits have been discussed for more than 50 years.

Keywords: Customer centricity, product-centric to customer-centric, market-oriented, customer requirements.

INTRODUCTION:

Escalating advance in information and communication technology has to huge awareness for the mobile phones having extra features, generally known as smartphones (Hassan et.al.2014)[1]. Advance in technology has enabled mobile devices to have advanced computing ability and data connectivity through wireless services, such as Wi-Fi and 4G which has led to smartphones (Middleton, 2010) [2]. The increase in the smartphones consumer has resulted in the growth and rising use of mobile applications (apps) to meet the various needs of the consumer for any plausible purpose. Mobile application (apps) are defined as “small program that runs on a mobile device and performs tasks ranging from banking to gaming and web browsing” (**Taylor et al. 2011**) [3].

The number of smartphone users worldwide has reached 2.5 billion, which is equivalent to 33% of the world population. The annual 10% growth rate of smartphone users since 2014 has triggered the fast growth of mobile applications (apps). Taylor defines mobile apps as "small programs that run on a mobile device and perform tasks ranging from banking to gaming and web browsing". The proliferation of mobile apps has led to a dramatic increase in app use by global smart phone consumers. By their ease of use, mobile apps have become popular everywhere in the world. There were almost 200 billion mobile apps downloads in 2017, up 32% from a year earlier.

Traditionally, R&D assumptions about desired product functionality are based on the requirements gathered and communicated through PM functions. However, product decisions and requirement prioritizations are often based more on opinions and intuition than validated customer feedback data. This may lead to a situation where R&D spends time and effort on developing product functionality that does not fulfil customer needs or expectations, and the subsequent corrective actions tend to be expensive. Typically, and as recognized by Olsson et al., in some cases the feedback loop from customers is still a slow and complex process where product management acts as an interface between the customers and R&D, and obtaining timely feedback from customers is challenging. Many companies still lack the mechanisms needed to collect systematically, analyses and incorporate feedback from customers during the product development process, and the verification of product decisions is made after post-deployment.

Recent studies for continuous deployment, innovation experiment systems (IES) and continuous experimentation have emphasized the need for systematic customer involvement and empirical data collection practices intertwined with agile and lean development methods. Continuous deployment and rapid feature validation cycles with customers are seen as a compelling way to improve R&D efficiency and customer satisfaction. However, while these approaches are highly attractive to companies in the software industry, only a small number of organizations have managed to adopt those practices at the company level. Systematic customer involvement, e.g. continuous deployment and innovation experiment systems, still seem to be applied less frequently in the business-to-business (B2B) and embedded systems development domains.

The Internet has changed tremendously the way business operates. Consequently, the approach to marketing has undergone significant transformation, and marketing has taken new forms. Over the last years, new trends and innovations have emerged that have reshaped the traditional concept and perspective of marketing. Therefore, many traditional marketing methods have become ineffective and obsolete in a new digital era. Digital marketing is growing in importance, it is developing continuously and becoming more complex, as the technology, new digital channels, tools and platforms evolve, and the competition strengthens. It is estimated that the influence of digital marketing will continue to grow in the coming years **(Bax et al. 2013)** [4].

Hence, digital marketing is nowadays an integral part of marketing efforts for any company and is particularly essential for a modern start-up company. In the following chapters, digital marketing communication and related concepts will be defined and explained, digital marketing communication tools will be presented, studied in depth and categorized, and a digital marketing communication strategy with a customer-centric approach will be elaborated as an outcome of this thesis work.

Customer Involvement in Consumer and Business Markets

Typically, customers are referred to as buyers or clients, which in B2B could be organizations or parts of organizations; therefore, they are often not the end users. In this paper, customers refer to both users and acquirers1 of the product; they are often considered to be the most important external stakeholders for product development. The distinction between business and consumer markets is relevant for our study since these two types of markets tends to involve customers in different ways. Because the companies that are involved in the case study are operating mainly in business markets, we focus almost solely on customer involvement within the business markets context.

The concept of customer-centricity and customer involvement is not new in software engineering literature. The importance of involving customers in product development is acknowledged, and many studies on customer or user involvement have been conducted. Customer involvement is referred to as direct interaction with customers, using techniques based on active customer involvement.

User participation and user involvement are also considered to have a positive effect on a system's success. Through the years, a long list of practices and methods has been introduced for enabling user participation and involvement.

Although user participation seems to be a beneficial and well-understood approach to product development, direct user involvement may not always be feasible. The situation is especially difficult in business markets when a wide physical or cultural gap exists between suppliers and customers, and there can be multiple organizations and management layers between developers and users. To identify customer needs for product development purposes, the literature presents a variety of methods, such as interviews, surveys, lead customer method, observation and taking the user's role. In most companies, PM is the interface that acts as a data intermediate between R&D and the customer. Therefore, the PM role is crucial for ensuring that customer needs are sufficiently taken into account in the supplier's R&D.

LITERATURE REVIEW:

According to the International Telecommunications Union (2011) [6], mobile-cellular subscriptions are approaching 6 billion, with global penetration reaching 87% in the developed world, and 79% in the developing world. Gartner (2012) [7], the information technology research and advisory company, reports the worldwide sales of mobile phones to end users reached 419 million units in the second quarter of 2012, 36.7% of which are smart phones. In addition to the mobile phone, mobile tablet computers, such as Apple's iPad, are also pushing the frontier of mobile marketing for consumers and marketers alike. Apple sold three million iPad minis and fourth-generation iPads in the three days following their launch in November 2012 (Apple, 2012)[8].

The Mobile Medium as a Unique Marketing Channel

Organizations and companies of all types and sizes are using the mobile channel for marketing communication purposes. From the French cosmetics company L'Oreal to Unicef, from The Home Depot to the Florida Department of Health, companies and organizations of all types have successfully used the mobile channel to educate, increase brand awareness, drive sales or provide better customer service (Mobile Marketing Association, 2012) [19].

Additional objectives associated with mobile marketing include the acquisition of new customers, marketing new products or offering new services, cross-marketing and up-selling, strengthening customer loyalty, market research, address generation, increasing customer satisfaction and improving customer service (e.g., Pousttchi and Wiedemann, 2010, Moth, 2012) [15].

Mobile Customer Relationship Management (CRM)

CRM (2011) defined mobile CRM as "customer relationship management of any kind including interactive communication between an organization and a customer using a mobile device". A broader definition of mCRM is offered by Inside CRM (2011): "Mobile CRM (mCRM) is a business strategy used for integrated management of the relationship with customers through mobile marketing, mobile sales force automation and mobile customer service." In addition to describing mCRM as a strategic choice, the latter definition also addresses the two principal perceptions of customer relationship management described by Houy, Fettke and Loos (2010).

The first perception refers to the communication or dialogue with the consumer using SMS messages, mobile-optimized websites or mobile applications. The second refers to the mobile sales force and mobile field force automation in which the mobile medium plays a supporting role in direct contact with clients. In this latter case, mobile technologies are used to retrieve or take orders, to provide cost efficiencies through the optimization of processes as well as to realize positive image effects apparent to the clients.

A relationship of any kind, whether between two individuals or a company and its customers, starts with acquiring a deep understanding of the other party. Likewise, the prerequisite for any CRM activity is information (Verhoef et al., 2010) [34]. Whereas a retailer might collect customer information through the introduction of loyalty cards, physicians collect the most relevant information about their clients at the beginning of the relationship and update it with every visit. If the depth of communication between physicians and patients was to increase with the inclusion of feedback or information channels, such as that feasible through mobile systems, the quality of this information is bound to increase. Again, the potential value of the mobile medium as an additional channel begins to emerge.

The notion that contextual marketing via mobile phone may allow the marketer to develop intimate relationships with the customer. They observe that "contextual perceived value" (CPV) is a key driver of customer satisfaction and suggest marketers can increase CPV by offering personalized messages that are contextually relevant to customers at the point of need. According to a study conducted by Khurana and Chaudhary (2010), respondents found that mobile messaging technology enhances customer experience, helps brand promotion, attracts new customers, promotes customer satisfaction as well as customer loyalty and provides for an enhanced relationship between firm and customer.

Analyzing mCRM from a technological viewpoint, Silberer and Schulz(2010) [37] find that local area technologies such as Bluetooth or local wireless networks (WLAN), while being limited in terms of data transmission range, have the advantage of being able to supply location-based, and thus contextual, mCRM services and information. This aspect is interesting for retailers as well as physicians in private practice. Where the context of the former might be the physical store, for the latter it could be the waiting room.

Offering personalized service personally is better rather than ensuring the customer to end up with the automated machine. Also, all the customers are not familiarized with the product and the services. Therefore, providing product training and customer service is important. Helping the customers to understand the working efficiency of the product will help to gain the trust of the organization. When people spend money on purchasing the product, it is sure that expectation doubles to understand how the product works.

Meeting the expectations of the customer accurately helps to build a responsible image of the company (Tweak Your Biz 2017.) Sometimes adding offers of service such as a discount, surprise gift can attract more attention to customers and unexpectedly can go a long way in building a relationship. Considering these little things can build a positive image of the service which helps in increasing customer satisfaction extremely (**Client Heartbeat 2015**).

Customer feedback and information are the important steps of developing an organization. Customer feedback is an important tool for a business organization to improve their business and product services. Feedback is the best way of measuring customer satisfaction. The process of winning new business and retaining an existing customer is only possible with the feedback and complaints from the consumers.

Customer feedback provides the tangible data which can be used a better business decision. Customer feedback provides valuable insight into what customers think about product and services which help to build a successful business organization in future. (**Client Heartbeat 2015**).

Adoption and Acceptance in the Mobile Marketing Context:

There has been a considerable amount of academic research on the topic of adoption and acceptance of new technologies in general, or mobile technologies in particular. In the field of information systems (IS), researchers have attempted to determine the factors that enable the adoption of new technologies (**Cenfetelli and Schwarz, 2010**) [36].

The Technology Acceptance Model (TAM) is the most widely applied model for user acceptance and usage (Vantanparast, 2010) [35]. In this model perceived usefulness (the perception that using new technology will increase his or her job performance) and ease of use (the expectation that a new system will be easy to use) form a user's attitude towards technology and lead to the intention to use technology. "People are more likely to use a system that they believe will help them perform better. But, even if a system is believed to be useful by an individual, if the system is too difficult to use, the potential of enhanced performance benefits to be derived from the system are outweighed by the effort required to use it" (Vantanparast, 2010) [35].

Cenfetelli and Schwarz (2010) [36]emphasize the need to understand why users reject technology, pointing out that inhibitors may go beyond mere opposites of enablers: "A focus on only positive antecedents, as is often taken in technology acceptance research, may lead to an incomplete set of factors." The authors refer to the fact that while it may be plausible to see the lack of perceived usefulness, the antipole of perceived usefulness, as an inhibitor, there are likely additional and independent barriers that merit investigation. While academic research might attempt to answer the question of why individuals choose to use a certain technology, they might also ask why they do not.

MATERIALS AND METHODS:

A convenience sample of 126 from the statistical tools. Especially, they were asked "Which applications have you purchased in the last two years" and "Which applications have you used in the last two years". Also, the researchers measured their like hood to use mobile apps for banking, entertainment, information services, marketing, shopping, ticketing and telemetric (remote diagnosis of vehicles, navigation services, vehicle tracking, theft protection, etc.).

This study uses several dependent variables in its analysis. Each dependent variable represents the subject's responses to a yes/no questions about their use of (a) banking/finance, (b) gaming, (c) digital imaging and video (d) travel services, (e) navigation applications. In all cases, results of one indicate the individuals currently users the application while a zero indicates they do not use the application. The independent variable for our first hypothesis is a count-measure of the number of mobile application used by the respondent's most significant advisor.

The dependents variable for our second hypothesis determines whether the most influential contact it a binary variable set to one for friends are zero for the family. The present paper investigates how the notion of customer centricity, i.e. a concept for organizational transformation in marketing research, can be built upon to operationalize consumer centricity in IS research. Regarding Rowe's (2014) [39] typology for literature reviews, we strive to generate a deeper understanding of the concept of customer centricity by deducing its core objectives. This review, therefore, focuses on articles that define customer centricity in marketing research with the goal to understand the "phenomenon as a whole, its meaning and its relationships" (Rowe 2014) [39].

In a systematic process, marketing journals have been searched full text for "customer centricity", "consumer centricity", "customer orientation" and "consumer orientation" which resulted in four relevant articles. Publications which either only enumerate or mention consumer/customer centricity as a term amongst others, often without context or relation to the publication itself, have been excluded from further review.

We also control for some demographic factors for our respondents in addition to age, gender and ethnicity, we additionally control for aspects of the respondent's social background from non-urban settings and those from urban settings. Similarly, we control for whether the respondent's parents were degreed or not to reflect the basic socioeconomic for the respondent's childhood.

DATA ANALYSIS AND INTERPRETATION

TABLE NO: 4.1

TABLE SHOWING GENDER OF RESPONDENTS

Gender

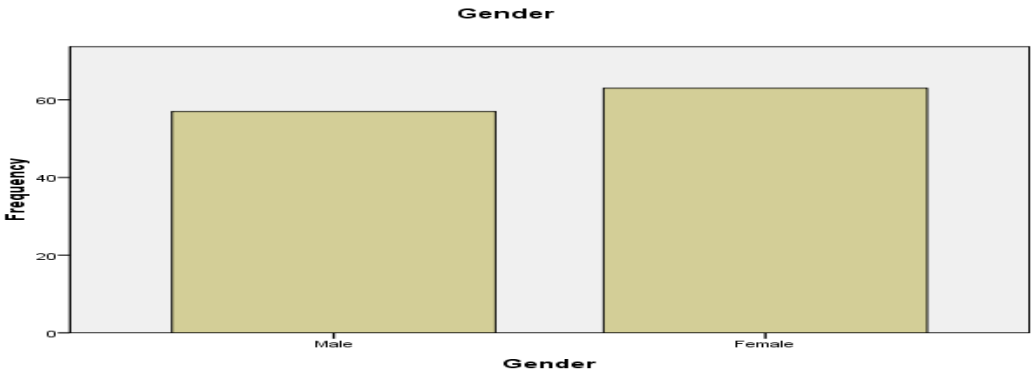
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	57	49.6	47.5	47.5
	Female	63	50.4	52.5	100.0
	Total	120	100.0	100.0	
Total		120	100.0		

INTERPRETATION

It is inferred that 49.6% of the respondents are male and 50.4% of the respondents are female.

FIGURE NO.:4.1

FIGURE SHOWING RESPONDENT OPINION ON GENDER OF THE RESPONDENTS



Gender

TABLE NO: 4.2

TABLE SHOWING AGE OF RESPONDENTS

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-20	21	17.2	17.5	17.5
	21-25	28	23.2	23.3	40.8
	26-30	20	16.4	16.7	57.5
	31-35	19	15.8	15.8	73.3
	36-40	32	27.4	26.7	100.0
	Total	120	100.0	100.0	
Total		120	100.0		

INTERPRETATION

It is inferred that 17.2% of the respondents belong to the age group 15-20 years, 23.2% of the respondents belong to the age group between 21-25years, 16.4% of the respondents are belong to the age group between 26-30 years, 15.8% of the respondents belong to the age group between 31-35years, 27 .4% of the respondents belong to the age group between 36-40 years.

FIGURE NO.: 4.2

FIGURE SHOWING RESPONDENT OPINION ON AGE OF THE RESPONDENTS

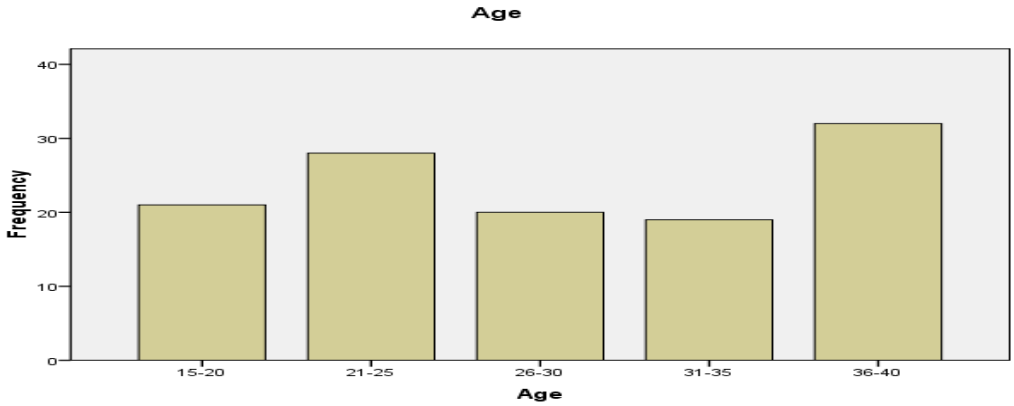


TABLE NO:4.3

TABLE SHOWING RESPONDENT OPINION ON EDUCATION.

Educational qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Higher secondary	25	20.7	21.0	21.0
	under graduate	50	42.2	42.0	63.0
	post graduate	34	28.9	28.6	91.6
	others	10	8.2	8.4	100.0
	Total	120	100.0	100.0	
Total		120	100.0		

INTERPRETATION:

It is inferred that 20.7% of the respondents belong to the education group higher secondary, 42.2% of the respondents belong to the education group between under graduate, 28.9% of the respondents are belong to the education group between post graduate,8.2% of the respondents belong to the education group between others.

FIGURE SHOWING RESPONDENT OPINION ON EDUCATION OF THE RESPONDENTS.

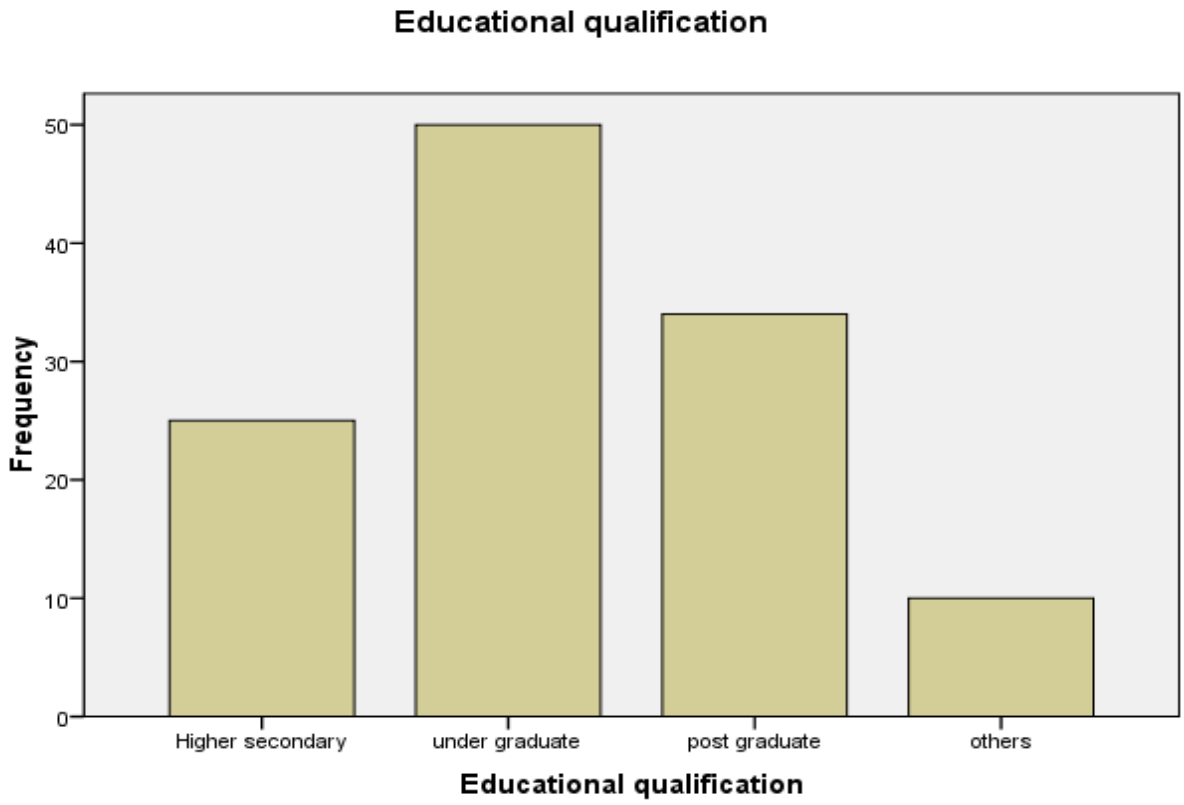


TABLE NO:4.4

TABLE SHOWING RESPONDENT OPINION ON OCCUPATION.

Occupation

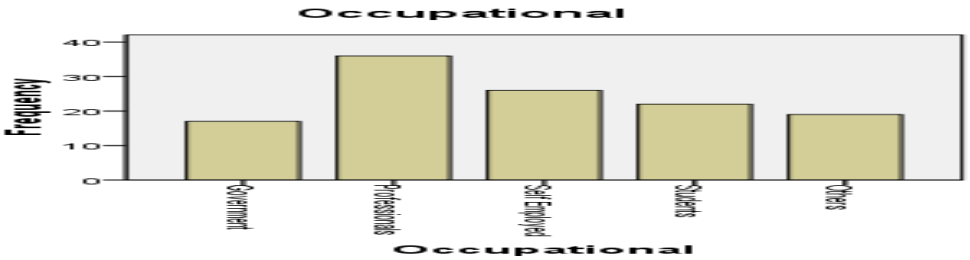
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government	17	13.5	14.2	14.2
	Professionals	36	29.8	30.0	44.2
	Self Employed	26	22.8	21.7	65.8
	Students	22	18.7	18.3	84.2
	Others	19	15.2	15.8	100.0
	Total	120	100.0	100.0	
Total		120	100.0		

INTERPRETATION:

It is inferred that 13.5% of the respondents belong to the occupation group Government, 29.8% of the respondents belong to the occupation group between professionals, 22.8% of the respondents are belong to the occupation group between self-employed 18.7% of the respondents belong to the occupation group student,15.2% of the respondents belong to the occupation group others.

FIGURE NO.:4.4

FIGURE SHOWING RESPONDENT OPINION ON OCCUPATION OF THE RESPONDANT



CORRELATION

Comparison Between Respondents With Familiarity Towards Smartphone, Brand And Service Providers, Preference Of Internet Connection, Preference Of Smartphone Specification And Specific Usage.

NULL HYPOTHESIS HO

There is no significant relationship between the familiarity towards smartphone, brand and service providers, preference of internet connection, preference of smartphone specification and specific usage.

ALTERNATIVE HYPOTHESIS H1

There is significant relationship between the familiarity towards smartphone, brand and service providers, preference of internet connection, preference of smartphone specification and specific usage.

		Familiarity towards smartphones	Brand and service providers	Preference of internet connection	Preference of smartphone specification	Specific usage
Familiarity towards smartphones	Pearson Correlation	1	-.305**	-.236**	.084	-.039
	Sig. (2-tailed)		.001	.009	.360	.670
	N	120	120	120	120	120
Brand and service providers	Pearson Correlation	-.305**	1	.103	-.107	-.045
	Sig. (2-tailed)	.001		.264	.243	.629
	N	120	120	120	120	120
Preference of internet connection	Pearson Correlation	-.236**	.103	1	.098	-.023
	Sig. (2-tailed)	.009	.264		.285	.803
	N	120	120	120	120	120
Preference of smartphone specification	Pearson Correlation	.084	-.107	.098	1	.059
	Sig. (2-tailed)	.360	.243	.285		.521
	N	120	120	120	120	120
Specific usage	Pearson Correlation	-.039	-.045	-.023	.059	1
	Sig. (2-tailed)	.670	.629	.803	.521	
	N	120	120	120	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

INTERPRETATION

From the above table it can be inferred that significant level is 0.000 which is greater than 0.05 so that null hypothesis is rejected and alternative hypothesis is accepted. So that it is concluded there is a significant difference between the respondent the familiarity towards smartphone, brand and service providers, preference of internet connection, preference of smartphone specification and specific usage.

ANOVA (ANALYSIS OF VARIABLE)

Comparison Between Respondents With Gender And Do You Feel Comfortable In Using Mobile Application For Personnel Or Professional Life, For What Purpose Mostly Do You Use You Smart Phone/Application, Number Of New Application Installed In On Smartphone, Approximate Hours Per Day Spending On Using Smartphone And Awareness About Know To Use Own Smartphone And Mobile Application.

NULL HYPOTHESIS HO

There is no significant relationship between Gender and do you feel comfortable in using mobile application for personnel or professional life, for what purpose mostly do you use you smart phone/application, number of new application installed in on smartphone, approximate hours per day spending on using smartphone and awareness about know to use own smartphone and mobile application.

ALTERNATIVE HYPOTHESIS H1

There is significant relationship between Gender and do you feel comfortable in using mobile application for personnel or professional life, for what purpose mostly do you use you smart phone/application, number of new application installed in on smartphone, approximate hours per day spending on using smartphone and awareness about know to use own smartphone and mobile application.

		Sum of Squares	df	Mean Square	F	Sig.
Do you feel comfortable in using mobile application for personnel or professional life	Between Groups	.047	1	.047	.196	.659
	Within Groups	27.937	117	.239		
	Total	27.983	118			
For what purpose mostly do you use your smart phone/ application	Between Groups	.493	1	.493	.659	.418
	Within Groups	87.490	117	.748		
	Total	87.983	118			
Number of new application installed in on smartphone	Between Groups	.112	1	.112	.369	.545
	Within Groups	35.585	117	.304		
	Total	35.697	118			
Approximate hours per day spending on using smartphone	Between Groups	.001	1	.001	.003	.957
	Within Groups	41.696	117	.356		

	Total	41.697	118			
Awareness about know to use or own smartphone and mobile application	Between Groups	.003	1	.003	.012	.912
	Within Groups	27.728	117	.237		
	Total	27.731	118			

INTERPRETATION

From the above table it can be inferred that significant level which is greater than 0.05 so that null hypothesis is accepted and alternative hypothesis is rejected. So that it is concluded there is no significant difference between the respondent with between Gender and do you feel comfortable in using mobile application for personnel or professional life, for what purpose mostly do you use you smart phone/application, number of new application installed in on smartphone , approximate hours per day spending on using smartphone and awareness about know to use own smartphone and mobile application.

CONCLUSION:

Meeting customer needs is a key success factor for product development, and customer involvement is considered to be essential for building successfully for building successful software products. The findings form this case study confirm previous research in that feedback loops to customers are slow and the process for obtaining timely and continuous feedback is still challenging. Customer-centric is a key to the success of mobile apps. As the users pay attention to the presence of multiple brands of mobile apps, app developers have the opportunity to accelerate access to new consumer markets. Facebook and Facebook messenger, for example, are coming from the same company but they have separate apps. Both platforms have successfully created their markets for which they provide specific services. It is very common to see multiple branding for apps in the global market.

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