Determinants of Consumers' Adoption of Mobile Parking Payment Services in Kenya

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Abstract
We conduct a study on consumers' satisfaction and acceptance of mobile parking service: EJIJIPAY, in Nairobi City-Kenya. We begin by assessing consumers' satisfaction of EJIJIPAY since its launch. We perform factor and cluster analysis on a sample data collected amongst mobile parking payment users in Nairobi. The analysis gave evidence that EJIJIPAY provides advantages on reliability, cost savings and access. We then determine what actions consumers are likely to take after using the service, determine usage habits and acceptance of the service. Our results shows that the new mobile parking payment innovation has not only improved county returns but also led to higher levels of consumers' satisfaction. We therefore conclude that EJIJIPAY service is an important parking solution for Nairobi City. The service curbs corruption, maximizes parking revenues and is an efficient payment system. We also survey trends of the mobile parking payment technologies in other cities and best implementation strategies that will help enhance their usage.

Keywords: EJIJIPAY, mobile parking financial service, customer behavior, factor analysis, cluster analysis.

INTRODUCTION
Car parking in many town centers has become a complex issue mainly contributed by the significant increase of car ownership which outweighs the capacity of towns to accommodate all cars seeking for parking slots. The US Department of Transportation's Federal Highway Association reports that the number of vehicles from 1994 to 2009 rose from 3,493,570 to 4,224,542 which is 20% increase[1]. While in Britain, vehicles have increased from 2.5 million in 1952 to 34.5 million in 2012[2].

In Kenya, according to the registration of new vehicles, motor vehicles have increased from 63,486 in 2011 to 94,017 in 2013 and motor cars alone have increased at the rate of 7%, which may imply that personal vehicles are becoming more popular as a mode of transport in the country and especially in Nairobi (Gachanja J., 2015). According to Gachanja, 60% of the total motor vehicles registered in 2013 were located in Nairobi.

With an increase of vehicles, an efficient management system of car parking is necessary. It is said that almost 30% of urban congestion is created by drivers searching for on-street parking availability (Bayless & Neelakantan, 2012). In Nairobi, the 2008 estimate of costs caused by traffic jam and congestion was estimated at KSH1.9 billion annually (Gachanja J., 2015). While in London, motorists looking for somewhere to park have to extend with the £10 congestion charge[3].

This situation demands innovative ways which in the long-run will save time and cost for both customers and the municipalities. Consumers need a reliable, easily accessible, time and money saving parking service, while municipal authorities on the other hand are longing for a system that can curb corruption and maximize parking revenues and create an efficient parking and payment system. For this reason, many major cities have migrated from stand-alone parking payment machines to mobile payment systems.

In the United States of America, the cities of Boston, New York, San Francisco, Los Angles, Chicago and Washington D.C, use mobile phone application called Ticket Zen for parking payments (Halsey III, 2015; Bayless & Neelakantan, 2012).

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[1] www.fhwa.dot.gov
[2] In-Town Parking: What works? *Innovative Practices in Parking Provision*; Published by: ATCM, July,2014

[3] http://www.thisismoney.co.uk/money/cars/article-2524669/London-expensive-city-world-park.html#ixzz3pnFcB9c2

In Australia, following a successful trial in Carlton, the city of Melbourne has rolled out pay-by-phone parking technology throughout the entire municipality[4]. Other cities that have taken the same initiatives include London, Geneva, and emerging market countries such as China, India, Brazil, and Mexico (Jimenez A. & Vanguri P., 2010).

In response to this technological development, drivers across the world are turning to mobile applications to find and pay for parking with greater efficiency. Major US cities and other cities of developed countries are working to simplify the parking process, perhaps marking a revolution in the parking industry.

In the same spirit, the use of mobile phones for making payments has been growing in Kenya since 2007 when an innovative product called M-Pesa was introduced. The current introduction of a mobile application called EJIJIPAY is one of the crucial efforts to facilitate the management of parking services in the city of Nairobi and hence meet the satisfaction of consumers. EJIJIPAY is a fully automated platform that provides an environmentally friendly solution due to its paperless nature. EJIJIPAY is expected to be among the solutions to parking and congestion challenges in Nairobi County. A study on its service provision and impact on the customers' service satisfaction would therefore enhance its uptake.

Building on an earlier study of customer satisfaction (Polatoglu and Ekin, 1999), this study has following objectives. The first objective is to undertake an assessment of the consumers' satisfaction of EJIJIPAY since its launch in January 2012 to November 2015. The second is to determine what actions consumers are likely to take after using the service and the third objective is to determine usage habits and customer acceptance of the service. These objectives will be achieved by conducting a survey to EJIJIPAY consumers. The study will also provide the demographic characteristics of the EJIJIPAY customers.

LITERATURE REVIEW
Parking and Parking Management
Parking is an essential component of the transportation system. Vehicles must park at every destination. A typical automobile is parked most hours each day, and uses several parking spaces each week. (Todd Littman Victoria Transport Policy Institute, 2006)

Parking management refers to policies and programs that result in more efficient use of parking resources.

Parking management includes a variety of specific strategies. When appropriately applied, parking management can significantly reduce the number of parking spaces required in a particular situation, providing significant financial savings and various other benefits. It can improve user quality of service, help create more accessible land use patterns and reduce motor vehicle traffic, reducing congestion, accidents and pollution, create more attractive communities and improve mobility for non-drivers. For this reason, improved management is often the best solution to parking problems. (Todd Littman Victoria Transport Policy Institute, 2006)

Parking Management Principles
According to Todd Littman Victoria Transport Policy Institute (2006), the following ten general principles can help guide planning decision to support parking management. The first principle is about consumer choice. People should have viable parking and travel options. The second principle is on user information. According to this principle, motorists should have information on their parking and travel options. The third principle is about sharing parking facilities. Parking facilities should serve multiple users and destinations. The fourth principle emphasizes on efficient utilization of parking spaces. Parking facilities should be sized and managed so spaces are frequently occupied. The fifth principle talks about flexibility. The principle holds that, parking plans should accommodate uncertainty and change. The sixth principle is about prioritization. The most desirable spaces should be managed to favor higher-priority uses. The seventh principle talks about pricing. As much as possible, users should pay directly for the parking facilities they use. The eighth principle is about what is called peak management. In peak management, special efforts should be made to deal with peak-demand. The ninth principle is quality versus quantity. In a parking facility, quality should be considered as important as quantity, including aesthetics, security, accessibility, and user information. The tenth principle talks about comprehensive analysis. All significant costs and benefits should be considered in parking planning.

Todd Littman Victoria Transport Policy Institute (2006) described and evaluated more than two-dozen car parking strategies. Investigations were done on problems with current parking planning practices, parking facility costs and the savings that can result from increased parking efficiency were discussed. Todd Littman Victoria Transport Policy Institute (2006) described specific parking management strategies and how they can be implemented, discussed parking management planning and evaluation, and described

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[4] https://en.wikipedia.org/wiki/Pay-by-phone_Parking

how to develop the optimal parking management program in a particular situation. Cost-effective parking management programs can usually reduce parking requirements by 20% to 40% compared with conventional planning requirements, providing a variety of economic, social and environmental benefits. (Todd Littman Victoria Transport Policy Institute, 2006).

Parking challenges have been a part of our society for a long time and traditional parking management strategies have come a long way. The problems associated with parking are common to most of us. Joshi, Khan and Motiwalla (2010) attempted to review globally implemented parking management strategies that leverage innovative technologies by examining a variety of parking management solutions from around the world, their paper aimed to examine the shift in focus of modern parking management strategies. According to Joshi, Khan and Motiwalla (2010), these solutions address conventional parking challenges local to their region, in an unconventional way. The study performed a comparative analysis between traditional and modern (innovative & technology-driven) parking management strategies/systems. The motivation of study was to identify the positive commonalities of the innovative approaches, which would aid in designing future parking management models.

The versatility of the innovative parking solutions allows tremendous flexibility when implementing the various parking management solutions. Joshi, Khan and Motiwalla (2010) suggested some few ways the approach may be improved. The first way of approach is developing hardware which is cost-effective. This would be a major improvement. Due to the current high investment, costs associated with real-time parking related hardware such as sensors and RFID chips are high. The second way is the reduction of costs associated with on-going maintenance. This would also help bring the cost down and therefore lead to wide acceptance. The third approach is researching ways to increase the system uptime and study parking trends more efficiently which in turn will help make this model better.

Mobile Payment Technology
Mobile payments (or m-payments) are payments for goods and services in which at least one part of the transaction is conducted using a mobile device (such as a mobile phone, Smartphone, or Personal Digital Assistant) and wireless technologies (such as mobile telecommunications networks, or proximity technologies). Examples of mobile payments include payment for digital content (e.g. ring tones, logos, news, or music), concert or flight tickets, parking fees, and taxi fares; payments for physical goods are possible as well, both at vending machines, and manned Point-of-Sale terminals. Mobile payment is seen as an important building block of mobile commerce – for any m-commerce transaction there must be a way to pay (Zmijewska and Lawrence, 2005).

The study by Zmijewska and Lawrence (2005) revealed that a broader framework is necessary to analyze the success of mobile payments. Their qualitative research, based on the experts' experience, confirmed that success of mobile payments is determined by both: technology features affecting potential users' decisions to use or not use the new service, and other success determinants concerning the infrastructure. They suggested that a quantitative study could be used in the future to confirm the proposed framework. They suggested that future research needs to focus on factors affecting individual users' and merchants' adoption of mobile payments, as well as on ways to fulfill those factors.

The growth of mobile commerce depends on widely accepted mobile payment systems. Although new mobile payment systems have been increasingly introduced in Asia, Europe and the United States, their adoption has remained modest (Mallat and Tuunainen, 2008). Little research has been conducted to examine and explain adopters' views on the new payment technology Mallat and Tuunanien (2008) carried out an empirical study of merchant's adoption of mobile payment systems and discussed factors that drive and inhibit their adoption. Their results suggested that the main adoption drivers are related to the means of increasing sales or reducing the costs of payment processing, whereas the barriers to adoption included complexity of the systems, unfavorable revenue sharing models, lack of critical mass, and lack of standardization. Based on their findings, they proposed a conceptual framework of adoption enablers, drivers and barriers, with propositions to guide future research in this emerging area. Implications for practice and means to overcome the barriers were suggested (see also Goodhue and Thompson, 1995; Moore and Benbasat, 1991; Premkumar, 2003; Rogers, 1995).

Drivers for the Adoption of Mobile Payments
The most important drivers for the adoption of mobile payments have been identified to be related to the ubiquity (Clarke, 2001; Frolick and Chen, 2004) and personal nature (Jarvenpaa and Lang, 2005) of the devices and services. Mobile payments provide additional value to merchants by facilitating payments in remote and proximal transactions. Ubiquity is commonly distinguished as a superior value proposition for mobile technologies and a key difference between

mobile and stationary Internet commerce (Clarke, 2001). The ubiquity of the mobile channel is enabled by wide penetration of mobile Tel-communication technologies in most developed and many developing countries.

Prepaid and telecom operator billing systems provide a built-in payment mechanism for mobile subscribers, who form a vast potential user base for mobile payments (Zhang, J.J.; Yuan, Y., and Archer, N., 2002). Furthermore, users commonly consider mobile devices as personal, have become accustomed to keeping the devices always at hand and always on, and actually dislike turning off their devices (Jarvenpaa and Lang, 2005). The personal nature and the continuous network connection of mobile technologies make them particularly suited for making payment transactions and storing related personal data (Begonha, D. B., Hoffman, A., and Melin, P., 2002).

Barriers to the Adoption of Mobile Payments
Adopting a new payment system is typically a major operation, and there are several barriers to the merchant's adoption of such systems. One of the major barriers is concern about large financial operations and investment costs (Alexander, N., Howells, J., and Hine, J., 1992; McFadyen, 1987). The costs of mobile payment adoption may include high commissions and fees charged by payment service providers, hardware and software updates at POS, and training of personnel.

Another common concern affecting mobile payment adoption decisions is the lack of critical mass or plain non-usage by customers. Mobile payments represent a highly networked service where the benefits of the service depend upon the number of participants (Kauffman, R. J., McAndrews, J., and Wang, Y.-M., 2000). Furthermore, in the case of mobile payments, there are two different groups of participants: merchants and consumers (Begonha, D. B., Hoffman, A., and Melin, P., 2002). The creation of critical mass for the payment service is therefore even more challenging, especially when the value propositions needed to attract these two groups and several segments within them may be considerably different. The immaturity of the mobile market and the unclear value or return on investment offered by mobile commerce are additional barriers for merchant adoption (Frolick and Chen, 2004; Gebauer and Shaw, 2004; Mallat, Tuunainen 2008).

Cash Replacement through Mobile Money in Emerging Markets
Jimenez and Vanguri (2010) suggested a FISA approach that sought to address questions on how a mobile can be more attractive than cash. They suggested that it can be

faster, more Inexpensive, Safer, and more Accessible. These simple value propositions are what make mobile money so compelling for end users. Hence by marrying a highly scalable, low cost back-office platform that connects the market participants with a disciplined service design, providers are in a much better position to monetize this immense business opportunity. IBM developed the Mobile Money Cloud concept to deliver an end-to-end technology and business solution that hides all platform and interconnection complexities from the provider of mobile financial services. The Mobile Money Cloud will help a provider address all of the challenges associated with delivering value to its customers.

Mobile Payment Models
Although several mobile payment efforts exist, still today there is no dominating mobile payment model in the market. Karnouskos and Fokus (2004) presented a number of models. Some of the models they described included:

Acquirer-Centric vs. Issuer-Centric: Where the merchant and his agent are in charge of handling the interactions with the mobile device. Such approaches usually depend on a mobile-specific protocol and require specific capabilities from the user (mobile device) and merchant side. Systems based on dual chip or dual slot fall within this category. In issuer-centric models the customer and his agent are in charge of handling the interaction with the mobile device while the merchant may be totally unaware of the mobile nature of the payment. In this model it is usual that the customer-issuer interaction is mobile, but the rest may be based on existing wired infrastructures and standardized e-payment protocols. For instance, mobile payment systems that use callback methods or a WIM-based digital signature validated by wallet server, fall within this category.

Bank-Centric vs. MNO-Centric: Banks have been in control of financial transactions for a long time, acting as issuing banks (owning customers' accounts), acquiring banks (owning merchants' accounts), and clearing houses (clearing and settling transactions between the issuing and acquiring banks). Mobile network operators(MNO) are quite new to this business. Their billing systems have been used until today for billing customers solely for the mobile services they offer within their network. That has been changing lately with pre-paid accounts and emerging data services, where content is produced and provided by third parties.

In a bank-dominated mobile payment model, the bank handles the mobile payments while the MNO provides only the air connection between the user and the bank. In the MNO-dominated model the MNO is doing the billing either on the prepaid user account or later on the phone bill for their postpaid users. In some cases revenue-sharing agreements with multiple MNOs exist in order to broaden the customer base.

Karnouskos and Fokus (2004) predicted that mobile applications will become an integral part of our lives at the personal and professional level. Mobile Payment (MP) is a promising and exciting domain that has been rapidly developing recently, and although it can still be considered in its infancy, great hope is put on it. If MP efforts succeed, they will boost both e- and m-commerce.

The existence of standardized and widely-accepted mobile payment procedures is therefore crucial for successful business-to-customer mobile commerce. Customers' acceptance of mobile payment (MP) procedures mainly depends on the issues of cost, security, and convenience.

The growth of mobile commerce depends on widely accepted mobile payment systems. Although new mobile payment systems have been increasingly introduced in Asia, Europe and the United States, their adoption has remained modest. Little research has been conducted to examine and explain adopters' views on the new payment technology. In this article, we explore merchant adoption of mobile payment systems empirically and discuss factors that drive and inhibit their adoption.

Our results suggest that the main adoption drivers are related to the means of increasing sales or reducing the costs of payment processing, whereas the barriers to adoption include complexity of the systems, unfavorable revenue sharing models, lack of critical mass, and lack of standardization. Based on our findings, we propose a conceptual framework of adoption enablers, drivers and barriers with propositions to guide future research in this emerging area. Implications for practice and means to overcome the barriers are suggested.

Mobile Payments in Kenya
According to Mbogo (2010) Micro-business enterprises in the developing world are increasingly deploying the use of mobile payments to enhance the quality of their services and increase growth. The pace of transformation in the micro business sector has speeded up with more micro businesses realizing the potential of using the mobile payments in their service delivery. However, there are only a handful of studies on the application of digital technology for success and growth on micro business.

An example of a mobile payment system in Kenya is M-PESA. M-PESA is a small-value electronic payment and store of value system that is accessible from ordinary mobile phones. It has seen exceptional growth since its introduction by mobile phone operator Safaricom in Kenya in March 2007: it has already been adopted by 9 million customers (corresponding to 40% of Kenya's adult population) and processes more transactions domestically than Western Union does globally. According to Mas and Radcliffe (2010), M-PESA's market success can be interpreted as the interplay of three sets of factors. The first factor is pre-existing country conditions that made Kenya a good environment for a successful mobile money deployment. The second factor is about a clever service design that facilitated rapid adoption and early capturing of network effects; and the third factor is a business execution strategy that helped M-PESA to rapidly reach a critical mass of customers thereby avoiding the adverse chicken-and-egg (two-sided market) problems, that afflict new payment systems.

Mobile Payment for Parking-EJIJIPAY
SMS pay-by-phone parking was invented by young Croatian innovators and later was introduced by VIPNET mobile network operators.[5] Since then the technology has been spread in various cities in the world. In the city of Nairobi-Kenya, mobile payment for parking has been introduced recently by EJIJIPAY being supported by JamboPay. EJIJIPAY allows Nairobi motorists to use their mobile phones to pay for their parking across the city.

Motorists can use EJIJIPAY to pay for daily parking, seasonal parking for 'Matatu' (city buses) and also pay for their penalties and check their status of payment. According to the County, this service works across all mobile money platforms which also include Airtel Money, Yu-Cash and Orange Money. The County is also planning to develop applications for Windows and iOs.[6]

However, the customers using the USSD code, are charged by phone service providers (Shs 5 for Safaricom and Shs 3 for Airtel) to use their service. The current parking fees in Nairobi City are Shs 300 per

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[5] http://en.wikipedia.org/wiki/Pay-by-phone_Parking
[6] http://kenyanews.co.ke/news/nairobi-motorists-to-use-mobile-phones-to-pay-for-parking-fees-using-ejijipay/

day. Additional cost implication for the EJIJIPAY service on the side of the motorists is not yet known. The County expects that the service will curb corruption, save time spent my motorists obtaining parking tickets manually from county officials.[7]

Other services offered by EJIJIPAY include; application and renewal for single business permit, payment of land rates, paying rent for county houses, and payment of construction fees.[8] However, in our study we are interested in the use of EJIJIPAY for payment of parking fees and the satisfaction level of the customers.

Trends of mobile parking payments in other cities
In Boston City, parking fees are paid using a mobile phone application through a local start-up called Ticket Zen. The service is extended for the payment of fines. However, Ticket Zen requires customers to use their credit cards to make payments.[9] Ticket Zen services are available in also in other cities of the United States of America such as New York, San Francisco, Los Angles, Chicago, and Washington D.C. (Halsey III, 2015).

In the United States of America, the mobile service has reduced the number of parking tickets issued and the numbers of drivers who use on-street parking are about 600,000 per month (Halsey III, 2015).[10] The mobile service has been tailored to meet customer satisfaction. It has an application that assists the driver to find a space of parking. The application is called, "find-me- a-space apps). The ParkWizard lets a motorist reserve and prepay for a parking spot near his/her destination. Other applications with similar assistance include ParkMe and Spot Hero. ParkMe provides data availability and payment information for on-and off-street parking in more than 1800 cities and 32 countries.[11]

The mobile service offers drivers option to receive a text message several minutes before their expiry of their parking session, enabling them to extend their sessions without returning to their car. However, there is a maximum extension period.[12] In Australia, following a successful trial in Carlton, the city of Melbourne has rolled out pay-by-phone parking technology through the entire municipality. Time restriction begins as soon as the car stops in the parking bay, not from the when the driver starts his/her pay stay parking session. If one wants to park for longer than the time on the sign, he/she must move his/her car to a new parking area.[13]

In London by 2 March 2015, customers in the Square Mile had already signed up to use the mobile phone cashless parking solution. It is said that three quarters of total number of parking transactions in the Square Mile are drivers paying using Pay-by Phone as they conceive to be a convenient way for parking customers to pay for their parking.[14] From April 2015, Pay-by Phone has become the sole payment method for parking in the city of London.[15]

Geneva in Switzerland is the latest major city to roll out cashless mobile parking payments. The Pay by Phone service is available in all spaces across the city. Drivers can pay for parking via the Pay-ByPhone Smartphone application. With this application, drivers can use the location number on the relevant machine as a reference point to pay for parking via the Pay- ByPhone available in iPhone or Android applications.[16]

Geneva is the first city in Switzerland deploying mobile innovation in a traditional cash industry, and the latest in a long line of global cities to use the Pay ByPhone service. The city follows in the footsteps of others such as London, Boston, San Francisco, Vancouver and Paris to offer seamless, stress-free mobile parking. Currently, Pay ByPhone has 10 million app users worldwide and offers an array of services to virtualize the parking experience.[17] All with the aim of leveraging innovation to continuously improve urban mobility for cities and city dwellers and provide them satisfactory service.

Antoine de Raemy, President at Foundation des Parking, which runs the parking for Geneva said, "We want to encourage more drivers to park within our city and think Pay ByPhone is a great way to do that. From the pilot, we saw how much mobile parking payments can reduce hassle for drivers. Thanks to Pay ByPhone, we're hoping to see more people have the confidence to drive in our city, safe in the knowledge that their parking is taken care of."[18]

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[7] http://kenyanews.co.ke/news/nairobi-motorists-to-use-mobile-phones-to-pay-for-parking-fees-using-ejijipay/
[8] ibid
[9] https://gigaom.com/2015/01/12/bostonians-can-pay-their-parking-tickets-with-a-mobile-app/
[10] https://gigaom.com/2015/01/12/bostonians-can-pay-their-parking-tickets-with-a-mobile-app/
[11] ibid
[12] http://en.wikipedia.org/wiki/Pay-by-phone_Parking

[13] https://www.melbourne.vic.gov.au/ParkingTransportandRoads/Parking/Pages/PayByPhoneTrial.aspx
[14] http://en.wikipedia.org/wiki/Pay-by-phone_Parking
[15] Kay English, Traffic Manger from the City of London Corporation
[16] https://www.paybyphone.com/news/geneva
[17] www.paybyphone.com/news/geneva
[18] ibid

Pay ByPhone has been announced as one of only 44 developers to officially launch with the Apple Watch. The watch enabled app effectively personalizes time through parking, as users can use the glance feature to check the time remaining on their parking session.[19] In Edmonton, a city in Canada, the payment for parking by phone is not legal. There is a concern criticism of the application that people rent the parking space and leave unused.[20]

All these empirical studies generally indicate that customers consider mobile payment as more convenient and timely than standard methods of parking payment as the service does not require coins or any type of currency readily available. Also the application through data collection allows for customers to track their parking expenses. Hence, acceptance of the service by many consumers in the major cities studied indicates high level of satisfaction.

It is therefore important to make a similar research also in major cities of developing countries to determine acceptance and level of satisfaction of consumers. In Kenya, EJIJIPAY is meant to increase revenue collection and enhance service delivery via a cashless automated platform by Nairobi city; it is however not clear as to how effective EJIJIPAY has achieved this objective. We also noted that no previous research is available on EJIJIPAY and therefore, we aims at developing an understanding of mobile parking service offered by EJIJIPAY. The study investigates factors that influences consumers' acceptance of EJIJIPAY services. Through a survey on EJIJIPAY consumers, we explore actions that consumers are likely to take, and investigate their satisfaction level regarding the use of EJIJIPAY services. Furthermore, the study explores the demographic characteristics of the EJIJIPAY consumers with a view of understanding profiles of consumers that are likely to use EJIJIPAY services.

METHODOLOGY

We conduct an exploratory study of consumer acceptance of EJIJIPAY Mobile Parking Payment Solution within Nairobi City. Data for this study was collected using a consumer survey administered among EJIJIPAY consumers through email. All the consumers were located in Nairobi County. 450 questionnaires were emailed, 237 were returned which is 53% and 200 of returned questionnaires were useful for this study.

The majority of the respondents were males (62%). While the young respondents from 18-34 were 65 (33%), those from 35-45 were the majority (58%). 84% of our respondents were holders of bachelor and master degrees. Financial industry alone had 40 respondents (20%). All our respondents were employees in various companies and organizations and 48% were in the middle management levels most of them were from local corporations (43%).

The data for the study was gathered through a structured-undisguised questionnaire. It was pretested first with 20 respondents with the aim of establishing the validity of items included. Adjusted to the questionnaires were made and then administered to the EJIJIPAY customers through email. The questionnaires had five parts. The first part included introductory questions on the usage of EJIJIPAY service. The second part asked about customers' satisfaction of the service under EJIJIPAY.

Satisfaction was divided into three factors namely, friendly (feedback, privacy, user needs, quality), Savings (time and money savings, availability of service and accessibility), and Reliability (speed, security and self-service). The third part rated EJIJIPAY services Representatives. The dimensions for rating included, responsiveness, efficiency, professionalism, and politeness. The fourth part asked questions on actions customers might undertake as a reaction to the service provided by EJIJIPAY. The fifth and last part asked questions to provide demographic information such as age, education and employment. Data were analyzed using factor analysis and cluster analysis.

DATA ANALYSIS AND RESULTS
Customer Satisfaction
The first factor analysis was done to assess customer satisfaction. Customer satisfaction was assessed on the basis of three dimensions. The results included reliability, cost and access of the EJIJIPAY by customers. Fokus (2004) also mentions such as fast transaction, low cost of usage, security, easy usage and availability as key factors in the adoption of mobile payments.

The results presented in Table 1 below reveal that the 11 variables were reduced and grouped into three components which explained 91.108% of the total variance. While the first component explained 65.125% of this variable, the second component explained 16.073 percent and the third component explained 9.91percent of the variance.

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[19] ibid

[20]

http://www.edmontonjournal.com/City+ques+tions+legal+mobile+parking+Edmonton/11247226/story.html

The first component consisting of the feedback, privacy, usage needs and quality of service is called the reliability dimension. The second component labeled as the "cost" dimension is related to money and time savings, accessibility and availability. The third component called "access" included speed of transaction process, security for customers and whether customer can use it as a self-service transaction. Mbogo (2010) attributes the success of the adoption of mobile payments to these factors using the Theory of Technology Acceptance Model. According to this theory, accessibility, cost, support and security are of paramount importance.

Table I: Factor analysis satisfaction of the customers from the EJIJIPAY services

Components			
Component 1: Reliability	Loadings		Statistics
Feedback	0.907	Eigen Value	9.117
Privacy	0.907	Percentage of variance explained	65.125
Usage needs	0.878	Cumulative percentage	65.125
Quality of service	0.839		
Component 2: Cost			
Accessibility	0.94	Eigen Value	2.25
Availability	0.92	Percentage of variance explained	16.073
Money Saving	0.8	Cumulative percentage	81.195
Time Saving	0.743		
Component 3: Access			
Speed	0.921	Eigen Value	1.387
Security	0.895	Percentage of variance explained	9.91
Self-service	0.861	Cumulative percentage	91.108

Rating EJIJIPAY representatives
The analysis was carried out to determine how customers rate services offered by the representatives of EJIJIPAY. The major component is called "customer care". From customer care five dimensions were identified as responsiveness, efficiency, professionalism, knowledge and politeness towards customers. The results are presented in Table II below.

Table II: Factor analysis rating EJIJIPAY Representatives

Components: Customer care	Loadings		Statistics
Responsiveness	0.888	Eigen Value	3.584
Efficiency	0.863	Percentage of variance explained	71.678
Professionalism	0.845	Cumulative percentage	71.678
Knowledge	0.844		
Politeness	0.79		

From Table II above, customer care explained 71.678 percentage of variance.

Actions Customers Are Likely To Take After Using EJIJIPAY Service
The second factor analysis was done to assess what actions customers were likely to take after using EJIJIPAY service. This was done on the basis of two dimensions namely positive and negative actions of EJIJIPAY customers in the course of the use of the service. The results are shown in Table III below:

Table III: Factor analysis action taken by customers

Components			
Component 1: Positive Action	Loadings		Statistics
Encourage friends to continue with EJIJIPAY	0.911	Eigen Value	3.311
Recommend others to join it	0.9	Percentage of variance explained	47.307
		Cumulative percentage	47.307
Component 2: Negative Action			
Share problems with friends	0.884	Eigen Value	1.698
Quit the service	0.884	Percentage of variance explained	24.256
		Cumulative percentage	71.563

This analysis was carried out with the aim of reducing the number of statements and to group the actions into underlying dimensions. The results reveal that the five actions can be grouped into two components which explain 71.563 percent of the total variance. While the first component explains 47.307 percent of this variance, the second component explains 24.256 percent of the total variance.

According to the variables loading on each component, the first component labeled as "Positive Action" consists of the positive actions that the customers of EJIJIPAY are likely to take. These actions were: encouraging friends and family registered with EJIJIPAY to continue using the service and

recommending the service to potential customers by saying positive things about the service.

The second component called "Negative Action" consists of the negative actions taken by the customers such as quitting the service when there is a problem with the service and complaining to other customers upon experiencing a problem.

Usage Habits
Cluster analysis was performed on usage habits. This was done using frequency distribution. The Table IV below shows the results of the analysis.

Table IV: Cluster Analysis usage frequency of EJIJIPAY services		
Cluster Analysis usage frequency of EJIJIPAY services		
Factors	Cluster 1	Cluster 2
Parking	2	4
Rentals	1	1
Permits	1	2
House rates	1	1
E-construction	1	1

Cluster analysis was carried out to determine the characteristics customers share as well as those in which they differ in the usage frequency of the EJIJIPAY services. Using the hierarchical cluster analysis, all five factors were included namely, parking, rentals, permits, house rates and e-construction. Some customers of EJIJIPAY from our sample are using the service for permits payments. All the rest are using the service for the payment of parking fees. The researchers hope that in the future more customers will use the service for payments of other bills.

Customer Acceptance
Factors that influence uptake of EJIJIPAY among Nairobi City consumers include: Relative advantage, observability, complexity, compatibility, perceived risk, type of group, and type of decision.

Concerning relative advantage, EJIJIPAY services offer relative advantages when compared other service providers in the parking industry especially in terms of convenience and performance. Comparison can be made between traditional and modern (innovative and technology-driven) parking systems (Joshi et al., 2010). From the researchers' survey, about 59 percent of respondents said they would prefer EJIJIPAY to other services such as the well known Nairobi "Kanju"

(payment of parking fees through by cash to county operators).

The more complex the service is to understand and use, the lower its adoption rate. According to Fokus (2004), mobile applications will become integral part of our lives if they will be easy to use. It can be argued that the most of the customers of EJIJIPAY are Smartphone and computer literate. From the researchers' sample, most of respondents are holders of degree levels and are residents of Nairobi where EJIJIPAY is available. About 32 percent of our respondents agreed that they are satisfied with the usage of EJIJIPAY service. Most of them have used the service for almost a year now (59 percent).

EJIJIPAY service is compatible with individual's values and beliefs. Given that the Nairobi residents are familiar with Mobile payments (for instance M-Pesa), the EJIJIPAY services are therefore supposed to be compatible for them once the issues of privacy and security are assured.

Security is one of the major barriers to the adoption of mobile payments. High security for the use of mobile applications is commended also by Fokus (2004). The introduction of EJIJIPAY with the support of the known Jambo Pay service, customers' perceived risk is expected to decrease considerably. From the researchers' sample, satisfaction on the security of EJIJIPAY services was rated at 43 percent of the total respondents.

While the young respondents from 18-34 were 65 (33%), those from 35-45 were the majority (58%). This is the young group, affluent and highly educated who are motivated to accept changes. This is favorable for EJIJIPAY services.

According to Jarvenpaa and Lang (2005), the most important drivers of the adoption of mobile payments have been identified to be related to personal nature. The Todd Littman Victoria Policy Institute (2006) calls it as consumer choice. The fewer number of individuals involved in the decision, the more rapidly the product or service will spread. The registration for EJIJIPAY involved personal decision. All of the researchers' respondents are using EJIJIPAY for personal payment of parking cars. Therefore, it is believed that the decision to adopt this new service can be made more rapidly in the environment which mobile payment is well known and used.

The above analysis suggests that EJIJIPAY has the potential to be successful with a high level of

acceptance by the Nairobi customers who have Smartphone and ready to be registered for the service. As more mobile phone companies offer mobile payment, it is expected that larger number of individuals will register for EJIJIPAY services. Today mobile payment is seen as an important building block of mobile commerce (Agnieszka et al., 2005, Kweyu and Ngare, 2014).

DISCUSSION AND CONCLUSION
Discussions
From our analysis of customer satisfaction, EJIJIPAY users reported that the services was very reliable, these included satisfaction with feedback, privacy, usage needs and quality of service. On the cost dimension (Accessibility, Availability, Money and Time savings) users seemed to be more satisfied with Accessibility. This can be interpreted as the cost of convenience as by being able to access EJIJIPAY from anywhere without having to look for parking attendants to process the transaction. The freedom to use your mobile phone at any one point can be deemed to be a key contributing factor.

On the access dimension (Speed, Security and Self service) users seemed to more satisfied on speed. Speed in this sense can be interpreted as the quickness of using your mobile device to process your transactions without having to look for a parking attendant to assist. It can be noted that the convenience of using your mobile further accelerates the speed of processing transactions

The other important finding was to do with the rating of EJIJIPAY representatives under Customer Care. This included; responsiveness, Efficiency, Knowledge and politeness. It was noted that responsiveness had the highest factor loadings however, the factor loadings for responsiveness, efficiency, professionalism, and knowledge were marginally lower. These can be interpreted as the highest influencers of EJIJIPAY users on Customer Care.

Another important finding was related to positive and negative actions likely to be taken by customers after usage of EJIJIPAY services. From the findings, more customers were highly likely to take positive action 47.307% than negative action 24.256% with encouraging of friends to continue to use EJIJIPAY and recommendation of others to join EJIJIPAY having the highest factor loadings that explain positive action. This can be interpreted to mean that should EJIJIPAY customers be satisfied with its usage, they are highly likely to refer it to other friends and recommend others to join it. With regards to Negative action, customers are highly likely to share problems with friends or quit

service altogether. This can be interpreted to mean that should EJIJIPAY customers be dissatisfied with its usage, they are likely to either share problems with friends or quit the service altogether for competing services

Lastly, with regards to usage habits of EJIJIPAY, it was noted that a higher number of customers use EJIJIPAY parking services as compared to other services of rentals, permits, house rates and e-construction.

Conclusion
In our study, we investigated motorists' acceptance of EJIJIPAY mobile payment services and factors affecting its usage. We performed data analysis on a survey sample data collected amongst mobile parking payment users in Nairobi. The analysis gave evidence that EJIJIPAY provides advantages on reliability, cost savings and access. EJIJIPAY users had the view that the most important attribute of the service was its reliability, with feedback, privacy, usage and quality of service as important factors. Moreover, the local authority should improve its customer care services with responsiveness, efficiency, professionalism as it was noted that a good customer care is important in increasing customer satisfaction. Also majority of EJIJIPAY users were of the view that they would take positive action should they be satisfied with EJIJIPAY usage with encouraging friends to continue using EJIJIPAY and recommending others to join it. The study revealed that the rate of satisfaction of EJIJPAY seemed to be higher than for those of other services offered under EJIJIPAY; this could explain why its usage levels were higher. We therefore conclude that EJJIJIPAY could offer a competitive advantage to other parking services due to its reliability and good service. The remote usage and automated functions also offer more enhanced controls in comparison to manual platforms. We also discussed trends of mobile payment service for parking around the worlds and best implementation strategies to enhance its usage.

The study had a major limitation that, since EJIJIPAY also offered other services that include; application and renewal for single business permit, payment of land rates, paying rent for county houses, and payment of construction fees and the main focus of this study was on mobile parking payment service, it could not be confirmed if these other services directly influenced customer choices and a further study can be carried out to ascertain any dependency.

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