Mobile Technologies as a Way of Generating the Development of Postal Services

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Abstract   Aside from being an everyday phenomenon when it comes to communication, mobile technologies today create a way of doing business and provide support during execution of services, selling of goods, and, of course, payment. Development of new services, as well as the already existing ones, in all areas, calls for precise predicting of possibilities and efficient placement of information, especially when it comes to a segment of a potential market. Newest trends emphasize that mobile technologies are becoming an important (if not crucial) line of communication with potential clients. Postal services, especially newly developed ones, are not an exception, so this work will present the importance of using mobile technologies as a way of generating the development of postal services.

Cite This Article: Slavica Štrbac, Biljana Grgurović, and Jelena Milutinović, "Mobile Technologies as a Way of Generating the Development of Postal Services." *Journal of Behavioural Economics, Finance, Entrepreneurship, Accounting and Transport*, vol. 2, no. 5 (2014): 116-120. doi: 10.12691/jbe-2-5-2.

1. Introduction

Postal traffic is a very important infrastructural unity. Using this kind of service is defined as citizens' right, so that developing new, as well as already existing services represents an imperative for postal operators in the country, as well as internationally. According to the latest statistics of Universal Postal Union (UPU), about the 35 % of the market for this sector implies financial services and transfer of parcels (UPU, 2013) (Graph 1.1).
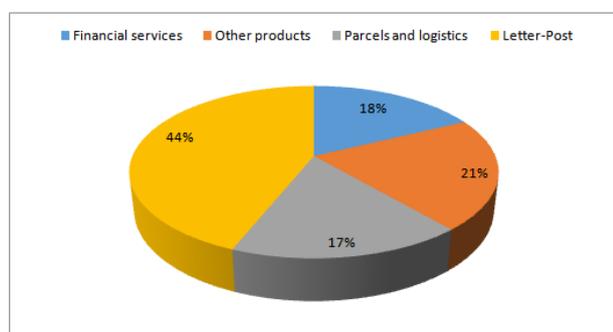
Graph 1.1. Breakdown of consumption expenditures by product at postal market (UPU, October, 2013)

Liberalizing the postal service market, which means the appearing of new players in the field is defined by The Strategy of Postal Service Development in Serbia 2013-2016. and it relies on the recommendations of the Universal Postal Union (UPU) and the directive of the European Union (Strategy, 2013).

Postal sector in region SI Europe represents a huge mechanism and support for development of small and medium-sized businesses. Service time, which is time required for receipt of the consignment, time required for automating the process of adaptation and time required for delivery can vary significantly for a certain number of items with registered acceptance number (no matter if it is recommended mail or valuable shipment), as well as for a certain number with incorrectly paid postages depending on the speed of sensing data and the way the customer choices to pay for the services. In order to do business more efficiently, it is important to reduce business charges, since they are a great part of the overall costs, even in countries far more developed than ours. (Okholm, Winiarczyk, Moller, Nielsen, 2010.).

Using mobile technologies enables faster and more efficient communication, gathering and processing important information, based on which it is possible to manage further

The goal of this text is viewing the possibilities of using mobile technologies in processes connected to realizing postal service offering. The solution to integrating mobile technologies is introduced for each process: reception, processing and delivering consignments. Forming a geo-network can be used for segmenting the market while placing an accent on the physical location where a customer can receive required service (Location Based Services – LBSs). Also, social networks built based on this form and GPS technology can be used for

geomarketing postal services. Mobile payment points, such as mPOS (mobile Point Of Sale) devices can be used for counting postages for consignments which are being delivered in specific circumstances, such as unexpected increasing number of parcels. NFC (Near Field Communication) technology, combined with QR codes, can increase the speed of scanning and charging postages for consignments which would be handed over on self-service counters or other places meant for automatized receiving. In fact, given the option of creating a free QR code based on different information about dimensions, weight and sending destination, the sender could simply equip the consignment with a QR code. Informing the customer via a mobile device about the reception, manner and time of delivery, while delivering a consignment introduces great savings. Electronical platform. post is different when it comes to transactions being realized by customers all around the world. Physical and electronical customer's address can be integrated within the. post identificator app, which means that the risk of delivery failing is minimal.

2. Transforming the Postal Service Market

Traditional limits of postal services sector are becoming broader, so its economical function is defined by the content of basic activities of this branch, which are reduced to communications, logistics and advertising (Grgurović, 2013).

Postal services market, just like most of other markets, is going through a transformation, transgressing into a virtual space. Supply, price and demand remain basic elements of this kind of market. Components of the market which stay the same as the ones of a traditional market are existence in certain time intervals, objects of exchange (product/service), participants, ways of forming prices and regulations, while space, i.e. the place of the exchange transgresses from physical to virtual. The speed of emerging (and disappearing) in this type of market, the influence on potential and old clients, the speed of reacting to changes in the items being offered, user comfort during the process of service realization… These are just some examples of the potential of the new way of doing business which could be viewed as additional values which influence the increase of availability of management as well as the efficiency of management.

Postal market is becoming more exciting than ever, in a way more fragmented, far away from the traditional universal service. The e-commerce boom surprised many express service providers who fight to keep up with the demand. To make everything harder, there are no national companies evolved enough to compete with leading companies such as FedEx or DHL. Services vary, in quantity as in quality, from region to region. This all leads to the fact that companies which rely on e-commerce are facing a serious problem

The need to establish stronger connections with business partners, no matter if they are clients or collaborators, cannot be pictured without mobile technologies which no longer serve as just a line of communication or application support, but as a business platform.

2.1. Space for Mobile Technology: Physical, Virtual or Hybrid?

Over the last couple of years, a tendency to merge digital information with physical space has been noticed, which introduces a brand new space dimension: hybrid space (Frith, 2012.). Digital informations are becoming a part of physical space. There is almost no physical place of any type (shop, stadium, restaurant etc.) that isn't minutely filled with digital information in the virtual world (social networks, browsers, web pages). Spreading of digital media when it comes to multimedia contents certainly leads to an increase in the use of mobile devices. World statistics show (graph 2.1) that the digital media are extending to the field of mobile devices and of accessing content through mobile devices (Comscore, February 2013). Despite the existence of a vast number of electronic shops, clients still go to physical shops, browse and buy products. Certain economic areas, including postal service, cannot provide all their services through the virtual world, but they can use it to get closer to their clients.
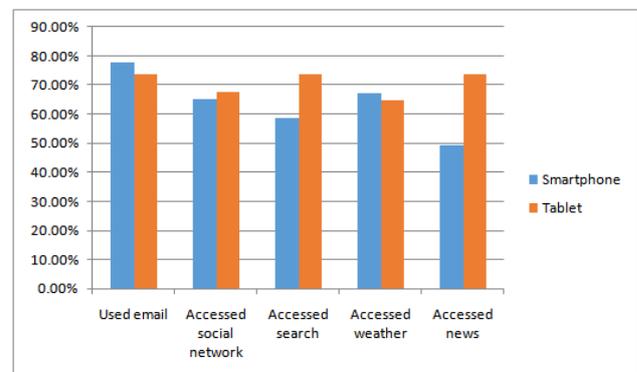
Graph 2.1. Top mobile media activities by share of Smartphone and Tablet users (Comscore, dec 2012)

Hybrid spaces in postal services could enable a faster and more efficient finding of closest units of postal network using an application on mobile devices. This sort of application uses the client's geographical location to find the shortest possible way to a postal unit which provides a certain service. Canadian and American postal services have a similar offer. They enable smart phone users to use a free application which can find the closest facility which administers receiving shipments and packages. An application which provides information about the location and time of submitting shipments using postal vehicles is designed for rural and less populated areas. Synchronization of the time of the physical encounter, through the digital information about the location and the time of the encounter optimizes the expenditure of the client and of the operator (provider). Changing the address of the delivery after the receipt of the shipment, in terms of redirection, in this kind of environment has minimal effect on the efficiency of the process. By the way, this is one of the crucial problems in the area of the delivery of consignments, not only because the shipment has to me set back to the delivery terminal (and often to the sender), but because of the expenses of taking up space during storage and re-sending. The efficiency of the last stage of the technological process in postal services is a constant problem, conditioned by harmonizing different parameters, among which the time

of the delivery and the time when the recipient is ready to pick up the consignment are the most sensitive ones.

Big postal operators, such as UPS (United Parcel Service Inc.) have noticed that the communication with clients is of mutual interest and have decided to adjust to clients' needs using a new application through which they get information about clients' basic preferences – whether they live in a rural or an urban area, how much time do they daily spend at home, how they feel when they see a report about a shipment which had been delivered during their absence and how often they receive various consignments. Depending on their responds, clients are offered a free or a yearly paid membership as well as some other utilities. The day before the delivery, clients are being notified by a text message, e-mail or by telephone. The application enables tracing the path of a consignment, as well as a calendar of all deliveries during the past period of time, defining the approximate time of arrival of the consignment, the possibility to give permission to the operator to deliver a shipment without demanding a signature (if the consignment isn't being received personally), the possibility to define a place of delivery (front yard, a neighbor's house, in an operator's facility), the possibility of redirection or the possibility to change the date of the delivery (e.g. if the recipient is on vacation) etc.

2.1. Location Based Services (LBS) and Location Based Social Networks (LBSN)

To every physical location we can add a pile of digital informations which change and enrich the initial information. E.g. using contemporary mobile phones with GPS and internet connection we can get information about a client's location, as well as all the characteristics of the given location. Physical location is being enriched by information from virtual world. Aside from basic location information, e.g. a chain the shop belongs to, different information about management, forums with other customers' experiences, ongoing and future actions etc. can also be found there. Physical location is enriched with valid information, while the mobile device interface becomes a representative of a corporation with a goal to entertain users. Information offered through mobile devices can easily be changed, adjusted, followed and used to establish and strengthen relationships with clients. That is, personalizing services through individual offers to every potential and old client according to their needs through mobile devices reaches full potential, which enables a long-lasting relationship with a client – from satisfaction, through loyalty to the fact that the client becomes a supporter of new services.

Offering a big number of useful information in the hybrid space through mobile devices develops a new dimension of experience, use and realization of services, at an exactly defined location.

Positioning business points depending on the density of potential clients is a particularly sensitive category. This problem can be solved by GIS (Geographical Information System) technology, which can help analyze market, rationalize charges of the distance travelled, defining optimal routes etc. GIS applications on mobile devices are completed by coordinates of objects, which enables viewing digital maps in order to develop a social network based on certain locations (LBSNs – Location Based Social Networks). This kind of geographical networks ensure that the information about the benefits currently offered in objects on certain locations be delivered, so that clients can stay informed about products, services, business hours, actions etc. These networks are adaptable when it comes to already existing networks such as Twitter, WhatsApp, My Space etc. which makes an available information possible to multiplex. Simple modulation, in terms of adjusting information based on statuses, interests or some other characteristics of users is a reality.

Making a list of potential clients who would have information delivered via mobile devices in postal sector is a relatively achievable task. Survey is a possibility when it comes to already existing clients. Potential clients can be informed based on information from database about PAC (Postal Address Code). Every address can be delivered a consignment with information about accessing mobile service. Free access to the mobile service is already being practiced by companies which value their clients even in our region. Location based service could offer to clients in postal units information about new or hardly known services which, based on marketing activity, at least when it comes to domestic public operators, aren't accessible enough.

Users' social networks based on location can offer information about business of resources in near-by locations, sharing experiences with other users on the network about services and products, information about possible waiting queues and business hours, as well as prolongation of business hours if the number of potential requests is higher than expected (holiday jam while paying bills or turning in consignments etc.).

2.2. Mobile Selling Point as a Support for Hybrid Space

Charging postage on consignment acceptance, especially when it comes to non-standard consignments which must be brought to a counter of a postal unit, means a client would have to wait in a queue if the number of present clients is bigger than service capacity. Physical places of consignment receipt are reduced down to counters with required equipment for receiving, such as electronic scales and POS (Point of Sale) device. Increasing the number of available counters in case of queuing can be done easily by turning client queues into mobile points of reception, using a modified mPOS (mobile Point of Sale) device.

Mobile device for charging postages, mPOS, is a system of transmission equipment for scanning, postage counting and receipt (receiving confirmation) printing. This device can read franked consignments, re-print postages and count postages which the client shall pay through credit card reading, just like at any other POS terminal.

3. M-paying – the Increasingly Present Future

Minor payments via mobile phones, such as paying for parking, mobile payments to online accounts, etc. are

becoming more and more common. Most mobile payments currently offered are being refused by clients for solely one reason – user safety. This is because realization of money transactions required providing clients' bank card numbers.

3.1. Electronic Platform: Post

The spotted problem and the care for clients caused the making of a trusted international electronic platform regulated by The UPU which integrates physical, financial and electronic postal dimensions:. post. This platform integrates e-post, e-market and e-management. The idea of developing. post platform is making an innovative business model by postal operators and their partners aiming to bring a new value to buyers.

Some of the management problems which. post should solve are: How can physical postal network be converted into the digital world? As a postal service provider, how can we guarantee to our clients safety and confidence in electronic communication and ensure they can receive their consignments in every part of the world, even during holidays or short business trips? How can the problem of undelivered shipments be reduced, which would also reduce expenses?

New. post domain differs from other domains, such as. com,. int or. org, mainly by its restrictive access, which is meant only for legitimate members of postal sector.

This domain enables governments and postal operators to define the internet space which can be used for safe realization of business transactions of any kind. This opens the possibility of development of electronic postal services outside the borders of postal administration. Also, this platform brings the idea of transmitting the trust in physical network into the digital world, especially on international level, when it comes to transference of official documents or legal contracts where the distrust in digital communication is especially present.

The problem of updating data about changing the address of clients who change their place of residence often, influences the possibility of regular consignment delivery. This platform offers to connect the physical and electronic address into a unique identifier. A client can simply update. post identifier from any place and by doing so, he/she provides a new address for consignment delivery. By updating addresses, the number of undeliverable shipments is in rapid decrease. Another role of the identifier is filtering direct mail by the hand of a client, which significantly reduces the amount of unwanted mail, and senders get a chance to adjust to clients. Access to. post is available from mobile phones from any place at any time, which is of great importance when it comes to integrating continuality of business processes and time differences.

The. post platform, among other things, enables both sides which participate in a transaction to know exact customs and tax charges before the transaction is over, simply by developing a systematical customs declaration, which hasn't existed up until now. Transparent use of the platform with tracking system (track and trace) integrated in it enables users to follow the trip of their order. Following orders via mobile phones makes even more sense, especially if the shipment is expected in a non-standard regime.

E-management services are developed so as to be available anywhere and at any given moment. One of the challenges which is being set for the countries' governments is enabling a universal service for their mobile citizens according to the defined international rules. Using. post domain can reduce charges of a universal service by combining traditional and new electronic services via mobile phones through hybrid communicational service.

3.2. NFC Technology and QR Code as an Option for more Efficient Mail Logistics

Mobile devices have stopped being just a symbol of communication a long time ago. Aside from other devices (which we will not discuss and which are related to fashion or status accessories) it also includes an informational device (whether it uses online or offline connections), as well as recording and updating devices (photos, videos). There are more and more department stores which have a serious approach to this question and offer their customers a solution in the form of buying and paying via their mobile devices. These two terms are separated by intention, because buying includes the phase of choosing a product or a form of service, while paying can be separated from it both in time and space.

Increasingly popular QR code opens new possibilities of using mobile devices. Source QR code is designed to enable additional information to mobile device users. The camera on a mobile device is supposed to scan a two-dimensional code, after which the client is redirected to a specific URL page which contains required information using a special software.

NFC (Near Field Communication) completes the story of mobile payments. After scanning information required for paying for a certain product or service, by activating NFC device, the financial transaction of a the appropriate amount of money is performed, which transfers a certain amount of money from a customer's account to the seller's account. Customers can choose products or services at any physical place, even via interactive boards, which have a certain offer for customers to choose from. These boards exist in big retail chains, such as Tesco or Casino. The question of safety of these money transactions leads us to new solutions, which offer information in form of a code, time-limited, which do not require providing any information regarding clients' accounts (card number or expiration date).

Latest UPU statistics show that over 6.5 billion packages and 346.5 billion letters have been sent during the year 2012, which points out the extremely large potential of the market, both globally and locally. Internal (domestic) traffic is especially interesting, given that, according to these statistics, it takes up around 99 per cent of this sum (UPU, 2014).

NFC technology, combined with QR codes, can increase the speed of scanning and charging postages for consignments which would be handed over on self-service counters or other places meant for automatized receiving. In fact, given the option of creating a free QR code based on different information about dimensions, weight and sending destination, the sender could simply equip the consignment with a QR code. Once the information on the consignment has been scanned, the postage would be

calculated automatically, which the client could pay using the NFC technology and a mobile device. The receipt for the transaction with details regarding the consignment would either be printed immediately if the client requires so, or it would be sent to the client's e-mail address, to be printed if needed.

4. Conclusion

Mobile applications were initially designed to make communication easier. The development of social activities sets new requirements, new challenges for new applications and new functions. Mobile devices surely belong to not only private, but also business environment. Communicating does no longer mean only transferring information, but also a corresponding (and fast) reaction in means of verification of the value of the transferred information.

Using mobile devices in business represents a great challenge for postal sector. Developing new applications requires improving, upgrading and coming up with specially designed solutions in order to provide postal service to clients.

Various use of mobile devices is present in all areas and most commonly means locating, following, gathering information, realizing and confirming activities. All these functions can be used in the field of postal service, in order to achieve a market advantage, good relationship with clients and optimal solutions for using existing capacities.

According to NSA (National Statistics Association) statistics for the year 2013, 87 percent of population in Republic Serbia uses mobile phones, the number of internet users has risen for 6.9 per cent compared to the year before, over 900 thousand people have bought or ordered products/service via internet during that year, and 30.3 percent of the internet population have used mobile phones to access internet when outside their house or office (NSA, 2013). That said, integrating the traditional and the new, electronic service, as well as using positive experiences of big postal managements and private operators can be of help in making a good starting position in the upcoming market competition and the fight for new service users.

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