

MOBILE TELECOMMUNICATIONS SERVICES AND MOBILE HEALTH DEVICES

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Abstract: Purpose. The purpose of this research paper is to identify the potential of mobile health devices with a positive impact on the public health care system from Romania. More people monitoring their health situation with the help of mobile health applications could lead to less money spent by the public health sector with treating more advanced diseases. Approach/ methodology. The analysis of the Romanian mobile telecommunications market and health situation of the population from Romania was based on statistics' analysis. Results. According to the analysis made, we could observe that focusing on the importance of mobile health devices that each smartphone owner should use may be a way to prevent and treat many of the health problems. Originality. The paper drew an objective analysis of the mobile telecommunications market from Romania, within the frame of mobile health devices' development.

JEL classification: M31, M38, M21

Key words: mobile telecommunications services; mobile health devices; public health sector; mobile telecommunications industry; mobile telecommunications market

1. INTRODUCTION

The development of information and communication technologies has found its benefits in improving the everyday life of people in various fields. One of its newest fields of application is mobile health, eventhough the Internet usage rate is very low in Romania, compared with the European states' average.

The hypothesis of this paper focus on the challenges and factors that affect the attractiveness of the mobile health applications' usage.

Therefore, this research work aims to contribute to the existing literature and will include relevant information, so as the obtained results will give the closest prediction for the mobile health future development.

The rest of the paper is organized as follows: in the next section we will provide a review of the existing literature, followed by research methodology

assessment and discussions on the main findings. The last section concludes the paper and takes into consideration the main limitations of this study.

2. LITERATURE REVIEW

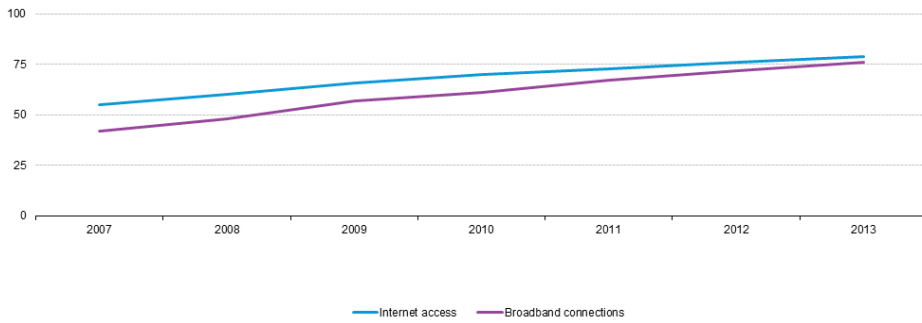
The law no. 95/2006 on health reform gives the following definition on the public health “health status of the population taking into consideration health determinants: socio-economic, biological, environmental, life-style, insurance to health services and accessibility and quality of health services provided”. (Law 95/2006) From this definition, we understand that “the desired outcome is always the same: improvement of the health status of the population”. (Baba et al., 2010, p. 31) However, in Romania there are some major problems regarding health promotion: “lack of funding, lack of properly trained workforce, lack of appropriate background and lack of health promotion culture”. (Cherches et al., 2011, p. 41)

World Health Organization states that “a good health system delivers quality services to all people, when and where they need them”. (www.who.int) For that, “reorganization of the health service and renewed social policies have shown the need for innovative responses”, such as new mobile health devices used for health prevention and treatment. (Franco, Duarte, 2012, p. 56) However, new terms developed. Tele-hospitals define “the services that are offered within an hospital or between hospitals, clinics or other health care services providers”, while tele-home market is made of “devices to monitor from distance the patients”. (Mobile Communications Journal, 2014, p. 48) Telemedicine services offer: medical assistance, telecommunications services, IT medical assistance, e-health, health insurance, disease management networks etc. According to a BBC Research study, the market of tele-hospitals will reach 19.5 billion dollars in 2019 and will register a growth rate of 12%., while the tele-medicine market will register a rise from 6.5 billion dollars in 2013 to 24 billion dollars in 2019. (Mobile Communications Journal, 2014, p. 48)

3. METHODOLOGY

The analysis of the Romanian mobile telecommunications market and health situation of the population from Romania will be based on statistical data.

A percentage of 55% of the households had internet access at the level of the European Union countries in 2007, while the percentage grew to 76% in 2013. (<http://ec.europa.eu/eurostat>) However in Romania, only 56% of households had Internet access in 2013. (Mobile Communications Journal, 2014, p. 8) (Figure no 1)

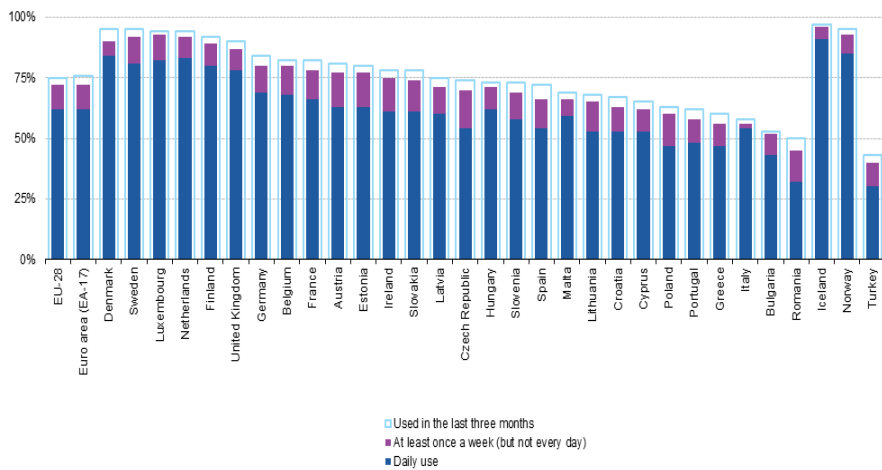


Source: Eurostat (online data codes: isoc_pibi_niac and isoc_pibi_hba)

Source: Eurostat online database, accessed 12.02.2015

Figure no. 1 Internet access and broadband internet connection in European Union (2007-2013)

Another challenge for mobile telecommunications services is the ability of people to make use of the mobile communications devices to access Internet services. At the level of the year 2013, 79% of the people from the European Union were using internet services, while 21% of them never used this service. However, 42% of the population from Romania never used Internet services at the level of the year 2013. (Mobile Communications Journal, 2014, p.8) (Figure no 2)

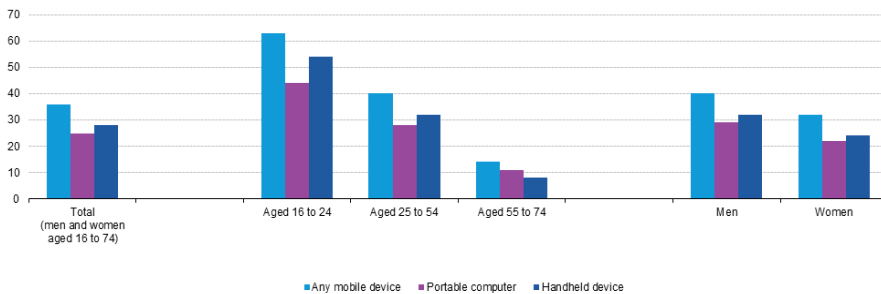


Source: Eurostat (online data codes: isoc_ci_ifp_lu and isoc_ci_ifp_tu)

Source: Eurostat online database, accessed 12.02.2015

Figure no. 2 Frequency of Internet use in European Union, 2013

As we can see from the figure no 3, over 60% of the people aged between 16-24 used any mobile device, followed by 40% of people aged between 25-54 and approximately 10% of the people aged between 55-74, at the level of the European Union member states, in 2012.

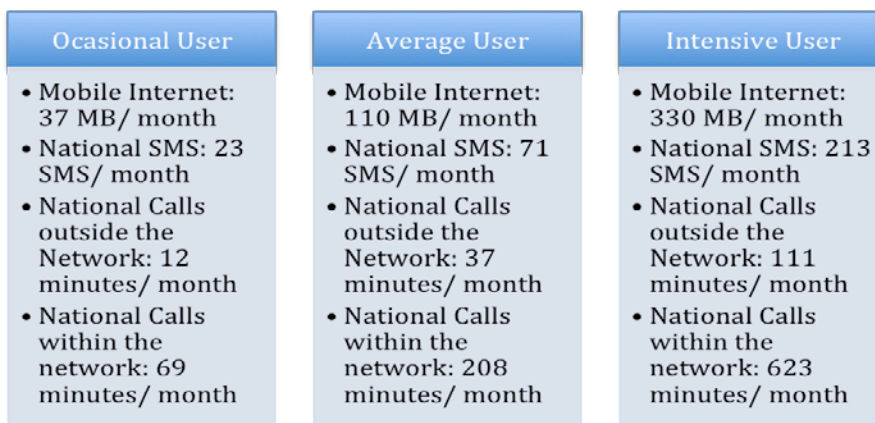


Source: Eurostat (online data code: isoc_cimobi_dev)

Source: Eurostat online database, accessed 12.02.2015

Figure no. 3 Use on internet on mobile devices by age group in E.U. (2012)

The National Authority for Administration and Reglementation in Communications (february 2015) established the profile of mobile telephony and mobile Internet user (Figure no 4):



Source: www.veritel.ro, accessed 22.02.2015

Figure no. 4 Mobile telecommunications services users profile

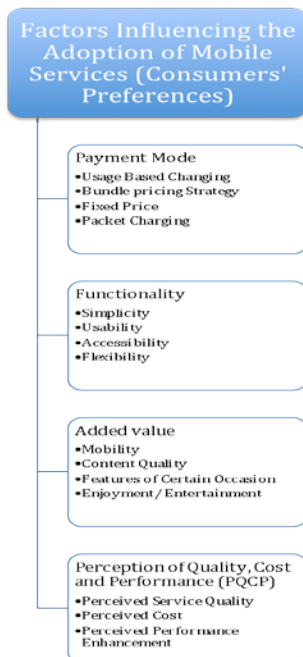
As we can observe from the figure no 4, for an intensive user, the internet usage on mobile device is only of 330 MB/ month in average. This is due to the fact that the mobile telecommunications companies did not give importance to this service till the recent period of time, when they put into practice the unlimited formula of mobile telecommunications subscription types. Each mobile telecommunication services provider offer an unlimited package (Figure no 5):

Orange 20 euro/month	Vodafone 19 euro/month	Telekom 29 euro/month	Digi Mobile 10 euro/month
<ul style="list-style-type: none"> • 1,5 GB National Mobile Internet Traffic • Unlimited National Calls and SMS • 300 Minutes for International calls towards Fixed and Mobile Networks • Mobile TV Channels 	<ul style="list-style-type: none"> • 1,5 GB National Mobile Internet Traffic • Unlimited National Calls and SMS • 250 Minutes for Internet Calls towards Mobile 	<ul style="list-style-type: none"> • 1,7 GB National Mobile Internet Traffic • Unlimited National Calls and SMS • Unlimited Internet calls towards Fixed Networks • 62 Mobile TV Channels 	<ul style="list-style-type: none"> • Unlimited National Mobile Internet Traffic • Unlimited National Calls • Unlimited International Calls towards Fixed Networks • 3000 minutes of International Calls towards Mobile Networks

Source: www.orange.ro, www.vodafone.ro, www.telekom.ro, www.rcs-rds.ro, accessed 22.02.2015

Figure no. 5 Unlimited mobile telecommunications services' subscription offer

Nikou S. and Mezei J. (2013) designed a model for factor influencing the mobile service adoption (Figure no 6).



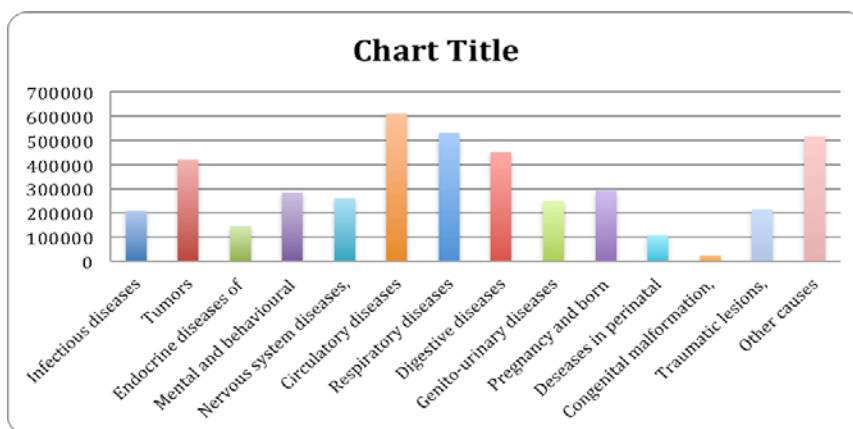
Source: After Nikou S., Mezei J., 2013

Figure no. 6 Factors influencing the adoption of mobile services

However, besides the subscription package offered by the mobile telecommunications providers (payment method), there are some other elements that have an influence on the adoption of mobile services (Nikou S., Mezei J., 2013): simplicity (the use of mobile services should require only minimum knowledge of the technology, a user can quickly understand how the mobile services work, mobile services should be accessible anytime/ anywhere, the capability of the mobile services to adapt to personal profiles or requests), added value (the capacity of accessing the real-time information and communication, while the user is on the move, the capability of offering recent, correct and timely contents, the occasion where use of a particular mobile service is the only available solution, such as: buying a mobile ticket, when one does not have cash, capability of mobile services to fulfill entertainment needs and is considered to be an important construct that will affect consumers' intention to use mobile services), perception of quality, cost and performance.

5. RESULTS AND DISCUSSIONS

In order to underline the potential of mobile health devices, we will make an assessment on the current health situation of the population from Romania. (Figure no 7)



Source: www.insse.ro, accessed 12.02.2015

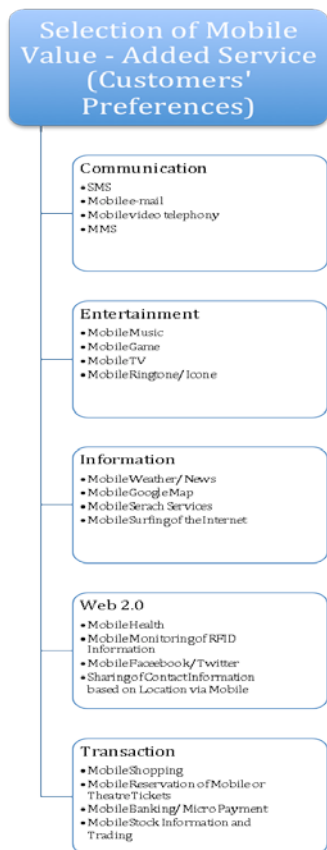
Figure no. 7 Main diseases registered in 2013 in Romania

As we can observe from the Figure no 7, the main health problems of the population from Romania are: circulatory diseases (609 396 persons), respiratory diseases (529 751 persons), digestive diseases (451 555 persons) and tumors (420 092 persons). However, from the total population of Romania, 4 319 811 people were registered in hospitals as having a certain type of disease, which represent approximately 20% of the total population. This percentage represents only a small part of the total population with health problems. We suppose that a large number of people with health problems use self medication.

A study made by Wolters Kluwer Health conducted by Ipsos in 2013 states that the main sources of medical information that the patients use are: professional journals (84%), web browsers (80%), colleagues' advices (80%), on line free services

(76%). However, the same study states that the main usage of mobile smartphones is for: access to information about pills (72%), access to medical research (43%) and communication with the doctor or nurse (44%).

In a study made by Nikou S and Mezei J. (2013), the authors presented an Analytic Hierarchy Process Model (AHP), aiming to identify the most preferred service category based on users' preferences and the most influencing factors for mobile service adoption. (Figure no 8)



Source: After Nikou S., Mezei J., 2013

Figure no. 8 Most important mobile service category

As we can see from the figure no 8, Mobile health service (clinical diagnostic, doctor appointment reminder, diet recipes etc.) is also part of the mobile telecommunications' services users. However, depending on the main health problems of the population of Romania, mobile telecommunications operators may try to develop adapted mobile health applications.

Analyzing the number of mobile health applications downloaded, we could observe that the top is occupied by mobile applications to lose weight (12.5 million), mobile applications for calories count and diet (11.7 million), mobile applications for pregnancy monitoring (2.5 million). (Mobile Communications Journal, 2014, p. 51)

Another important matter in health care services, that we should consider is the servuction process (the experience of the user). Usually, its main stages are (Mobile Communications Journal, 2014, p. 51):

I. Making an appointment (45 days is the average time for a patient to visit the family doctor);

II. Visit to the doctor (21 minutes is the average time the patients wait to be seen by the doctor);

III. Following the doctor's advice (12-15 seconds is the average time the patient tells his health problems to the doctor);

IV. Following the health evolution of the patient by the doctor.

5. CONCLUSIONS

Focusing on the importance of mobile health devices that each smartphone owner should use, it may be a way to prevent and treat many of the health problems, with a positive impact on the public health care system.

Mobile telecommunications companies should be interested to promote the use of their devices, together with the use of internet services, with a positive impact on the public health care system. More people monitoring their health situation with the help of mobile health applications means less money spent by the State with treating more advanced diseases.

However, the Government, together with the mobile telecommunications companies, should collaborate together and create some measures for the benefit of the population's health, such as campaigns to promote mobile health devices for all ages. Doctors and media should be the main messengers for these campaigns.

This study is just a starting point in trying to identify the importance of new mobile telecommunications technology for our own health primary detection and control. The research results can be of interest not only for the mobile telecommunications operators that are present on the Romanian market, but also for the State.

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