

# Problems of Innovation Development of Wireless Data Transfer Branch in the Cellular Market of Kazakhstan

Yessengeldy Kuanyshpayev

**Abstract**—Now in some countries of the world the cellular market is on the point of saturation, in others - positive dynamics of development kept on. The reasons for it are also different, but there are united by their general susceptibility to innovation changes, if they are really innovative. If to take as an example the cellular market of Kazakhstan it is defined by the low percent of smart phones at consumers, the low population density, undercapacity of the 3G channel, and absence of universal access to the LTE technology that limits dynamical growth of this branch. These moments are aggravated by failures of starting commercial projects by private companies which prevent to be implemented and widely adopted to a new product among consumers. The object of the research is possible integration of wireless and program technologies at which introduction the idea can regenerate in an innovation. The analysis of existing projects in the market and the possible union of the technologies through a prism of theoretical bases of innovative activity shows that efficiency of the company by development and introduction of innovations is possible only thanks to strict observance of all terms and conditions of the innovative process which main term is profit. Despite that fact that on a global scale the innovativeness issue of companies is very popular, there are no researches about possibility of innovative breaks in the field of wireless access to the Internet in the cellular market of Kazakhstan.

**Keywords**—Cellular market, commercialization, innovation, the effectiveness of company.

## I. INTRODUCTION

ALREADY nobody needs to be convinced that innovations – it is an important component in the course of reception of unique competitive advantages of the modern company in particular and increases in indicators of national economics as a whole. But thus there are certain barriers on a business way to innovation development. Here we can remember lack in technology, prevalence of raw sector, corruption, bureaucratic restraining of initiatives from bottom-upwards. But the main problem on this way is rigid control of the company by management and proprietors, which project it from external environment (the state pressure, change of market conditions) onto internal environment, suppressing feedback with employees, partners and consumers [1].

Therefore to achieve a sustainable development managers need to change the relation to an innovative component of management of the company, to make its equal to strategic management, to create their indissoluble symbiosis,

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complementing operating activity by research one.

And the companies start to search for methods to display creative approaches in the decision of performance targets and search of new possibilities. Accordingly it is necessary to find and analyze new ways of development-production-distribution of products and services. And for this purpose we need people who are capable to make it. It means there are necessary certain conditions in management at which the creative ideas of the people become daily tradition, without fear to create and develop new ideas [2].

Thus creativeness can be shown both in corresponding divisions of the enterprises, and by means of feedback of partners and end users of products and services. But we haven't to forget thus that only under condition of transition of arising ideas as result of creativeness on level of an operational implementation creation of successful innovative processes is possible which intertwining with existing business processes will form new innovative structure.

Also it is known that the most part of ideas will not regenerate in practical model, does not become a reality owing to many reasons. As well as any innovations embodied in a reality will be no successful. It means here will not help neither the charismatic leader, nor the regular foreteller any more, and we need such methods of launching of new products and services corresponding to present time when risks of a possible failure in the market and financial investment will not stop the companies from possibility of efficiency growth of its activity.

## II. DEFINITION OF INNOVATION AND ITS KINDS

Adequately to research features of innovation development, it is necessary to fix such terms, as an innovation, innovative process and innovative activity.

For the first time definition of innovation has appeared in scientific researches in 19 century and meant at that point of time entering of some elements of one system in another. With development of technologies interpretation of this term changed also. And in 1911 the Austrian scientist J. Schumpeter in the work «Theory of economic development» was entering definition of an innovation, describing innovative process as process of forming of new combinations as a result of production reorganization thanks to attraction of new technologies, occurrence of new raw material, introduction of new products, and creation of new sales markets.

There were many interpretations of this economic category along with Schumpeter – it was and change, and specific item,

and the whole of actions, and mastering of new products, and process. Literally the word "innovation" is translated as entering new and means process of use of innovation or invention. Thus, from the moment of creation by the time of realization in practice the new idea becomes an innovation. And process of this transformation is called as innovative process, thus launching of an innovation to the market - commercialization. At the same time only under condition of presence at new idea of scientifically-technological novelty, production realizability and economic efficiency, it can be embodied in practice as a new product or new technology.

Authors of the article completely share opinion of the author of book «Analysis of efficiency of innovative activity» Yashin S. N. offering following definition of an innovation [3].

The innovation is a process of realization of a new idea in any sphere of life and the activity of the person promoting satisfaction of existing requirement in the market and bringing economic benefit [3].

From the nature of satisfied requirements the innovations can be divided on basic (creating new requirements) and improving innovation (they are focused on existing requirements).

From the field of application the innovations are divided on produce (new products and services), market (open new fields of product application, allow to implement service in the new markets) and technological (extend on production methods) innovation.

From the origin the innovations can be strategic (prediction innovation for reception of unique competitive advantage) and reactive innovation (arise as the answer to a step of the competitor not to lose a position in the market).

Similar division of innovations allows to bind a company strategy to specific type of innovations, to create depending on innovation type economic mechanisms and organizational forms of management, to choose certain forms and methods of innovation development as for each given innovation there will be specific, specific processes of development and introduction, a condition of realization and the further market promotion.

So, it is time to make one more definition, namely innovative activity which represents process of transformation of results of researches, developments and scientific and technical achievements in the new or improved product ready to be realized in the market, and in the new or improved technological process used in practice.

It means, the company can whether acquire new technology, having entered into the agreement with scientific research institute or design office, or create it by its own efforts, having opened separate innovative division. To go in one way or another for the company it will be depended on a stage of development of the company and application scope of the innovation.

For complete understanding we offer to study contents of another economic category as innovative process.

Innovative process is a process of consecutive transfer of idea to an end-product, service or technology which are

implemented or distributed in practice.

The innovative process can be broken into following stages of realization:

- Scientific achievements;
- Applied researches;
- Development efforts;
- Introduction;
- Major distribution of an innovation;
- Use of technology;
- Technology depreciation [3].

Objective of this research is the example of introduction of an innovation as transition from an introduction stage to major distribution of an innovation conceals in itself special hazard to realize the innovative project.

### III. TARGETS OF AN INNOVATION, BENEFITS AND RISKS

To determinate the purposes of an innovation it is necessary to predict its consequences and importance. Undoubtedly, achievement of technological leadership is desirable by default, but in the conditions of rigid competitive market when the market is in a point of the maximum saturation, it is necessary to choose what it is more important: tens insignificant, but quickly applicable and slightly cost updating of a product or one fundamental innovation which can make business break in some years.

As already it has been described above, the typical purposes of innovative activity of the company can be: a new product or service, product and production process improvement, introduction of innovations in all kinds of organizational and administrative activity.

To specify the purposes, it is necessary to develop an innovative policy which main principles will be as follows:

- To provide growth in demand for product or service both already existing consumers, and potential through development of new or advanced results of activity of the company, including expansion of sale sphere;
- To develop continuously innovative potential of the company and to arrange conditions for creation and realization of innovations;
- Non-material and material stimulation of the personnel;
- To call partners and consumers to generation of innovations;
- Accounting of risks.

Core benefit of innovative process, certainly, is cash income. But if to be limited to these and declare that it is also an ultimate purpose, so managers of the company often express concern and alarm. The matter is that their company cannot adequate to estimate result of the innovative actions. And they see that the size of return from innovations is not too great, as it was planned. It means the income is too narrow indicator of innovativeness and where it is considered creativeness, motivation, contribution to progress of the human? Thus, there are still indirect benefits from an innovative activity:

- To get knowledge and as result to increase in a stock of knowledge of the company;
- To strength positions of the company brand;

- To strength communications with external environment (society, state);
- To increase level of stability of the company from within [4].

But it is only indirect benefits and their value it is not equal to zero only in case of reception by the company of cash income, and only in aggregate they will generate the effectiveness of company.

The risk always also is inevitably connected with innovative activity. And it is presented in financial risk of proprietor of company and investors which in turn represents possible losses at failure to achieve purposes of the innovative project. Thus the risk directly depends on location of this project, and it is minimum under condition of many of such projects and their differently direction.

For economy in whole and the company in particular, and not only in innovative activity, the main risk is the uncertainty created as a result of realization of made decisions during any time. And the probability of prospective advantages is necessary for considering at project development.

There are any kinds of basic risks accompanying innovative projects here:

- Economic risk (financing and accounting of project, making and realization of economic decisions);
- Risk of originality (possible absence of demand offered technologies and products by production and the market);
- Risk of technological inadequacy (a critical difference between technology as a product of intellectual activity and technology as object of investment);
- Risk of financial discrepancy (discrepancy of allocated means for realizations of the innovative project to its content);
- Risk of uncontrollability of the project (weak development of the project, unprofessional performance by managers);
- Legal risk (compliance with normative acts about intellectual property protection, obligations at contract execution, definition of rights to developments) [5].

Already there happen to be risks connected with market promotion of a new kind of products or services, competition of ideas and developments, and others risks that are badly predicted.

#### IV. RESEARCH SIGNIFICANCE AND TASKS

Significance of this research is in the analysis of a current condition of innovative practice of cellular operators in Kazakhstan and the connected with them companies in the field of data transmission. Despite that fact that innovations in the field became very popular issue among scientific works, all over the world there are no researches which have been conducted about innovative activity of the companies in the cellular market in Kazakhstan, and especially in the field of wireless access to the Internet. Also the issue of innovation processes in company became constant object of studying for many researchers, and many ideas at their introduction in practice did not become innovations as the reality for the companies can be different. Certainly, innovations get into

almost each business sphere more and more for this reason it is necessary to take into account that all theoretical features of innovative activity have been considered.

Thus, tasks of the research are as follows: to analyze a current condition of area of data transmission in the cellular market of Kazakhstan and to reveal advantages and risks at application of the innovative approach in the field, and also to propose possible solution for commercialization of the innovative project and meeting requirement using theoretical bases of innovative processes.

#### V. OBJECT AND METHOD OF RESEARCH

According to the report of the World economic forum "Global Information Technology Report 2014", Kazakhstan on network readiness index takes up the 38th position, being the leader of CIS region. For comparison, in 2013 Kazakhstan has ranked the 43rd place among 148 countries of the world. At the same time, if to compare to the nearest adjoining countries, the cellular market in Kazakhstan is till now in insufficiently developed condition.

According to all available data from analysts of the same forum level of mobile penetration in Kazakhstan has reached 164%. In 2013 this indicator was 172%. Owing to low demographic indicators (the increase in population in a year about 2%) and such level of penetration can be assumed that the cellular market has already come nearer to a saturation point.

Thus cellular service providers basically wage among themselves tariff wars which do not develop the market but only promote an overflowing of user's base from one provider to another. As to presence innovativeness in offers of the basic and additional services of operators, unfortunately, there is not any accurate and coordinated program of innovation realization now.

Because of administrative barrier – but not limited to - from the state a universal access to networks of the fourth generation cannot be offered. And after all the sands are running out, growth of volume of data transmission services annually increases by 25-30% and speed of access to the data will grow every year only, causing thereby demand in creation products and services relevant to expectations of the consumer.

At the same time unsuccessful attempts of introduction of innovative decisions in the cellular market, namely in data transmission sphere, providers and simply businessmen create incorrect representation about possibilities of this dynamically developing branch.

Therefore the arisen requirements for the innovative approach on expansion of data transmission area in the cellular market have led the author of the research to a choice as object of research creation of wireless access network to Internet in public transport. To execute appropriate research the following method of research has been chosen: the analysis of results of managing influence, i.e. the data directly influencing development of this or that market, during the different periods of time is analyzed. At the same time, the analysis of cases will allow seeing efficiency of those or other decisions

in various really taking place situations in branches of cellular communication and wireless access network to Internet.

#### VI. ANALYSIS AND RESULTS

The good example in this research that showed the high-speed wireless access potential was the start of wireless decisions in the valley of Etna volcano in Sicily. As a result of such project the majority of 700 thousand population and 200 private companies had an opportunity to completely use broadband Internet access and to find competitive advantages having avoided huge expenses thanks to introduction of a wire infrastructure. With financial benefits out of it there was also a wireless system that helped organize united work of people to eliminate consequences of various incidents, for example, volcano eruption [6].

Introduction of free wireless access in public transport in Europe was implemented in the beginning of 2000th and by the end 2000 it reached Russia. Meanwhile the first innovative impulses in this direction basically were unsuccessful possible caused by following reasons:

- Granting of Internet access channel lease to commercial companies by the providers;
- Unavailability of the market to mass using of the product;
- Defects in marketing service;
- Worked profitable component absence in the project.

Such reasons will also become a subject for analyzing thanks to which there will be offered possible solution for the successful start of the innovative project.

The after the first failures the situation started improving only after start of wireless access by communications service providers.

Innovative process subjects saw the following advantages of introduction:

- In favor of the state and transport companies is the increase of comfort for passengers and public transport movement popularization especially for youth and also competitive advantage among transport operators;
- In favor of the operator of cellular communication is the mobile Internet popularization, advertising of services and increase of loyalty level to a brand.

The service consumer thus saves money spent within the limits of the tariff plan of a SIM card as well as the phone device battery life thanks to the steady signal of Wi-Fi-router network.

Thanks to “feelers” technology the operators of cellular communication having begun with regions fulfilled schemes of introduction and worked over the solution for mass character using of service [7]. Besides, it allowed not to involve considerable financial resources for the investment into the project with a considerable quantity of public transport buses and whenever possible to manage own circulating assets.

But the main cause the Russian operators have begun not with capital level cities was the insignificant network loading as the provision of qualitative communication required to connect public transport by LTE because of the big traffic flow and covering by LTE is not used by all operators of

cellular communication and, moreover, the existing 3G channel capacity leaves much to be desired [8].

One more indicative example was a free Wi-Fi-network in the Moscow underground. But the mandatory condition of free using is the authorization through the browser, i.e. the redirecting through own information-entertaining portal of the underground will be result of connection to a “Mos\_metro\_free” network [9]. For the given research the example of symbiosis of wireless and program technologies is important.

In Kazakhstan only in 2013 started pilot projects on Internet wireless access at bus routes. The reasons of the first failures were same as for the Russian companies and have been described above. The research covers the project start example of the private company in Karaganda. Even in spite of the fact that cost of a basket of cellular communication in Karaganda was most expensive in Kazakhstan the project worked less than a year. As the head of private company declared the business in Kazakhstan had not grown as high as Russian one where similar projects were successfully implemented [10].

However the wireless systems developed by cellular communication providers keep on being established in Kazakhstan regions and there’s no necessity yet to speak about profitableness of these projects and thus of innovativeness which main component is a profit availability.

Before considering the solution of the decision for profitableness of similar projects it is worth telling about development of LTE technology in Kazakhstan. Among four cellular communication providers only one (Altel with 7,2% in the market) has the license for 4G frequency being the affiliated company of the fixed-line telephony state operator [11]. Other three companies: Kcell (46,6%), Beeline (35,1%) and Tele2 (11,1%), despite their readiness for mass introduction of LTE are forced to wait till 2018 as the Ministry of Communications promised to consider the issues of licences from that year [12]. Considering insignificant quantity of the smart phones supporting 4G and low population density the WiFi-routers can play a dominant role in development of industry of data transmission. For this reason the companies should develop access channels and increase their capacity and the availability of LTE will be also a development determinative.

As a result of the analysis of Internet wireless access development in foreign and domestic industry the started projects profitability absence found in the cellular communication market became the constraining moment in development of efficiency of the company. The possible decision can be the combination of wireless technology for free access to the Internet and program technology in the form of a program complex which will allow monetizing the Wi-Fi-traffic and getting of constant profit on advertising broadcasting would allow the company commercializing the project and making it really innovative. Thus as a result of connection to a network there will be a redirection on an advertising banner or on a site of the advertiser. It is possible to move further and depending on a public transport kind to offer the advertiser a fine adjustment of the advertising

campaign considering geotargeting, broadcasting time, quantity of views, the budget etc. The use of own resources for creation of the similar program or the purchase of ready decisions is already at the company choice and is a separate topic for research.

#### VII. CONCLUSION

Conformity of any new innovation practical realization to innovative activity theoretical bases would help save the company's power and money which can become a real help in increase in efficiency of the company. Operational and innovative activity symbiosis creation instead of their parallel coexistence in company structure will allow starting the mechanism of creativeness and maximum personnel effectiveness and daily challenging quickly changing reality.

The analysis indicates the existing realization of an innovation in practice disturbs to an innovation wide circulation in the market. The decision of this problem can be taken from this work though it needs to be finished and additionally researched. The main thing was to show that all components of innovative process are obligatory for execution at project planning.

The occurrence of such really innovative projects will bring appreciable advantages to the state by developing population demands and by unloading transport flows in big cities to some extent; as well as to transport companies by strengthening appeal of using the service of transportation and the comfort; and to private companies the subjects of the market by strengthening innovative structure, confidence of the personnel in the future, increasing efficiency, thereby raising investment appeal of industry in particular and national economies as a whole.

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