CONSOLDIATION ON SMALL TELECOMMUNICATION MARKET

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Abstract: *Telecommunications are one of the fastest growing industries in the world and this brings serious challenges in industry technological and market development. It is very important to enable sustainable development of telecommunication networks and services to enable fast and sustainable growth at the same time. This chapter presents the model for the consolidation on telecommunication markets which derived from principles of theory of systems. Methodology has been researched through case study in a real telecommunication market environment in small country. Authors conducted time series analysis on all four telecommunication products and aggregate economic parameters on major market competitors to test rationale for consolidation action which should bring sustainable growth of the telecommunication services in country by creating stable economic environment to provide quality of service and technological development.*

Key words: *telecommunication, consolidation, sustainable development, case study, theory of systems*

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1. Introduction

Telecommunication market has been growing fast in the last two decades. Convergent telecommunication operators operated in four major areas: mobile telephony/services, fixed telephony/services, broadband or internet services and lately, delivery of television services over existing telecommunication platforms. The telecommunication industry boomed especially in the mobile and broadband segment. There is a difference in telecommunication in the developed and developing countries.

According to ITU (2015), 3.2 billion people (little less than 50% of total population) globally are using the Internet by the end of 2015, out of which 2 billion are from developing countries. For every Internet user in the developed world, there are 2 in the developing world. However, 4 billion people from developing countries remain offline, representing 2/3 of the population residing in developing countries.
Globally the structure of the market is changing so the business have to adapt to new challenges. The middle-income class of emerging countries has been increasing, and these consumers in each country demand products at low prices (Takeguwa&Veza, 2013).

Many authors are noticing that telecommunication market is changing rapidly. Therefore new business models and regulatory actions must be developed to cope with the situation. The structure and character of the European Union (EU) mobile telecommunications market are changing (Whalley, 2004).

In Europe and US telecommunication firms have steadily consolidated in shrinking pool of providers, rapidly oligopolizing the industry (Wharf, 2003). But, this is not necessarily negative trend in small economies. While on the developed market consolidation is typically aimed to raise profits for the owners, less developed small markets may use consolidation to boost the development and penetration of services. Small economies need to develop sustainable strategies to cope with the fast technology growth. The ability to change, to respond quickly and - even better - to be involved in shaping the changes that are taking place is thus more important than ever (Buchmeister, Palcic, 2011).

The question which authors address is whether there is a method which can facilitate faster telecommunication growth in small countries with low GDP/capita. The key parameter of development shall be actually broadband penetration, while mobile services market is typically saturated, fixed services in delivery of voice constantly falling. TV services is typically connected with broadband services and delivery through fixed network.

Similar trends are noticed in model country where the case study was conducted. Growth and trend levels are similar to less developed country trends.

Research question is whether we can market condition for small telecommunication market that will enable sustainable growth of the technology and protect the customer against overcharging? Is there a market condition suitable where both technology growth and customers prices are optimal? Is the open competition suitable for small telecommunication markets?

Methodology and hypothesis shall be developed first.

2. Developing a methodology

2.1. Observation and description of the phenomena

For the purpose of developing a method we consider telecommunication market as a system that operates within regulated borders. Therefore we will analyse the market as a whole and will consider relationships between aggregate sub-systems in order to understand the behaviour of the system.

A systems theory is a theoretical perspective that analyses a phenomenon seen as a whole and not as simply the sum of elementary parts. The focus is on the interactions and on the relationships between parts in order to understand an entity's organization, functioning and outcomes (Mele, Pels, and Polese, 2010).

Using the principles of the system theory will help us to use a model that will help understand the faster telecommunication growth in small, low GDP/capita countries which typically lag in development in telecommunication area. Models generally represent a wide and considerably varied area of means and ideas that differ in terms of their function as well as the method of their implementation (Jadlovska et al., 2014).

One of the main characteristics of low GDP countries is that the low purchase power of the population drives telecommunication operators to compete primarily on prices which has a result in low ARPU (average revenue per user). In small countries or countries with the low population numbers it is effectively difficult to achieve economies of scale for telecommunication operators. Typical economic model where at least 3 network operators are competing to achieve optimal service and price level may not be optimal for smaller countries. Even on a bigger scale it has been noted by the EU Commission that market fragmentation prevents EU carriers from capturing economies of scale and scope. America's two largest carriers are each larger than the three largest EU carriers combined.

There is broad agreement that the EU mobile wireless market is underperforming relative to other advanced economies, including the U.S. We find that the EU is lagging well behind the U.S. in deployment of next generation wireless infrastructures and the advanced services they make possible, and that EU consumers are worse off as a result. EU regulatory policies have resulted in a fragmented market structure which prevents carriers from capturing beneficial economies of scale and scope and retards the growth of the mobile wireless ecosystem. We recommend reforming and harmonizing spectrum policies, permitting efficient levels of consolidation, and promoting innovation by fostering dynamic competition (Bohlin, Caves Eisenach, 2015).

Considering the concern coming from bigger EU countries, the problems in small economies is much more accented due to market size. Two basic characteristics are potential problem for proper development of telecommunication market. Low ARPU is one and low total number of customers on the market (less than 3 million) is second. We consider these two characteristics as trigger for consolidation. Average revenue per user (sometimes known as average revenue per unit), usually abbreviated to ARPU, is a measure used primarily by consumer communications and networking companies, defined as the total revenue divided by the number of subscribers (Wikipedia, 2016). Low ARPU means that operators are undercharging their services, and we consider low ARPU one that is less than 50% of the average ARPU in the industry.

We consider low number of customers that the country or region has low number of inhabitants i.e. the number of potential users of telecommunication services is lower than 3 million.

For the purpose of building a method we consider that both conditions have to be fulfilled as this means that the operators are limited in potential of economies of scale and are getting too little revenues from its customers to enable sustainable development of telecommunication services.

2.2. Formulation of hypothesis

The question that we ask in this chapter is whether there is method to improve telecommunication market, enabling its sustainable development in low ARPU and low number of customers countries or regions?

When observing the phenomena and designing the hypothesis we need to be careful to find an optimum degree of generality as we are dealing with complex systems which are responsive to economic, social, political and human behaviour rules. To define the optimal approach we need to search a balance between specific and general.

Somewhere however between the specific that has no meaning and the general that has no content there must be, for each purpose and at each level of abstraction, an optimum degree of generality (Boulding, 1956).

The hypothesis is that the consolidation of market players, shrinking the number of operators from 3 to 2 will improve telecommunication market and enable sustainable development.

We will test hypothesis in a model country by research on aggregate data trending for all 4 telecommunication services (fixed, mobile, broadband and TV) and following 2 variables per service.

3. Research in a model country

In this section we will present trends in Republic of Macedonia in all four telecommunication services: fixed services, mobile services, broadband and TV services. Macedonia, officially the Republic of Macedonia is a country located in the central Balkan peninsula in Southeast Europe. It is one of the successor states of the former Yugoslavia, from which it declared independence in 1991. It became a member of the United Nations in 1993, but, as a result of an ongoing dispute with Greece over use of the name Macedonia, it was admitted under the provisional description of "the former Yugoslav Republic of Macedonia abbreviated as FYROM. It has approximately 2 million inhabitants and 564.000 households.

3.1. Fixed services

The fixed telephony market is facing a downward trend, due to the migration towards VoIP technologies. Both the total number of fixed lines and the number of fixed lines per population 100 have been continually decreasing. But fixed network represents a viable vehicle for broadband delivery.

Importance of the fixed network is low in voice services delivery.

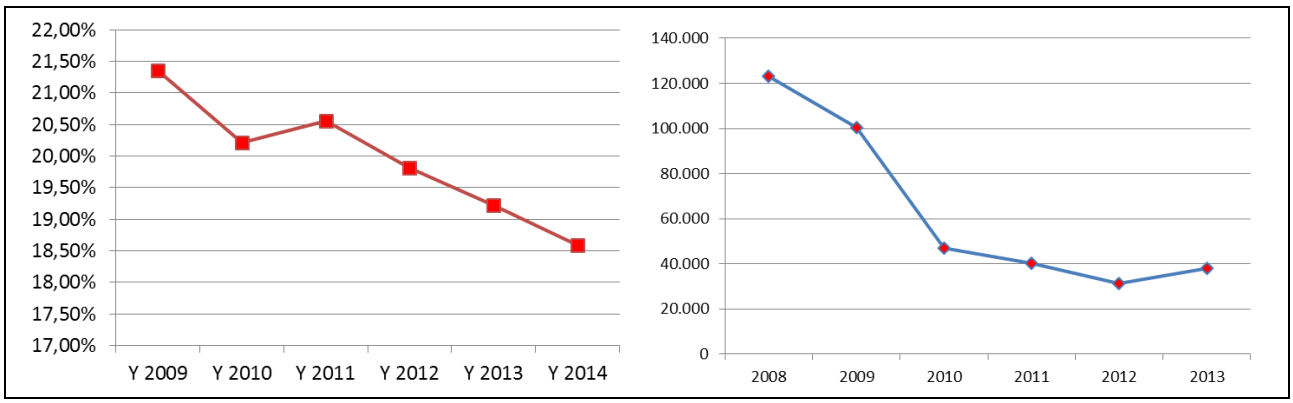

Fig.1. Number of fixed lines per population and total revenues from fixed lines

In Fig.1 we can notice on the left graph the trend of decreasing number of fixed lines from 21,5% in year 2009 to 18,5% in year 2014. Trend on the right side shows similar trend in revenues (in 000 EUR), sharp decrease from year 2008 to 2010 (drop to almost 30%) and then slower drop from 2010 to 2013. The revenues have dropped from 120 million EUR to 40 million EUR in 5 years. Moreover the predominant market share of incumbent operator which was more than 80% in year 2009, have dropped to around 60% in 2013. This means that only 40% of the market share is divided to 8 alternative providers which means that none of them is able to develop sustainable profit margins and achieve the effect of economy of scale.

3.2. Mobile services

The mobile telephony market is saturated, with a decrease in Q4 2014.This is due to the decreased number of active pre-paid residential subscribers. Post-paid subscribers have increased in both residential and business segments.

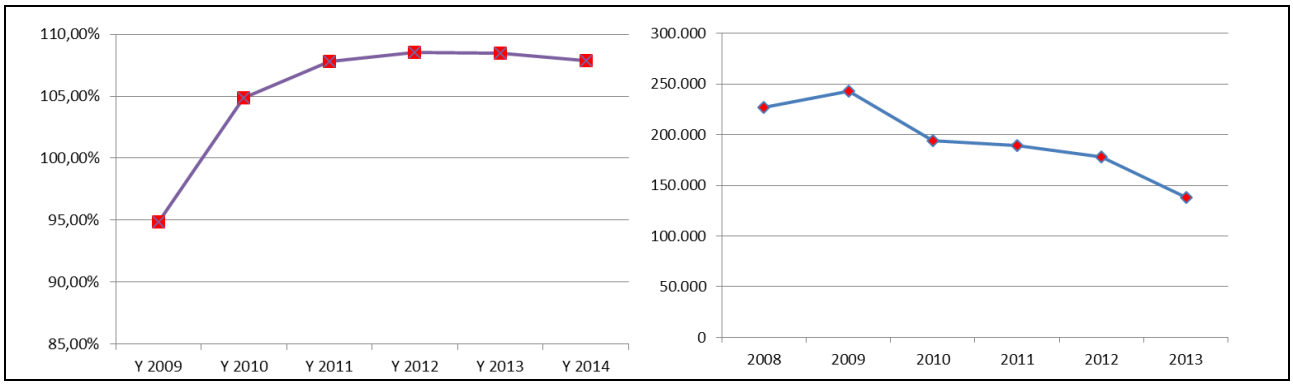

Fig.2. Number of mobile connections per population and total revenues from mobile services

In Fig.2. we see on the left graph that the percentage of population with mobile connections have increased from 95% in 2009 to 105% in 2014. The saturation of the market is visible from the 2011 to 2014 where the line is almost flat. On the right side the revenues have fallen from 220 million EUR to little below 150 million EUR, which represents drop of 70 million EUR or approximately 30% in 5 years. There are 3 players on the market, the incumbents market share have fallen from 60% in 2009 to

little less than 48% in 2014, two alternative players have almost the same market share of the remaining 52% (50/50).

3.3. Broadband services

The broadband market faces low growth, with a small increase in number of subscribers in all available technologies. The number of subscribers using baseband has a decreasing trend. Current state of broadband subscribers for Q4 2014 shows Cable and xDSL subscribers with 75% of the broadband market, with low growth of <5%.

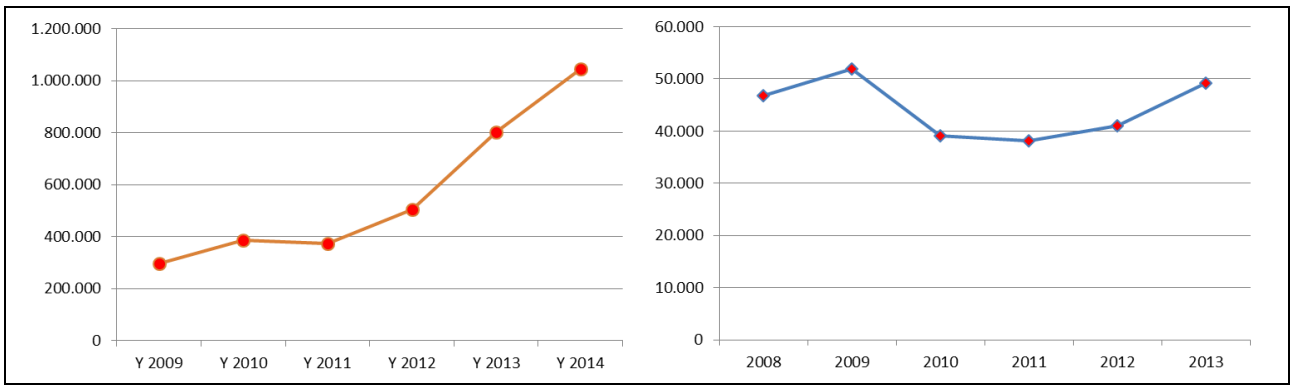

Fig.3. Number of broadband connections in total number and total revenues from broadband services

In Fig.3. we can see on the left side that the number of broadband customers have increased from 300.000 users (representing 15% of the population) to little more that 1 million users (representing more than 50% of the population in 2013). On the right side the trend shows more or less flat revenue stream from 45 million EUR in 2008 to 50 million EUR in 2013. Overall market grows around 10% per annum, totalling 5 million EUR growth in revenues in 5 years. In this market segment, incumbent has strong advantage due to existing copper wire network and infrastructure, enabling it to drive development on optic fibre network and offer premium services. Having more that 60% of the market share in the segment, 15 larger alternative providers share the rest 40% of the market. This means that none of the alternative providers is able to develop sustainable business model or achieve economy of scale effect.

3.4. TV services

The TV services market is saturated, with a small increase in the number of subscribers in all available technologies. Current state of broadband subscribers for Q4 2014 shows cable subscribers with 52% of the TV market, IPTV users represent 28% of the market followed by DVB-T with 16%. The rest of the market is occupied by satellite users. TV services market in the country is hardly regulated, illegal content is widely present therefore data on users and subscribers are estimated. Especially widespread and numerous cable subscribers are very difficult to assess due to analogue emission technology which does not able exact overview of the number of subscribers on the line.

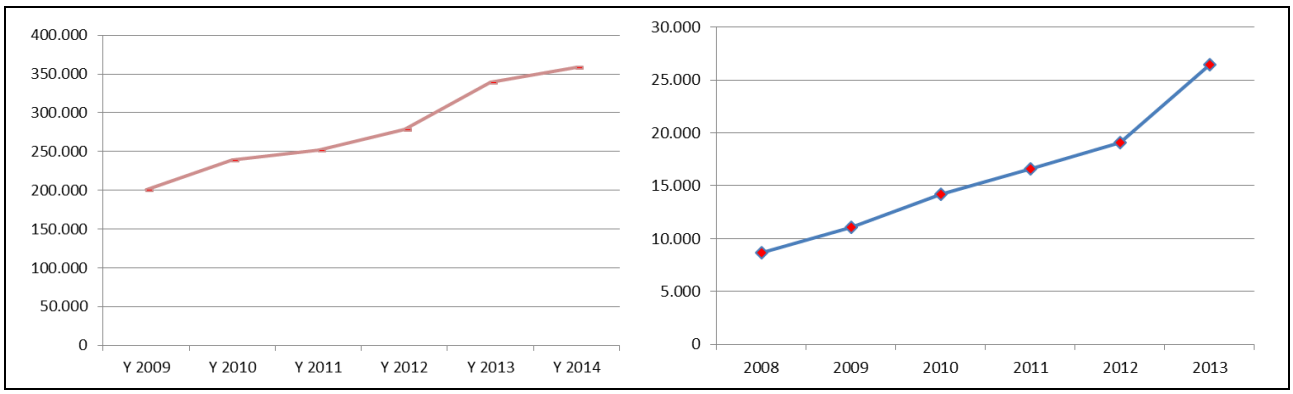

Fig.4. Number of TV services users in total number and total revenues from TV services

In Fig.4. on the left side we can see that the number of TV services users grow from 200.000 (representing 10% of the population) in 2009 to 350.000 (representing 18% of the population) in 2014. On the right side we can observe the growth of revenues from little less than 10 million EUR to 26 million EUR from 2008 to 2013. This represents growth of 60% in 5 years contributing 16 million growth in revenues in 5 years. In this market segment majority of the market is taken by cable operators, little more than 50% of the markets share, followed by IPTV with 28% and DVB-T with 16% while the rest of technologies represent not important share. Incumbent is more or less dominant in IPTV segment representing little less than 30% of the market share, large portion of the market is divided into a vast number of small cable TV providers (50 or more) with 2 dominant players sharing little less than 50% of the overall share of the cable TV market. Small size of the market players in all segments gives no room for developing economy of scale, incumbent operator having the operation as adder to main businesses, using the service to increase sales on other business segments.

4. Conclusion

Following the analysis of trends on two variables, number of users as a percentage of population or total number of users and total revenue in fours telecommunication segments: fixed, mobile, broadband and TV services we come to the conclusions per segment.

In fixed lines services we can note gradual decrease of the demand, both in number of lines and traffic. Fixed to mobile convergence is the main factor, but also OTT providers (Over The Top) have significant part. In broadcasting, over-the-top content (OTT) is the delivery of audio, video, and other media over the Internet without the involvement of a multiple-system operator in the control or distribution of the content (Wikipedia, 2016). The level of revenues from fixed line services is at less than 1/3 in 2013 compared to its value in 2008. The QoS (Quality of Services) mandated by the regulatory framework, as well as the contribution to and provision of Universal Service are shrinking the competitiveness of the larger regulated network operators towards unregulated OTT providers. Fixed line service is becoming a service that only add value to the fixed access service, with no specific potential to deliver suitable

financial results. However, it can be used as a delivery vehicle for broadband service, therefore it is important to follow the development.

In mobile services, saturation in the growth trend of number of subscribers and penetration is evident. Heavy investments in new technologies – 3G, 4G and massive increase of the transmission capacities drives profit margin down and putting a pressure on network operators. Alternative operators operate with small EBITDA and business losses. Because the scale of the market is among the smallest in the world, while the mountainous topography requires higher rollout expenditures putting additional pressure on profit margins. Due to this fact alternative operators struggle to gain additional market share which further decreases revenues while ARPU dropped to approx. 6 € thereby continuously decreasing the EBITDA. Moreover, the EBITDA margins of the alternative operators are more than twice smaller than the incumbent. It indicates that sustainable growth in the future is almost impossible. The mobile market is in saturation and is not a "pushing engine" anymore. For maintenance of competitiveness and satisfaction of the demand for mobile data, significant investments are required. It is achievable in case the customer base is big enough to enable appropriate return on investments.

In broadband services revenues grow, but its volume of appx. 1/7 of the overall revenues, it is not sufficient to replace the loss from mobile and fixed services. The traffic volumes grow at much higher rate, thereby increasing the costs. The sustainability depends on deployment of new NGN access and transmission broadband networks, requiring investments in large scale. Broadband is a key service in fixed access, as well as a platform for wide range of ICT services. It is already a necessity in the developed world. The operators have a challenge to determine a manner in which the infrastructure will take appropriate share in the production of the revenues and profits. Apart from this challenge, in order to accommodate the large scale of investments in modern NGN networks, higher scale of customers is necessary for achievement of appropriate return of investments.

No growth, but only continual decline of revenues in the overall market are recorded from 2009. In the period from 2009 to 2014 the sector faced a drop of 15%. During the same period, the investments have been significant due to the introduction of new technologies: 3G, 4G, DVB-T, Fiber Optics, IP Telephony, Docsis, …).The impact from OTT (Over The Top) services substantially increased providing alternative for services that contribute with premium revenues.

In order to enable further investments in the sector, while maintaining the suitable level of competition on the market, consolidation of the key market players is essential. The development of the market in competitive circumstances is more possible when the competitors have comparable scales and market shares.

Sharp decrease in fixed services revenues amounting to 80 million drop in the observed period (2008 to 2013) and 70 million drop in mobile services in the same period totals 150 million drop in revenues on the market in 5 years. This represents more than 40% drop of the overall telecommunication market in the country. Both services are in decline and due to the nature of fading use of fixed line services and saturation in mobile segment it is not likely to expect increase in revenues. The revenues are likely to continue falling in a somewhat lower pace in the next decade.

Both services that are increasing in both number of users and revenues contributed to only 20 million revenue raise thus amounting to only 13% of the lost revenue. The trend and market reality shows that those two services, also because of the extensive need for investment in new technologies, are not by far able to offset the fall of revenues in two main segment: fixed and mobile services. Strong incumbent and 2 smaller alternative network operators are driving the market into an area where no further investment can be made due to low EBITDA (Earnings Before Interest Taxes Depreciation and Amortization) margins and losses of both non incumbent operators. In case the situation persists we shall expect rather fast deterioration in quality of services and development of network which would not be sufficient to support the country's economy. Therefore, a sustainable solution needs to be found to stabilize the telecommunication market. The term sustainability has to be augmented by political, structural, economic and social dimensions. Only if sustainability is defined in this way it can support the growth of economies – even and especially in a view of the current economic situation (Müller & Glutsch, 2007).

Therefore, two non-incumbent operators announced a merge, which was approved by regulatory authority in 2015. The merge goal was to level the financial results of 2 incumbent operators by means of synergy in operations and lowering the competitive struggle which drive the revenues down too sharply for the operators to absorb. This is the rare occasion in a single country where 3 operators are decreased to 2. The merge was imminent and necessary to prevent further deterioration of service quality and development of telecommunication market.

Hence, the answer to the research question is that it is possible to find market condition for small telecommunication market that will enable sustainable growth and protect customers from overcharging. The answer is regulated duopoly market.

We propose this market consolidation for small countries with low ARPU and strong dominant incumbent operator. Typically, in economic theory, this is duopoly situation which is less optimal than competitive market of three, but due to the low ARPU and saturated market two weaker telecommunication operators were forced to decrease the investments into network and services. Dominant operator started to lose market share sharply and in connection with decreased ARPU also started to cut down on investments. This resulted in halt on some major market development projects such as optical fibre network (FTTH Fibre To The Home) and major upgrades on RAN (Radio Access Network). Projects were critical for delivery of quality broadband and TV services and fast deployment of 4G technologies. Competitive struggle without clear horizon of improvement was reason that operators have stopped all non performing project without clear ROI (Return On Investments) perspective.

Further study shall follow the market development and see whether the targets of the consolidation have been achieved and its influence on market and technology development. Special attention shall be given to the study of financial results of merged operators in order to estimate the merge impact and tendency of the operators to continue investments into network and services delivery.

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