Research Article

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The Infrastructure for Providing Electronic Communication Services and its Impact on Effective Competition

Jonida Gjika[1]

Renata Kau[2]

[1]*Dr., Lecturer, Faculty of Law, Political Science and International Relations, European University of Tirana, Albania*
[2]*Ph.D, Lecturer, Faculty of Law, Political Science and International Relations European University of Tirana, Albania*

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Abstract

The infrastructure for providing electronic communication services and its impact on competitiveness, including 5G technology, has been focused on several key dimensions. These include the allocation of frequency spectrum, investments by cellular network operators, and the role of sectoral policies in the development of 5G technology. Spectrum allocation is a critical step in the development of 5G infrastructure, considering the regulatory authorities' role in ensuring effective frequency utilization. Operator investments in building 5G networks are a crucial factor for technological advancement and market competitiveness. Furthermore, these aspects must be assessed within the context of competition and performance growth in electronic communication services. Particularly, 5G technology represents a significant factor in enhancing network speed and capacity, offering innovative and adaptable services for users and industry. Security and privacy aspects are also crucial, emphasizing the need for effective policies and regulations to safeguard user data and ensure a reliable electronic communication environment. In this regard, it is appreciated that the development of electronic communication infrastructure, particularly with the establishment of 5G networks, has a profound impact on competitiveness, heralding a new era of advanced and personalized communication services. Another aspect involves the analysis of the market structure with two cellular operators in Albania and industry expectations for investments in 5G technology, rendering it a distinctive situation as a market dominated by a duopoly, given the absence of MVNOs, and the role of the effect reflected by the use of OTT services. The duopoly market structure can present challenges and advantages for the sector, also considered as a factor that may influence the development of 5G technology. Investments in 5G infrastructure are regarded as a crucial step to expedite progress and enhance cellular services within the country. Competition between the two operators underscores the importance of appropriate regulation to encourage investments and ensure a healthy competitive environment.

Keywords: *5G networks, infrastructure, privacy, competition, duopoly, regulator*

1. Introduction

The infrastructure for providing electronic communication services is a critical component in the contemporary economy and society at large.

This infrastructure encompasses all technological and physical elements that facilitate the transmission of data and information electronically. The advantages and quality of this infrastructure have a significant impact on the competitiveness of a country or a company in the electronic communication market. In this aspect, it should be considered that the infrastructure of electronic communication networks is the most crucial and delicate link for the rapid and sustainable development of the telecommunications market.

This market, fully liberalized in Albania, operates on the basis of market economy laws, but the role of AKEP as a regulator is crucial to guide, facilitate, and further encourage this development. It is already acknowledged that the majority of the costs related to the construction and maintenance of electronic communication networks are attributed to the infrastructure construction costs. Therefore, a more significant reduction in these costs would enable faster development. There are numerous successful practices in various countries that have identified "infrastructure sharing" as the best approach to achieve optimal cost efficiency, emphasizing the common use of infrastructure.

One of the most important objectives of the EU in the field is the construction of high-speed networks as well as the joint use of physical infrastructure by electronic communications entrepreneurs. This is achieved through the construction of high-speed networks at lower costs, reduction of procedures, and ensuring the right of way for the construction of high-speed electronic communication networks. From this perspective, the potential impact reflected on electronic communication services resulting from increased efficiency in infrastructure usage is identified as the effective access of end-users. It is natural that a well-established electronic communication infrastructure enables service providers to communicate with their clients more efficiently and offer personalized services, leading to increased customer trust and improved performance in all aspects for relevant electronic communication service providers.

2. Research Methodology

2.1 Types of Research

This study highlights the current problems of the local legislation in relation to its alignment with the legislation of the European Union.

The research mainly aims to highlight the evolution of the regulatory framework in the field of electronic communications in the avant-garde with the region, the EU and the market as a whole.

2.2 Research Objective

This study aims to evaluate the effectiveness of the legal framework for the promotion and investments in the infrastructure of electronic communications with the aim of enriching the services that the user benefits from in this market and to analyze the practical challenges and obstacles in the implementation of EU legislation and to highlight the necessity of revising the legislation existing infrastructure investments, encouraging universal access to the latest technology, to prevent digital differentiation.

It also aims to examine the role of law enforcement agencies to protect user privacy and data, with the aim of inter-institutional cooperation to take measures to ensure data security and meet high standards of privacy protection. By eliminating poor security practices, as well as strengthening user awareness of online security risks and practices.

3. Result

This research will serve to diagnose the normative regression of this legal field in order to recommend alternatives to supplement and correct the legal and regulatory framework for increasing investments in infrastructure and mainly in 5G technology to take advantage of its advantages, stimulating competition , that right and to protect the interests of consumers.

3.1 The infrastructure for providing electronic communication services and its impact on effective competition

A robust and high-speed infrastructure of electronic communications can assist companies in delivering fast and high-quality services. This is crucial for applications such as video streaming, teleconferencing, and e-commerce, among others. The capacity in the service-providing infrastructure is directly linked to innovation and the offerings of new features, as the electronic communication infrastructure is a vital foundation for innovation and the development of new products and services. It stimulates and increases the chances for companies with access to advanced infrastructure to experiment with emerging technologies, consequently leading to consumer-specific products/services.

Access to infrastructure with capacity and efficiency extends the boundaries where electronic communication networks interact, becoming attractive due to standards and technology offered for access to effective international networks. On a broader scale, countries with well-established electronic communication infrastructure are more appealing for investments and serve as a magnet for international businesses. This has the potential to increase competition on a global level and create new opportunities for the local economy. Electronic communication infrastructure built with high-end technology and standards, especially in today's context, constitutes a crucial aspect in safeguarding against security threats and cyber attacks.

It is evident that a lack of security can damage the competitiveness and reputation of a company in the provision of services, consequently with ripple effects on both sides of the demand and supply in electronic communication markets and negatively impacting the performance of the national economy, as well as undermining the interests and benefits of consumers for respective products/services. Therefore, in this context, it can be clearly emphasized that to enhance competitiveness in the field of electronic communications, it is crucial for companies and countries to invest in the development and modernization of their infrastructure. This includes building fast internet networks, developing new technologies, and ensuring a favorable environment for innovation in this sector.

Moreover, international collaboration and adherence to international standards are crucial to ensure that a country or company has unrestricted access to the global market of electronic communications. Advancements in developing technology for the mentioned aspects, but not exclusively, have brought forth contemporary demands and serious planning in many countries. This involves the concentration of states and respective governments in various forms of collaboration to promote initiatives for developing capacities of current infrastructure and the specific aim of implementing 5G technology, including Albania. Investments in 5G technology infrastructure, with the goal of offering products/services in the electronic communication market, consider the portfolio of innovations towards the digital society in alignment with the national strategy. The national strategy aims to make products/services tangible for consumers in a relevant manner.

In this perspective, the Albanian electronic communication market, in its current phase with the introduction of 5G in Albania, is characterized by the fact that end consumers still do not have tangible access to products/services offered by 5G technology, as it is not yet active in the market. Consequently, from a statistical viewpoint and indicators measuring and assessing the market, this study does not claim to present specific indices. However, it is worth noting that Albania is not dissimilar to the countries in the region or a significant portion of EU countries, which do not report

any statistics with representative indicators of the electronic communication market attributed to 5G technology. These potential indicators, such as reconciliatory dimensions and network coverage dimensions for population and surface area, remain options to be evaluated in the future, after the granting of the right to offer 5G in accordance with the conditions set for potential providers of 5G technology.

However, what needs to be emphasized at this moment regarding 5G technology is related to the expectations for a qualitatively addressed meeting of the specific needs of both businesses and end consumers. Traditional mobile telephony markets will be focused on innovation that enables the digital transformation of sectors of the economy, relying on a noticeable increase in quality parameters through applications. These sectors will seek a specific level of service access quality in 5G, in connection with requirements that can cater to peak data traffic, user device mobility, symmetry for upload and download, etc. Investment in 5G networks is expected to bring new possibilities, considering the profound changes that 5G technology will introduce in networks, devices, and applications, along with heightened security concerns regarding the integrity and availability of 5G networks. This includes particular attention to promoting internet security for these networks and all services dependent on electronic communications.

Therefore, even in an academic study context, in the market perspective, investment in 5G technology should take into consideration the supply-demand relationship. The potential study on consumer demand remains to be evaluated in conjunction with the expectations built for the products/services that 5G technology will enable in the electronic communication market, with a direct impact on sectors and other areas of socio-economic life in our country. In principle, developed and competitive markets fundamentally rely on careful alignment between economic freedom, effective competition, and other institutional factors influencing market development. These factors, when combined, collectively determine its overall performance and the identifying features of positive market development, constituting the foundation of economic development and, consequently, our daily lives.

The main focus in high reality is on technology in an aspect of the objective of the specified objective and flexibility in these honest stories that consider the alignment between the innovation required correspond necessary that also identify their objectives, and their nature.From this perspective, 5G technology is transformative, directly influencing the facilitation of the consumer's daily life by automating processes that currently consume a significant amount of time, connecting vehicles, household devices, security systems, etc., to the network.

In other words, from a market perspective, 5G technology provides significantly higher speed with much improved quality. Therefore, it implies an enhancement in the terms of service quality offered to the end consumer, involving its two segments, business and end users for personal use. Investment in 5G technology should align with "best practices" for this technology, creating new opportunities for increased effective competition. This constitutes another equally important step that enhances the chances for end consumer benefits and favors regulatory policy alignment in favor of effective competition.

Investment and its quality are closely tied to the phase in which this investment takes place, the security, and the necessary assurance if the investment introduces a "novelty" or creates its dilemma, complicating the choice between the advantages and disadvantages that the introduction of 5G technology may have.

This is directly linked to the performance level demanded by consumers with high expectations, which also constitutes the origin of the "disruptive innovation" in the sector. Hence, this sector is among those with the fastest evolution and continuous pursuit of technological innovation.

It is worth emphasizing that infrastructure development in Albania, including the construction of 5G technology networks, is a priority for the Albanian government and has the potential to bring significant changes to electronic communication services and the local economy. Here are some key elements of infrastructure development and goals for 5G technology in Albania.

One of the main objectives is the construction of 5G networks throughout Albania. This will

require substantial investments in infrastructure and new technologies to ensure high-speed data transmission and swift access for stakeholders and end-users, in networks significantly faster than previous ones, enabling new innovative services. What is guaranteed by the qualitative development of infrastructure and access to 5G technology pertains to improving internet access in rural and remote areas, transforming this into a sectoral mission and objective, which constitutes a significant goal. This will contribute to reducing the digital divide and facilitating access for all citizens to electronic communication services.

3.2 The 5G technology in the context of the European Electronic Communications Code

The 5G technology is a key component of the European Electronic Communications Code, also known as the "European Electronic Communications Code." The development of electronic communication networks and the provision of services through them are now essential. Broadband network infrastructure is a critically important infrastructure that can play a significant role in the further economic and social development of the country, as well as harnessing the transformative powers of Information and Communication Technology nationwide. In this regard, market regulation and the promotion of competition are aimed at ensuring equal access for all consumers and assisting in the development of telecommunications infrastructure in Europe.

Therefore, the role and significance embodied by 5G technology have been examined and specifically integrated through several aspects related to expanding capacities. These capacities enable 5G technology to provide high-speed data transmission networks, increased connectivity of devices within the network, and the delivery of more advanced services. In this role, there should also be a reflection of rules and standards that include clear provisions to ensure that operators have the capacity to efficiently offer 5G and benefit from its potential. Another crucial aspect in the European Electronic Communications Code involves the roles of security and privacy concerning 5G technology. Security is a key concern to safeguard networks and citizens' data from potential cyber threats.

Within this framework, privacy policies are also envisaged, focusing on protecting consumers' personal data. Other equally significant aspects addressed in the European Electronic Communications Code are related to the competitive impact and potential influence on respective markets where the primary role is played by 5G technology. These aspects involve market regulation and the facilitation of competition. Indicators with an impact on markets are considered, such as efficient management of frequency spectrum, market entries, and clear competition rules. This process may influence the creation of new markets and the evolution of corresponding products and services in these markets. Through the integration of 5G technology into the European Electronic Communications Code, the European Union aims to regulate and promote the development of this technology to benefit consumers and the overall EU economy. This includes improving telecommunications infrastructure, increasing competition, and stimulating innovation.

The European Electronic Communications Code pays particular attention to 5G technology as an opportunity to expand infrastructure capacities, anticipating all forms of private investment, public sector contributions, or their combination. This is a complex and significant challenge aimed at ensuring that a country or region has the necessary infrastructure to provide 5G technology services. Each of the possible investment options for expanding capacities must be considered by telecommunications companies, the cellular operators themselves, in the construction and maintenance of the 5G network infrastructure. Investment can be focused on infrastructure, equipment, and technology to ensure the necessary capacity for 5G networks, marking its origin as a process in private telecommunications investment. The nature of public investments is addressed in various forms by governments and the public sector, which may invest in 5G network infrastructure.

This may include investments in infrastructure and the allocation of frequency spectrum, or other significant infrastructure investments. Public investments can be crucial to ensuring that even remote or less desirable areas for private sector investment have access to 5G technology. A model

referred to as a success option remains a combination of private and public investments. Governments can assist in building the 5G network infrastructure by providing fiscal and legal incentives for private investments in this field. This can encourage private companies to invest more in building advanced infrastructure. Collaboration between the public and private sectors is a common way to achieve capacity expansion. This involves collaboration in financing, planning, and implementing 5G network projects.

Such a partnership can bring significant benefits in terms of efficiency and cost. A country or region may create subsidies or special funds to encourage investments in 5G networks. This may include direct financial assistance to operators or companies wanting to build 5G infrastructure. A successful plan for expanding capacities in 5G technology typically involves a combination of all these elements, utilizing resources and expertise from both the private and public sectors. This is a complex challenge that requires close collaboration among different stakeholders to ensure that a country or region has the necessary infrastructure to benefit from 5G technology and its advantages in terms of innovation and economic development. In conclusion, the aim is for investment in 5G technology to be a process of building and updating cellular network infrastructure to enable high data transmission speeds and advanced services for consumers.

The form of investment in 5G technology and the return on investment involve several components and concerns that need to be considered. They must be coordinated in such a way that the investment risk is not shared among the benefiting stakeholders. Cellular operators invest in building new 5G networks, including the installation of base stations, frequency spectrum, and the necessary equipment for network operation. These investments are significant and require comprehensive planning. Investment in the development of new applications and services utilizing 5G technology is another crucial component. This includes the development of services such as telemedicine, advanced virtual applications, and other innovative services that can be offered on the 5G network. However, the essence of the investment remains the capacity growth to enhance the ability to handle a larger number of connected devices and transfer data faster; hence, investments in frequency spectrum are necessary in this direction. Like any other investment, the investor prioritizes return on investment opportunities following the implementation of 5G technology.

The return on investment stems from the revenues generated by 5G services. Operators anticipate that, with the new services and high network speeds, customers will be incentivized to pay more for their services, facilitating the return on investment. Operators can also establish partnerships and collaborations with other companies to offer new services and expand their product and service portfolios. This may involve collaboration with telecommunications companies, equipment manufacturers, and application developers. With the development of the connected device ecosystem, operators expect an increase in subscriber numbers and connected devices to the network, enhancing the possibilities for additional revenue streams. In this context, the undeniable option benefiting the end consumer remains, as they will benefit from faster and more advanced services provided by 5G technology. This includes higher-quality and clearer video streaming, augmented reality experiences, and innovative applications for healthcare, transportation, etc.

Another issue addressed by the European Electronic Communications Code relates to the allocation of scarce resources such as frequencies and numbering with the aim of implementing 5G technology. As the implementation of 5G technology is likely to create the need for redistributing these finite resources, including frequencies and numbering, to maximize the benefits and positive effects of this technology. Important reasons necessitating the redistribution of these resources may include the high network capacity, new services, expectations of influencing economic performance, etc. 5G technology has a high network capacity that distributes high data transmission speeds rapidly. This requires more frequency spectrum to enable the transmission of more data at high speeds. The redistribution of frequency spectrum may involve releasing new frequencies for commercial use and utilizing advanced spectral distribution techniques, enabling access to new services and innovative applications.

The allocation of frequencies is essential to meet these new requirements. The implementation

of 5G technology can bring about economic development and create new jobs in the telecommunications sector and other industries that will utilize 5G technology. To maximize these opportunities, it is crucial to have access to the necessary frequency spectrum and appropriate numbering. In addition to the above, 5G technology is built upon internationally defined standards, necessitating the harmonization of frequencies and numbering with international norms. The allocation of these finite resources in line with these standards allows for global interoperability and the use of compatible devices at international levels. The allocation of finite resources, such as frequencies and numbering, is a complex endeavor that requires close collaboration between regulatory authorities, cellular network operators, and the public sector. This process aims to ensure that the frequency spectrum is used efficiently, incorporating the latest technologies and providing services that benefit end-users and society as a whole.

3.3 The Global evolution of electronic communication services usage, the risk of personal data breaches

The European Electronic Communications Code pays special attention to the fact that responding to the demand for new services also involves the security of personal data. Therefore, the demand for new services and the security of personal data are two important aspects related to the advancement of 5G technology. In a digitized environment, it is crucial to enhance user experience and ensure the protection of personal data. 5G technology is designed to support a large number of connected devices, including devices used in homes, businesses, healthcare, transportation, etc. This creates a new demand for services that can monitor and control these devices in new and innovative ways. With the variety of devices and information distributed over 5G networks, it is essential to ensure that personal data is protected with the highest security standards. With the use of many new services connected to the 5G network, it is important to ensure that users have control over their personal data and are not exposed to unwanted tracking or misuse of their data, as the interaction of devices and services on the 5G network increases. It is important to reduce the risk from cybersecurity threats.

Network operators and technology companies must employ security measures to protect networks and data, treating with added care and protective measures the recording of data usage, providing transparency on how they are used, as this constitutes an essential aspect for the security and privacy of users. Governments, regulatory authorities, telecommunications companies, and application developers must collaborate to ensure that 5G technology delivers tangible benefits to consumers through new services and ensures the protection and respect of personal data privacy.

The recording and hacking of data usage are significant issues concerning the privacy and security of users' personal data. The hacking of personal data can have consequences for privacy and pose a risk to the future of users whose data has been compromised, linked to a profound violation of individuals' privacy.

Personal information such as names, identification numbers, financial information, and other sensitive data can be used in undesirable or harmful ways, increasing the possibilities of identity theft, where hackers can use stolen data for unauthorized purchases, open new financial accounts in the victim's name, and commit other malicious and criminal acts. The misuse of an individual's personal data, when made public through hacking, can have a negative impact on their personal and professional reputation. Hackers may exploit personal data for malicious purposes, including extortion, financial abuse, or sending harmful messages. Additionally, misuse of data can lead to a loss of user trust in the security of the system and online services. Users may be hesitant to use platforms and online services due to potential risks.

To safeguard privacy and user data, it is essential for governments, companies, and individuals to take measures to advance data security and meet high privacy protection standards. This includes discontinuing weak security practices, leveraging state-of-the-art security technology, and raising user awareness about online risks and security practices. A robust regulatory framework to protect

privacy and prosecute such hacking incidents is also crucial.

The advantages and disadvantages brought about by the rapid development of technology for end-users and the role of sectoral policies in minimizing negative effects can vary from one country to another, depending on the regulatory role and weight of sectoral policy in this regard. The swift development of technology brings many advantages for end-users, offering high data transmission speeds and enhancing the efficiency of network utilization and communication services. End-users benefit from easy access to new and innovative services and applications offered through the latest technology. State-of-the-art technology enhances personal and professional productivity and influences the improvement of life and work. Users can access data and services anytime, anywhere through internet-connected devices, increasing communication freedom and network usage. However, despite the benefits brought by technological development, potential risks must be considered in several directions related to privacy breaches, allowing the collection of personal data and unrestricted tracking of user activities, thereby increasing the risk of data theft and system destruction. Users without equal access to the latest technology may face digital differentiation and isolation from services and advantages offered by advanced technology, etc. In this respect, the role of sectoral policies is crucial in minimizing negative effects and leveraging the advantages of rapid technological development.

Policies should encompass robust security and privacy regulations to safeguard personal data and mitigate cyber risks. They ought to promote universal access to cutting-edge technology, including rural and impoverished areas, to prevent digital divides. Sectoral policies need to include awareness campaigns and educational programs regarding potential benefits and risks of emerging technologies. Ensuring an open and competitive market, allowing diverse and affordable alternatives for users, is crucial. Policies should also incentivize innovation and technological development through fiscal and financial stimuli. With a purposeful and responsible approach to sectoral policies, there can be maximum benefits from rapid technological advancement while minimizing negative effects and enhancing advantages for end users.

4. Sectoral Policies and Guidelines in the Development of 5G in Albania

The sectoral policy in Albania for the development of 5G technology constitutes a component of the government's strategy to promote innovation and modernize the electronic communications infrastructure. These aspects are interrelated with the anticipation of relevant legislation, the collaborative and coordinating role with various industry stakeholders and the public sector, the nature of investments and identification of potential resources, the acquisition of qualified resources to address technological advancements, measures taken, and the enhancement of security capacities against cyber threats, etc. In this regard, the Albanian government has enacted a series of laws and regulations governing and facilitating the construction of 5G networks. This legislation outlines how telecommunications companies can invest in and operate 5G networks in Albania, representing a pivotal step in ensuring stability and attracting investments in this sector. Another crucial factor is the promotion and collaboration among the private sector, academia, and government institutions to advance 5G technology.

This collaboration contributes to enhancing local capacities and establishing the necessary ecosystem for innovation and technological development. Albania has identified 5G technology as a priority for both public and private investments, encouraging telecommunications companies to invest in the construction of 5G networks and providing tax incentives in this direction. Another aspect requiring heightened attention from the government pertains to opportunities and concrete steps for training local technicians and specialists in the field of 5G technology. This is a crucial component to ensure that Albania will have qualified professionals capable of managing and maintaining 5G networks. In terms of network security, considerable funds have been allocated, notwithstanding the crucial emphasis on security and privacy in the development of 5G. The government has endeavored to define and implement high-security standards to safeguard networks

and citizens' data. Albania has invested in innovation spaces and technological clusters to foster start-ups and application developers in creating new applications and products utilizing 5G technology.

In general, the sectoral policy in Albania for the development of 5G technology has significant objectives aimed at improving the electronic communications infrastructure and contributing to economic growth and innovation. This represents a crucial step to ensure that Albania does not lag behind in this realm of global technological advancement.

4.1 The current structure of the mobile market with two [8]operators, the absence of MVNOs, and the impact on the end consumer in Albania.

In Albania, the electronic communications market, primarily the mobile market, has undergone a recent transformation in recent years. Until the end of 2017, there were four cellular networks in the market, but currently, only two are operational. This change may bring about new effects and dynamics for the end consumer, as well as in the electronic communications market in Albania, where the primary challenge remains competitiveness, expected to be a focal point of impacts following this significant shift. It is natural to assume that when there were four cellular networks in the market, competition was higher, tending to lower prices and enhance service quality. With the reduction in the number of operators in the market, competition has become more limited, potentially leading to an increase in prices and lower service quality for end consumers. The reduction in the number of cellular operators also has effects on their respective packages and offers, their diversity, as well as the composition of the package portfolio to meet consumer needs. The change in market structure may have an impact on the prices and new offerings available to consumers.

Operators may seek to differentiate their services to capture the available market. The option of reducing services offered in rural or more remote areas, as these regions may not be attractive for further investments, remains a possible medium-term option, bringing negative impacts on cellular communication access. The reduction in the number of operators also affects the development of the corresponding service infrastructure networks. Operators must invest in their networks to ensure high quality and sufficient capacity to enhance services and consumer access. However, this becomes discouraging for investments in those geographical areas that are not economically attractive. It is important to emphasize that the change in the cellular market structure has advantages and disadvantages. Consumers need to be cautious and make comparisons to choose the service that best suits their needs. Regulatory [9]authorities also play a crucial role in monitoring the market and intervening if there are violations of competition or service quality.

The cellular market with two operators, in the absence of Mobile Virtual Network Operators (MVNOs) and the diluting effect of [10]Over-the-Top (OTT) services in the market, makes the current duopoly situation somewhat comparable to previous periods, but there are differences compared to times when OTT services were absent in duopoly markets. In the era of rapid technological developments, the cellular market is undergoing continuous change. Key elements of the cellular market, including the absence of MVNOs and the impact of Over-the-Top (OTT) services, can be

[8] *Two entrepreneurs (operators) are currently operating in the sector of mobile networks and services:*
- One Albania sh.a (from the absorption merger of two operators Albtelecom sh.a and One Telecommunications sha);
- Vodafone Albania sh.a.
[9]*Electronic and Postal Communications Authority (AKEP)*
[10] *OTTs (Over The Top), in themselves carry not only electronic communication (Voice/Video Calling, messaging services and conversation exchanges through Chat applications - Viber, Skype, WhatsApp, Facebook Messenger, etc.), but are also of a media nature. (video streaming services - YouTube, Netflix, etc). Another aspect that significantly increases the interest of the end consumer is related to the fact that OTT services have made it possible to function for other services (e-Commerce, various information, etc.).*

illustrated with aspects of competition limitation. Under normal circumstances, the presence of MVNOs can bring more competition to the market, offering new alternatives for consumers. The absence of MVNOs may affect prices and service levels, diminishing the effects of innovation and reducing the availability of new offerings and special packages to attract consumers. Through collaborations with MVNOs, operators can offer feature-rich service packages, providing a more enriched experience for consumers. In contemporary duopoly markets, the diluting effect of OTT services must also be considered, as OTT services like WhatsApp, Skype, Netflix, etc., offer alternatives to traditional telephony and video transmission services.

The utilization of Over-the-Top (OTT) services also impacts the revenues of operators compared to their revenues from traditional services, given that users more frequently opt for OTT services than traditional ones. This increases the efforts of traditional operators, who may be compelled to reevaluate their business models and provide innovative services to cope with the competition from OTT services. However, such situations in duopolies and in the absence of MVNOs necessitate regulatory authorities to enhance their attention, intervening to establish specific rules for market regulation and ensure fair competition.

In markets where a duopoly exists, effective competition may be compromised due to the dominance of two key players. This could have several negative consequences that may affect consumer benefits and overall market development.

Indicators that can be observed in such cases are primarily linked to the negative effects of the lack of effective competition in duopoly markets, as well as the absence of MVNOs, associated with higher prices and less elastic packages/offers. The absence of strong competition results in less motivation to offer reasonable prices and flexible packages for consumers. Weak competition may diminish the incentive for innovation and rapid technological development. Often, strong competition serves as a stimulus for the improvement and expansion of services. In the absence of robust competition, there may be a lack of impetus to enhance service quality and provide technological innovations. In such situations, cellular service providers may have less reason to offer quality services and diverse packages, limiting choices and opportunities for consumers.

5. Conclusions

1. To address these challenges, it is crucial for regulatory authorities to intervene in order to stimulate competition and protect consumer interests. In some cases, creating conditions for the presence of Mobile Virtual Network Operators (MVNOs) can be a means to increase competition and promote a more open and diverse market for consumer choices. Another aspect in duopoly markets is related to potential incentives for technology development, particularly in the current context with investments in 5G technology.
2. The duopoly situation in the electronic communications market in Albania may have an impact on 5G technology investments, but it needs careful consideration. One of the key considerations involves the interest in investment from the cellular operators themselves because, in a duopoly situation, major operators bear primary responsibility for investments in network infrastructure. If these operators have clear strategies and invest in the development of 5G networks, progress in this direction can be observed. In this context, the weight of incentives coming from sectoral policies and regulatory authorities is significant, as they can play a crucial role in stimulating investments in 5G technology.
3. Through supportive policies and appropriate licenses, they can influence the deployment of 5G technology. The advancement of 5G technology requires continuous commitment to development and investment. In a situation of weak competition, there may be a lack of incentive for operators to compete through innovation and offering advanced services. If there is significant demand from consumers and businesses for 5G services, operators will have an added motivation to invest in this technology to meet market demands.

4. Although in a duopoly situation, operators can engage in collaborations and strategic partnerships to share costs and increase investment capacity. The essence in this aspect remains that regulators and market institutions ensure a conducive environment and encourage investments in 5G technology to reap its benefits, including higher speed, low latency, and new service possibilities.
5. Within this framework, industry expectations for investments in 5G technology in Albania will depend on various factors, including the government, cellular operators, regulatory authorities, and the ability to promote competition and innovation. It is crucial to exercise additional caution towards consumer objectives and ensure that investments in 5G technology bring tangible benefits to Albanian society and the economy.
6. Market regulation and competition in line with the specific national market conditions in Albania constitute two crucial aspects of the European Electronic Communications Code. This legal instrument is designed to harmonize and regulate the electronic communications sector at the European level. While the European Electronic Communications Code establishes some common rules for regulation and competition in the electronic communications market in Europe, it should be implemented and adapted in accordance with the specific national market conditions in Albania.
7. Regulators and the government in Albania must ensure that policies and regulations align with the European Electronic Communications Code and reflect the specific national market conditions. This will aid in attracting investments, enhancing competition, and providing better services for end users.

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