Implementation of 5G network in Poland

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for local governments in the area related to the implementation of investments, as well as coordination of work on the creation and updating of national strategies for challenges related to the development of the Internet and digital services for the benefit of local governments. Co-negotiator of the EU Operational Programme Digital Poland, she also supervised the Digital Poland Project Centre.



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Since 2000 he has been present on the media market, from the very beginning associated with the modern technologies market, including the Internet, IT and telecommunications. Since 2006, he has been dealing almost exclusively with telecommunications in Poland and abroad. For nine years he worked for the editorial office of Rzeczpospolita, where, among other things, he developed the first sectoral publications. For more than five years he has been the editor and publisher of TELKO, which he founded. He is the author of hundreds of articles, interviews and analyses related to the telecommunications market in Poland and abroad. He has been observing the market (with caution) for almost 20 years now.

Summary - problems and challenges related to the implementation of the 5G network in Poland

In Poland, just like in the world, or in other countries of the European Union, the technology of 5G will be implemented in the upcoming years. How are we, and are we, prepared for this? What has already been done, and what work is ahead of us as a country? Implementation of the 5G technology is a complex economic, social and technological process.

For the first time, the new telecommunication standard is expected to be more important for industrial applications and M2M communication than for communication between people themselves. Previous and even today's mobile technologies boiled down primarily to connecting people using mobile phones and smartphones. 5G technology will be used primarily for IoT and automated systems that need low data latency. 5G, as experts say, is about connecting *everything and everyone together*.

PROBLEMS AND CHALLENGES RELATED TO THE IMPLEMENTATION OF THE 5G NETWORK IN POLAND

1. No horizontal State's strategy for 5G.

At the strategic level, Poland has still not adopted a revision of its National Broadband Plan or the "5G for Poland" Strategy, which could create a legal and organisational framework for the implementation of new technology. Countries that have long announced their 5G strategy, i.e. Germany, France, Great Britain, Spain, the Netherlands, Sweden - have the highest value of high-tech production in the European Union. **Due to the importance of 5G technology for the future of industry**, **new technologies sector**, **electromobility and consumer services in Poland**, **as well as challenges related to the implementation of this technology, in the opinion of the authors of the report**, **it is necessary to adopt a strategic approach of the State taking into account the multifaceted nature of this issue. The key to further economic development of Poland will be ensuring the possibility of implementation** of new technology by telecommunications operators, which will enable other sectors of the economy to operate. It is also necessary to coordinate actions in this area, taking into account the competences of various State bodies, so that the fulfilment of EU objectives concerning 5G can also be achieved in Poland as soon as possible.

2. Radio frequencies.

- a. Entrepreneurs do not know the comprehensive schedule of making individual bands available by the President of UKE, nor the target variant of distribution of the 3.4 GHz - 3.8 GHz band. If the State wants to release the 5G band effectively within a maximum of one year and launch the 5G band at the end of 2020, we cannot focus today on discussions about the best solution, which is ultimately desirable, but which is not yet achievable for a few years. Although in the 3.4 GHz -3.8 GHz band each of the operators should have a block of 100 MHz **continuous band**, the currently possible option of 4x50MHz, although not ideal, seems to be the best, as it is possible to implement it now. Its adoption will positively influence the relatively short time of launching the 5G network and will ensure competition on the 5G services market. As for the concept of the 4x80 MHz tender, the frequency blocks proposed in the tender are of extremely variable value (e.g. two reservations are nationwide and two are not). Such a division of spectrum at the start of the procedure divides operators into winners and losers, without ensuring a level playing field in the services market after the band has been allocated.
- b. No cross-border agreement on the 700 MHz band with Russia,
- c. The presence of national television broadcasters in the part of the 700 MHz band resulting in a delay in the date of release of the band,
- d. Existing frequency reservations in the 3,4 GHz 3,8 GHz bands - the need for the Market Regulator to conduct proceedings to determine whether there is no basis for granting frequency reservations for the next period, which creates a serious risk of litigation on the part of existing frequency holders, and thus will lead to legal and regulatory uncertainty in the new distribution of this band,
- e. Bandwidth distribution model auction vs. tender.

In our opinion, many signals indicate that, unfortunately, the state's strategy in this area, instead of providing systemic support, will be focused on the possibilities of achieving the state's fiscal objectives, i.e. obtaining additional revenue to the budget, and not as a chance for Poland to make a technological and industrial leap.

A fiscal target may therefore be an important, or even key factor that will determine the choice of frequency distribution model. Of course, the final decision will be made by the Regulator. In our view, there are more arguments in favour of holding an auction rather than a tender, regardless of the frequency range. It is a much more transparent method allowing for market valuation of spectrum, and additionally, taking into account the state of competitiveness of the Polish mobile market, it seems that the tender procedure, which should be used in the context of a diversified competitive situation on the market, is difficult to defend. At the same time, an efficient auction, after all the recent changes to the Telecommunications Law, should not be significantly longer than the tender procedure.

3. 5G network construction model.

Poland is dominated by two trends in the discussion on the 5G network implementation model: the public model and the commercial model. According to the calculations of the Ministry of Digitization, the most cost-effective public model is the public model, but in our opinion, in order to implement the 5G network efficiently in Poland, the Government should end discussions on the public model, because it has little chance of success. The disadvantage of such a model is the potential low business efficiency if the network is to be managed by a public entity. The willingness of the public operator to communicate with mobile operators may be a significant problem. The results of the consultations indicate that not all entities accept the construction of a single network, let alone a public one, and it is rather the model of commercial network construction that has the predominant voice. Moreover, Poland has no positive experience with such a model of network implementation, apart from the previous political system. The model of independent network construction is the only one tested in practice - so far, mobile operators have implemented GSM, UMTS, HSPA and LTE/LTE Advanced networks in this way. What is more, this model allows to better respond to the needs of end users. The advantage is also the possibility to use the infrastructure that is currently being used to provide services in previous generations. As for the model of one commercial network, in our opinion, such decisions can only be made by the financial account. Due to the necessity of cooperation, in the case of such a single common and multi-level network, and taking into account the previous experience on the Polish mobile market, the model is rather not possible to implement. In any case, the effectiveness of joint construction or sharing of the network should be left to the discretion of commercial operators and there should be no interference with the construction model at the level of central government.

4. Demand

The challenge of 5G Technology in Poland is the current lack of demand from domestic industry, transport and other sectors of the economy, as well as from end users themselves, for the use of 5G Technology. Considering the **potential of the 5G** technology in comparison with the current data on end-user demand, as well as the development of new applications and services, the thesis should be put forward that the development of 5G in Poland (and elsewhere) requires a horizontal strategy of the Government, which will generate demand in industry for the construction of 5G networks by operators. This, in turn, will trigger an immediate reaction on their part and a readiness to invest in the development of 5G networks, provided that they see the recipients of this technology. Each entrepreneur makes investment decisions based on the profitability of the project. If the return on such an investment is likely, it will be realised.

5. Cooperation between the Government and the Regulator

There are many elements, already at the stage of preparation for the implementation of 5G technology in Poland, which must be agreed between these entities, starting with legislative changes, international cooperation, cross-border coordination, the time of making frequencies available to the market and the size of the resources made available. In view of the economy-wide objectives and potential benefits for the budget and the economy as a whole in connection with the implementation of the 5G network, the Government should ensure harmonious cooperation with the President of UKE. Although the President of UKE is an independent body, it is a central body of government administration and as such is legally obliged to implement the State policy in the area of telecommunications, i.e. it is independent and the Government has no influence on individual decisions, whereas the decisions taken by the President of UKE must be consistent with the directions of State development set by the Council of Ministers.

6. Legal barriers. Legislation.

The latest amendment to the Telecommunications Law strengthens the competences of the Minister of Digitisation, who may, by way of an ordinance, impose a frequency allocation schedule on the President of UKE. The provisions related to selection procedures have been clarified. Still ahead of us is the need to amend the Act on supporting the development of telecommunications services and networks, the Regulation on conducting selection procedures for frequencies, frequency management plans and the National Table of Frequency Allocations. The draft regulation of the Minister of Digitization on the timing of the allocation of specific frequency resources for civil or civil government use is also currently in the process of being drafted..

In this respect, it is worth pointing out the following challenges:

- a. harmonisation of PEM limits (electromagnetic radiation from radio network equipment). The implementation of the 5G network may prove to be at least significantly more difficult if the PEM limits applicable in Poland are not changed. The draft amendments to the Act on supporting the development of telecommunications services and networks provide for a detailed system of monitoring and control of PEM, but do not include amendments to the regulation on their limits, which is so important for 5G. In practice, therefore, no change in the PEM standards may hamper the development of 5G networks in Poland, or at least burden telecom operators with huge costs.
- b. Costs of construction of telecommunications networks, including the maintenance costs. A significant barrier for telecommunications undertakings are the costs of construction of telecommunications networks, including the costs of their maintenance, primarily related to the <u>placement of infrastructure in the road lane</u>. Contrary to appearances, these costs are also important for wireless networks, because the transmission network for the needs of 5G has to be based on high-capacity fiber optic networks, and the base stations of 5G networks have to be "*powered*" by fiber optics, which most often cross public roads. While in the case of national roads the rates were reduced already in 2010, in the case of public roads belonging to local government units the rates may still amount to PLN 200 per 1m2 of road lane per year. The reduction of the toll rate for occupying the road lane is provided for in the latest version of the draft Act amending the

Act on support for the development of telecommunications services and networks and certain other acts, but the **reduction is intended to cover only new investments.**

c. ensuring the possibility of building base stations and fiber optic cables, which are necessary for the operation of the 5G network and connection of base stations, in a simplified manner. Each of the telecommunications operators investing in wired and wireless technologies must meet a number of requirements resulting from numerous provisions of law regulating the conduct of investment in Poland, such as: environmental impact assessment proceedings, as well as Natura 2000 impact assessment proceedings, proceedings related to the location of telecommunications infrastructure, whether within the local spatial development plan, or by way of a decision on development conditions, construction proceedings, in particular those related to obtaining a building permit (if required for a given telecommunications infrastructure) or obtaining the possibility of using a given facility, as well as proceedings related to geodetic inventory of telecommunications infrastructure, including as-built, proceedings related to obtaining the possibility of occupying a road lane and then obtaining a decision allowing for placing such infrastructure in a road lane or technological channel, proceedings related to access to real estate through which the telecommunications network should run, as well as access to a building or real estate for the purpose of providing telecommunications in that building, including the possibility of establishing the transmission easement, special proceedings related to obtaining a water-law permit or carrying out construction works on a monument entered in the monument register; or issuing opinions on a given telecommunications investment by the State District Sanitary Inspector.

The abolition or at least radical reduction of fees for occupying a road lane, access to power grid elements, shortening the time for construction proceedings, as well as the limitation of the above procedures, will significantly reduce network construction costs, and thus increase the entrepreneurs' *enthusiasm* for investing in the 5G technology.

7. Implement the European Commission's recommendations on cybersecurity of 5G networks.

Cyber security issues of the 5G network should be taken into account by the Government. It is therefore essential that the European Commission's recommendations on 5G cyber security be implemented and that Poland carry out a reliable assessment of the 5G network infrastructure in terms of cyber security risks, as well as reviewing security requirements and risk management methods.

8. Social aspects of 5G implementation.

A significant factor that may negatively affect the implementation of 5G in Poland is the reluctance of some parts of the public to use this technology and other wireless Internet technologies. First of all, this reluctance is manifested by blocking telecommunications investments. This phenomenon may undoubtedly increase due to the wider use of femtocells and the thickening of the network.

Undoubtedly, therefore, there is a need for clear, comprehensible information and education for the public, both in the public and private sectors, as well as a transparent, legible system of measurements and compliance with the relevant standards.

THE MAIN RECOMMENDATIONS:

- 1. Fast adoption of State's strategic documents in the area of the 5G network.
- 2. Adopting the necessary legislation by autumn 2019 at the latest:
 - Amendment of the Act on supporting the development of telecommunications services and networks,
 - PEM standards regulation¹,

¹ Regulation of the Minister of the Environment of 30 October 2003 on *permissible levels of electromagnetic fields in the environment and methods of verifying compliance with these levels.*

- Regulation on frequency auction, tender, competition.
- 3. End of the discussion on one public network in Poland as a model requiring the greatest changes in law, the longest implementation time, the need for agreement with the market, and thus the model, in our opinion, practically impossible to implement in Polish conditions, and thus ineffective.
- 4. Arrange the status of the frequency resources so that they are equivalent and available on equal, non-discriminatory terms.
- 5. Conducting an in-depth analysis of the selection of the most appropriate and effective selection mode by the Regulator, taking into account the degree of maturity of the Polish telecommunications market.
- 6. Urgent presentation of a timetable for the distribution of all frequency bands so that the first selection procedures can be carried out before the autumn of this year.
- Preparation of a campaign addressed both to entrepreneurs from other sectors and consumers as regards demand opportunities, economic potential and factors of 5G.

The legitimacy of the implementation of all the above challenges raises the question: is the commercial implementation of 5G in Poland possible by the end of 2020 at the latest, in accordance with the assumptions of the EU strategy in this area?

About MMI Proconnect

We are a Polish, independent, dynamically developing law and advisory firm, combining excellent knowledge of the local and international telecommunications and postal market, e-commerce and communication know-how at the international level. Regulatory experience as a person acting as a national regulatory authority gives us a unique competence in the area of mechanisms applicable on regulated markets. We offer our Clients the highest standard of advisory services in the areas of law related to the conduct of telecommunications and postal activities, as well as the scope of public administration and European funds.

About TELKO.in

Information and analytical website for ICT professionals focused on polish market. TELKO.in is a source of industry news and analysis for mainstream polish media companies and market analysts. We consider ourselves as a most important telco industry media in Poland. TELKO.in is online since 2014, but our journalists have been close to polish ICT market from early 90' and have very specific experience. Day by day we screen most of telco industry segments and niches as deep as it possible. Every month TELKO.in attracts beetween 25.000 and 30.000 unique users.



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