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Communications as a networked public service – What is left of public service in a liberalised competitive market?

ANDRÁS LAPSÁNSZKY *

Abstract: The study includes the results of detailed research on what public service means among networked services. In this context, by means of a comprehensive analysis it defines the main conceptual elements, characteristics and the distinguishing criteria of public services from other services. The study groups the types of public service on a theoretical basis. Using communications as an example, it demonstrates what state, public interest and public service elements remain in the market of these services, in the competitive market environment, after the liberalisation of public services. The main question examined is whether any public service content is necessary for the functioning of market competition on the basis of consumers, public policy, the state, the provision of services and market considerations, or whether liberalisation solves everything by placing a public supply system into market competition and privatising it. The research concludes that in all cases and types the public interest operation of the "former public service" still requires certain public service elements, which the study presents along scientific grounds.

Keywords: networked public service, liberalisation, privatisation, state property, communications

1. PUBLIC SERVICE FOUNDATIONS OF NETWORK INDUSTRIES

The growing role of the state in economic and social policy was a perceptible process in the 20th century and is still experienced today. The concept of public services developed at the beginning of this process with the significant transformation of the role of the state and public administration at the beginning of the 20th century, along with a fundamental change in structure and content. The basic goals of public services at that time were to eliminate and correct the failures and negative effects of market competition, and to preserve and strengthen the equilibrium of the market.

The first scholarly study and systematisation of public services is linked to Arthur Cecil Pigou (1910s, 1920s).[1] John Maynard Keynes' work and theory as well as his economic model broadened the spectrum and operation of public services. According to Keynesianism, the development of public services and new job opportunities in the field of public services can have a positive effect on the economy as a whole.[2]

Public services became important in the 1920s and 1930s in the context of regulation and state inter-

* András Lapsánszky, PhD, Head of Department Associate Professor, Department of Public Administrative and Financial Law, Ferenc Deák Faculty of Law, Széchenyi István University, Győr; Legal Director, National Media and Infocommunications Authority, Budapest. Contact: lapsanszky.andras@sze.hu, ORCID: https://orcid.org/0000-0003-3555-6802

vention, as it was then that the public sector began to be more pronounced in the public macroeconomic policy that suppressed economic cycles.[3] This perception grew stronger after the Second World War, when, as the welfare state expanded, the system of public services became more extensive in Western Europe through nationalisations in the public sector, and turned exclusive in Central and Eastern Europe within the socialist state system and economy. In the 1950s, Paul A. Samuelson studied and developed the formalised theoretical foundations of the public good and public goods (related to public finances and state finances).

In developed market economies, the growing role of the "welfare state" and the extensive public service system have highlighted that together with the correction of the market, ensuring its equilibrium and successfully eliminating market weaknesses and failures, the state also limits and hinders the advantages and operation of market competition, i.e. the efficient use and allocation of resources in the welfare state is not optimal. In centrally planned economic systems, the "monopoly" of public services – i.e. by forcing the private economy into the public sector and via nationalisations essentially all economic services became part of the public sector, and therefore public services did not differ from other services – clearly had a negative effect on efficiency, and market conditions were alien to this system.

Based on the above duality of the functioning of the welfare state, and the successes and failures of state intervention in the economy, the proper design of the boundary between the market and the state has become an important question, to which several answers have been provided: Parallel to the theoretical systems for the correction and prudent reform of the welfare state, the views urging a complete structural change in the public service system, which called for widespread privatisation and liberalisation, also strengthened.[4]

Based on the historical outlook, it is clear there is no consensus on the extent to which state influence in the provision of public services leads to the best result from a socio-economic point of view.

Similarly, there is no comprehensive consensus on the definition of public services, and the concept does not take on meaning with one single and exclusive definition.

According to the general and broad definition, public services are activities in which, in addition to reaching a large number of consumers, the state plays a role in the production of goods, the financing of the service or in the regulation of the market in some form. Albeit in varying proportions, both the public and private sectors can participate in providing public services.[5]

In a similar approach, a public service is a service in which the nature of the community and the fact that the task of organising the services in that category falls to the public sector are decisive. It follows that these services must still be provided if they are not economical in economic terms.[6]

According to a different definition, public services are defined as the provision of tasks that – under given conditions – require community organisation and serve common social needs.[7] This definition does not consider performing tasks in the absence of the service's economic efficiency to be a conceptual element.

According to a further definition, public service activities are activities which create new economic value and are connected to the production of pure or mixed public goods and related services, and which do not include activities carried out by the state in possession of public authority. The most important public services are manifested as a fundamental right in the constitutions of individual countries. Any service is legally classified as a public service by the state through a specific procedure, and this service is provided, financed or regulated by the state.[8] This definition is to be treated with caution in that it does not consider a public authority activity to be a public service, and it must be defined as such by law to be classified as a public service. As we will see later, under this definition certain non-market public services, such as justice, do not fall within the scope of the concept, while the services and legal institutions of communications – with public-service content but not formally classified as such – are also excluded from the concept.

According to the System of National Accounts (SNA) issued by the United Nations Statistical Commission, the characteristics of public services are that

(a) they can be used equally by all members of the community or by a particular group of the community, (b) they are generally used passively and do not require a specific agreement or the active participation of those concerned, c) there is no competition between consumers to obtain the service.[9]

Act CXXV of 2003 on Equal Treatment and the Promotion of Equal Opportunities provides a legal definition of public services, pursuant to Section 3 (1) (d) of the Act "public service means a service provided under an obligation to contract aiming to satisfy the fundamental needs of the population, in particular the provision of electricity, natural gas, heat, water, waste water and waste treatment, sanitation, postal, and telecommunication services, and public passenger transport provided by scheduled vehicles". [The term is used by the law in two places among the substantive rules: public service organisations (including electronic communications service providers) are also obliged to adhere to the requirement of equal treatment, and equal access to public services must be given special attention when preparing a local equal opportunities program. (Sections 4, 31).]

The basic content of public services and the criteria for distinguishing them from private services can be summarised as follows:

a) Depending on the type of service, the state strives for the fullest possible provision with various regulatory guarantees and obligations, even by providing a replacement service.
b) There is a service obligation determined by legal regulations, from which the service provider is usually only exempted in the case of guaranteed and detailed reasons.
c) If the conditions of use specified by law apply, the applicant cannot be excluded from the service; this must also be ensured in the legal regulation.
d) The service provider is obliged to provide the service at a generally affordable price, without discrimination and on a continuous basis.
e) In the case of some public services, even market operation and affordable prices are excluded, i.e. it is impossible to operate the service according to market aspects (for example, social administration, health care).
f) The service is of a general nature and closely related to the basic needs of the community, and to the exercise of a fundamental constitutional right or human right, as well as to the functioning and development of the economy.
g) A specific system of liability, quality and other requirements, security and strategic elements shall apply to the service.

The different definition of public services and their separation from other (private) services can be traced back to the fundamental question of which services at a certain level of socio-economic and public policy development require the operation of a public supply mechanism within the state framework or guaranteed by the state.[10] This, of course, presents a different picture for each age and country, so the range of public services is not constant and uniform. As an example of communications and universal service, while in most developed states this is just a goal, a small Pacific island nation, Niue, has been the world's first "wifi nation" to provide free wireless internet access to its entire population since 2003, primarily from the registration fees for the .nu top level domain, and then from the license fee for the domain. By comparison, only seven years later did Finland include – fixed – broadband access in its universal service, for the first time in Europe.[11]

With regard to the performance of tasks within the state framework and the provision of non-state public services regulated by the state, we can distinguish between the service and regulatory nature of the state.

According to the distinction between the service-providing and the regulatory state, in the former model each public service is provided through the state or its own administrative bodies, or through public institutions and utilities, public companies or state-owned private entities connected to public administration. In these cases, the state is responsible for providing the service. The provision of certain public services by private organisations is also possible in the concept of the service state, typically in the form of an agreement or contract containing special elements of public law.

According to the model of the regulating state, the task of the state is to organise public services and

create the appropriate regulatory environment, not to provide public services directly. In this case, the state must ensure that the service in question is available and accessible (on an equal footing), primarily through the regulation of competition and services. The principle of equal access in legal regulation is primarily manifested by the so-called universal service.[12]

2. CLASSIFICATION OF PUBLIC SERVICES

Public services can be grouped in several ways. The first classification criterion is the form of ownership. According to the categories formed on this basis, we distinguish between:

h) public services provided by state and municipal actors,
a) public services provided by private actors, and
b) those provided in a mixed model (even in sub-sectors such as the contracted service of private bus companies in local public transport).

In terms of funding, there are:

a) public services financed by the state or local government,
b) public services financed by consumers or customers, and
c) public services with mixed funding.

According to the range of users, public services can be used by a) everyone and anyone or b) specific consumers and customers.[13]

With regard to the division according to the form of ownership, it should be noted that in terms of the content of public services and the performance of state tasks, the type of ownership structure is only a relative criterion for demarcation. This is because services cannot be classified as having a public service content solely based on whether the service in question is provided and runs in the context of state ownership, public ownership, private ownership or mixed ownership. Namely, public tasks and market public services today are generally provided by private organisations under the framework of their legal obligations in this context, and state-owned companies providing public services (such as the Hungarian Post Office) can also carry out profit-oriented activities (provided that their portfolio is treated separately from their public service and universal service activities).

In the case of division according to form of ownership and financing, the ownership structure of the service organisation and the service can be separated. The ownership structure of the service provider is not decisive in terms of the public service nature of the activity – the content of the public service appears and must be examined in the state ownership, state monopoly, public service regulation and foreclosure of competition on the market. This is because if the state ownership, monopoly and elimination of competition for the service remain unchanged, the privatisation of the public service provider per se does not trigger a definite change in the market or "public sector structure". Thus, "liberalisation" ("releasing" the provision of services onto the market) and "privatisation" (making the organisation providing the services privately owned) are not synonymous, and the public service organisation, company and the state task – the public service – can be privatised independently.[14]

Communications services, and more specifically universal services – which undoubtedly have a public service content – are typically provided by private companies. The universal service in communications is a service provided by private actors (market participants) in terms of ownership, and a mixed system in terms of its financing (consumers pay for the service and the state compensates for part of the uneconomical provision of services). This service can be used by consumers and subscribers.

Public services can also be paired with categories of statistics or public finance for the classification of public administration activities. The Classification of the Functions of Government (COFOG)[15] lists and groups government functions.[16] In this system, economic functions include, but are not limited to, postal services, telecommunications and the internet; the latter two categories correspond to electronic communications.

Public services can also be sorted by the way they are distributed. The mechanism for distributing public services, i.e. delivering them to consumers and ensuring their consumption, is basically done in two ways. Some public services reach the consumer through non-market mediation. These are typically administrative public services provided by public administration organisations, provided that there are and have been efforts to use market-based instruments in administrative-bureaucratic distribution processes to improve the efficiency of these services. The distribution of other public services is ensured by the market mechanism – however, public service markets are generally imperfectly competitive.[17]
This division is essentially the separation of public services into market (economic) and non-market public services, which is one of the generally accepted and established classification systems. The basis of the division is the extent to which the market mechanisms prevail in connection with the given public service and its provision.

Among non-market public services, the market is not typical, the services that can be classified here are not the subject of a sale or exchange, and – in their purest form – the individual cannot be excluded from their consumption. The purest form and separated group of non-market public services is pure public goods. These are publicly consumed goods, no one can be completely excluded from their consumption, and their use is usually possible at no additional cost to any other individual (there are no additional costs for extending the service to additional persons). Classic examples of non-market-based pure public goods are national defence, certain environmental activities (such as measuring air pollution), disaster management and certain public health services. Public goods are thus types of goods and services that are indivisibly provided by the state for the benefit of the whole community, abstracted from specific, individual and market-based consumption needs, and if the provision of public goods is organised and maintained by the state, they are available without individual specific use.[18] Individual consumption of public goods cannot be measured accurately, for example, just as someone cannot be excluded from the "defence service", nor can it be measured "to what extent" the army protected one or the other in a war situation, etc.
Depending on the level of social and economic development, guaranteed health, education, social and welfare support, administrative and public order services as well as justice are not pure public goods, but also not market-based public services. Within the framework of the rule of law, one might think, for example, that justice is a basic public service that enriches the range of pure public goods. However, this service, as well as the other mentioned examples, are provided on the basis of legal regulations, so in the absence of legal guarantees, individuals can in principle be physically excluded from their consumption. It should be noted, for example, that while health and social services can be provided by the market sector in private care (private doctor, private social or nursing home, etc.), in the case of administrative and judicial activities, the introduction of market processes is inconceivable due to the public authority content of these activities.
The transitional group between pure public goods and private goods is the range of club goods or artificially scarce goods, where the possibility of exclusion from consumption applies, but the optimal size of artificial scarcity is usually more than one person. Club goods include a common laundry room in a multi-occupational dwelling, a swimming pool, or a cinema screening.

Public market services are services that can be used continuously by all members of a larger community under the same (or similar) conditions, which have been (and are) of course typically provided in a monopoly, stemming from the service infrastructure. From the perspective of the public service operation, one essential feature of the service is that it has public service content and is subject to public law-based regulation, state intervention and community control.
Access by the community, by all members of society, does not mean that everyone has the same quality of access to the public service on the market, but the service provider cannot discriminate against consumers or areas that can only be served uneconomically, nor can it deny them the ser-

vice, and its lower standard can only be based on objective economic, technical, technological, etc. circumstances and rationality (for example, an electronic communications service provider is not obliged to install a local loop with an optical cable on a farm far from the municipality if this is technically or economically irrational, but it is required to provide a simpler, universal service, a copper pair connection, even if it is not economical).

To ensure and develop the provision of market public services, the state has more direct means at its disposal if the service provider is state-owned, however, due to the equivalence of the efficiency and operation of state-owned companies with the performance of private sector companies, the optimal framework for the provision and development of public services is not always provided by the state-owned company. The privatisation of a state-owned company and the liberalisation of the service provision do not eliminate the public service content of a service, the essential question in this regard is whether the public interest in the provision of public services is not harmed during the provision of services by private companies, or whether the provision of services within the private and market spheres is more efficient, economical, etc. compared to the performance of public tasks.

In communications, the issue of service provision by public or private companies has already been decided – for the benefit of the latter, the universal electronic communications service, which qualifies as a market public service, is also provided by market participants. In many other industries, the market public service and universal service are still provided by state-owned companies.

3. PUBLIC SERVICES IN THE EUROPEAN UNION

The European Union is based on the idea of free trade and provision of services between Member States. In one approach, the development of the European Community can be interpreted as the fulfilment of this economic "unification" (customs union, common market, internal market, single market), the four fundamental freedoms.

The oldest root of the European Union is therefore economic, and competition throughout the Union is one of the main objectives of European cooperation and its institutional system, among other political and other objectives.

Accordingly, in the legal sources, documents and "way of thinking" of the European Union, public services also appear as an impeding – but accepted – factor of competition on the market. This approach can also be seen in the wording, in the name of the concept that most closely corresponds to public services in EU terminology. In the EU, the term "public service" is rarely used,[19] the Community counterpart of this concept being service of general interest, which refers to a general interest which overrides the "omnipotence" of competition[20] – and the classification of the interest as a public interest and a need to be satisfied through a public service is a matter for the Member States. Equivalence is approximate in the sense that public service is not 100% synonymous with service of general interest and, similarly, a combination of a market public service – a service of general economic interest and a non-market public service – and a service of general, non-economic interest or nature is only based on a high degree of similarity, there is no complete conceptual agreement.

Article 1 of Protocol (No 26) of the TFEU contains an interpretative provision on services of general economic interest:

"The shared values of the Union in respect of services of general economic interest within the meaning of Article 14 of the Treaty on the Functioning of the European Union include in particular:

- the essential role and the wide discretion of national, regional and local authorities in providing, commissioning and organising services of general economic interest as closely as possible to the needs of the users;

- the diversity between various services of general economic interest and the differences in the needs and preferences of users that may result from different geographical, social or cultural situations;

- a high level of quality, safety and affordability, equal treatment and the promotion of universal access and of user rights."

This cannot be considered a legal definition or a definition of content, nor is it referred to as such in the European Union documents. In secondary legislation and other sources, services of general economic interest are defined as services of public economic interest to which a Member State imposes public service obligations. These are market services within the scope of services of general interest.[21]

According to the general information available on the European Union's website, services of general interest are services which are classified as public services by the authorities of the Member States and which are therefore subject to specific public service obligations. Services of general interest fall into one of three categories: economic (e.g. post), non-economic (e.g. police, justice) and social (e.g. employment and social housing services). Social services of general interest can be both economic and non-economic.[22]
The European Commission defines services of general interest as services which are considered to be of general interest by the national, regional or local authorities of the Member States and are therefore subject to a specific public service obligation. The concept covers both economic activities and non-economic services. The latter are not subject to specific EU legislation and are not subject to the internal market and competition rules of the TFEU. However, certain aspects of organising these services may be covered by other general rules of the TFEU, such as the principle of non-discrimination. Economic services of general interest are economic activities that result in the creation of public goods that would not be produced by the market without public intervention (or only under different conditions in terms of objective quality, safety, affordability, equal treatment or universal access).[23]
It is clear that the use of words and concepts of services of general interest / services of general economic interest in literature and in EU materials is not completely uniform. Attempts have been made to resolve this at EU level, but a clear demarcation of categories and a fully consistent use of concepts are still noticeable by their absence. However the services of general interest "outside" the services of general economic interest are referred to (i.e. as services of general interest or services of general non-economic interest), it is important that they do not fall within the scope of EU law, they are not governed by Community law.

There are no explicit provisions on services of general interest, i.e. non-economic interest, in the primary sources of law of the European Community, including the Treaties establishing the European Communities and the TFEU. Services of general (non-economic) interest are therefore not covered by internal market, competition law and state aid rules. "Economic interest", on the other hand, makes the scope of services of general economic interest ("market") and services of non-economic ("non-market") general interest less precise and difficult to distinguish, as services of general non-economic interest, including non-profit services, also assume economic and commercial activity. Therefore, the basis for distinguishing between services of general economic interest and services of general interest (non-market) is to be found in the "service-determining significance" of the economic interest within the given service, in the content, purpose and operation of the economic activity, and in the role of the market structure related to the service.

In the field of communications, this examination is not necessary for the universal service as it is mandatory for Member States to introduce it under EU law. However, in other cases outside the EU obligation, the content of the general economic interest, i.e. the public service content, depends on the discretion of the Member State. Depending on the division of competences set out in national law, Member States' authorities have considerable discretion (discretionary power) at national, regional or local level to determine what constitutes a service of general economic interest [(market) public service]. There are limits to this discretion imposed by EU law in harmonised sectors (such as communications). Where EU harmonisation rules only apply to certain specific services, Member States have a wide margin of discretion in defining ancillary services as services of general economic interest. As mentioned above, in the electronic communications sector, for example, Member States are

obliged to introduce universal service obligations under EU law, but have the discretionary power to define electronic communications services as services of general economic interest in addition to the provisions of the relevant Directive (i.e. the European Electronic Communications Code).

The fact that services of general non-economic interest are not covered by EU law may lead Member States to classify their public services as such, and not as services of general economic interest. Whether the incorrect classification happens because of this interest or because of an error caused by demarcation or classification difficulties, the European Commission is entitled to determine the application of internal market and competition rules with regard to services of economic interest classified "incorrectly". In such a case, the service may be considered to be of general economic interest by the Member State under the conditions set out in the relevant Union provisions.

The Commission and the Court of Justice of the European Union also have the power to act if the classification of a service as a service of general economic interest is based on a "manifest error". In the field of communications (or related audiovisual fields due to convergence), the inclusion of activities involving advertising, e-commerce, the use of premium rate telephone numbers (IDs) in games of chance, sponsorship or sales promotions (merchandising) as public service activities in the audiovisual sector is clearly one such discretionary error.[24]

4. STATE PROPERTY AND SERVICES MAINTAINED IN COMMUNICATIONS MARKET COMPETITION

In the history of communications prior to privatisation and liberalisation, the content of public services was clearly identifiable:
The most characteristic communication services provided by the natural monopoly – and most widespread in terms of volume – was the fixed telephone service. Fixed telephones and the infrastructure of the fixed telephone network formed the basis and provided the key content for the market segment of the public telecommunications system (public telecommunications market service). Other market communications services either developed later on, in the period of liberalisation and privatisation, and were in demand then (such as the proliferation of radiotelephone services and equipment) or were services of lesser importance for consumer, community and individual use – such as scientific research, meteorological and defence-related services. For a long time, there was no alternative or substitute service to the fixed telephone service, which stemmed from the fact that until the last third of the 20th century – based on the level of technological development and the very limited capacity provided by bandwidth and technical possibilities – the fixed telephone network was an indivisible network that could not be extended in parallel. In this respect it was a public utility network. The inability to develop a parallel network meant infrastructure-based competition did not arise, network sharing and access to alternative service providers were impossible, and therefore service-based competition was excluded. The so-called value-added and ancillary services provided over a fixed telephone network were mainly related to fixed telephone services (such as caller ID) and had no effect on the structure of the communications market.

The public service nature of the fixed telephone service was not based on the fact it was provided by the state, a public company or a public utility – although this did reflect reality in Europe at the time – because, as seen above, the public service content of a service is not determined by the person providing the service or its ownership background, etc. The public service content is to be found in the nature of the service, and the fixed telephone service was classified as such, also because it could not be substituted. Consequently, the fact that communications have been transferred from the public to the private sector under conditions of market competition via liberalisa-

tion and privatisation does not automatically lead to a change or cessation of the public service content or nature of a given communications service. Below I examine which communication services, legal institutions and areas of communications regulation have public service content today, following the extensive and successful liberalisation worldwide. The – surviving – public service content of the liberalised communication market and communication service system is particularly evident in the following areas, legal institutions and regulations.

It should be emphasised that the most important element of public service content following the liberalisation, privatisation and structural reform of communications is that if the market mechanism, the structure of market competition, is not able to operate the whole service system efficiently or its "essential" sub-area at the given level of economic and social development, then the enforcement and regulation of public service guarantees becomes inevitable.
When examining the legal institutions and regulations presented below, I am seeking the public service aspects, content and nature, so – apart from the universal service and broadcasting for example – it is not the classification or non-classification of the given legal institution as a public service that matters (which in most cases is not applicable based on the content of the legal institution or regulation), but its relationship with the public service.

4.1. THE UNIVERSAL SERVICE

In connection with the universal electronic communications service, I would like to begin by quoting the preamble to the Code: *"A fundamental requirement of universal service is to ensure that all consumers have access at an affordable price to an available adequate broadband internet access and voice communications services, at a fixed location."* [recital (214)]. Public service content is the provision for all consumers and the adequacy and appropriate price of the service. The mandatory content of the service is the adequate fixed voice and broadband internet access service under the Code, which leaves it to the Member States to ensure that it is also provided to citizens "on the move" as part of the universal service. The universal service is regulated by the European Electronic Communications Code, and in Hungarian legislation in Act C of 2003 on Electronic Communications (hereinafter referred to as: Electronic Communications Act); further provisions, such as the designation of the universal service provider, are contained in the Decree of the President of the NMHH.
Under the rule of the Electronic Communications Act in force until 20 December 2020, in addition to the services that are part of the universal service, the universal service provider providing the universal electronic communications service – and the company qualifying as the designated universal postal service provider – was obliged to provide domestic telegram services. This service did not constitute the content of the universal electronic communications service, however, the universal electronic communications service provider was obliged to provide it in a way that is accessible to all [Section 125 (2) of the Electronic Communications Act, until 20 December 2020)]. The amendment of the law carried out when implementing the Code also expresses how variable the scope of universal service is, i.e. the domestic telegram service has become marginally important, and its public service content has "disappeared".[25]

4.2. FINITE RESOURCES

4.2.1. SPECTRUM MANAGEMENT

Radio frequency spectrum is a limited finite natural[26] resource. Its use does not also mean its "consumption", because it is not exhausted when used, it does not decrease, and it does not run out (so a frequency band freed up can be reused). The seemingly large radio spectrum is limited due to the possibilities of the available technology, the diversity of radio services and uses, the demand for spectrum they generate, the different frequency bands and the wave propagation and operating constraints of geographical areas and topograph-

ical differences, etc. The limited nature of this resource is alleviated by the fact that a frequency band used in a given area can be used elsewhere at the same time after a certain distance. Improper, unplanned use of the radio spectrum, or if the spectrum is not used, will result in a waste of resources.

Considerations and decisions on frequency use options must lie in the public interest, of which national security, public security, the protection of life, health and property, the national economy, including the communication services, the productive and service sectors (especially traffic and transport) and public interest aspects of information, education sport and entertainment play a key role among the components of public interest in terms of frequency use.[27] Radio spectrum is the exclusive property of the state[28] and, according to recital (107) and Article 45 of the Code, is a scarce public resource with significant social, cultural and economic market value.

Based on the above, the public service content of spectrum management can be identified most generally in the fact that the state-owned finite resource is distributed in accordance with the public interest. Setting spectrum management solely on market conditions is precluded by the limited nature of the spectrum and its state ownership.

Spectrum management can be divided into civilian and non-civilian spectrum management subsystems. In civilian spectrum management, the purpose of the frequency use is to achieve economic benefits, usually via an electronic communications activity or the provision of a service. For this reason, the use of frequencies for civilian purposes may also be referred to as commercial use of frequencies (this is the common term in the official terminology of Western Europe, overseas and the European Union).

A special type of civilian frequency use is broadcasting,[29] the use of radio spectrum for broadcasting purposes. At present, television programmes and channels (audiovisual media services) are broadcast in Hungary using digital technology, and the digital switchover (in terrestrial broadcasting as well as on other platforms) has taken place. In the vast majority of cases, radio media services are still broadcast using analogue technology, in some cases in simulcast mode, i.e. in addition to analogue broadcasting, the media service is available on a digital platform too (e.g. internet platform or digital cable TV network, IPTV network; the spread of digital terrestrial radio broadcasting: DAB, DAB+ is yet to come).

The public service aspects of broadcasting are related to the type and content of the distributed media service. A well-defined type of media service is the public media service. One of the aims of the public media service is to broadcast socially and culturally comprehensive content for "everyone" (addressing as many social strata and culturally distinct groups and individuals as possible). In view of this objective, as well as its other objectives set out in the media regulation,[30] it can be concluded that the public media service provider provides a public service.[31]

In Hungary, the operation of the DVB-T digital terrestrial broadcasting network and its free broadcasting for consumers – which has replaced free analogue broadcasting – satisfies a basic social need (by distributing certain media services of "elementary" television channels, i.e. public media services and media service providers with significant powers of influence), based on which it can be considered a service with public service content.

Public service radios are distributed in Hungary via both analogue and digital broadcasting, which can also be considered a service with public service content. The digital broadcasting of public service radios has taken place in and around Budapest, and approximately 38 % of the population has the opportunity to listen to digital radio broadcasts with a suitable device.

In non-civilian spectrum management, the purpose of the frequency use is to support the performance of important state tasks. In domestic practice, these state duties comprise tasks of national defence, national security, police (including general police, counter-terrorism, and internal crime prevention and detection), professional disaster management, correctional services, customs and financial investigation, and government communication services.[32] The scope of non-civilian

spectrum management organisations is defined by law. This includes: a) defence forces, b) the national security services, c) domestic crime prevention and detection body, d) the counter-terrorism body, e) the general police body, f) the professional disaster management body, g) the correctional services body, h) the customs and investigative bodies of the National Tax and Customs Administration, and i) the government communications provider for the closed law enforcement network, the K-600/KTIR Communication and Information System and the unified digital radio communication system.[33]

The performance of national defence and law enforcement tasks is considered a (non-market) public service, therefore the related spectrum management can be considered as having public service content, and even as pure public goods. Government communications services (some of which fall within the domain of spectrum management) are covered in point 4.3.

4.2.2. IDENTIFIER MANAGEMENT

Electronic communication identifiers in general, and numbering, play a significant role in the proper transmission of information within and between networks. Identifiers are a prerequisite for the operation of services, as they ensure distinctions can be made between networks, service systems and, in particular, subscribers. Differentiation can be based on numbers, names and addresses. The name and address are alphanumeric identifiers that can contain numbers, letters and symbols, while the number indicates a name or address, but consists of digits only. The name basically means the identification and distinction of the final destination of the information transmission, and the address is the identification applied at management level in the telecommunication network.[34] The IP address, email address and domain name are not considered identifiers.

Identifiers (numbers or a series of characters) can be expanded indefinitely in principle, but identifiers are considered a finite resource, firstly because expanding and changing the range of identifiers involves huge costs in practice and requires extensive technical requirements and developments. Secondly, identifiers are based on international coordination and number and address ranges allocated in international organisations based on agreed numbering plans. And thirdly, the economic, business interest and pecuniary rights related to numbers and addresses are increasingly important aspects among identifiers.[35]

Identifiers, like radio spectrum, are the sole property of the state.[36] Their regulation, distribution and management also affect the usability of electronic communications infrastructure, the quality of services, consumer satisfaction and the economic interests of service providers. The public service aspect of identifier management is based, on the one hand, on the simple fact that the universal service as a telephone service provided as a public service also requires a telephone number. However, this in itself does not yet underpin the public service content. The public service content of identifier management is that the responsible management of these state-owned finite resources is a condition for the operation of communications and the assertion of the related public interest, which would be endangered by the distribution of identifiers on a market basis only without special state regulation or intervention.

4.2.3. NUMBER PORTABILITY

Due to its connection with identifiers, the legal institution of number portability is covered here.

Number portability is a means of facilitating a change in provider, allowing a subscriber to retain an existing subscriber number if they wish to use the subscriber service from another electronic communications service provider. Number portability must be requested by the subscriber and is free of charge. The cost-based fee for the portability, which may be determined by the transferring service provider, shall be paid by the receiving service provider to the transferring service provider.

Number portability is a means of stimulating competition that ensures that the economic interests associated with call numbers are upheld. Stimulating competition can be considered a general public interest and goal, but the public service

content and aspect of number portability beyond this cannot be identified.

4.3. GOVERNMENT AND CENTRALISED COMMUNICATION SERVICES

A government communications activity is an electronic communications activity related to a government network,[37] and a government communications service is an electronic communications service provided to users specified by law using a government network that is physically or logically separate from the public communications network.

Government communications activities may be performed by government communications service providers and those entitled to perform separate communications activities.[38] The government communications service provider in Hungary is the National Infocommunications Service Company Ltd. (hereinafter referred to as: NISZ Zrt.) and the Pro-M Professional Mobile Radio Company Ltd. in relation to the unified digital radio communication system.[39]

The Minister responsible for e-government concludes a public service contract with the government communications service provider on behalf of the Government, the minimum content of which is to define the scope of government communications services and government communications networks covered by the contract.[40] The service catalogue and the public service task map of the service provider are available on the website of NISZ Zrt. for the entitled parties.[41]

The National Telecommunications Backbone Network (hereinafter referred to as: NGT) provides electronic communications services not satisfied by another government network for users obliged to use a government communications service.[42] NGT is operated by MVM NET Zrt. The company operates based on three pillars: it ensures the internal technological telecommunications network of the Hungarian Independent Transmission Operator Company Ltd. (MAVIR) serving its transmission system management activities. In addition, the MVM NET network ensures, among other things, the trouble-free operation of the telecommunications system used to serve the government network, e-government, the Hungarian parliamentary, local government and European Parliament elections, as well as several critical government services. The third pillar is provided by the fact that MVM NET utilises the free capacities of its national telecommunications backbone network to provide telecommunications services to its wholesale customers.[43]

The scope of centralised IT and electronic communications services is defined by law,[44] and these are provided by NISZ Zrt. and IdomSoft Informatikai Zártkörűen Működő Részvénytársaság (central providers) to the ministries and the Government Office of the Prime Minister. NISZ Zrt. uses the "most ordinary" electronic communications services (fixed and mobile telephones, internet) from market service providers. The Minister responsible for e-government and the central provider enter into a public service contract for the tasks, in which the parties fix the scope of the required services, their basic professional and technical content and the duration of their performance and provision. A working group may be set up to define the tasks covered by the contract and to monitor their performance.[45]

Government and centralised communications services are related to the operation of the state, they serve it, therefore their public service content is clear and requires no further explanation.

4.4. ASYMMETRIC COUNTERBALANCING OF MARKET POWER, SIGNIFICANT MARKET POWER

Symmetric regulation applies equally to all market participants, regardless of their market power, whereas asymmetric obligations apply to mar-

ket participant(s) with significant market power and are imposed by the regulatory authority in the context of a market analysis procedure. The obligations for the global wholesale communications market constitute a special set of obligations which all electronic communications service providers may be subject to (symmetrical), yet which are not imposed by law, but by a regulation (asymmetrical).
The procedure for defining and analysing the market, identifying service providers with significant market power[46] (hereinafter: SMP providers) and imposing obligations on them is one of the market regulation procedures. SMP providers may be subject to one or more obligations primarily in relation to the wholesale market and services. If the objectives of effective competition and electronic communications regulation would not be achieved through wholesale obligations, obligations could also be imposed on retail services (e.g. obligation to set a maximum retail price, prohibition of unjustified tying).
State intervention in market competition through asymmetric or ex-ante regulation is based on the need to enforce the public interest in the operation of communications services and the sector in a liberalised market environment, by means other than general competition law.
Ensuring the choice of intermediary was a specific SMP obligation related to the fixed telephone service in the communications regulation. The legal institution has lost its importance due to the development of market competition, so it has been removed from the scope of regulation both at the EU and domestic level.[47]

In the framework of market-based public services, the most effective common method of state intervention and economic administration is price regulation, which significantly limits the pricing of the economic organisation.[48] Price regulation undoubtedly has a public service content, and is an essential tool, i.e. one that allows public intervention to affect the value of the services.
Price regulation is therefore a regulatory tool that can directly affect the level of charges for basic and related ancillary services. This regulatory option implies the use of different price control tools and cost accounting obligations, since cost-orientation and the controllability of charges allow for the application of a number of specific pricing methods in the context of obligations: These include the method of benchmarking using cost models based on the price of another service provider, as well as the method of retail minus, RM, based on the price of the related retail service. Two large groups of cost models are used in the price regulation system of electronic communications: the so-called Fully Distributed Costs (FDC) method and the Long Run Incremental Costs (LRIC) method.
Pursuant to the Hungarian electronic communications regulations, the regulatory authority may impose a cost-recovery and price regulation obligation on certain interconnection and access services as a SMP obligation.

With regard to retail prices (subscriber fees), it should be noted that in the field of electronic communications in Hungary there is no regulatory price within the framework of the universal service, while in public service sectors such as gas or electricity services, services and products are officially priced. Here, the two-element pricing method[49] (fixed basic fee and variable fee element according to consumption), price cap regulation and price discrimination[50] (typically peak and off-peak charging) are still common price regulation and public service pricing methods.

4.5. INTEROPERABILITY, STANDARDISATION, INTERFACES

The condition for the uniformity and interoperability of networks is standardisation and the use of interfaces.
Standardisation is an institution that defines a complete set of communications networks, technologies, terminals and other devices, which has become fully international in the field of communications, moving away from national frameworks. The application of standards can significantly facilitate the market entry and market

activities of service providers, and the application of harmonised standards in the network and service is also a significant advantage in market and economic competition processes.
Through the interfaces, not only can the implementation of interconnection and access to networks be ensured more efficiently, but based on the interfaces, both new and old technologies and services can be applied side by side in existing and continuously evolving network systems.[51]
This finding applies to so-called network interfaces, another type of interface in communications regulation is the subscriber interface, the network interface on which the service provider provides the user with subscriber access to the electronic communications network.
Thus, without standardisation and the use of (network) interfaces, the operation and cooperation of communication networks would not be ensured and the public interest here would be damaged, and all this clearly realises the public service content of these communication service components.

4.6. COMMUNICATIONS TRACK-LINE AND TRACK-TYPE STRUCTURES

Special types of structure include electronic communications structures. A track-line and track-type electronic communications structure is formed by the cladding, support, protection and signalling structures of the wired connection of the electronic communications network.[52] The public service aspect of the regulation of these communications structures is that the coercive content of the universal service (affordable fixed telephony and fixed broadband internet access) requires a track-line network, while under the Code, optional services falling within the scope of universal service at the discretion of a Member State require a track-type network. Moreover, the regulation of track-line or track-type structures of the communication infrastructure is vital for the proper functioning of the communication.

4.7. COMMUNICATIONS DATA PROTECTION, DATA PROCESSING, SAFETY OF COMMUNICATIONS

The general data protection regulation and the sectoral and communications regulation of protecting and processing of personal data derive from the fundamental right to the protection of personal data. In this respect, what this field has in common with public services is that in many cases the latter can also be traced back to a fundamental right (for example, health care and defence can be derived from the right to life).
In addition, an element that can be considered to have a public service content due to its relationship with a public service can be identified in the communications data protection regulation: the obligation to retain data. The purpose of communications providers' data retention obligations for law enforcement, national security and defence purposes is to ensure that the investigating authority, prosecutor's office, court and the national security service can request data in order to perform their statutory tasks, i.e. the retention and provision of data are necessary for the provision of public services – justice, national security.
It should be noted that the European Union, similarly to the uniform EU rules on general data protection,[53] is working on developing directly applicable data protection rules in the field of electronic communication[54] According to the European Commission's proposal for a regulation on privacy and electronic communications, the regulation applies to the processing of electronic communications data in connection with the provision and use of electronic communications services and to data relating to end users' terminals. The proposal does not contain any specific provisions on data retention. Therefore, Member States are free to apply or establish national data retention frameworks, such as those on targeted retention measures, provided that they comply with Union law, taking into account the relevant case-law of the Court of Justice.[55]

Notes

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16 For matching public services with COFOG categories see Kiss op cit 10, pp. 22-23.

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19 For example, mentioned only once in the Treaty on the Functioning of the European Union (TFEU), in Article 93.

20 Of course, the European Union has long been more than just an economic union, and this is also reflected in the relevant (primary) EU sources of law in the context of services of general economic interest. According to Article 14 of the TFEU: "(...) given the place occupied by services of general economic interest in the shared values of the Union as well as their role in promoting social and territorial cohesion, the Union and the Member States, each within their respective powers and within the scope of application of the Treaties, shall take care that such services operate on the basis of principles and conditions, particularly economic and financial conditions, which enable them to fulfil their missions. (...)", and pursuant to Article 37 of the Charter of Fundamental Rights of the European Union: "the Union recognises and respects access to services of general economic interest (...) in order to promote the social and territorial cohesion of the Union".

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22 https://ec.europa.eu/info/topics/single-market/services-general-interest_hu#definitionofservicesofgeneralinterest (downloaded on 11 August 2020).

23 Commission Staff Working Document – Guide to the application of the European Union rules on state aid, public procurement and the internal market to services of general economic interest, and in particular to social services of general interest, 22.https://ec.europa.eu/competition/state_aid/overview/new_guide_eu_rules_procurement_hu.pdf (downloaded on 11 August 2020).

24 Communication from the Commission on the application of State aid rules to public service broadcasting

25 According to data of the Central Statistical Office, the number of telegrams recorded by the post office fell to less than half between 2016-2019 (from 83,000 to 31,000 per year): https://www.ksh.hu/docs/hun/xstadat/xstadat_evkozi/e_onp005.html (downloaded on 15 April 2021). The relevant data of the uniform infocommunications, media and motion picture statistical database (http://ehmmsa.nmhh.hu/, 15 April 2021) (which also includes telegrams recorded by the universal electronic communications service provider) show a similar volume and trend.

26 The scarce communication resources can be divided into two main parts. Radio frequencies (or, in a sense, identifiers) are scarce resources on a natural basis, and scarce resources based on technology are those whose rights of ownership or use are suitable for preventing competitors from entering the market, or squeezing them from the market/competition. Technically, the communication network infrastructure itself is a finite resource. Beke, N., Choma, A., Mádi, I., Pálinkás, J, & Zágonyi, L.: *A hírközlési piaci verseny, a hírközlési szolgáltatók közötti viszonyrendszer, a hírközlési nagykereskedelmi piac és a hálózati infrastruktúra igazgatása.* [Market competition in telecommunication, the relationship between telecommunication service providers, the wholesale market of telecommunication and the management of network infrastructure.] In: Lapsánszky (ed.): op. cit. 30, (2013) pp. 266-267.

27 Bajó, J., Győrbíró, L., Madarász, E., Nyárády, G. & Vári, P.: *Korlátos erőforrásokkal való gazdálkodás az elektronikus hírközlésben.* [Management of finite resources in electronic communication], In: Lapsánszky (ed.): op. cit. 30, (2013) pp. 185-186.

28 Section 4 (1) k) of Act CXCVI of 2011 on National Assets.

29 According to Act LXXIV of 2007 on the Rules of Broadcasting and Digital Switchover, "broadcasting transmission shall mean the media service distribution in the course of which analogue or digital radio or audiovisual programmes are transmitted to the subscriber or user, by means of a terrestrial transmission system that uses radio frequencies – other than frequencies allocated primarily for satellite services – and usually enabling one-way data transmission (...)".

30 Section 83 of Act CLXXXV of 2010 on Media Services and the Mass Media.

31 This is also supported by the fact that the public media service provider itself (Duna Médiaszolgáltató Nonprofit Zrt.) designates its basic task under Section 98 (1) of the Media Services and Mass Media Act – the achievement of public service objectives – as the public service in the disclosure list made available in fulfilment of its obligation under the regulation on electronic freedom of information. http://dunamsz.hu/kozerdeku/?lang=hu_hu# (downloaded on 15 April 2021).

32 Lapsánszky, A. (ed.): *Hírközlés-szabályozás, hírközlés-igazgatás hazánkban és az Európai Unióban.* [Regulation and management of telecommunication in Hungary and the European Union], Budapest, Volters Kluwer, 2013, p. 231.

33 Section 2 of Decree 12/2011 (XII. 16) NMHH on the rules of non-civilian spectrum management and on organisations under non-civilian spectrum management.

34 Lapsánszky, A. (ed.) *Hírközlés-szabályozás, hírközlés-igazgatás hazánkban és az Európai Unióban.* [Regulation and management of telecommunication in Hungary and the European Union]. Budapest, Volters Kluwer, 2013, p. 249.

35 Ibid. 251.

36 Section 4 (1) k) of Act CXCVI of 2011 on National Assets.

37 The communication networks for government purposes are the National Telecommunications Backbone Network, the Unified Digital Radio Communication System, the Closed Law Enforcement Network, the Public Net and the K-600/KTIR Communication and Information System – Annex 1 of Government Decree 346/2010 (XII. 28) on Government Networks.

38 Those entitled to separate communications activities and the networks operated by them are listed in Annex 2 of Government Decree 346/2010 (XII.28) on Government Networks, for example: in the case of the military national security operations network, the Military National Security Service.

39 Section 3 of Government Decree 346/2010 (XII.28) on Government Networks.

40 Section 5 of Government Decree 346/2010 (XII.28) on Government Networks.

41 https://nisz.hu/szolgaltatasok/telekommunikacio (downloaded on 15 April 2021).

42 Section 21 of Government Decree 346/2010 (XII.28) on Government Networks.

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44 Annex 1 and 3 of Government Decree 309/2011 (XII.23) on Centralised IT and Electronic Communications Services.

45 Section 4–5 and point A) 2.5 and 2.6 of Annex 1 and Annex 2 of Government Decree 309/2011 (XII.23) on Centralised IT and Electronic Communications Services.

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54 The European Commission's proposal: Regulation of the European Parliament and of the Council concerning the respect for private life and the protection of personal data in electronic communications and repealing Directive 2002/58/EC (Regulation on Privacy and Electronic Communications).

55 Article 2 and explanatory memorandum 1.3. of the Proposal for a Regulation on Privacy and Electronic Communications.