UDC: 338.46:005

Infrastructure and Service Providing Companies Business Activities*

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ABSTRACT – *In general, the end of the 20th and the beginning of the 21 century is marked by the growing role of services and service organizations. The new technology development and changes in life style increase the importance of services and service organizations dependence on infrastructure development level. The impact of infrastructure is becoming more and more important for service companies development. The infrastructure-growing role is especially emphasized in service sector, because it has a great influence on scope and quality of entrance (spent factors) and exit in service making process and service organizations business activities. The research results, presented in this paper, indicate that various intensity of infrastructure impact service organizations productivity. The infrastructure impact intensity on service organizations productivity depends on many factors such as: main characteristics of services, local and regional characteristics, technical progress level, economic structure, prevailing demand etc. The modern technologies development enlarges the services dependence on infrastructure.*

KEY WORDS: *infrastructure, services, organization, productivity, progress, management, entrepreneurs, reforms*

The significance of infrastructure

The modern economics, based on knowledge and information, created a new view of infrastructure and its impact on economic activities development. Recording, data processing, information transmission and distribution, explicit and codified knowledge development, as well as unexpressed and experienced knowledge are the main tasks of information and communication technologies and educational system. The information and communication technologies and educational institutions make an important part of current soft infrastructure. The new technologies development, globalization and ever-growing "porous" national borders increase the infrastructure importance for business activities of a modern enterprise that certainly affects the perceiving and content of quality indicators of business activities.

The infrastructure defines the ground, a basic need for performing certain activity. The infrastructure is a general term for materialized development conditions, technical systems elements for business operations promotion, and/or economic development dynamism, and a number of objects, which construction affects the space organization and living standards improvement. The infrastructure is an essential element for primary, secondary and other business activities performance including the decent life of people. At first, the infrastructure marked a number of objects that accelerated the economic development of undeveloped areas, along with railway and road lines, electric power stations, and irrigation systems. The above view of infrastructure was incomplete, so with economic activities development the integration of new elements of technical systems was carried out. The infrastructure elements are: transport (traffic network- railway tracks, roads, canals, ports etc.), energy (renewable

* This paper is a part of researching project no. 159004, financed by the Ministry of Science and Technological Development of Republic of Serbia, named: "The Integration of Serbian Economy into the EU - Planning and Financing of Regional and Rural Development and Enterprise Development Policy"

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and un-renewable energy resources), necessary objects for public necessities (squares, public lightning, hospitals, schools etc.), telecommunications, communal infrastructure etc.

The infrastructure also encompasses the sophisticated elements of business activities, first, research and development, computer and personnel base. In relation to the country or a region, the infrastructure presents a resource such as personnel, buildings, equipment. With economic development, the term infrastructure got universal meaning for basic needs, so the economic activities for making products and/or services could be performed successfully in a specific area and at specific time. The infrastructure is connected to systems- organization, as its fundamental ground, territory- local, regional, and then military needs- this term means permanent installation.

The infrastructure separating and gradation are based on logical order of some factors impact on intensity of economic activities growth and development and priorities order in forming the urban areas, settlements, towns and regions. In theory and practice, there are different types of infrastructure: heavy and light, basic and additional; physical and commercial; enterprises and villages infrastructure, local and regional, national and international infrastructure, etc.

The difference is also, present among the infrastructure of enterprises, villages and towns, zones, regions as well as between national and international infrastructure. In literature are used terms like specific national and international infrastructure that comprise the fundamental necessities of one industrial activity indispensable for successful performance of certain industrial activities in manufacturing goods and services.

IN USA the criteria for infrastructure dividing is the importance of certain business factors, so partition is made on critical and other kind of infrastructure. The critical one is the infrastructure indispensable for business performance like: electric and energetic system, gas and petrol, telecommunications, transport, water supply system, governmental system, emergency case system, banks and finance. The critical infrastructure is of great importance and its physical distraction would stopped the country functioning. The main request, therefore is, economic and physical safety concerning energetic, communication and computer technology infrastructure. Other factors, likewise essential for successful performance, but not critical, are classified among other infrastructure.

In European Union countries the usual classification is also the one getting off from various levels, making the difference between an enterprise infrastructure, and local and regional ones. An enterprise infrastructure comprises: sole preparation, industrial zone arranging and construction of most necessary buildings, assured energy, water and sewerage network, together with transport and communication network creation. The local infrastructure is composed of human resources, cultural objects construction, social and health facilities, houses for living etc. The regional infrastructure includes the following elements: transport communication network, scientific and educational institutes organizing and decentralization from bigger cities. Passing the time, the elements of necessary infrastructure were extended on all levels, from enterprise to region, owing to new technologies requirements.

In the second half of 20^{th} century, on ex-Yugoslavia region and other socialistic economies, the infrastructure was often divided on basic (or industrial) and social (or additional). The industrial or basic infrastructure comprised the set of technical system elements like: railway and road network with accompanying elements; ports and port facilities; airports and its facilities; electrical energy transmitting and transforming plants, gas lines, communications, melioration and technical systems. The generally accepted industrialization concept changed the mentioned elements by adding new ones that improve the life quality in rural villages and urban zones like: living spaces; water and sewage systems, health facilities and equipment, educational, cultural, entertainment, sport and recreation facilities.

The World Bank distinguishes light and heavy infrastructure. The heavy infrastructure comprises roads, transport services, industrial and potable water, waste disposal, telecommunication systems. The light infrastructure includes the elements in function of business improvement like, for example, education, researches and development, legislation reforming, business networking, consulting, access to capital and financial sources guidelines. Taking all these in account the importance of the World Bank in infrastructure global development has the practical advantages regarding other classifications.

Infrastructure influence on service enterprises productivity

It is obvious that the infrastructure designs the ambient quality wherein service organizations act. The analysis of infrastructure influence on service companies' productivity is a complex issue. Aiming to determine the correlation between infrastructure developments of determined area and service firms productivity some researches has been made on territory of the Republic of Serbia (Kosovo and Metohia excluded). The managers and entrepreneurs were questioned in 225 organizations comprising a number of service activities[2]. Table review (Table 1) presents the way how managers and entrepreneurs evaluate the influence of a number of infrastructure selected factors on service firms' productivity.

- Managers and entrepreneurs add the greatest productivity contribution to human resources; marking them between strong and very strong influence (4.5). The qualification of labour force and disposition for further specialization are the most significant factor in service firms performance and successful survival on competitive market. The new technologies and constant modifications of the life way and style present the complex challenges in adjusting their services to new requirements.

- Telecommunications are the second ranged factor that managers and entrepreneurs assessed by very high mark – 4.33. The modern telecommunication infrastructure and constant massive application of computer technologies in the process of data classifying and transmitting present big evolutionary changes in service firms' performance. The initiated process requires the implantation of new methods and technologies which results the new challenges and possibilities in service creating, production and delivery. The electronic connections and communications facilitate constant activities carrying on higher efficiency, lower cost and smaller faults and mistakes.

- Correct and stable electric supply is prerequisite of modern society functioning; therefore, the managers highly appreciated its productivity contribution (mark 4.27). The electric energy currently is so widely used, with great varieties in the way of using and with high efficiency, that its lack or, ultimately, reduction in supply, would have significant negative economic effects. It has a great influence on our life style, on everyday human activities, illumination, heating, goods and services production… It very hard to imagine any human activity where in lower or higher extend, directly or indirectly, it is not included the consumption of electric energy. The service industries are labour intensive and separately are no massive consumers of electricity, but their dependence of electric energy is impressively high. A gear number of services could not be provided efficiently and to expected quality level in conditions of interrupted electric energy supply. The electric energy considerably affects on service industry firms productivity and the quality of their products.

- Managers and entrepreneurs evaluate that stable and quality technical and potable water supply is very important, that is it affects to great extend the performance of their firms and the average mark amount 3.87. Greatest importance to this factor give service industries in everyday process of providing services by water utilization (car-wash, shampoo, catering and tourism…) in relation to industries where the water use is not so represented (consulting, accounting, financial services, advertising…)

- Traffic infrastructure contribution to productivity is assessed on different ways and covers the range from low to high influence. The managers in average, the low contribution (from marks low to important influence) record in air traffic (2.71) and railway infrastructure (2.81). The road network is highly appreciated – the assessment is between important to very important. The highest marks are reserved to local and urban road network (3.95), then, to main road and regional road network (3.59) while the lower importance is dedicated to highways and highways accesses (2.96), indicating that great percentage of service firms is orientated to local markets.

- On average, the managers evaluate that port and river traffic (mark 2.12) and river and its banks area infrastructure (mark 2.20) influence poorly on their firms' productivity. The mentioned marks indicate that natural potentials are not exploit enough, regarding river traffic development. Nevertheless, it is evident a poor assessment of river and mountain brooks as non recovering natural resources, which

[2] Kostić D., (2008), Service Organizations Reginal Infrastructure and Productivity, Institute of Economic Sciences and Belgrade Banking Academy – Facutly of Banking, Insurance and Finance, Belgrade, pgg. 307-312.

could have far-reaching consequences. The practice of massive and uncontrolled waste disposal into river flows reaches serious measures.

Table 1. Evaluation of selected infrastructure factors influence on service firms productivity

R/b	Factors	Mark
1	Human Resources – Labour force qualification and disponibility to improve the skills necessary for work	4,50
2	Correct and stable electric energy supply	4,27
3	Correct and quality technical and potable water supply	3,87
4	Railway infrastructure – access to railway network, goods and passengers transport	2,65
5	Highways and their access	2,96
6	Main and regional roads	3,59
7	Road network – local and urban	3,93
8	Telecommunications – stable and mobile telephone network (network quality, connection possibilities, prices and territory coverage)	4,33
9	Gas pipe lines – infrastructure network, connection possibilities, gas use benefits, cost effects	2,83
10	Airports and air traffic – regular flights, moderate prices, goods and passengerstransport	2,49
11	Ports and river traffic – goods and passengers transport, touristic travelling	2,12
12	River and river area infrastructure – organization, accessibility	2,20
13	Utility infrastructure on site where the service is provided	3,67
14	Infrastructure cultural, recreational and sport facilities – in region and/or on site where the service is provided	3,27

Note: 1 – very low influence; 2 – low influence; 3 – significant influence; 4 - high influence; 5 – very high influence.

- Factor – urban infrastructure in the circumstances where service firms perform their activities – is highly appreciated, between important and very important (mark 3.67). The prices of utility services in Serbia are not harmonized with expenses and it is real to expect reforms in utility services infrastructure what will have influence on service industry inputs.

Macroeconomic factors

Macroeconomic factors established by government and local community affect the ambient forming wherein the service firm executes its activities. Without particular analyses the research results indicating how the managers evaluate certain macro factor are presented as follows:

Out of group of selected factors, the macroeconomic factors in Serbia have great priority – inflation, exchange rate (mark 4.26). Such a high mark partly is the result of negative experiences from the passed sanction period of economic isolation and monetary instability.

Entrepreneurs and managers highly rank fiscal policy influence and assess that tax relief in first years of activities (mark 3.98) would strongly stimulate service firm performing. The local administration – license and other documents and certificate issuing, support in business give the important support to the firms (mark 3.71).

"Greenfield investments" could positively affect the more dynamic service industry development in Serbia. The managers appraise that infrastructural and arranged site (accessing roads, railway roads, water pipe and sewage network, electricity connection, telecommunication infrastructure…) present a great support to service industry development (mark 3.31) Greenfield invest-

ments are very attractive for service companies occupying with warehousing, motorcar and agricultural mechanization servicing, sport and recreation, etc.

Competitive conditions and grey economy participation on local and regional market is also highly evaluated. It is estimated that competitiveness strongly (mark 3.70) affects productivity. General opinion is that underground economy is not restrained and its negative effects, still considerably (mark 3.11) influence on service companies business in Serbia.

Ecology factor – Environment protection, European standards respect is more and more present in businessman conscience in Serbia. It could be concluded that evaluation of ecology (marks 3.02) is highly appreciated and affects the productivity, indicating the idea of environment protection needs and necessity to respect international guidelines referring to this field.

Table 2. Evaluation of selected macroeconomic factors influence on service firms productivity

R/b	Factors	Mark
1	International position of Serbia	3,42
2	Political stability in Serbia – sanctions and embargo; population goods and services traffic restrictions; benefits for Serbian goods and services export	3,86
3	Macroeconomic stability in Serbia – inflation, foreign currency exchange rate	4,26
4	Fiscal policy – certain business stimulation, tax liberation in first years of activities	3,98
5	Local administration – license obtaining, documents and certificates issuing, bussiness support	3,71
6	„Greenfield investments“ – importance for your business, construction possibilities on site infrastructural arranged (accessing roads, electricity, water, telecommunications...)	3,31
7	Gray market	3,11
8	Competitiveness	3,70
9	Ecology – environment proteccion, European standards respecting	3,02

Note: 1 = very low influence; 5 = very high influence

All analyses suggest that macroeconomic factors are of great importance for improvement of service industries. Macroeconomic policy and infrastructure advancement direct the service performance development, and consequently, accelerate the total economic development. Furthermore, the infrastructure and services determine the quality of life in region and significantly affect the population migration processes.

Infrastructure reforms

The model of organization and regulation, and certainly, the ownership has been addressing the significance of infrastructure for economic and general development. In majority countries, the government, under the control of infrastructure network – electricity, railway, water supply, telecommunications, natural gas – tried to protect the public interest and to provide the certain level of social equality in accordance with proclaimed policy.

Till the end of 20th century the infrastructure was the sector where, by the rule, governed public companies, through which the government was trying to realize control and influence directly on key development factors. After the nineties, in developed economies, and later in transition countries, the process of infrastructure network privatization has been opened.

During the major part of twentieth century the prevailing was the concept of infrastructure network integrated vertically and horizontally and controlled by government. The classic was based on thesis that infrastructure had dominant (critical) influence on general development, and that state industry

monopolies, providing necessary service, would enable the more dynamic and steady economic development, moreover, that the control over those services could not be conceded to free market regulations. The following argument of the classical model proponents was the necessity to ensure the better infrastructure coverage of the less developed regions. Infrastructure investments were dedicated to solve and/or mitigate the problems of non - harmonized regional development. One of the most current macroeconomic policy topics of the 20th century are the problems of non - harmonized regional development.

The results of infrastructure development in government monopoly ownership alter from one to another country. Observing in general, infrastructure results are better in industry developed countries in relation to developing and transition economies. However, in industry developed countries the model of government ownership and monopoly did not manifest the same results and challenges in different sectors. The development of new technologies, knowledge and growing environment requirements, the business conditions are changed (strengthen). The employment surplus problems, low productivity and slow modernization were manifested with different intensity in electro energetic sector, railway industry, and telecommunications. High investments in construction and unequal maintenance expenses together with price level created the problems in energetic sector. State railway system did not succeed to record profitable results, demonstrating low productivity concerning the technological potential and decreasing its share in passenger and goods transportation. The state telecommunication sector was orientated towards non-economic behaviour like filling state budget, employment and decelerated modernization. The infrastructure system productivity decrease in state ownership had wider negative consequences on product and service industry, in general. In developed countries service sector indicates intensive development; therefore the delay in infrastructure development has become the top issue that started to slow down the service, as leading sector, development.

In developing and transition economies the results of infrastructure state owned monopoly concept noticed a number of problems and inconsistency. Taking in general, state owned infrastructure, monopoly organized and acting showed great deficiency like: low productivity, poor service quality, inappropriate investment, constant income lack, low level of managers' motivation, etc. The infrastructural network coverage in developing countries is in general, or by the rule, weak and unequal, while in the transition countries it is high and relatively harmonized. The transition countries in passed period developed their economies on the state socialism concept, based on intensive infrastructure development, as a form of proclaimed industrialization goals and general social equality support. Non economic criteria in its fundamental terms realized different price and cost ratio of certain infrastructure services. The characteristic example are, from one side, water and electric power prices which are, by the rule, depreciated and lower than the cost of production, while, in the other side, the telecommunication service prices are typically high, ensuring extra profit.

The infrastructure in Serbia covers a number of irrationalities and challenges. Service firms in Serbia meet the acting of two factor groups that directly impact on productivity. The first one is the consequence of unequal territorial infrastructure development, while the other one is the result of non economic infrastructure service prices. Territorial unequally developed infrastructure together with utilization prices in disharmony with real cost give incorrect cost calculation and productivity inputs of Serbian service companies. The positive experience of transition economies in infrastructure reform could contribute to faster and more efficient process of ownership, organizational and business transformation of infrastructure network in Serbia. Effective, developed and well organized infrastructure impacts considerably to service firms' productivity growth.

Current tendencies and infrastructure reforms present the important element in future trends analysis. As it was emphasized before, the infrastructure has the great impact on productivity and efficiency of service companies' performance. The companies related to service sector on long term can not rely on existing, more or less, deformed infrastructure service cost/price ratio in Serbia. The service companies in business plans elaboration, particularly investment planning, should count on economically real indicators.

Reform and privatization processes in Serbia are developing very slowly in the infrastructure sector. After the years of transition (year 2008.) the general assessment is as follows: financial sector privati-

zation is over, the greatest part of real sector is privatized, but the privatization of public sector yet has to come. The infrastructure network in Serbia keeps on being state owned and its acting is conferred to public companies. Infrastructure reforms and privatization of public companies is complex and long lasting process concerning the other countries experience.

The privatization of public companies, as integral systems related to infrastructure is particularly complex issue, because when the system is disintegrating in relatively independent parts exposed to privatization, two main critical groups is emerging. The first one is, that in privatization process enters only the profitable part, because the private capital is not interested to invest in lost creating programs. The question of other less profitable parts emerges. The other issues are more complex, owing to the fact that the activities of the company, as business system, depends more on how the subsystems influence one to another, than on how they function independently. Two essential company's, as business system, characteristics are a) every system has substantial properties which have no one of its subsystems, and b) every subsystem has the properties to loose if separated of the system.

The global atmosphere is familiar with the experiences in public companies reforming and privatization. Privatization to be successful and to provide expected results requires adequate shareholders and experienced management. The investors are receiving high yield only when the added value is in form of leadership and systematic work, experience and governing. The reforms are not completed by ownership transition, on contrary, they are very beginning, and in many cases the turning point strategy is necessary. New customers, new suppliers and subcontractors, even investors are required. New capital, access to new markets and technologies, together with new management techniques implementation appear to be good form of restructuring. Therefore, it is necessary the adequate organization structure, corporative culture and human resources as prerequisites for privatization process success. A great number of factors impact on business productivity of the companies dealing with infrastructure service providing.

The management of service firms is interested in performance of the public companies dealing with infrastructure governing and providing infrastructure services. The quality and infrastructure accessibility, besides the service public companies price to great extend impact on service firms productivity.

Instead of a conclusion

The concept and importance of infrastructure changed as time was going by. The development of new materials and technologies, particularly information, considerably modified the importance of determined infrastructure elements ranking. However, the intensification of environment preservation and protection conscious, impacts on infrastructure development. Increasing the issue and investment into infrastructure, is increasing its participation in companies business costs requirement. Infrastructure building and maintenance considerably influence on business performing efficiency and are core productivity factor of service providing enterprises. The developed countries experience focuses that service firms in Serbia in the future should pay more attention to suitability, and more over costs of infrastructure use, that is, its influence on labour productivity and business profitability.

The management of service companies faces the complex task, in dynamic changes atmosphere, to achieve constant productivity growth, and to perform successfully on competitive market. The productivity as economic principle comprises requirements and/or management ambitions to realize the determined scope of provided services and products, using lesser production factor elements. A number of factors impact on productivity, among them, the infrastructure covers the great part. Infrastructure is achieving increasing service sector business importance, including the specific necessities comprehension, consumer's requirements, which emphasizes the wide market knowledge. Therefore, the management in modern companies, defining its development strategies and policies, apply both, the *top-down*, and *bottom/up* access types.

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