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MARKET POTENTIAL FOR TRAFFIC SYSTEM DEVELOPMENT

ABSTRACT

The traffic market is, by its nature, a market without important prerequisites for free competition, because there is not enough flexibility in either supply or demand, which means it does not have the basic economic prerequisites for market laws to develop freely. The relations between traffic service supply and demand cannot be automatically regulated by the traffic market. Therefore, the structuring of the traffic system and the regulating of relationships between specific traffic branches in the traffic system cannot be left to the sole influence of the traffic market. The possibilities of the traffic market, i. e. the influence on the establishment of a certain structure of the traffic system, are very limited. Therefore, the market is partly regulated by the state and the state regulations of the supply/demand ratio. State regulations are implemented through economic and traffic policies.

KEY WORDS

traffic, transport, traffic market, traffic infrastructure, traffic policy

1. INTRODUCTION

General notions on the scope of the task regarding traffic development that is inevitably in front of us indicate that there is a need to establish an adequate traffic development strategy based on the generally considered long-term interests and needs of the Republic of Croatia. The bases for this are the objectives as regarded by the Croatian government, economy and social institutions to be their current and future developmental interest. Based on a critical analysis of the development so far and the current situation, it is necessary to develop the basic concept of the traffic system development potential as seen from the aspect of market conditions, and subsequently, the appropriate development scenarios, as a whole and broken down into traffic industries. The assessment of invest-

ment potential in the area of traffic infrastructure development and the economic justifiability of investment are of particular importance here.

In every detail of the traffic development considerations in Croatia, including the appropriate strategy, the undoubtedly extraordinary traffic characteristics of Croatia, in terms of both the position and the internal structure, should be relied on truly, and not only on a declarative level.

As Croatia is at the same time both a continental and sea-oriented country, it is bound to have a complex and, in comparison to other countries, more dispersed traffic network. It should be particularly noted that Croatia's surface area is relatively small, but with great distances between the outer limits. Croatia represents the necessary or the most favourable transit route for many countries, whether for continental or transmarine destinations, so Croatia should work on getting such transit to be carried out along the Croatian roads and ports, with regard to the general national interests.

When it comes to objectives as being the foundation for planning and strategic objectives for the traffic development in Croatia, it should be understood that it is not just the simple catching up with the economically developed European countries, but also the simultaneous following of the technology development, as well as the verification of new criteria, and narrow and broad communities of people as regards the upgrading, load and exploitation of the traffic infrastructure.

Within this, the relations in distribution of traffic functions among different traffic industries may be separately considered as the objectives and the strategy for achievement of the objectives, where, and to the extent that, there is an alternative choice. The previous remarks say that in Croatia, in that sense, there are numerous opportunities of alternative choices, which could lead to a specific optimization, based on

special criteria increasingly present in the world. In the conflict of the economic interests and environmental considerations, the latter are increasingly receiving more and lasting importance.

The approach to traffic development planning in general, and the specific setting of objectives and strategic tasks of development, is necessarily faced with numerous issues and ambiguities. These issues are mainly in connection with the fact that the Croatian traffic network was built in various and changing political and economic situations, that it is insufficiently developed, that the means of transport are substantially too old, and that the accumulative and reproductive capacity of the companies in the traffic industry is generally not satisfactory. In the framework given, the complex issues concerning the viability of plans are of particular importance. The self-financed and self-payable facilities in the traffic system are basically limited to highway sections and entities in marine transport. Considering the constant limitedness of resources, it is inevitable to seek the optimum in a way that directs the available material resources into achieving maximum effects, which is one of the objectives to be achieved through adequate planning and regarded as the essential strategic issue in the Croatian traffic system development.

2. TRAFFIC INFRASTRUCTURE DEVELOPMENT POTENTIALS

In accordance with the other segments in the development process, the traffic-geographic position of Croatia is an important factor for its geo-traffic evaluation. The spotlight is directed at the traffic infrastructure facilities, the existence of which synthesises the century-old aspiration to adequately evaluate Croatia's Adriatic orientation as being a factor of a more intensive development and inclusion into the European and world traffic and economic systems.

Croatia's traffic system has great potential in all forms of traffic infrastructure facilities, but this potential is insufficiently utilized, putting Croatia behind the Western European countries in technical and technological terms. This situation is caused by the lack of a long-term traffic policy during a long period after the World War II, the lack of appreciation for the Adriatic orientation as an important factor of the geo-traffic evaluation of the entire Croatian territory and the general lack of appreciation for, more or less, all the comparative specifics of Croatia's traffic-geographic position, as well as an entire series of hybrid solutions in the traffic policy "which was neither complex nor comprehensive, and, in addition, it was indecisive and quite anaemic".¹

In addition to these significant flaws, the quasi-traffic policy at the time was not "based on certain more solid and profound scientific notions and foundations".²

This situation should undoubtedly be overcome by a clearly defined and scientifically founded traffic policy of the newly organized Croatian state, including establishing of traffic policy measures and instruments and the policy aimed at construction and maintenance of the traffic infrastructure as the fundamental factor of the geo-traffic and geo-political evaluation of Croatia in the process of inclusion in the European and world traffic and economic systems.

Traffic infrastructure facilities are an important segment of development and existence of the socio-economic society. An inadequate approach to planning of construction and maintenance of the traffic infrastructure facilities and the facilities that enable safe and undisturbed operation of the traffic and transfer functions results in a series of negative effects on the entire social and economic development. This proves that traffic policy makers are faced with the basic problem of setting realistic goals, measures and instruments. Therefore, based on exact criteria and by use of simulation models and cost-benefit analysis - we can talk about the objectivity in considering the parameters crucial for the traffic investment policy.

By not considering the analytical indicators and scientifically objectivized methodology, based on which the realistic prerequisites for investment in traffic infrastructure should be established, the negative effects are identified no earlier than the exploitation phase. This bears irretrievable consequences in the long run on the entire traffic and economic systems of the country.

These facts indicate that there is a necessity to rationalize the investments in infrastructure, bring into accord the traffic system development and all segments of the economic system in Croatia, as well as the scientific and professional evaluation of the traffic policy and the policy of the traffic infrastructure construction and maintenance, with adequate traffic policy measures and objectives through which all this is to be achieved in a given period of time.

Exploration and explication of the development of Croatia's traffic system before and until the year 1990 mark a period of unrealistic plans without regard to the realistic economic capacity for their implementation. The traffic system development up to the year 1990 was marked by numerous shortcomings, producing effects in the following aspects:

- what forms of traffic infrastructure facilities to develop;
- at what intensity;
- from which financial sources; and
- who will repay the resources borrowed.

Many facilities started to be built; however, some of them were never commissioned. The reasons are many, but the main one is the lack of financial resources for the facilities to be put to use. The negative implications of the frozen resources are immeasurable for the Croatian economy. As such, the traffic policy gradually piled up countless ambiguous relations within Croatia's traffic system and subsystems thereof. The following may be noted:

- developmental inconsistency among the subsystems of the traffic system - among the different forms of traffic activity,
- inadequate evaluation of Croatia's Adriatic orientation,
- inadequate and inappropriate measures and instruments which could not act in accordance with other measures of the economic policy.

In the period from 1990 to 1997, Croatia suffered enormous war destruction, damages, and losses during the Serbian aggression. The war damages³ in the subsystem of traffic and communications amounted to \$ 2.119 million.

The war consequences on the traffic and communications facilities, transportation capacity and traffic infrastructure facilities in Croatia are one of the key, but not the only reason for not having established a realistic strategy for traffic development in Croatia.

This period is marked by building mainly higher-level roads (highways), the existing road infrastructure is modernized, and certain facilities are built, such as the "Maslenica" Bridge, the penetration work was started on the "Sv. Rok" tunnel, etc.

Despite these modest results regarding traffic infrastructure facilities, we cannot talk of a founded traffic policy that contains defined objectives measures and instruments for policy implementation in the years to come. This shows that the results achieved are not subject to dispute, but, being a transition country, a transformation must take place - establishing clear foundations for the future traffic policy, and, in that context, the policy of construction and maintenance of traffic infrastructure facilities, with clearly defined traffic policy measures, instruments and strategy.

Without this logical support, it will be extremely difficult to realize the elements of the new Croatian traffic policy by 2010, which have not yet been adopted as strategic objectives and guidelines for the future development of Croatia's traffic system.

The traffic infrastructure development has not followed the traffic flows in space and time, and in relation to the resources invested. For instance, certain elements of the traffic infrastructure have great throughput, but on that same route, with nearly the same traffic flow intensity, there is a bottleneck. This has led to a situation where bottlenecks become even

more congested during traffic peaks, because some parts of the network now have greater throughput, especially near the big cities, but the entrance into, exit from and transit through the big cities have become even more difficult.

The traffic infrastructure development inconsistency is also evidenced through inefficient connections between traffic terminals and train stations on the road network.

3. EVALUATION OF TRAFFIC POLICY AND TRAFFIC SYSTEM FUNDING

In the context of considerations, it is necessary to mention the process of privatization, which has not been developing in a way that would yield positive effects. In most of the subsystems of Croatia's traffic system the following is seen: increased operating costs, technical and technological obsolescence of the transportation process, poor structure of human resources unadjusted to the more flexible economic system, poor or no coverage by information systems, poor or insignificant inflow of foreign investments for financing of the construction of traffic infrastructure facilities and lack of interest in building new roads through self-financing. Croatia has so far announced many public invitations to bid for building new roads through self-financing. However, the numerous attempts and public invitations have so far not been completely successful in terms of attracting interest from foreign investors.

The research into the policy of funding the traffic infrastructure and its negative effects on the entire socio-economic development in Croatia shows that there is a lack of clear basis in the process of defining the role of the traffic infrastructure, traffic and realization - evaluation of the Adriatic orientation, and their interdependence on all these fundamental developmental segments of the economy with which it intersects in Croatia.

As has already been said, due to the lack of a long-term traffic policy and a policy of traffic infrastructure funding in the four-and-a-half decade period, without regard of the Adriatic orientation and all the comparative advantages of the geo-traffic and geo-political position of Croatia, countless ambiguous relations piled up within the traffic system. This also meant that all the segments within the former state's economy acted inconsistently. The synthesis of all the facts is clear - construction of a new and modern traffic infrastructure contributes to the evaluation of Croatia's traffic and geographic position as an important factor in the European and world traffic flows.

This inconsistency in the quasi-traffic policy could not be the fundamental choice in the process of evalu-

ating Croatia in the European freight flows, increase of the number of tourists on the coast, cutting the transportation costs as one of the factors to the competitiveness of the products we produce, strengthening the Adriatic orientation and attracting the extraordinarily important and lucrative transit traffic to our marine infrastructure facilities and further on to our railways, road, air and postal and telecommunication infrastructure facilities.

Such inappropriate and non-economic status of the traffic system and the traffic infrastructure is a consequence of the non-market-founded treatment of more-or-less the entire economic and traffic system and its subsystems. Such treatment requires a reorientation toward the optimization of Croatia's internal transportation system and the evaluation of the factors of the entire economic system based on the principles of the market economy as the fundamental choice.

A dichotomy in the traffic policy, resulting from this type of traffic policy and traffic infrastructure funding, has been indicated in numerous deviations in leading a coherent infrastructural policy in Croatia. Some examples were given above, and the consequence is an inconsistency among the traffic subsystems within the traffic system and particularity of interests in the entire sphere of traffic and in specific parts thereof.

The realization of specific program tasks in the former country was determined by the level of economic development and the GDP, which varied from one area of the country to another.

The inequalities, caused by the insufficiently complex and consistent policy of traffic infrastructure construction and maintenance, may be synthesised in the following facts: insufficient evaluation of the Adriatic orientation as the main factor to a faster and less expensive inclusion of Croatia into international traffic flows and sluggish implementation of the projects commenced that evaluate the Adriatic orientation of the entire area of Croatia, attract transit freight flows into our ports and increase the level of utilization of the infrastructural facilities in the ports. Croatia's inland waterways are not utilized sufficiently, and therefore, many economic potentials were dislocated to different places without being economically justified.

The base for creating the policy of traffic infrastructure funding must include realistic objectives, measures and timely and efficient economic instruments.

The issues that need to be synthesised with all the segments of the economy in the process of traffic-related evaluation of Croatia include the following:

- defining the infrastructure policy, which includes long-term traffic infrastructure funding policies;

- bringing into accord Croatia's traffic system development with all the segments of the economic system, as this can yield compatible economic development;
- scientific and professional evaluation of the traffic system, including also the traffic policy, the policy of traffic infrastructure construction and maintenance funding and the programs for traffic and infrastructure development at all levels and in all forms in the country;
- measures for realizing such traffic infrastructure and infrastructure policy must act in synchronized manner; their effectiveness or ineffectiveness being exactly proportional to the program realization. This shows that Croatia must set clear objectives and establish instruments for their realization, and there is no clearly defined state policy on construction and maintenance of traffic infrastructure facilities without clearly designated executors of the specific tasks.

Program directions regarding the geo-traffic and geo-political position of Croatia and her role in creating traffic connections with Europe. The program directions in building traffic infrastructure for the future period include the following:⁴

- building new roads - construction of highway from Goričan to Zagreb and from Karlovac to Rijeka, completion of the Zagreb-Macelj highway toward Austria and construction of the Adriatic highway from Sv. Rok through Maslenica and Zadar to Split. Reconstruction work is to be done on the so-called "south corridor" from Karlovac to Zadar, and on the Bjelovar-Osijek road, which is under the "north corridor" competence;
- in railway traffic, it is necessary to finish with the modernization and eliminate the "bottlenecks" on the existing Rijeka-Zagreb-Koprivnica railway, to enable international railways for high-speed traffic (up to 200 km/h) (Karlovac-Rijeka railway going farther to Istria, and the two-track direct railway Zaprešić-Pragersko in the Zagreb-Graz (A) direction), and to define the fast Adriatic railway corridor and route;
- in air traffic, the emphasis is on the process of intensive interregional, Euro-Mediterranean, regular and charter connections, with clearly defined state policy on air traffic;
- in marine traffic - in addition to the key developmental role of the port of Rijeka, the emphasis is on further development and specialization of all the Croatian Adriatic ports as integral traffic junctions (road-rail-ship) through commodity and container terminals, specifically connected to free industrial and trading zones;
- in river traffic - to modernize river ports on the Sava, the Drava and the Danube, with the

large-scale development project of construction of the navigable and irrigation canal Sava-Danube, on the Slavonski Samac-Vukovar route, which enables Croatia to be included into the European system of navigable routes Rhine-Main-Danube;

free zones and commodity terminals - as integral traffic junctions - whether connected to the main sea ports (especially Rijeka and Ploče) or the river ports or the major cities, commodity terminals cover the entire area of Croatia and offer favourable usage conditions.

We can undoubtedly assert that there had been no good and consistent policy on traffic system development during the Socialist Federative Republic of Yugoslavia, i. e. the Socialist Republic of Croatia, especially not the one that would serve the Croatian interests.

Things started to change positively and significantly in 1990 and 1991, after the establishment of a multi-party system and introduction of market economy, shifting toward the interests of the Croatian state and people. However, there could not be a systemic approach to traffic system development until 1997 due to the aggressive war lead against Croatia and Bosnia-Herzegovina.

The financing of traffic infrastructure construction through the complicated "SIZ" mechanism was not effective. Such system of funding did not lead to harmonized development of all parts of the traffic system. That system only formally ceased to be part of the budget of the Socialist Republic of Croatia at the time.

The construction of the traffic infrastructure did not follow the needs of traffic flows. This produced such negative effects that we now have sections with low levels of traffic load (5-15% of the capacity) and many bottlenecks. Also, there was no attention being paid to the funding of the traffic infrastructure and the public transportation system in cities and their vicinities.

The international loans and those given by domestic banks, in spite of the fact that many feasibility studies were done at the time, could not be effective in terms of a quality development of the traffic system.

Since the establishment of the independent Croatian state, the traffic infrastructure has been funded by the budget at the state, county, city and municipality level, from international and domestic bank loans, through a concession system, as well as from users through road toll. This system of funding has many flaws as it is not based on a consistent development of the entire traffic system with the purpose of achieving the quickest and most rational internal connections between all parts of Croatia, as well as those between Croatia and the world.

4. TRAFFIC MARKET CHARACTERISTICS

Professor Ž. Radačić⁵ spoke of the traffic market as a factor of cooperation among traffic industries, whose notions are applied here in working on the hypothesis of this dissertation.

The issues we are interested in here regarding the traffic market may be broken down into the following:

- Can we even talk of a traffic or transport market, and what would it mean?
- What are, if any, the characteristics and specificities of a traffic market?
- What is the role and capacity of traffic market effects on establishment of a traffic system organization?

In the process of providing a traffic service, human labour is materialized on the subject of traffic, and this labour materialization consists of transferring a subject of traffic from one place to another, maintaining the quality and quantity of the subject of traffic in the form that provides it with usable qualities, i. e. the qualities that the subject was provided with during the process of production, or creation and growth if the subject of transportation is a human being. If the subject of traffic is a market commodity, it contains within it the labour materialized during the process of transporting, and therefore, the value of the subject of traffic as its integral part. That is to say, the actually given material-economic carrier of the value and price of a traffic service is a subject of traffic in which transport labour is materialized as a form of a production process.

The usage value of a traffic service is materially determined by the position of the subject of traffic, and its value by the quantity of human and materialized labour which was needed, in given conditions, to complete the traffic process. If the traffic process is organizationally separated into an independent economic organization and if the traffic service production is carried out as a commodity production, i. e. production of goods to be exchanged on the market, then the value of the traffic service appears as an independent value of an independent product, notwithstanding the value of the subject of traffic, if it was intended to be exchanged on the market as a product.

Generally, the supply and demand law basically works in the following manner: if, on a market with a formed price, the demand for a product exceeds the supply, or if the supply falls below the demand, the price of the product will go up. If, however, the demand decreases and the supply increases, the price will go down. On the other hand, the prices affect the supply and the demand, they tend to stabilize at the level where the supply and demand of a product are equal. Each price increase decreases the demand and

increases the supply, and each price decrease increases the demand and decreases the supply.

Based on these considerations on the nature of the production of traffic services as goods that are exchanged on the market and the function of the market regulated by the supply and demand law, we can talk of the existence of a traffic or transport market and such market should be regarded as a complex of relations formed between the supply and demand of traffic services.

The traffic process, as we know and as has been previously said, has the following three main characteristics:

- The traffic process consists in overcoming spatial differences. As opposed to the production process in other types of material production, the main characteristic of the traffic process is that it takes place in space without being bound to a specific place.
- Production process and consumption process are, in terms of time and space, a single process. A traffic service exists only when the traffic process is taking place and only where the traffic process is taking place. It can, therefore, be consumed only at the same time when it is produced.
- The traffic service, as result of labour, does not exist as a material product existing outside of the production process and after its completion. Unlike other products of other types of material production, the traffic service cannot be stored. This characteristic significantly affects the traffic process organization, which basically consists of the requirement to satisfy the demand for traffic capacities, the so-called traffic demand, by supplying such capacities. Due to this characteristic, i. e. the fact that traffic services cannot be produced and stored for later use to satisfy the traffic demand when it exceeds the traffic supply, and due to the fact that, in a given period of time, the traffic capacities are fixed and the traffic demand varies, there are very significant difficulties arising during the organization of the traffic process in every instance when the traffic demand increases abruptly.

These three specific characteristics of the traffic service production process give a specific attribute to the traffic supply as one of the two main segments of the traffic market. Traffic service producers offer their products in a specific space, on a specific network, network section, or to be fully precise, on a specific route.

On the other hand, the specific characteristics of the traffic service production process give a specific attribute to the traffic demand as the other of the two main segments of the traffic market. Traffic service users can only satisfy their demand in a specific space, on a specific network, network section, or on a specific route.

Due to these specific characteristics of the traffic market supply and demand, the traffic-economic theory asserts that there is no single and unified traffic service market - there are only traffic service markets existing on specific traffic routes.

However, as seen from the standpoint of the aggregate supply, traffic services and demand, these individual markets can still not be regarded as independent markets but as complex of interrelated and interdependent relations on the entire traffic network. This practically indicates the need and necessity to consider these markets as integral parts of a whole on which the traffic system organization is based, i. e. the organization of the supply of traffic capacities aimed at optimally satisfying the aggregate demand for traffic services.

In order to be able to analyze the possibility of equalizing the supply and demand side of traffic services by means of the market, thus establishing the optimal traffic system organization, there should be a number of prerequisites assured. We have so far identified a series of specific characteristics of the traffic market, but the issue of the role and capacity of the traffic market to establish the optimal traffic system organization can only be theoretically correctly addressed if each route is treated as a separate traffic market. This means that the traffic service supply/demand relation may be equalised by way of the market only on individual traffic routes or traffic corridors.

In the former case, with the individual routes, we can discuss the capacity of the market to equalise the supply and demand for traffic services, as well as to establish certain competitive relations but only within a specific traffic industry. Indeed, competitive relations can be identified on certain routes within road, marine, river and air traffic.

In the latter case, with the individual traffic corridors, we can discuss the capacity of the market to equalise the supply and demand for traffic services and to establish certain competitive relations between the traffic industries operating in the corridor in question but only if the traffic demand can be satisfied by the traffic supply from any of the traffic industries operating in the corridor. However, we have to take into consideration the different traffic-technological and economic capacities of the traffic industries, on one hand, and the different requirements that the subjects of transport put before the traffic system, on the other hand, which limits the choice available to the users, thus limiting the competition opportunities for the traffic industries operating in the traffic corridor.

Therefore, the traffic market is a type of market that lacks the key prerequisites for free market competition as supply and demand are not elastic enough, which means that the basic economic requirements for the application of free market forces are not met.

The relations between the demand and supply of traffic services cannot be regulated through traffic market automatism, so accordingly, the traffic system organization, i. e. the regulation of relations among traffic industries within the traffic system, could not be left either only to the influence of the traffic market. The capacities of the traffic market in terms of influencing the traffic system organization are very limited. As a result of this, the state, i. e. state regulation, gets involved and regulates the supply/demand relations. This state regulation is implemented through economic and traffic policies.

By analyzing the traffic market through these three questions and answers, we can conclude that it exists, that it is determined by the characteristics of the traffic service production, and that such a market does not meet the key requirements for the application of free market competition, because, as has already been said, the basic economic requirements for the application of free market forces are not met.

The said assertion, as well as the notions acquired earlier, put forth the conclusion on the specificities of the traffic market in general, and especially in our situation, where, in addition to the general characteristics of the traffic market, we are faced with certain anomalies passed on from the previous system we are no longer part of, and the inconsistent approach to the functioning (construction and funding) of the traffic system that is present even today. No other industry is subjected to political instrumentalization and the attempts to be reduced down to the level of daily political events and tendencies, as is the case with traffic and the traffic policy. So now we have a conflict whereby the traffic is considered to be the "bloodstream" of economy and local interests and efforts to connect every "village" by the most modern roads and forms of traffic, without any regard to economic justifiability of such investments. This assertion is supported by the discussion that took place in the Croatian Parliament in December 1998, regarding the Proposal on the Strategy of Traffic Development of the Republic of Croatia.

There is no doubt that traffic, in addition to its economic characteristics, has a role and task of the strategic political functioning of each country, not to mention the role in defence and security aspects. However, this does not mean that these aspects must force out the market laws, as that is something that not even much wealthier countries than Croatia can afford.

Without going into any political aspects any further, here is a summary of the current situation on the traffic market in Croatia:

- There are few countries in the world that, as result of their unfavourable geo-traffic shape, have such a great need for an extremely rational and planned traffic system development. Indeed, the average

distance between all the inhabited places in Croatia is significantly larger than in many European countries, especially the neighbouring ones.

- The most important traffic indicators are also extremely unfavourable. The costs of transport in Croatia are twice as high as those that could realistically be achieved, the road traffic safety is among the worst in Europe, the average passenger travel speed and the average freight transport speed are very unfavourable, the public transportation systems in larger cities are extremely ineffective, the inconsistent approach to the construction of large-scale traffic infrastructure in relation to the traffic demand has resulted in a large number of bottlenecks and poor utilization of certain parts of the large-scale infrastructure.

The above assertions indicate the necessity to analyze and establish measures for the public traffic policy⁶ in order to be able to consider the traffic and traffic market with a market, i. e. marketing sense.

With the massified infrastructure, the strategic-political interests of the state and the relatively small profit as compared to the funds invested in the traffic infrastructure, it is true that the process of deregulation⁷ of the traffic system is, at this time, impossible, which does not mean that this is something we should not work towards, but quite the contrary, we are expected to prepare the ground for its implementation in the future. As we can see, in addition to the tasks of increasing the traffic functionality, there is the key problem of investing in the traffic system, and especially in the traffic infrastructure. The fact is that the construction of highways in Croatia is not economically justified because the traffic intensity is very low. However, on the other side, we want and need to modernize our traffic system, to reduce the amounts of time needed for travel between destinations, to increase safety, to reduce negative environmental impact, and, eventually, to reduce the price of transport. How to settle these discrepancies, how to deal with the "bottlenecks" in traffic, how to generally establish the methods for market-based considerations of the traffic system functioning and development? All these are the questions put before us by the market. The answer is not a simple one. There are no universal models that could solve this. The solution would be in making constant efforts toward the development of the market principles of business operation. Some of the measures for introduction of the market principles are as follows:

- examining and improving the potentials of investment in the traffic system development relying partly on the state budget and partly on the investments made by the Croatian companies and investors, but also on the investments by foreign companies through crediting and concessions, as well as on other methods of co-financing,

- application of the achievements of the marketing-concept, developing the elements of the marketing mix, as well as introducing the mega-marketing strategy for the purpose of investment in the traffic system development,
- achieving graduality and accordance in the traffic system development, with special regard being given to connecting and harmonizing the rail and road traffic, as well as introduction of the integral and combined transport, and other contemporary transport technologies,
- subjecting the traffic development to the development and requirements of tourism, as being the backbone of economy,
- keeping in mind the influence of the traffic development on other sectors and prioritizing accordingly.

All these measures are aimed at decentralizing the traffic system, thus bringing it into the market framework.

5. TRAFFIC SYSTEM DEVELOPMENT POSSIBILITIES

During the past half a century, the traffic policy in Croatia, as well as the general developmental policy, was marked by the assertion regarding traffic as the initial and decisive factor of economic development. This was in accord with the understanding, accepted until recently, that traffic has the crucial developmental role. Such policy was especially emphasised in relation to the undeveloped areas, for which it was commonly believed that the development of infrastructure, especially the traffic and electric-power infrastructure, should go before the development of manufacturing industries, and that the entire development of these areas must be based on excess rather than the lack of infrastructural capacities. For this purpose, traffic was pushed to develop faster than the rest of the economy, with the expectation that the developed traffic and the improved communications would boost

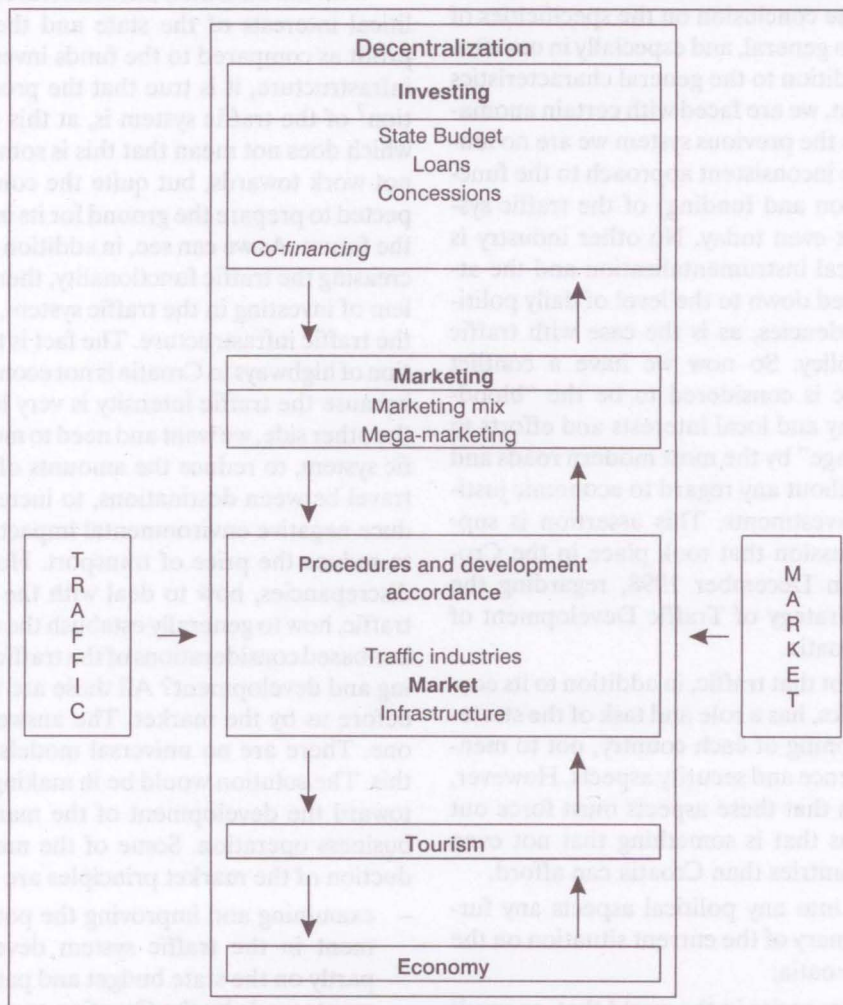


Figure 1 - Model for traffic system and market harmonization

Source: M. Jurčević: Strategic objectives and adjustment of the traffic development of Croatia as seen from the market conditions point of view; Doctorate dissertation; Faculty of Economics in Zagreb; 2000, page 201

the manufacturing and service industries, which was achieved only partially.

There are a lot of signs indicating the conclusion that this kind of understanding is present even today. It is primarily evidenced in the form of opinion that greater investment in traffic infrastructure, especially in road construction, will increase the utilization rate construction machinery and equipment, give a substantial boost to the construction material industry, increase the employment rate and general activity within this sector, thus enabling a faster reconstruction and development of the country. That would subsequently initiate a new development cycle in the country, due to the mutualism of the relations and multiplication effects, as well as a general revival of the war-stricken economy.

The presence of the mentioned assertion in Croatia is also indicated by the amount of funding proposed to be invested in traffic infrastructure construction. These financial resources, based on certain current proposals, would amount to around \$ 2.5 million per year, almost three quarters of which would be invested in road construction.

Such large investments in the traffic infrastructure would significantly increase its capacity, which proves the assertion that infrastructure should precede the manufacturing industries, and is opposed to the assertion that new development cycles begin with the growth of manufacturing industries. This also means "development through excess" rather than "development through shortage" of infrastructural capacities, because the volume of infrastructural capacities and the dynamics of construction of such capacities would be much greater than the current, and in the near future expected, traffic intensity. For this reason, a large part of these capacities would be underused during quite a long period of time, so the intensity of such investment could probably not be economically justified by the intensity of traffic and its contribution to the economic development.

The contemporary economic science is able to evaluate the developmental significance of traffic, without under- or overestimating the contribution of traffic to the general economic development. In this sense, there are rich experiences and clear notions that can be applied in Croatia as well when it comes to the relation between the volume of investment in traffic and its contribution to the economic development.

It is a generally known fact that traffic is a capital-intensive industry which requires substantial material resources. In addition, construction and activation of traffic infrastructural facilities takes relatively long, which results in the resources invested in infrastructure being activated slowly and producing direct benefits only after long periods of time. Therefore, the direct contribution of traffic to the growth of employ-

ment and gross domestic product can hardly be measured against the investments in most manufacturing and service industries. Traffic is, therefore, an industry that enables activation of resources invested in other industries, but also an industry that can "deaden" substantial amounts of resources invested in it for quite a long period of time. For this reason, investment failures in traffic, if such occurred, cannot be corrected in short term, but rather only in the medium term at a high cost.

This, of course, does not question the need or justifiability of investing in traffic, but only brings forth the issue of volume, time and purpose of such investing. In addition, the number and scope of impacts traffic has on the development of society are reasons valid enough to justify the construction of certain roads by their contribution to the political and social life of the country, apart from the strictly economic effects. However, in such cases, each of such contributions should be clearly determined, and justification should be established for each such investment.

The issue of alternative use of available investment resources is also raising doubts in regard to the policy on the future traffic development. The allocation of resources intended for traffic and specific traffic industries is lead by certain criteria. If such allocation is made in a rational and economical manner, then the amount of resources intended for traffic must be at least such that no part of it would be worth anything more if it had been invested in some other industry, and vice versa.

And further on, the amount of resources to be allocated to individual traffic industries must be in accordance with the criterion based on which such amount of resources would not be any more useful had it been invested in any other traffic industry or expended for any other purpose.

According to this logic, excessive and unjustified investment in roads can expedite road construction, but is likely to slow down the development of other traffic industries, other economy sectors and the national economy in general, which will eventually have an unfavourable impact on the very road construction. That is to say that the newly arising needs should be satisfied based on rational and not arbitrary decisions and that such decisions must be made by evaluating alternative solutions and choosing the one that brings the greatest social benefit.

However, there are many examples showing that there is a notable difference between the society's willingness to invest in certain manufacturing industries and in certain traffic industries.

Such readiness for investing in road infrastructure facilities exceeds that for investing in agricultural, water-management and other similar facilities, including that in railways and seaports, as well as that in con-

struction of new roads as opposed to maintaining the existing ones.

This policy as such upsets the relation between infrastructural and direct manufacturing industries, between individual traffic industries and between new capital investments and investments in preserving the capital already invested in roads.

The basic concept of the traffic system development in Croatia must be based on the realistic capacities and abilities of the state and society, i. e. the national economy.

We must approach it from these two standpoints:

- improvement of the existing traffic system by eliminating the bottlenecks in the traffic infrastructure, i. e. by eliminating the disproportions and inconsistencies between individual elements within specific traffic subsystems (infrastructure, vehicles, organization);
- gradual construction of the traffic system in which the state's role is to build traffic infrastructure and encourage investments in the development of the entire traffic system, building those parts of the traffic system that produce immediate favourable traffic and economic effects, and are, at the same time, part of a comprehensible traffic system of the future.

Although Croatia has a vital economy, considering the extreme strains it had during the recent defence war it was involved in, it needs to be extremely rational in expending resources in all elements of the development.

As the modern market and social state invests most in the traffic system at all levels (state, county, city, municipality), its concern and responsibility for rational and effective development of the traffic infrastructure is the greatest. The budgetary capacities of the state, counties, cities and municipalities, namely, are limited by the total allocation from the GDP.

In order to build a rational, effective and adequate traffic infrastructure, it is necessary to establish a system of co-investing, whenever possible, between the state (government) and administrations in the counties, cities and municipalities.

Also, effective modalities must be sought out for private capital investments (domestic and foreign) in all elements of the traffic system (infrastructure, vehicles, organization), with minimizing the costs of traffic system exploitation, whereby special regard is to be given to the total investments (construction, exploitation, maintenance) within the time frame provided.

6. INSTEAD OF CONCLUSION

The traffic market is a type of market that lacks the key prerequisites for free market competition as the

supply and demand are not elastic enough, which means that the basic economic requirements for the application of free market forces are not met. The relations between the demand and supply of traffic services cannot be regulated through traffic market automatism, so accordingly, the traffic system organization, i. e. the regulation of relations among traffic industries within the traffic system, could not be left either only to the influence of the traffic market. The capacities of the traffic market in terms of influencing the traffic system organization are very limited. As result of this, the state, i. e. state regulation, gets involved and regulates the supply/demand relations. This state regulation is implemented through the economic and traffic policies.

The situation on the traffic market in the Republic of Croatia is marked by the following:

- There are few countries in the world that, as result of their unfavourable geo-traffic shape, have such a great need for an extremely rational and planned traffic system development. Indeed, the average distance between all the inhabited places in Croatia is significantly larger than in many European countries, especially the neighbouring ones.
- The most important traffic indicators are also extremely unfavourable. The costs of transport in Croatia are twice as high as those that could be realistically achieved, the road traffic safety is among the worst in Europe, the average passenger travel speed and the average freight transport speed are very unfavourable, the public transportation systems in larger cities are extremely ineffective, the inconsistent approach to the construction of large-scale traffic infrastructure in relation to the traffic demand has resulted in a large number of bottlenecks and poor utilization of certain parts of the large-scale infrastructure, etc.

There are no universal models that could solve this. The solution would be in making constant efforts toward the development of the market principles of business operation. Some of the measures for introducing the market principles are as follows:

- examining and improving the potentials of investment in the traffic system development relying partly on the state budget and partly on the investments made by the Croatian companies and investors, but also on the investments by foreign companies through crediting and concessions, as well as on other methods of co-financing,
- application of the achievements of the marketing-concept, developing the elements of the marketing mix, as well as introducing the mega-marketing strategy for the purpose of investment in the traffic system development,
- achieving graduality and accordance in the traffic system development, with special regard being

given to connecting and harmonizing the rail and road traffic, as well as introducing the integral and combined transport, and other contemporary transport technologies,

- subjecting the traffic development to the development and requirements of tourism, as being the backbone of the economy,
- keeping in mind the influence of the traffic development on other sectors and prioritizing accordingly.

In addition to domestic sources of financing (state, county and city budgets), the traffic infrastructure, in all forms of traffic, especially the road, rail and river traffic should be financed by loans from domestic banks and other investors.

Loans from foreign banks and other capital holders are by all means more advantageous than the concession capital. As Croatia has no alternative to the fast development of the traffic system, it must utilize all the capital sources available, with regard to protecting the national interests.

Excessive indebtedness in a short period of time may bring the state into an unfavourable position, as all traffic system investments will eventually be paid by the citizens, i. e. the traffic system users in Croatia, with only a small portion of transit routes and foreign tourists.

In financing the traffic infrastructure, and especially the road infrastructure, it is possible and necessary to apply a co-financing policy (state, counties, cities, municipalities). Due to the exploitation costs, traffic safety considerations, environment degradation, increased investments in construction and traffic outflow to alternative routes (approx. 20% of traffic), direct toll charging should definitely be abandoned, shifting to vignettes and gas pricing policy.

The dynamics of achieving developmental objectives will be regulated by the needs and abilities of Croatia. It could be greatly influenced (in terms of expediting the achievement of certain objectives) by the process of accession to the European Union. Financial resources amounting to 36 billion kuna (approx. 4-5 billion euro) are planned for the realization of the strategic goals by the year 2020. Such investments will require around 1-2% of GDP per year, considering that Middle- and Eastern European countries will be spending 5-8% of their GDP on the traffic infrastructure in order to adjust the parameters of their traffic infrastructure with the traffic infrastructure of the developed Western-European countries. The EU member countries are planning to spend 1-2% of their GDP on the traffic infrastructure development, but, considering the size of their GDP, these are enormous financial resources. Having this in mind, the financial resources planned to be invested in the railways by

2020 are in accordance with the sustainable growth considerations and Croatia's needs and abilities.

The investments in air traffic, which are not precisely known due to the ownership issues, are mostly made in the airport and air transport subsystems, while Air Control Direction is shifting to commercial operation, whereby it should be capable of investing, or borrowing and repaying loans, in further modernization and development.

The total investment, needed for the development of airport capacity to receive the expected number of passengers and aircraft and the volume of freight, amount to around DEM 600 million, while the funds planned to be invested in aircraft fleet, construction of a technical base, office building and other auxiliary infrastructure, depending on the inclusion of an overseas air fleet (3 airplanes), amount to around DEM 1.2 to 1.7 billion.

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SAŽETAK

MOGUĆNOSTI TRŽIŠNOG RAZVITKA PROMETNOG SUSTAVA REPUBLIKE HRVATSKE

Prometno je tržište takvo tržište na kojemu ne postoje bitni preduvjeti za djelovanje slobodne konkurencije, budući da ne postoji dovoljna elastičnost ni ponude ni potražnje, a to znači da ne postoje osnovni ekonomski preduvjeti za slobodno djelovanje tržišnih zakonitosti. Odnosi između ponude i potražnje prometnih usluga ne mogu se regulirati automatizmom prometnog tržišta, pa se prema tome ni ustrojavanje prometnog sustava, odnosno reguliranje odnosa između pojedinih prometnih grana u prometnom sustavu ne može prepustiti samo utjecaju prometnog tržišta. Mogućnosti prometnog tržišta, tj. utjecaj na uspostavljanje određenog ustrojstva prometnog sustava, vrlo su ograničene. Zbog toga se kao korektiv tržišta pojavljuje država, odnosno državna regulacija odnosa ponude i potražnje. Ta se državna regulacija provodi gospodarskom i prometnom politikom.

KLJUČNE RIJEČI

promet, prometno tržište, prometna infrastruktura, prometna politika

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 4. **I. Legac, D. Mlinarić:** Ibidem, page 344
 5. **Ž. Radačić, D. Šimulčik,** *Traffic System Economics*, Faculty of Traffic and Transport Engineering, Zagreb, 1995, pages 123-126
 6. The measures of public traffic policy include: traffic regulation and deregulation, grants, ownership policy (public ownership and nationalization, private ownership and privatization), tariff policy, investment policy and protectionist policy.
 7. The term of deregulation emphasises the principles and laws of a free market, reducing state intervention and administrative limitations. Based on that, deregulation aims to stimulate competition and improve labour efficiency, as well as to improve division of labour allocation of resources.

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