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Closing up, Keeping up or Lagging Behind?

The Fundamental Problems and Spatial Differences of Air Transport in Eastern Europe

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1 The regional characteristics of the relatively well progressing advancement

Transport in Eastern Europe – particularly Eastern European aviation – is *terra incognita* for most Hungarian experts. Although we have managed to get rid of our Eastern European mindedness in some aspects, we should still be aware of our geographical determinations: in a geographical sense, we do not belong to Western Europe even if our international transport connections are asymmetric, indicating a stronger orientation towards Western Europe. Concerning our future, it has really great importance

- how extensive and how intensive our economic, cultural and transport relations will be with the post-socialist countries, which in several respects offer for us better market opportunities than Western European ones;
- furthermore, how successful will Hungary be in playing an intermediary and transit role between Western and Eastern Europe.

For positioning ourselves in a realistic way and for finding a suitable place in the European, particularly Eastern European transport space, we need comprehensive information on the transport of macro-regions and blocks of countries. This three-part paper aims to provide a presentation on the spatial differences emerging in the different periods of the evolution of aviation.

The development process of aviation in Eastern Europe had variable dynamic and static characteristics compared to that of advanced economies (principally Western Europe and Northern America). In our development programmes, the fulfilment of closing up-objectives can be guaranteed in advance, but the time spans to achieve them are unpredictable. The best results achieved so far have amounted to keeping up for short periods (and perhaps in certain fields gaining some advantages in the speed of development), but after the regime change, the threat of lagging behind was dominant.

However, Eastern Europe is not a homogenous area in the field of air transport – based on using homogenous air space without predefined flight tracks – but rather a mixture of country blocks or even individual countries showing special features inherited from differing ways of historical development. For understanding the major problems of our contemporary situation, it is necessary to provide an outline of trends having been formulated 50 years before the regime change but still impacting the current development process.

1.1 The beginnings of aviation between the two world wars

In Eastern Europe, although it was lagging behind the Western part of the continent, after an experimental period, regular airline services carrying mostly passengers and mail *were launched only a few years later than in Western Europe*. In socialist countries excluding the Soviet Union, air passenger services at the turn of the 1920/1930s were provided mostly by foreign airlines using small-capacity old planes converted to civilian use after World War I. As the introduction of air services coincided with the years of the Great Depression, it can be stated that this newborn branch of transport was rather resistant to economic cycles and incomes (considering people with average incomes were willing to pay high sums for travelling comfortably and quickly).

By the 1930s, especially the years preceding World War II, most countries had already introduced their scheduled airline services covering a small network of destinations. They were generally serviced by a series of newly founded national airlines (LOT, ČSA, Aeroput, Ares etc.), but their fleets with minor exceptions consisted of aircraft purchased or leased from Western European (German, English, French etc.) or sometimes American manufacturers, and equipped with a dozen, or maximum two or three dozen passenger seats.

The situation was completely different in the Soviet Union. A country covering two continents, bridging large distances and making the apparatchiks' – civil servants of central administration/government offices – trips faster and more comfortable between the member states, the Soviet Union committed *enormous resources to building an extensive airline network compared to its financial circumstances*, and used domestically manufactured aircraft in the ranks of Aeroflot, the giant state company.

In the countries of our research area, international air services before World War II were dominated by destinations of „historical sympathy", or interests based on historical relations between countries. Poland and Czechoslovakia had strong preference towards airline connections with France and Great Britain, while Hungary had the same attitude towards Germany and Italy. In air transport, Eastern Central Europe took a central position. The value of our location was further increased by the *transit airline services* connecting Northern Europe with Southern Europe or Western Europe with the Soviet Union, South-Eastern Europe and Asia, providing an easy access to the remote countries of the continent or of the world by linking East-Central Europe to the global network of transcontinental or international airlines.

In the period when due to technical reasons the low-range aircraft of the passenger service were only able to cover a few hundred kilometres without refuelling, the airports of Prague, Budapest, Belgrade and to a less extent Warsaw, Bucharest and Sofia had an indispensable role by functioning as refuelling, technical

inspection and technical servicing stations in the air traffic between Western Europe and Asia as well as between Northern Europe and Africa. However, these (capital city) airports had less impact on the passenger traffic of trans- and intercontinental airlines because only few passengers departed or arrived at these destinations.

Although the annual traffic of airline passengers was only a few thousand in each country preceding the Second World War (in 1938 Poland had 6,800, Czechoslovakia 7,920, Hungary 5,400, Romania 2,607, Yugoslavia 6,340, the Soviet Union 68,000 airline passengers), and such kind of travel was still regarded as a luxury trip, air services were already delivered by multi-engine aircraft with double or triple boarding capacity compared to ten years before, just like in the economically more advanced countries. Capital cities and some major cities had already built airports with modern passenger facilities and concrete runways by 1936.

Scheduled domestic airline services did not prove viable in Hungary due to the country's small territory, but they did in Czechoslovakia in the East-West direction, and even more so in Poland, Romania and Yugoslavia, countries with distances of several hundred kilometres. There, capital cities served as nodes for airline operators – though some lines only had one or two scheduled round trip flights per week.

1.2 Soviet-type air transport in COMECON countries in the state socialist period

Between 1945 and the regime change (i.e. the collapse of the Soviet Union), Eastern European air transport was much more influenced by the state socialist political/economic system than any other (country size, physical geography, technical, transport network) factor.

1.2.1 State-owned airlines influenced by COMECON contracts

The historical background of the foundation of airlines was determined by the situation emerging after World War II. The Soviet Union made great efforts to utilise its redundant troop and supply carrier aircraft and maintain their production capacity. For this reason, by pressuring the governments of Eastern Central Europe who had fallen into the Soviet sphere of influence, the Russians founded *airlines of joint* (partially Soviet) *ownership*, and with the assistance of a large amount of state support, they created an extensive international and domestic airline network in a few years' time in all these countries (excluding Yugoslavia)

based on *Soviet-made Li–2, IL–14 and An model aircraft capable of landing even on grass airfields*. It was only in the mid-1950s when national airlines became formally independent, as with the consent of the Soviet side they bought out the assets of the Soviets and in this way put an end to joint corporations.

It was not only partial isolation from the Western world but also a series of commitments implied by COMECON membership such as the socialist type of economy and its rigid corporate system that hindered the development of air transport in socialist countries. *The organisational scheme of air transport was dominated by ideology-driven politics and COMECON-ruled national authorities.*

The operation and management of state-run airlines was heavily influenced by state monopolies created by the government. This was the case even if state enterprises were following the organisational model of commercial organisations, and to a certain extent had to enter the inter-sectoral (inter-modal) competition of transport subclasses. However, they were forced to get rid of the rigidity of their system when they were operating in western markets. In the inevitable competition with western airlines, the *modus vivendi* was necessarily adaptation to the demands of western markets. Therefore, the ideologically bound "socialist" airlines could do nothing but lead a Janus-faced business policy.

Just as in other fields of the socialist economy, *the performance standards of air transport were set by the directives of the centrally planned economy.* The system was doing its best to forecast both the demand and supply side of air transport within the framework of a state planning system, and was also making efforts to harmonise them with other sectors of the national economy.

The co-ordinating tasks of the state increased with COMECON commitments as negotiations with the other countries' air transport authorities became necessary for each COMECON member state. *The multilateral cooperation of COMECON members implied the most important tasks in the field of transport.* However, for experts, the largest problem was that the strategic policies of „socialist integration" were not clearly defined even in the basic rules (unlike in the European Economic Community or „Common Market").

Integration as a term was described by socialist economic policymakers rather vaguely as a conscious and planned process shaped by communist parties and governments on the grounds of the socialist division of labour. During this process, the COMECON's "Complex Programme" stipulated a series of partial objectives of air transport policy to realise such as

- the improvement and enlargement of international airline networks,
- the supply of COMECON member states' aircraft board instruments and ground equipment demands from own resources/manufacturing,
- specialisation in aircraft and engine repairs,
- elaborating efficient methods for the collective training of aircraft, technical and air security personnel,

– improving the supply system of aircraft components and engines,
– introducing new and more efficient methods in the technical maintenance of aircraft.

In the 1970s in the total air passenger traffic of COMECON countries, the Soviet Aeroflot was followed in both the number of passengers and the distance volume by the German INTERFLUG and the Czechoslovakian airlines. *The ranking of the traffic volume of airlines was independent of the number of inhabitants, country size and even the absolute volume of GDP.* Neither the number of passengers nor the volume of distance covered correlated with the number of destinations in domestic or international airline networks (*Table 1*).

Table 1

The percentage of the national airlines of COMECON member states from the total volume of passenger traffic and distance in the COMECON block in years 1971/1972, %*

Airline	Passenger traffic percentage		Distance volume percentage	
	1971	1972	1971	1972
AEROFLOT	23.82	25.12	31.56	35.77
INTERFLUG	32.72	31.88	28.92	26.11
ČSA	16.27	15.80	16.28	14.70
BALKAN	9.53	9.76	10.90	11.02
LOT	7.83	7.41	4.41	4.76
MALÉV	6.02	5.66	4.82	4.27
TAROM	3.50	4.04	2.99	3.25
AIR MONGOL	0.31	0.33	0.12	0.12
Total	100.00	100.00	100.00	100.00

* Excluding Yugoslavia and Cuba.
Source: Kneifel, 1980.

As the easing pressure of dictatorships in most socialist countries gave way to the ability to travel to foreign countries, the increasing demand also increased the volume of traffic in all countries. Some transitory fallbacks in travel were generated by certain shocking/critical political situations only such as the 1956 revolution in Hungary, the Prague Spring in 1968 in Czechoslovakia and the political state of emergency in Poland in 1981.

Regarding the increase in total (domestic and international) traffic volume, even in the 1970/1980s there was no significant difference among the country blocs of Eastern Europe (the Soviet Slavic countries, the countries of the Soviet Baltic Region, the countries of Eastern Central Europe, the Soviet-oriented satel-

lite states of the Eastern Balkans and the politically quasi-independent Yugoslavia). There were much more significant differences in

- the ratios of domestic and international traffic,
- the ratios of capital city orientated traffic and
- the importance of cargo traffic.

The ratio of domestic traffic was still the highest in the Soviet Union while Hungarian airspace had international civilian airline traffic only. Accessing Western Europe or any other "capitalist state" from the Baltic States and Moldavia was only possible through a transfer in Moscow or Leningrad as they had direct flight contacts with socialist countries only. Passenger traffic was limited to the capital city in Hungary and Albania.

Airlines which – putting aside their ideological considerations – were orientated towards markets outside the COMECON bloc just to increase their hard currency revenues (LOT, MALÉV, TAROM and BALKAN) had a lower share in air services delivered within the COMECON bloc.

The largest volume and share of revenues from air cargo traffic was achieved by the Soviet Union, Bulgaria and Czechoslovakia. The national airlines' share of COMECON cargo traffic shows a similar order to that of passenger traffic with such a difference that Aeroflot took by far the highest position in all kinds of ranking (*Table 2*).

Table 2

The percentage of the national airlines of COMECON member states in the total volume of cargo weight traffic and cargo weight delivery distance traffic in the years 1971/1972, %*

Airline	Cargo weight percentage		Cargo weight delivery distance percentage	
	1971	1972	1971	1972
AEROFLOT	58.77	60.43	68.42	67.77
INTERFLUG	18.32	14.20	12.99	11.48
ČSA	5.10	4.13	3.95	3.75
BALKAN	5.06	9.28	4.91	10.99
LOT	7.32	6.90	5.89	3.02
MALÉV	2.18	1.98	1.43	1.07
TAROM	2.72	2.56	2.23	1.78
AIR MONGOL	0.62	0.52	0.18	0.14
Total	100.00	100.00	100.00	100.00

* Excluding Yugoslavia and Cuba.
Source: Kneifel, 1980.

The quality of air services (the accuracy of scheduled air services, the quality of passenger cabins, board services, the booking/purchasing method of airline tickets, the frequency of over-bookings, security/the frequency of accidents, airport circumstances) *was gradually deteriorating when moving from West to East*, and proved to be the worst in Soviet Central Eastern Asia.

The absence of competition excluded the chances of service improvement as the majority of socialist countries ran only a single national airline which had, at best,

- territorial divisions (Aeroflot had more than ten regional divisions with names referring to their area of service),
- divisions focused on a certain scope of activities/services (such as domestic air service, charter services, cargo services), such as the Hemus Air division of the BALKAN airline.

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Source: Kneifel, 1980.

The bilateral contracts made with foreign (western) airlines – which were based on the principle of rendering services mutually benefiting both parties – were also unhelpful for fostering competition.

In Central Europe, there were three major airports with the highest passenger traffic, namely the Moscow air complex (with several member airports), Berlin-Schönefeld in the German Democratic Republic, and Prague, the capital of

Czechoslovakia. They were followed by Warsaw, Budapest, Bucharest and Sofia as the second group with lower passenger traffic. The third group included capital city airports such as Tirana and Vilnius, and provincial city airports such as Erfurt, Wroclaw, Poprad-Tatri etc.

The modernisation of the airports of large cities and the construction of concrete surface runways was made important by the emergence of turboprop and more sensitive Soviet-made jet aircraft. The Soviet Union had even used its domestically manufactured special aircraft model TU–114 in non-stop air service on the Moscow–Soviet Far East mega airline.

1.2.2 The contradiction between the relatively dense airport network and the outdated air fleet encumbering inter-continental airline connection

The manufacturing of Soviet type aircraft enjoyed a monopoly all over the markets of Central and Eastern Europe. Czechoslovakia, Poland and to a marginal extent Romania had capacities for manufacturing small aircraft only. Following the plans of Tupolev, Ilyusin, Antonov and Yakushin Moscow, the major cities of Volga, Ukraine and Tashkent manufactured such Soviet type aircraft which in all their technical/environmental parameters, effective range, reliability, servicing demands and comfort level were left behind by the American and Western European models.

One of the greatest deficiencies of Soviet aircraft manufacturing was failing to produce high range aeroplanes. Even the high capacity Russian „airbuses" (IL–86, IL–96) were only suitable for transatlantic traffic at such places where the distance was the shortest between Europe and North America, namely between Shannon (Ireland) and Gander (Canada, New Foundland). The only Soviet-made aircraft suitable for intercontinental services was the IL–62 model (which besides the Aeroflot increased the value of the air fleet of LOT and ČSA).

Of the Soviet bloc countries, Czechoslovakia was the first trying to break the Soviet monopoly during the 1968 „Prague Spring" era when ČSA purchased some Bristol–Britannia aircraft – and it was followed by a Polish experiment when LOT increased its fleet by Vickers–Viscount and Convarir–340 model planes. Romania, keeping some distance from the Soviet Union and building highly friendly contacts with China, went further, and thus TAROM permanently operated British BAC–111, American B–707 and other Western model aircraft which enabled the introduction of non-stop flight services between Romania and China, the US and Central-Africa.

Of the former socialist countries, *Yugoslavia* was the most independent state in all repects as it was not a member of the Warsaw Pact and had only an observer role in the COMECON system. Yugoslavia *had already replaced its fleet by the*

1950s into Western made aircraft and as a major organiser of the federation of non-aligned states, had built an extensive airline network not only in East-West relations but also towards the developing countries.

In the mid-1980s, the late period of socialism, *the contradictions in the air transport infrastructure* can be summarised in that *the per unit* (one million inhabitants) *provision of public airports was fit for Western European standards,* and in Eastern Central Europe the per unit territory (100 thousand km^2) density of airports was not far behind the Western European indices, which means that the conditions of the geographical accessibility of air transport services were relatively fair. *However, the quality and utility value of aircraft were much more lower* not only in comparison with Western European, North American and Far-Eastern ones, but they were also lagging behind *the aircraft used in the less developed regions of the world.*

The Soviet aircraft models proved to be more risky for accidents than the western ones. The supersonic TU–144 model coming out simultaneously with the British-French Concorde model became the victim of efforts to win the aerospace race at any price. The six manufactured planes of this model had to be retired in the 1980s following a series of accidents (they were flying between Moscow, Central Asia and the Pacific Region). In case of Concorde, retirement only took place in the early years of the 21st century.

However, air mobility, even using the low technical quality of the Soviet air fleet (the number of air trips per 10 thousand inhabitants) *was approaching or in some areas slightly surpassing the relevant values in some less developed Western European countries* – mostly in Siberia and in the northern part of European Russia where medium and long-range airline services were provided by (TU–134, TU–154 model) Aeroflot planes, while in short-distance range the grassy airfields were regularly used by AN–2 planes and helicopters carrying administrators and head officers on their board.

1.2.3 Domestic air transport as an indirect social benefit

The socialist „planning economy" nearly violated the systemic features of air transport in Western Europe and the rest of the world by transforming air planes – in a very anachronistic way (by stepping very much off from the affordable reality) – into a kind of public transport vehicle by creating a very dense network and introducing extremely cheap fare prices (covering only 8–10% of the total running costs) and cargo tariffs, as well as by providing an extremely high level of state subsidisation in compensation.

It is obvious that administrating a Soviet Empire of an enormous size (22.1 million square kilometres) without any railway or road connections on the major-

ity of its territory and consisting of 15 member republics and several hundred special (ethnic minority) districts/regions, the travel needs of party cadres, civil servants and other institutional members of the system, just like the maintenance of internal cohesion in a state that was extremely heterogeneous in its ethnical, religious, cultural and economic aspects, required a relatively dense transport network system which was the only real means for the modernisation of transport under the circumstances of an autocratic political system.

The Soviet domestic airline network performed the following tasks: the personal and material *supply of the semi-nomad nationalities living in the very sparsely populated Northern areas* (left without any surface transport connections) as well as *the supply of military headquarters and of various* (meteorological, hydrological, glaciological, oceanological, geophysical, seismological, biological, fishing) observation posts and providing travel services necessary for their personnel (e.g. trips back home for vacation). *Air transport was one of several networks maintaining political power which covered the whole territory of the Empire, and whose upgrade was eventually neglected by the Soviet state.*

The circumstances of air transport in the Baltic States, annexed to the Soviet Union (dense population and ground infrastructure network, much shorter distances) were completely different in the Soviet-oriented satellite states of Eastern Central Europe and the Balkans, as well as in the German Democratic Republic. For all these differences, by the pressure of the Soviets, they also built up a dense domestic network from 1947/1949. In Yugoslavia, a predominantly mountainous area, this kind of Soviet pressure was not present, but the difficulties of surface communication among the six federal republics urged the Yugoslavian government to build an extensive airline network; the intensive demands of tourism grew into major factors in air service only in case of certain destinations and after the turn of the 1960s/1970s.

In the late 1950s in Poland, a monocentric airline network emerged, connecting Warsaw with six remote cities. *In Czechoslovakia, a bipolar* Prague- and Bratislava-centred airline scheme was formed, connecting ten provincial destinations. *Hungary developed* an entirely *Budapest-centred airline network but with transversal connections between some peripheral cities* (*Figure 1*). *Domestic airlines* often connected cities lying at a distance of 130–160 kilometres. Except for the Soviet Union, domestic air traffic volume was very low.

Air services running mostly on a daily or a few days per week basis with a maximum of one or two flights and aircraft with a maximum 24 passenger capacity always running at full capacity, could potentially carry 8 thousand passengers in a year. However, flight cancellations on days with critical weather conditions or in winter periods reduced their utilisation ratio to 20–40% of their potential capacities; therefore, the actual number of their passengers was about 3-4 thousand in the 1960s.

Figure 1

The domestic airline network of Eastern Central European countries in 1959

Source: Author's construction.

When answering the question of how reasonable a decision was the establishment of an extensive domestic airline network, and what advantages it had, the answer can be formulated after careful consideration from the perspectives of the national airlines providing the service, the funding state, and of the users of the service. From these point of view, domestic air transport

- created chances for expansion *for the national service provider companies*,
  - running a larger sized air fleet which required not only a higher number of operating staff but also an increase in the number of servicing and technical maintenance capacities,
  - airlines were also responsible for running several provincial airports,
  - all these circumstances were favourable for the strengthening of the air transport sector and for collecting valuable professional information.
- *for the state budget*, financing the actual costs of air services implied heavy expenditures, which, until the 1960s, it was able to cover in every country, but later on the contribution of the state showed large variation. In those countries where certain elements of the market economy were already present in economic and transport policy, domestic air services were terminated in the 1960s (for example in Hungary) and airline networks were heavily curtailed. Although this period coincided with the start of motorway construction projects and the introduction of domestic express trains, these measures cannot be regarded as a real alternative to air services in either travel time or comfort level. In the late period of state socialism, not only Poland and Romania, two countries with a relatively large territory, but also Czechoslovakia, a smaller but elongated country, had operating domestic airlines (in the latter, the Prague–Košice line was the longest). Although both Czechoslovakia and Romania, which due to political considerations were less sensitive to economic considerations, reduced their airline networks, the maintenance of their air networks remained the responsibility of the state.
- Of the actors of domestic air transport, wealthy or socially privileged *potential passengers* (in fairly high numbers) were the evident winners. Airline ticket prices in Eastern Central Europe were nearly identical to first class rapid train tickets to the same destination. The majority of airline passengers were bureaucrats and officers taking official trips, whose companies usually covered the fare costs. For some segments of the population (in small countries a few thousand, in the Soviet Union a few million), air travel was a means of getting acquainted with flying and enjoying the advantages of air services and the ‘consumer’ experiences gained in such a way had a great importance in developing a culture and an attitude towards flying.

1.2.4 International air transport: an extensive network with few passengers

Communication (travel/telecommunication) between the western and eastern parts of Europe was strongly hindered by the political confrontation starting in the late 1940s. However, the air transport space of our continent is by all means inseparable as it forms a continuous network, and air, its natural carrier, is also global. Because of this, even under the circumstances of political confrontation, it became evident that cooperation would be indispensable in managing the common problems of air transport between Europe's two parts. This was a great challenge for socialist countries, and they did not react to this for a time. In the cold war period, even the authorisation of Western European airplanes entering socialist airspace was not without conflicts. (Foreign airplanes were allowed to enter the airspace of the Soviet Union and Siberia only from the late 1960s.) Later on, the servicing quota of 'socialist' and 'capitalist' airlines on their territory was specified by special political criteria. (The airlines of neutral states – such as Sweden, Finland, Switzerland – were judged more favourably than NATO members.)

By passenger volume, 97–98% of the activities of Aeroflot, the world's largest airline at that time, were targeted at domestic air services Although its foreign airline network reached all the continents of the world in the 1970/1980s, very few services (mostly 1 or 2 per week) were operating on airlines going beyond the Iron Curtain. The global network of Aeroflot was introduced first of all to obtain revenues in hard currency and secondly to service the great number of diplomatic missions, foreign trade/cultural etc. embassies of the Soviet Union.

With the exception of Yugoslavia and partly Romania, the international *airline network* of socialist countries *in the 1950s was strongly Eastern Europe and principally Moscow-oriented*, but later in the period of political detente from business considerations it gradually spread into the Western part of Europe, North-Africa and the Middle-East, serviced by new, better, new-generation turboprop IL–18, An–24, and later TU–104, TU–134 and TU–154 model jet aircraft after the turn of the 1950/60s.

The most intensively used international airlines of the 1970/1980s in the Eastern part of Europe were the Moscow–Prague, Moscow–Budapest, Moscow–Sofia, Prague–Sofia and Moscow–London routes. International airlines also built their airlines towards the most important Western European hub-airports, easing in this way access to the global airline networks.

In the 1980s, the purpose of international air trips was also in change in Eastern Central Europe. An increasing number of passengers was travelling abroad for private reasons (paying visits), and among them there were several ten thousands travelling to North America as well as Soviet citizens emigrating to Israel. The easing of the dictatorial regimes, the normalisation of contacts with the capitalist states and permitting travel to foreign countries for a larger segment of the popu-

lation *made the orientation of air traffic of East Central European states more balanced*, which means that nearly as many people were travelling to Western as to Eastern Europe. Aeroflot, LOT and ČSA with their long-range IL–62 aircraft were able to render intercontinental services, e.g. by launching direct airline services to Cuba and North America.

2 From torso to a success sector: Changes in air transport during the regime change and after the collapse of the former state formations until the 21st century

There were large differences between the country blocs of Eastern Europe in the period following the 1989/1991 political 'cataclysm' (regime change, the collapse of the Soviet Union, Yugoslavia and Czechoslovakia) regarding the speed and depth of economic recession which had deep, although not immediate impacts on aviation as well. In the post-soviet region, the performance of air transport is still only a torso of the 1980s, while in the other countries of the former Iron Curtain, it is a success sector which has only been superseded by the advances of telecommunication.

2.1 The polarisation of development by macro-regions/country blocs

The progress and present degree of demand for air services are highly region-specific factors in Central and Eastern Europe.

2.1.1 From over-sized (?) to slimmed and strongly segmented air transport in CIS countries

Recovery from the economic crisis started the latest in the Community of Independent States (CIS). Even in 2005, its GDP was below the value of 1988. In this post-soviet region, the demand for air services was falling at an increasing speed and today it is still far behind the level of the Soviet era. *The drastic fall of demand took place within the system of the former Soviet Empire.* In the old period, several million trips were generated by several million members of the Soviet Army while entering or leaving army service, going on holidays, by the trips of federal party members, by the official trips of state and government functionaries travelling between the 15 member republics or between regions lying several thousand kilometres from each other, or by the delivery of workers re-

cruited from various parts of the Soviet Union to various large building project sites and so on.

Trips/deliveries of a predominantly official character were covered by government expenditures. The exhaustion of government resources and the steps made on the way towards the market economy resulted in terminating several activities funded by the state. The most dramatic situation resulted from neglecting the northern regions and the retirement of air services from northern rural communities. Nearly one thousand low traffic, small airfields were closed in the northern tundra and taiga areas. The public provision of the abandoned population living under semi- or fully nomadic circumstances and their transportation to central settlements is now possible only by sleighs in the winter or by slow boats on wild rivers in the summer.

Thus, in Russia, curtailments in the supply side of air services resulted not only from a natural response to decreasing demands, but rather the retreat of the state's duties in servicing the inhabitants of northern, sparsely populated areas.

The organisational structure of post-soviet air transport was segmented to an extreme degree. Aeroflot, the past one-and-only mega-sized airline had broken up into 262 small companies and groups by 1995. Several of them – some of whose air fleet consisted of only one TU–134 aircraft – were not functionally viable, but due to several changes in their ownership structure, could survive. In 2006, still more than two-hundred of them were listed in firm registries.

On the basis of cost-benefit analyses made from the aspects of corporate economics, low-intensity but spatially extensive airline networks are heavily unprofitable; therefore, their operation needs community funding. From the market economy perspective, air services in the Soviet era were oversized, but from the perspective of the millions of passengers whose status changed from '*serviced' into 'exposed' in the transportation sense*, now find contemporary North Russian airline services crippled and unsatisfactory.

While the size and performance of the present domestic airline services of Russia are only a torso compared to the situation twenty years ago, *international air services were also downsized* (Aeroflot terminated several African, Latin-American and even some South-Asian destinations). Air traffic, particularly the number of charter flights, increased from the second half of the 1990s, due partly to the emerging new Western European, East-Asian and American airlines.

There has been little improvement in the air service quality of CIS countries; in several cases, it does not comply with contemporary standards. Some of its segments – most of all the regional fleets and airports of rural areas – are just like in the countries of the third world. The modernisation of aircraft fleets, the acquisition of more reliable and more economically operating and less polluting American and Western European aircraft have so far been carried out by the airlines which are the most profitable and most specialised in international services.

2.1.2 A promising experiment for closing up to the increasing demand and for quality improvement in Visegrad Four Countries and in the Baltic States

Unlike in CIS countries, the decline of air traffic *lasted only one or two years in the Visegrad Four Countries*, and unlike other transport sectors, by 1992/1993 the number of passengers had stabilised and started to grow just before the new development period of the economy. In the West and Central Balkans due to the Yugoslavian Civil War, and on the East Balkan due to the very heavy and persistent economic recession, the low traffic volume tendency remained for a long period. In the majority of countries, *passenger volume figures for 2005 were still lagging behind the 1989 values*. However, *the Baltic States* soon recovered from the inevitable decline of the early 1990s, and *now their traffic is larger than it was in the Soviet era.*

In the area currently called Eastern Central Europe (with the exception of the countries hit by the Yugoslavian Civil War), several factors were contributing to the growth of demand for air services. By the abolition of obligatory visa systems, introducing less restrictive customs duties, increasing hotel capacities for foreigners, simplifying the reservation system of accommodation services and by improving the quality of catering services, tourist attraction increased and multiplied the number of inbound air trips. These factors, with the growing interests of foreign visitors from western countries, their increasing demand for journeys – which partially originated from their rising living standards – all contributed to the growth of air tourism. On the other hand, the growing demand for air transport in the countries of Eastern Central Europe can also be explained by such factors as

- the increasing demand of masses of people who have obtained an international passport to discover parts of the world they had no access to before,
- the intensification of contacts with foreigners, growing foreign trade with European and world economy actors, resulting from international cooperation in production and other fields (trips made for business, educational and cultural purposes),
- a rapid increase in the number of former emigrants' visits to their homeland from overseas areas.

Eastern Central European air and airport companies have improved not only in the quantitative sense, but are now capable of servicing demands requiring higher qualitative standards and have been renewed in their organisational and property structure (with stronger 'western assistance'). In this sense, they could achieve better results in developing their international air services both in quantitative and qualitative aspects than CIS countries. This is seen in several fields,

starting from the almost complete 'Westernisation' of air fleets through the enlargement and modernisation of major airports to the integration into the global servicing systems of economically advanced countries.

2.2 The harmonisation of the air transport system of Eastern Central Europe with the transport policy of the European Community/Union in organisational restructuring and technical modernisation

2.2.1 The slow progress of liberalisation/deregulation and privatisation, the problems of development

The economic and air contacts between the former socialist countries have weakened very much by now. With the abolition of the COMECON system, the multilateral block agreements have lost their validity; therefore, *contacts could be based on bilateral agreements only.* The air transport policy of the EU is getting more and more determinate and exemplary in the context of west-oriented economic-political interactions for the air service actors of the past COMECON countries, and it is characterised by integration and deregulation within common market dimensions. The former socialist countries had to accept that state authorities should minimise their intervention into air transport affairs and bilateral agreements, to be replaced by the multilateral agreement system of the European Community (Pan-European Community). However, this task proved to be such an enormous one that even the Visegrad Four Countries standing the closest to a functional market economy needed several years to gradually convert their systems into a more liberalised system of air transport.

The European Community's liberalisation package for the years 1987, 1991 and 1993 served as a pattern. This was the standpoint of drafting flight requirements between Western and Eastern Europe, and of creating a system for the automatic authorisation of extra tariffs. Even in the distribution of capacities and entering the market, positive impacts were expected. Expanding the air transport system of EC into the territory of the past COMECON countries had to be preceded by a harmonisation process, e.g. expert training licenses, flight time limitations, service regulation and flight compliance criteria had to be specified. The missing reconciliation of legal issues is a serious obstacle before the full integration of Eastern European countries into the EU's common policy (e.g. how the decisions of the European Court of Justice can be harmonised with or applied in the legal system of these countries).

European air transport urgently needed a harmonised, liberal transport market. According to EU documents, as a response to the challenges of internationalisa-

tion/globalisation, united Europe had to make efforts towards creating a Pan-European air transport system reaching from the Atlantic Ocean to the Ural range.

Another major problem of European air transport is *the utilisation (conversion) of military airports for civilian purposes*, i.e. selecting the appropriate method and reasonable extent of this process. One of the most urgent tasks in this field is setting up a *homogenous air space surveillance* and traffic control system to replace today's fragmented structure – when every country has its own air traffic control/checking station – which should be followed by setting up a common military and civil air traffic controlling and surveillance system.

Table 3

The major tasks of the transformation of air transport in the different country blocks of Eastern Europe

<table>
<tr><td rowspan="2">CIS countries (Russia, Ukraine, Belorussia, Moldavia)</td><td rowspan="2">Baltic (post-soviet) states (Estonia, Latvia, Lithuania)</td><td colspan="3">Other former socialist countries</td></tr>
<tr><td>the successor states of Czechoslovakia</td><td>countries with no changes in territory*</td><td>the successor states of Yugoslavia</td></tr>
<tr><td colspan="3">– Independent national airlines</td><td>–</td><td>organisation</td></tr>
<tr><td colspan="4">– The replacement of technically obsolete, strongly polluting Soviet-made air fleets into western aircraft
– The transformation of the demand structure of international air traffic by the preference of westward airlines. Creating the necessary technical/organisational background. Training air staff for complying with Western European air service standards (teaching English for adequate proficiency) and for running intercontinental air services if needed.</td><td></td></tr>
<tr><td colspan="5">– Airports should be improved from technical/air control aspects</td></tr>
<tr><td colspan="5">– Competition should be introduced by founding several private airlines</td></tr>
</table>

* Hungary, Bulgaria, Romania, Poland.
Source: Author's construction based on Kulke–Friedler, 2003.

The political changes of the early 1990s imposed challenges on the air transport of the different Eastern European country blocks as it is shown by *Table 3*. The impacts of political/economic transformation were only slowly filtering down into the organisational scheme of air transport in the Eastern part of Europe because the introduction of a market system and creating the preconditions of competition proved to be an extremely difficult task in a system dominated by the proprietorship of the state. Although later on, new actors (small private airlines) were emerging on the markets of air transport in some countries, in the majority of cases, their importance and performance were far weaker than of the traditional national airlines.

After the regime change, a slow transformation process started in the organisational scheme and property structure of air transport, creating a new organisational framework, introducing a company system, facilitating the emergence and moderate growth of the private sector and raising several problems in the preparation for entering into the liberalised world of the European market.

State ('national') airlines changed into *share companies*, some of whose equity stake (specified by the governments) went into foreign hands, but the majority of them remained state majority or fully state owned corporations. (In Russia it is a common phenomenon that the state's 51% majority ownership is opposed to the 49% airline employees' equity stake, as was the case for the Aerobratsk, KD-Avia in Kaliningrad, and Vladivostok Avia companies.)

Some small (mainly charter servicing) *private airlines* such as the Bulgarian Air Via, the Czech Travel Service and the Romanian Airom were founded, partly becoming competitors of the leading airline, and partly extending the palette (supply side) of air services by introducing new market segments.

Following the collapse of the Soviet Union and Yugoslavia and the disintegration of Czechoslovakia, a very asymmetric air transport potential was available in their successor states. While ČSA, based on the very strong potentials of Prague, could operate as a relatively strong company, Slovakia was left without any airlines capable of serving as a national one. Therefore, Slovakia was badly in need of the services of foreign airlines and under these circumstances the services of the new domestic small airlines were of tertiary importance until the emergence of discount airlines in the early 2000s.

In Eastern Central Europe, the majority of airports were in joint ownership, while in CIS countries, they remained in state ownership although they were operated by private and in several cases by foreign companies. Small airfields were run by local/regional governments and some private investors also emerged in the market to grab some portion of property (This was for example the case with the Audi Car Corporation in Győr contributing significantly to the building of the nearby Pér airport to use it for maintaining air contacts with its headquarters in Germany.)

The dynamic growth of air traffic between *Western Europe and the majority of* (principally Eastern Central European) *former COMECON countries increased the number of domestic and even more so Western European airlines on the market.*

The liberalisation of the European market offered great opportunities, but at the same time, meant high risks for airlines. The positions of the 'flagship' – but not necessarily or not always rightfully 'national' – airlines, and of the new private companies were worsened by the fact that competition *as an outcome of liberalisation* increased the traffic of highly capitalised Western airlines, who did not and still do not have to face any limitations regarding their prices and the

number of their destinations. *The transition from the international system of bilateral agreements into a global open airspace system requires great efforts. For all companies, working out a medium and long-term strategy has become a demanding task.* The first ideas regarding which (economic, technical, management) criteria airlines should meet for surviving on the markets of international air transport have already been drafted.

The efforts of the airlines of the post-soviet and post-socialist block in switching over to modern technology and acquiring information and applying modern know-how (which was indispensable for improving their market positions) *were accompanied by worries about the financial feasibility of their investment projects.* In the earlier period, the airlines of the COMECON block followed a development policy which was based on their own resources and efforts.

The contribution of the state is decreasing in the financial subsidisation of the air sector. One reason is legal regulations passed in the name of economic competition, limiting the rights of the state to provide financial assistance to airlines. The other reason is that the state has limited resources to provide financial assistance due to several restrictions it has to introduce in its own budgetary system.

The airlines of the former socialist countries – apart from some exceptions – are loss-making businesses; therefore, they *are not the most attractive for private investors.* After the regime change, airlines were still making efforts to fund their development projects from their own financial resources, but it soon became obvious that for their survival, they need a financially strong business partner. The technical modernisation of air fleets, the transformation of management and corporate systems demand strong assistance from the Western world, and some of these – not negligible – expenditures were partially sponsored by EU funds.

2.2.2 The (transitory?) role of the European Community in retrieving the losses of air transport in Eastern Europe

Right after the regime change in the first half of the 1990s, EC/EU was yet willing to provide significant financial assistance to the air transport sector of the former socialist countries – in the new situation it was an inevitable and urgent task for its transformation and renewal. At that time, the European Community was on the opinion that in Eastern-Europe and principally in Russia, *all the elements of the transport sector need an urgent reconstruction* due to their technical obsolescence, and to the negligence and amortisation of infrastructure and technical devices threatening by this way the security of air transport as well. Therefore, the European Community *set down major tasks in the following order of importance*:

The modernisation of air traffic control (technical upgrade to satellite communication) and its reorganisation for compliance with international standards, ac-

quiring proficiency in English for air traffic controllers operating on new international airlines.

Providing curriculum and educational devices for improving air traffic control in eight countries.

A strict technical inspection of air fleets and the specification of higher technical requirements for the operation authorisation of aircraft.

The renovation and in some cases enlargement of major airports with international air traffic, the upgrading of passenger service facilities, assistance to national airport development and reorganisation plans. Within this framework, the 30 largest airports of Russia had to be reconstructed. According to this plan, the focal areas of these development projects had to be Moscow, Saint Petersburg, Irkutsk and Nizhniy Novgorod. In Ukraine, a British-Canadian syndicate was commissioned by the reconstruction of Kharkiv airport to be finished by the end of 1998. The objective of this project was that as a result of enlargement and reconstruction, the capacity of Kharkiv inhabited in a high proportion by the Russians reached the 1995 year capacity of Borispol, the capital city's airport. (This development project funded by TACIS also included the renovation of the airports of Bucharest, Bratislava as well as Uzbekistan.)

Providing assistance to some airlines to adapt their corporate organisation to the market economy (Aeroflot RIA, Air Ukraine, Uzbekistan, Air Moldova, Tarom, regional airlines).

Providing assistance to aircraft manufacturing in Russia for the availability of more advanced models complying with Western standards in the field of environmental criteria.

The privatisation of airlines, airport directorates, the reorganisation of their corporate scheme, the introduction of new regulations for the compliance with international standards and practice, the dissemination of relevant Western European experiences, running consultation services and providing assistance to all the costs from EU funds.

The European Union assisted the modernisation of the air transport of Eastern European countries until the mid-1990s by a sum of 500 million ECUs. In comparison with the 7.6 billion ECUs of the total institutional grants provided by TACIS, Phare and other programmes to this region, this is a relatively small contribution only, and air transport enjoyed no priority among the assisted areas even in the explanation of partial programmes. This credit item originated from various resources. EIB (European Investment Bank) contributed by 215 million, EBRD (European Bank of Reconstruction and Development) by ca. 160 million, the TACIS programme by nearly 100 million and Phare by 17 million ECUs to this project. The largest sums were spent on improving air traffic control systems (*Table 4*).

Table 4

EU grants allocated for the development of Eastern European economy and herein the development of the air transport sector in million ECU, 1993–1996

Development area items	TACIS Russia	EBRD		PHARE	EIB	Total
		CIS	Eastern Central Europe			
ATC (Air traffic control)	34.0	0	26.7	6.8	155.0	222,5
Airlines	6.4	0	23.9	9.2	0.0	39,5
Airports	9.3	30.5	30.1	1.0	60.0	130,9
Aeronautics/conversion*	43.8	0	0.0	0.0	0.0	43,8
Satellites/conversion	8.3	45.8	3.8	0.0	0	57,9
Air transport total	*101.8*	*76.3*	*84.5*	*17.0*	*215.0*	*494,6*
All sectors total	2250.0	6652.0		5400.0		18,222.0
The ratio of air transport sector from the total amount of grants in percentage	4.5	2.4		0.3	5.5	2.7

* By conversion we mean the transfer, conversion and utilisation of military equipment, technology and traffic capacities for civil purposes.
Source: Author's compilation based on data found on each programme's website.

Beyond the EU's institutional grants, *Western European companies* also played some role in the modernisation of Central and Eastern European air transport as European aircraft manufacturers (Airbus) and ground equipment manufacturing corporations (such as Thomson-CSF, Alenia and Racal, ATC etc.) could find market segments for themselves in the region. Of Western airlines, several were involved in Central and Eastern European ventures (for example Austrian Airlines and Swissair in Ukraine International, or Air France in ČSA.)

In addition to country level assistance programmes, *regional development programmes* were also launched. Thus, for example, a programme named NAPO should have contributed to the serial production of An-38 model aircraft, a more advanced variant of the earlier Antonov models manufactured for servicing regional airlines. It should have served as a model to be followed for a computer aided planning of regional air transport network in the Irkutsk zone.

2.2.3 The uneven and partial modernisation of air fleets – the replacement of Soviet-made aircraft into western ones

In some of the former socialist countries of Eastern Central Europe, in the years preceding regime change, although in a rather limited number, new west-made aircraft had already been purchased. In this way for example INTERFLUG, the airline of the GDR, modernised its fleet by two A-310 models in 1988, while MALÉV also leased B–737 jet planes.

The political changes in nearly all countries of Eastern Europe put an end to the homogeneity of aircraft models, meaning the hegemony of Russian-made aircraft was over. For the equipment of air fleets with west-made aircraft and for the replacement of Soviet-made aircraft models, the conditions were totally different among the country blocks of Eastern Europe.

The progress of the technical modernisation of air fleets was the fastest in the Visegrad Four Countries.

- on the one hand, this was due to their much more intensive and genuine contacts with Western European countries, which initially were enough for aircraft leasing, but later on served in a form of guarantees and trusts provided for buyer's credits;
- on the other hand, due to the favourable volume of traffic, air fleets needed enlargement and as domestic aircraft manufacturing did not exist at that time, the most decisive factors of import purchases were the technical standards and quality level of aircraft.

The composition of air fleets by aircraft model changed significantly within a few years' period to the advantage of western aircraft (mostly Boeing and partially Airbus models), and the ratio of Antonov, Tupolev, Ilyushin and Jakovlev models decreased significantly.

There were no Soviet-made aircraft in the fleets of *post-Yugoslavian countries*. Their replacement took place due to amortisation or quality improvement reasons.

Of the *countries of the East-Balkan*, although Romania started to use west-made aircraft at an earlier time, the total replacement of the air fleet lasted until the late 1990s. In Bulgaria, the large-scale modernisation of the air fleet through model change started only in the mid-1990s.

Qualitative changes had to be combined with the adaptation of air fleet to the demands of traffic which at first led to a decrease in the number of aircraft in Poland, Czechoslovakia, Hungary, and in other countries.

In CIS countries – namely in Russia – *the aircraft in international comparison had become very obsolete* by the mid-1990s: the average age of aircraft exceeded 15 years, and their state in fact resembled those in some countries of the third world. There was a strong increase in the number of *lethal accidents and air ca-*

tastrophes not only on domestic, but also on international airlines (e.g. in Zaire or at Svalbard). The solution for this problem would have been to enter west-made aircraft into service, but low financial resources limited the number of such occasions.

Although new airlines whose number was quickly rising soon recognised that in a market situation without state subsidisation, they had to replace their Soviet-made aircraft into more economical and comfortable Western models *(Duffy*, 2004), even larger airlines could afford this only in a few cases until 2005.

The greatest contradiction of the situation in Russia is that *this country could have been the largest beneficiary of the modernisation of air fleets, having dangerously obsolete aircraft strongly disfavoured by foreign passengers and airports, the speed of progress is the slowest here of all countries*.

The delayed modernisation of air fleets was finally forced by the renewed intensification of traffic and the sharpening competition among airlines. There were two alternatives for modernising aircraft models: the first was developing on the basis of domestic made, the second on the basis of foreign made models.

The first means the upgrading of the physically amortised and at the same time technically obsolete fleet to a cheaper and a bit more advanced home-made one (which means 'new generation' models in the successor states of the Soviet Union) by purchasing IL–96 and TU–204 brands. However, the demand for Russian-made aircraft fell dramatically, and they are in fact unsalable on domestic markets. In 2005, seven aircraft were manufactured, but only three of them were purchased as they failed to comply with the ICAO's Capital IV noise emission standards for the year 2006.

Although the development of the country's commercial air fleet takes a good position among the priorities of the medium-term national transport development programme of Russia ('The Development of Russia's Transport Complex 2002–2010'), but it has no connection with realities and real possibilities. According to this programme, *the majority of the 134 aircraft to be purchased until 2010* for servicing long-distance/international airlines *should be Russian-made, economically fuelled low noise, new generation aircraft* (*Radloff,* 2003). However, according to pessimistic 2004 forecasts, half of Russia's total air fleet (1500 aircraft) will totally be unfit for flying by 2010, and this rate will increase by 2015 to 80% if the present slow progress of aircraft replacements will be maintained (Hälfte… 2004). The home-made aircraft based option is a totally unrealistic way of solution, in fact it would rather be a real failure story.

The other alternative would be the purchase *imported aircraft* made more expensive by high customs and VAT. *However, the acquisition of new foreign-made aircraft was limited.* Only the largest Russian airlines with good bank loan credentials could afford the luxury of purchasing aircraft directly from Boeing and Airbus manufacturers to emerge on foreign markets demanding the best

service quality. Purchasing used aircraft (affected by 20% import tax and 18% VAT duties beyond purchasing price) was a common phenomenon in Russia.

There was a time when it used to be a common practice that to enforce the development of the domestic aerospace industry, the state ordered the purchasing of a Russian-made aircraft as well when buying a west-made model. The large-scale scrapping and selling off of Russian made aircraft taking place simultaneously with the extensive purchasing and leasing of new west-made aircraft was described as the 'cannibalisation' of air fleets (*Morgenstern,* 2005).

However, the emergence of a 'quasi-competition market' had already proved that filling up air fleets with west-made aircraft was a question of life and death. Even large cargo carriers (e.g. Air Bridge, Volga-Dnepr) are not satisfied with AN–124 Soviet-Ukraine made 130–150 ton jumbo planes, but they are rather interested in securing their future by purchasing the cargo plane variant of B-747 with smaller loading capacities.

One of the greatest problems in the aircraft supply of post-soviet states seems to be in the field of 'regional aircraft', as the small and medium-range 60–90 passenger capacity Soviet made aircraft (AN–8, TU–134 etc.) have been completely amortised; therefore, their immediate replacement should take place without delay. For this reason, to reduce the import of very expensive west-made aircraft (ATR, Fokker, Bombardier, Canadier etc.), *some experiments were made by the Russian aerospace industry for the home manufacturing of similar models* but these efforts have brought very little success.

The Russian Ministry of Transport since 2004 has provided subsidisation for the Russian regional aircraft planning (Russian Regional Jet-RRJ) project to a sum of 120 million USD. The winner of the bid was the civilian aircraft manufacturing affiliate of the Sukhoi Design Bureau, but it has not produced the prototype yet. The list of participants in the RRJ project increased by the Tupolev Public Stock Company and Myasishchev Design Bureau working on the design of TU–414 and M–60-70 model regional aircraft in cooperation with famous English and French firms representing Western style high-tech standards (e.g. Pratt & Whitney, Snecma) especially in the fields of engine design and manufacturing technology (*Deeg,* 2005).

The manufacturing of AN–140 model regional aircraft for the replacement of AN–24, AN–26 and JAK–40 is in progress in Samara, in Kharkov, Ukraine and in Isfahan, Iran. (On the latter site, 80 aircraft are manufactured by licence annually.) The prototypes of AN–74 models for special purposes and AN–148s with an effective range of max 5,000 kilometres have also been manufactured (Flugzeugprogramme… 2006).

The greatest paradox of Russia's air sector lies between the newly increasing, vast demands for regional-scale air transport and the absence of home-made regional aircraft complying with the technical standards of our age to satisfy these

demands. If the ambitious plans fail, the airlines of Russia will depend on the two giant aerospace manufacturers of the Western world (Boeing, Airbus) and on some medium-sized firms (ATR, Bombardier) in purchasing aircraft made for both long-distance and regional traffic. This will mean that Russia will not be among the world's few passenger aircraft manufacturer countries. The question is whether the citizens of Russia are also ready to accept this situation as a consequence of globalisation, the concentration of high tech manufacturing/financial resources, i.e. the monopolistic situation of the bipolar world (USA + EU), or *national consciousness will supply enough power for Russia to become the third centre of the world's aircraft industry.*

3 An abundance of airlines – moderately growing air fleets – low intensity airlines

3.1 The distribution of the air fleet of airlines by service types and traffic volume

The role of formerly famous national airlines had significantly decreased by the beginning of our century, while a growing number of new market actors have grown by a large degree. The rationalisations that had been carried out in multiple waves proved to be unsatisfactory for preserving the competitiveness of national champions because the operational losses they had accumulated and their debts had reached a critical level. For this reasons, they are not attractive for investors. *The joint ownership of large Western airlines is frequently changing*; therefore, these airlines have no owners who, thinking in a long-term perspective, would save these majority state-owned airlines from bankruptcy by capitalisation or the reorganisation of their debts.

However, even in the years following the regime change, the restructuring of the market started not only by the market entry of *small, domestic private companies, but also Western European and major American airlines* who had made their presence more dominant and started to promote their services. Western European airlines secured their market share by various methods. One of them was to purchase the property shares of national and other domestic airlines, as well as several *code-sharing agreements* with domestic airlines on seat capacity sharing.

There is a large difference between the airlines of different countries in the servicing ratio of the actual demands for air transport, which can be measured by the passenger traffic volume of airports. In Russia, due to the country's slowly decreasing isolation and the dominance of domestic passenger traffic, *domestic*

airlines dominate the market to highest rate (86.1%), while the services of foreign airlines are the most heavily used in the most backward countries of the Balkans. In Albania, the representation rate of domestic airlines is less than 24%. The extremely high value of Slovakia (*Table 5*) is originating from the fact that the headquarter office of Sky Europe discount airlines is located in Bratislava.

Aero Charters, and the Azerbaijan Azalavia Hava Yoll). *In passenger traffic scheduled air flight services are dominating* but the majority of airlines provide charter flight services as an option. Air Astana is the only company providing exclusively scheduled passenger flight services.

The passenger volume of *charter flight services* is surpassing *the volume of scheduled services* at some airlines: Hemus Air, Slovak Airlines, South A. Travel Servis, UTAir, Uzbekistan Airways. The main profile of Eastern European airlines, apart from a few exceptions, is passenger delivery. The number of large airlines specialised in cargo delivery is very low (the Russian Volga–Dnieper is one example) and the number of airlines operating special planes for cargo transportation (IL–76, AN–124 etc.) is also very small (Aeroflot, Ukraine International Airlines, Travel Servis, UTAir, Uzbekistan Airways). Some airlines (Aero Charter, Ion Tiriac Air, Eurojet Romania, Enimex, Romavia) provide charter air services only. The majority of companies provide both domestic and international air services. 17 companies run international services only (including MALÉV). The *highest degree of specialisation in international service* (over 75%) is found in UTAir, while the airplanes of Aero Charter and Ion Tiriac Air are servicing domestic airlines only.

Even the most significant airlines of Eastern Europe generate far lower traffic than the mega airlines of advanced countries servicing global markets. In the worldwide dimension, the annual traffic volume is 25–92 million on the largest American airlines, while it is 16–50 million on the East Asian airlines. Even the airlines of South-East Asia and Australia are servicing no less than 11–16 million passengers. The passenger traffic of the leading airlines of the Central and Eastern European former socialist countries (e.g. Aeroflot's 6.6 million annual passengers) is by several categories lower not only in comparison with American, East-Asian and Western European mega airlines, but even worse than the results of the second or third category Western European airlines and lagging behind several Latin-American, South-Asian and African airlines.

Table 5

The total and relative passenger traffic of the countries of Central and Eastern Europe in 2005

Country block/country	Airport passenger traffic total		Population-million	Passenger number per 1 million inhabitants, 1000	GDP(USD)/capita (on 2003[b] purchase power parity)	Air cargo, tons
	1000 passengers	domestic % [a]				
Poland	8,881	46.2	38.6	230.0	11,461	31,130
Czech Republic	11,312	56.6	10.2	1110.0	16,124	56,259
Hungary	8,105	50.0	10.0	810.5	14,629	55,472
Slovakia	2,320	75.4	5.4	429.5	13,005	4,069
Croatia	3,916	44.5	4.7	833.2	10,492	12,741
Slovenia	1,294	66.3	2.0	647.0	19,618	4,549
Visegrad and W-Balkan countries	35,828	50.4	70.9	505.3		164,220
Romania	4,153	32.3	22.4	185.4	6,974	14,000
Serbia and Montenegro	2,500	44.9	10.7	239.6	4,555	8,100
Bulgaria	5,010	29.4	8.1	618.5	7,224	23,000
Bosnia-Herzegovina	280	35.7	4.1	68.3	6,240	2,100
Albania	1,420	23.9	4.0	352.0	4,547	1,500
Macedonia	686	32.1	2.0	343.0	4,610	5,040
East-Balkan/SW-Europe	14,049	32.8	51.3	273.8		53,740
Russia	36,000	86.1	146.8	242.3	9,001	3,087,000
Ukraine	6,500	46.2	48.2	134.9	5,512	162,000
Belorussia	942	53.1	10.3	91.5	6,432	18,400
Moldavia	570	43.9	4.4	129.5	4,840	1,820
European CIS-contries	44,012	79.0	209.7	209.9		3,269,220
Lithuania	1,383	32.5	3.9	354.6	11,036	9,580
Latvia	1,888	31.3	2.4	786.7	9,683	15,428
Estonia	1,400	40.7	1.4	1000.0	12,190	9,739
Baltic States	4,671	34.5	7.7	606.6		34,747
Central and Eastern Europe total	98,560	59.9	339.6	290.2	…	3,521,927

[a] The share of traffic generated by the airlines registered in the (home) country.
[b] Nemzetközi Statisztikai Évkönyv [International Statistical Yearbook]. Budapest, KSH, 2004.
Source: The author's compilation from international and world organisational statistical yearbooks, various studies and the data published on the websites of various passenger airports.

3.2 The increasing role of discount ('low-cost') carriers in the air transport of Eastern Central Europe and the Baltic Region, their possible emergence in CIS countries

The ICAO forecasts in the 1990s but even some years ago predicted the survival of only 5–7 giant airlines by the years around 2010. However, in several cases, the success of *small and medium-sized discount airlines* employing *only a few hundred staff each only against large* (partially 'national') *traditional airlines is questioning the truth of* such *fundamental theories of economics* as economies of scale, i.e. the notion that in the globalising world, only companies exceeding a continually growing minimum size are able to survive in the cut-throat competition which results in the loss of autonomy for small economic organisations and their incorporation into large corporations.

In the early 2000s, the Eastern Central European region, or more precisely *the Visegrad Four countries* with their strongest middle classes *became the largest market area for low-cost carriers.* The four Western countries of Eastern Central Europe proved to be an ideal environment for the newly emerging airlines, founded mostly by Western European foreign investors but managed predominantly by Slovakian, Hungarian and Polish experts and locating their administrative staff and technical equipment in the cities of Bratislava, Budapest, Warsaw and Prague, where the annual GDP per capita value was between 8,000–11,000 thousand USD in the year of their foundation. This income level on the one hand made the growth of demand for air services probable, but also generated an increased interest in finding affordable solutions. With their cheaper prices in comparison with traditional air services, discount airlines *became major air service providers for more and more destinations.* They are now also operating in the Baltic States, and their formation is underway in some countries of South-Eastern and Eastern Europe. The post-socialist area was attractive for these special airlines because their wage costs are only one third or one half of the Western European ones. This advantage may decrease with the expected convergence of West- and Eastern European wages.

The selection of airports is a very important consideration in the business strategy of Eastern Central European low-cost carriers, where the most determinant factors are the size of the candidate airport's gravity zone and the costs of airport operation (facilities). Large agglomeration zones with several million inhabitants increased the attraction of Warsaw, Prague and Budapest for air service use. However, using the airports of capital cities (especially Ferihegy) carries heavy costs. It seems that following capital cities, the emergence of low-cost carriers is continuing on the airports of provincial large cities of secondary or tertiary importance (Debrecen, Pécs, Lublin, Ostrava, Kosiče etc.).

It is the Eastern Central European capitals that are the most important airports for the international network of low-cost carriers. *The share of low-cost carriers in the airport traffic of Prague was already 8% in September 2003*, because the Czech Republic was the first of the former socialist states to liberalise its air transport policy. In Prague, mostly *English low-cost carriers* (e.g. easyJet, bmibaby) provide low-cost air travel to the major cities of Western Europe. Smart Wings operates discount airlines with a branch company of Travel Service, a national charter airline. Thanks to this, between 1997 and 2002, passenger traffic on the London–Prague line increased by 51%; the traffic increase of low-cost carriers on the same route was 29% in 2003.

In 2003, low-cost carriers invaded the airport of Bratislava situated only 40 kilometres from Vienna. In Warsaw, WizzAir and Get Jet also emerged besides easyJet and Sky Europe.

Of the discount airlines servicing in Eastern Central Europe in 2006, *WizzAir, SkyEurope* and *Centralwings* achieved outstanding results by their performance and traffic increase rates. They could do this by exploiting the chances of market growth due to the increased demand for air trips after EU enlargement – while Ryanair and Germanwings were also successful in taking their stand on this market. *Altogether, 'low-cost' airlines had seized 41% of the air travel market in Poland, 24% in Hungary and 14% in the Czech Republic by the first half of 2006.*

Discount-airlines run *airport shuttle bus services* to deliver their passengers from distant areas to their base airports in both directions, such as from Bratislava airport into the city centre of Vienna, in Poland on the Katowice–Gliwice–Krakow route, and in Hungary on the Debrecen–Budapest route.

Beyond the Visegrad Four countries, discount airlines entered into service in the market of *Baltic Region.* Their majority (serviced by EasyJet, Flynordic, Estonian Air, „Premium and Travel" discount airlines) connects Tallinn into their service network covering an area from London to Northern Europe. By 2009, the Swedish FlyMe discount airline will be a 100% owner of the Lithuanian market leader LAL airline.

In *CIS countries*, the discount airline business is just in the initial phase in Russia (e.g. Moscow–Berlin and Moscow–Mineralnie Vodi, the famous Caucasian spa centre). The majority of passengers flying long-distance and spending several hours on the plane are unwilling to travel without board services. This and the tough resistance of traditional airlines to the new competitors will limit the expansion possibilities of low-cost services for a long time.

3.3 The spatial characteristics of airport supply

Airport supply has several quantitative and qualitative indicators.

- The major quantitative indicators are
  - the number of airports, their relative density per spatial unit and population number,
  - their traffic capacity (measured in the number of flights, the number of passengers and cargo load), which partially depends on the size and modernity of the airport's technical equipment, and partially on airspace capacity,
  - the number of offered destinations/airline routes.
- The major qualitative indicators are
  - in the technical sense the availability of electronic instruments providing navigation and instrumental landing facilities in any weather conditions, the length and quality of runways determining the size and type of (departing and landing) aircraft (grass/concrete-covered),
  - the airports' comfort level , the quality of their passenger and goods control systems with adequate capacity terminals (providing not only seats but high standard catering, amusement and shopping facilities for checked-in passengers), with an adequate number of boarding desks and gates for minimizing queuing time and with closed corridors leading to the board entry area of aircraft.

Obviously, the coverage of airport services must be adapted to the traffic volume category of airports; airports with small traffic should provide basic facilities only.

In Eastern Central Europe and the Baltic Region, grass-covered airfields are not used anymore in public passenger air traffic, but in the peripheral areas of the CIS countries, they remain quite common, as they are suitable for servicing propelled aircraft. However, concrete is indispensable for the landing and take-off procedures of turboprop and principally jet engine planes.

Runways are strongly differing in length even among airports equipped for servicing the same type of aircraft. It is known that in cold climate areas where the air is denser, slightly shorter runways are sufficient for takeoffs and landings, but the manifestation of this differentiating factor is not seen. In the densely populated suburban regions of Western Europe, even the biggest airports very often use runways in length of 2850 m, which are sufficient even for servicing big-sized aircraft assuming normal procedures. However, in Eastern Europe, principally on post-soviet territories, some airports' runway length is 3600–3900 metres. (The Siauliai airport in Lithuania and Khabarovsk, Yekaterinburg,

Moscow-Sheremetyevo and Ufa airports in Russia have the longest runways.) These runways were designed in the past for An–124 and 225 model giant cargo planes serving in the Soviet Army. In our modern world, to service the current A–380 airbuses, airports need not only long runways, but they must also comply with technical and passenger capacity utilisation criteria. Therefore, today, only a few Eastern European airports are suitable for servicing these models.

The *geographical division* of supply has a key importance for the accessibility of services (in time and costs). (Western Europe is now starting to formulate a planning requirement for the accessibility of public passenger airport within a distance of 80–100 kilometres.)

The per 100,000 km^2 relative airport density value has weak correlation with both population density and economic development, but it is influenced by several factors. One of them is to what degree *the conversion of domestically built and former Soviet military airports has been completed*, at least to a degree making them suitable for *mixed use.*

Airport density was by no means the strongest in Czechoslovakia or more precisely in the *Czech Republic*, where several models of small civic aircraft and even jet-engine military test aircraft were manufactured, and where the density of flying clubs was the highest. The motivating force of *tourism* in building new airports (principally for foreign visitors for accessing the Dalmatian seaside resorts) was the strongest *in Croatia* in the past decades, but it was also the main reason for building the Sármellék, Karlovy Vary, Poprad, Piešťany, Varna, Burgas, Constanța, Simferopol airports.

The number of airports listed in *Table 6* exceeds the number of public airports (i.e. airports servicing scheduled domestic or international flights or charter flights) in most countries. This difference is the highest in the Czech Republic, where besides the capital city's airport, only Karlovy Vary, Brno, Pardubice and Ostrava can provide appropriate facilities for servicing scheduled (flying at least by mid-sized aircraft) flights of the 18 provincial concrete-covered airports. (On-demand air taxi services are available at a minimum of six airports.) Of the 24 concrete covered airports of Poland, only 4–5 provincial ones have been equipped for international air traffic to some destinations, and another 6–8 in total for domestic public air services operating small, or medium category 60–120 seat capacity 'regional' aircraft. In contrast, the majority of Croatia's concrete runway airports are members of the network of public airports.

The *vast majority of public airports is multifunctional by traffic destinations,* meaning they service both *scheduled* and *charter flights* be they passenger or cargo carriers, but they are also ready for 'general flight purpose' category communal service functions (ambulance-, fire-, security guard, or agricultural flights) and servicing business flight category private airplanes to satisfy businessmen's flexible trip demands. *Only a few airports have been specialised for cargo trans-*

Table 6

The public airport supply/density of countries

Country	Number of airports		Of them public	per one-million inhabitants	per 100,000 km^2	GDP per capita in USD in year 2003
	in total	of which with concrete-covered runway		number of airports with concrete covered runway		
Poland	58	24	14	0.62	7.7	11,461
Czech Republic	75	19	6	1.86	24.1	16,124
Slovakia	11	8	4	1.48	16.3	13,005
Hungary	12	10	4	1.00	10.8	14,629
Croatia	16	13	8	2.77	22.8	10,492
Slovenia	4	4	2	2.00	20.0	19,618
Visegrad and W-Balkan	*176*	*78*	*38*	*1.10*	*12.8*	
Albania	1	1	1	0.25	3.3	4,547
Bosnia-Herzegovina	4	4	2	0.98	7.9	8,240
Serbia-Montenegro	6	6	4	0.56	5.9	4,555
Macedonia	2	2	2	1.00	7.7	4,610
Bulgaria	5	5	4	0.62	4.5	7,224
Romania	17	17	17	0.76	7.1	6,974
E-Balkan/SW-Europe	*33*	*35*	*30*	*0.68*	*6.3*	
Russia	63	61	61	0.42	0.36	9,001
Ukraine	16	16	15	0.32	2.64	5,512
Belorussia	6	6	4	0.58	2.00	6,432
Moldavia	2	2	1	0.45	5.88	4,840
Eastern Europe/CIS	*87*	*85*	*81*	*0.40*	*0.47*	
Estonia	6	5	2	3.57	11.1	12,190
Latvia	3	3	2	1.25	4.68	9,683
Lithuania	4	4	3	1.03	6.15	11,036
Baltic States	*13*	*12*	*5*	*1.56*	*6.90*	
Just for comparison						
Greece	64	60		5.66	45.5	
Turkey	64	64		0.97	8.2	

Source: The author's calculations and compilation by the data of www.aircraft-charter-world.com/airports/europe.htm.

port in the Eastern half of Europe, and even they are the accessories of Russian large (munitions) complexes or aircraft manufacturing plants.

The ratio of international traffic is closely correlated with the administrative/economic importance and population of the airport's city, and even more with the presence or absence of domestic air services in the country.

The airports of the capital cities of the Baltic States (Tallinn, Riga, Vilnius) are almost entirely (98–100%) equipped for international air services just as Prague, Budapest and the capital cities of the small Balkan countries (Ljubljana, Tirana, Skopje), as well as some tourist centres/spa cities: Kaunas, Karlovy Vary, Sliac, Poprad, Ohrid.

The number of concrete runway public airports in Central and Eastern Europe has increased by only 2% since 1990. The partial conversion of military airports resulted in an increase of 25–200% in some cases in Eastern Central Europe and the Baltic States, while in CIS countries, which have the largest number of airports, there was little improvement as many of the (mostly grassy) airfields created several decades ago proved to be redundant. Romania inherited 17 public (concrete runway) airports; therefore, there is no need yet for building additional regional airports. In Bulgaria, the post-Yugoslavian area, Poland and Hungary, building concrete runways on larger grass-covered airports may increase the number of airports capable of receiving jet engine aircraft on scheduled and charter airlines.

The total airport traffic volume of Eastern Europe is by several categories below Western Europe and the other highly advanced regions of the world such as North America and East Asia in both the number of passengers per flight and traffic volumes per airline. The *highest volume of passengers* turns up in the airports of Russia (36 million annually), but this total is still less than the passenger volume of Frankfurt am Main. *The whole Central and Eastern European region has no more airline passengers than the airports of London.*

The relative traffic volume of passengers is mostly influenced by relative GDP (there seems to be a medium degree of correlation between them), *but geographical location (the degree of dependence on air services)*, *aviation traditions, the level of development achieved in earlier periods and air tourism based on cheap discount flight services* have become the major factors influencing traffic volume.

The annual number of air passengers per a million inhabitants is 1.2–3.0 million in Western Europe, 4.6–6.6 million in North America and 2.1–4.8 in the economically advanced countries of the Far East, while this figure is only 290 thousand in Central and Eastern Europe. There is an even larger difference among these regions in their passenger kilometre per million inhabitants indicators, which is explained by the fact that in economically advanced continents, the ratio of long-distance and inter-continental flights is higher. *Eastern Europeans are less mobile in the field of air transport and significantly less 'globalised'* (which

means their integration into economic globalisation and cultural mondialisation processes at a slower pace).

Central and Eastern European airline networks are far below the Western European levels of physical density and individual airlines' traffic intensity, partly because of the countries' lower population and urban settlement density – of which the latter bears primacy – and partly because of lower travel needs which means a lower level of demands.

Among the airports with a very low share of international traffic volume (1–20%) we can find the 'side-airport' of Kyiv (Zhuljani) and the airports of the regional (strongly varying in size) sub-centres of Romania, Russia and Ukraine (Arad, Baia Mare, Suceava, Satu Mare, Vladivostok, Khabarovsk, Lugansk) (*Figure 1*).

The share of charter flights in the total international air traffic volume is very high. It is over 80% at small regional airports specialised in such a service (Piešťany 99.6%, Bucharest-Banease 96.3%, Constanța 90.5%, Poprad 82.3%).

As a contrast to this, the airports of the capital cities of some Visegrad, Baltic and CIS countries (Prague, Warsaw, Budapest, Bucharest, Ljubljana, Skopje, Vilnius and Tallinn) as well as Moscow-Sheremetyevo, Kiev-Zhuljani, Kiev-Borispol and several cities with half million inhabitants (Novosibirsk, Yekaterinburg, Dnepropetrovsk, Donetsk, Katowice, Krivij Rih, Lugansk, Odessa, Rostov, Khabarovsk, Samara) have very low 0.4–2.0% charter traffic share and this low rate of charter traffic volume is also typical at small airports such as Simferopol, Karlovy Vary, Rzesov, Vladivostok, Arad, Baia Mare, Cluj-Napoca, Suceava, Sibiu and Satu-Mare.

The *percentage values calculated* from the number of *„direct transit passengers indicated on the ICAO website are below 1% at the biggest international airports of Eastern Central Europe and Eastern Europe* (Prague 0.1%, Warsaw 0%, Kiev 0.1%, Budapest 0.4%), *which in national air transport policies are referred to as 'important transfer gateways of air traffic' to be developed into major hubs between West- and east-Europe!*

From the analysis of airport traffic volume on the basis of continents/country blocks, it is seen that the destination hierarchy of flights departing and landing at airports is distance-dependent, as it is calculated by a gravitational model. International flights are generally much longer but more rarely occur within the airline system of the same continent.

In Central and Eastern Europe, the traffic volume of selected airports draws the following picture (also see *Table 7*):

– the vast majority of capital city airports have direct air connections with European destinations only (the capital city of Estonia has 100% percentage and the capital city of Romania and Domodedovo – the second largest inter-

Table 7

The division of the scheduled airline traffic volume of some East-European airports by continent destinations in year 2002*

Airport	Africa		Europe		Middle-East		North-America		Asia-Oceania		Latin-America		Total
	passenger number	%	passenger number	%	passenger number	%	passenger number	%	passenger number	%	passenger number	%	passenger number
Bucharest-Otopeni	16,506	1.0	1,517,927	88.6	159,017	9.3	9,450	0.6	11,130	0.6	–	–	1,714,030
Budapest-Ferihegy	57,962	1.9	2,746,162	91.9	83,258	2.8	94,560	3.2	6,226	0.2	–	–	2,988,168
Istanbul-Atatürk	305,910	3.7	6,809,757	81.3	673,774	8.0	195,685	2.3	392,940	4.7	–	–	8,378,066
Ljubljana	–	–	704,567	98.6	10,032	1.4	–	–	–	–	–	–	714,599
Moscow-Domodedovo	–	–	3,162,480	88.8	73,485	2.1	–	–	323,697	9.1	–	–	3,559,642
Moscow-Vnukovo	–	–	1,571,847	99.2	–	–	–	–	11,929	0.8	–	–	1,583,776
Riga	–	–	490,423	99.1	4,449	0.9	–	–	–	–	–	–	494,872
Sofia	3,990	0.4	886,391	94.8	44,903	4.8	–	–	–	–	–	–	935,284
Sankt-Petersburg	–	–	1,026,409	96.8	33,932	1.3	–	–	–	2.0	–	–	1,060,341
Tallinn	–	–	504,074	100.0	–	–	–	–	–	–	–	–	504,074
Vilnius	–	–	516,780	99.5	2,365	0.5	–	–	–	–	–	–	519,145
Warsaw	9,004	0.2	3,403,031	92.5	53,241	1.4	214,267	5.8	–	–	–	–	3,679,543
Vienna	118,148	1.4	7,358,018	86.5	268,921	3.2	240,802	2.8	514,250	6.0	10,062	0.1	8,510,201

* The source of this table is the 2004 year volume of IATA World Air Transport Statistics including the above-listed East-European airports only. It does not contain such major airports as Prague, Moscow-Sheremetyevo, Kiev, Belgrade, Zagreb etc.

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national airport of Moscow – has 88.6–88.8% percentage of air connections with European cities only),
- air connections with non-European continents are the strongest with the Middle East and North Africa, especially at South-Eastern European airports located the nearest to these continents (Bucharest and Istanbul).
- The rate of air connections with Africa (the countries in and south of the Sahara zone) is marginal only and smaller capital cities have no African destinations at all.
- Only the largest Central Eastern European airports, most prominently Moscow, provide direct air connections with Asia.
- Direct flights to North America are available only from the airports of the Visegrad Countries and Moscow.
- Latin America can only be reached from Moscow and Prague without transfer.

We can draw three major conclusions from the county block distribution of available European destinations in Eastern Central European and Baltic States which joined the EU in 2004:

- although the role of the distance factor has decreased since 1990, it is still a dominant element of airline destinations (as a result of orientations shaped by traditional economic/cultural relations),
- the attraction of Western European destinations has increased significantly, especially for employees, businessmen and tourists travelling by discount airlines,
- historical/ethnical/political relations (even sympathy) are also embodied in the Western orientation of certain nations. For example, the Czech people strongly sympathise with Great-Britain and Ireland, the Slovenians and Hungarians with Germany and the Estonians with Finland.

The major airlines of Europe connect Eastern European metropolises with Western Europe's leading airports and major air hubs consisting of several airports. *The* functional *attraction of Western European mega airports is explained by two factors:*

- on the one hand their serviced metropolis (region/country) exercises an economic and cultural gravitational force as a result of bilateral connections and
- as 'world airports' they perform a hub function in intercontinental transport, acting as intermediary and transfer stations in the chain of global transport. Although some overseas airlines depart even from the capital cities or provincial cities of some former socialist countries, Central and Eastern European passengers are still in a bad need of using Western European mega air-

ports providing them direct air connections not only with the other two power centres of the world (North America and the Far East), but with several other parts of the world not accessible from us directly by any means of transport.

The busiest airline of Eastern Europe connects Prague with London, carrying more than 320 thousand passengers annually. (Just for comparison: the London–New York airline carries 6.2 million, the London–Amsterdam 5.1 million passengers.) *The second busiest airline connects Warsaw with London* (with nearly 190 thousand annual passenger traffic), while *the third busiest one is the Prague-Frankfurt airline* (with 175 thousand passengers). *ICAO statistics reports only 21 airlines of Central and Eastern European former socialist countries exceeding 17 thousand passengers annually.*

Four capital cities (Warsaw, Prague, Moscow and Budapest) *and two major economic centres* (Cracow and Timişoara) *have 15 direct air connections total with North American metropolises. The Polish cherish the strongest contacts with the Americans* regarding not only passenger volume, but also because apart from the world cities of the East Coast (New York, Toronto), passengers of Polish airlines can also directly reach Central American regions by flying airlines carrying them to Chicago. The intensity of the utilisation of *Asia targeted airlines is by far below* the passenger volume of the North American ones except for those flying to Seoul, Tokyo and Tel-Aviv.

In the Central and Eastern European region, the annual passenger traffic volume is the highest on the Moscow–Kyiv airline carrying 63 thousand passengers annually between the two most populated states of the former Soviet Union. This is because economic ties are still very strong between the two cities, not to mention that in both countries, several thousand 'minorities' of the other nation live. The second position of the *Prague–Moscow* airline and the third position of the *Prague–Sofia* airline have resulted from the high number of tourists.

In Central and Eastern European dimension (up to the Ural Mountains), *the length of direct airline connections exceeds the distance of 1800 kilometres only in rare cases.* Although the transport policy of the EU does not favour short-distance air connections, *in the Eastern part of Europe, ten international airlines are operating on very short distances because of poor surface transport connections.* Such is the case for example between Zagreb and Mostar. Although the distance between the two cities is no more than 300 kilometres, the poor, damaged and in the Yugoslavian civil war undermined public road infrastructure and security problems absolutely justify the eligibility of this route for an air connection, and the same considerations apply for the air connection between Zagreb and Sarajevo (278 kilometres). However, flying the 304 kilometre distance between Prague and Bratislava is nothing more than an issue of selecting a comfortable travel mode only because the two capital cities have already been connected by a motorway

and a main international railway line (on some parts allowing trains to run at a speed of 120–160 kilometres per hour).

* * *

On the basis of our three-part analysis, our answer for the question asked in the main title is that, regarding the speed of development, the spread of services in Central and Eastern Europe in the period between the 1930s and the 1980s was able to keep up with the development progress of air transport of the world (and Western Europe), especially in building and operating domestic airline networks – by using large-scale state subsidisation. After the regime change, CIS countries fell very much behind the world trends while in the Visegrad Four and the West Balkans, a short stagnation phase was followed by a development trend towards a long-term closing-up to the developed world. All in all, the air transport of Eastern Europe is still lagging behind its economic potential. The per unit traffic volume of airports and the traffic intensity of airlines still show low avionic intensity.

It is not easy to put an end to the paradox resulting from this:

- on the one hand, low air mobility is slowing down the evolution of synergies which could be achieved on the grounds of networking processes, and it is also an obstacle in the spread of certain globalisation processes, while
- the whole airline sector in Central and Eastern Europe and the Balkans is getting increasingly dependent on the heavily profit-oriented actors of the Western world (Western Europe and America) and East Asia.

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