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**'Backbone' of the Orient/East-Med Corridor:  
Vienna–Bratislava–Budapest–Belgrade Axis**

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## 12 'BACKBONE' OF THE ORIENT/EAST-MED CORRIDOR: THE VIENNA-BRATISLAVA-BUDAPEST-BELGRADE AXIS

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### Abstract

Two corridors leading from northwestern to southeastern Europe – the Orient/East-Med and Rhine-Danube Corridors – are key areas for European spatial development. Moreover, sections of them are of special importance for central and southeast Europe. These sections include: 1) the primary axis of the Orient/East-Med Corridor leading from Vienna/Bratislava across Budapest and Sofia to Thessaloniki, 2) the Orient/East-Med branch from Vienna/Bratislava across Budapest, Novi Sad, Belgrade and Skopje to Thessaloniki, and 3) the Danube river, from its source in Germany to the Black Sea. The area where these sections overlap includes the metropolitan areas of Vienna, Bratislava, Budapest and Belgrade and serves as a backbone for integrated infrastructure and spatial development along the Orient/East-Med Corridor, with many and varied connections to northern and southern Europe. Metropolitan nodes and infrastructural links along this backbone need to be further developed in a coordinated and strategic way. Current and future aspects of spatial development in the above-mentioned metropolitan cores – with a specific focus on Vienna – are briefly discussed in this contribution.

### Keywords

Territorial cohesion – corridor development – trans-metropolitan region – Vienna – Bratislava – Budapest – Belgrade

### Das „Rückgrat“ des Orient/East-Med Corridors: Die Achse Wien-Bratislava-Budapest-Belgrad

### Kurzfassung

Zwei Korridore, die von Nordwest- nach Südosteuropa führen – die Korridore Orient/East-Med und Rhein-Donau – sind Schlüsselräume für die europäische Raumentwicklung. Darüber hinaus sind Teilabschnitte für Mittel- und Südosteuropa von besonderer Bedeutung. Zu diesen Abschnitten gehören: 1) die Hauptachse des Orient/East-Med Corridors, die von Wien/Bratislava über Budapest und Sofia nach Thessaloniki führt, 2) der Orient/East-Med-Zweig von Wien/Bratislava über Budapest, Novi Sad, Belgrad

und Skopje nach Thessaloniki und 3) die Donau, von ihrer Quelle in Deutschland bis zum Schwarzen Meer. Überschneidungsbereiche dieser Abschnitte umfassen die Metropolregionen Wien, Bratislava, Budapest und Belgrad und sind Rückgrat für eine integrierte Infrastruktur und Raumentwicklung entlang des Orient/East-Med Corridors mit vielfältigen Verbindungen nach Nord- und Südeuropa. Metropolknoten und Infrastrukturverbindungen entlang dieser wichtigen Bereiche müssen koordiniert und strategisch weiterentwickelt werden. Aktuelle und zukünftige Aspekte der Raumentwicklung in den oben genannten Ballungszentren – mit besonderem Fokus auf Wien – werden in diesem Beitrag kurz diskutiert.

### Schlüsselwörter

Territorialer Zusammenhalt – Korridorentwicklung – trans-metropolitane Raum – Wien – Bratislava – Budapest – Belgrad

## 1 Introduction

Two transnational European corridors – Orient/East-Med (OEM), leading from Hamburg to Athens, and Rhine–Danube, leading from the North Sea to the Black Sea – are important for both north-south and west-east territorial cohesion in Europe. The area where these two corridors overlap includes the metropolitan areas of Vienna, Bratislava and Budapest. However, the ARL international working group centred on the project “Spatial and Transport Development in European Corridors: Example Corridor 22, Hamburg–Athens” considered two branches of the OEM Corridor as being equally important: one with reference to the Core Network Corridors,<sup>1</sup> comprising the European Union (EU) Member States, and the other taking due account of the former Pan-European Corridor X,<sup>2</sup> thus including the countries of Serbia and the Republic of North Macedonia (Former Yugoslav Republic of Macedonia). Therefore, in addition to the previously mentioned metropolitan areas of Vienna, Bratislava and Budapest, the Belgrade conurbation plays a crucial role in forming the so-called backbone for the development of the entire OEM Corridor (Fig. 1).

This backbone has many and diverse connections to northern and southern Europe, including, *inter alia*, the Czech Republic and Germany, Slovenia, Italy and Croatia, Romania and Bulgaria, as well as the wider Balkan region and Greece, with links to the seaports in the northwest, south and southeast of Europe. Three capitals of EU Member States, namely Austria, Slovakia and Hungary, and the capital of an accession candidate, namely Serbia, as well as their surrounding metropolitan regions, including integrated small- and medium-sized towns, market towns and villages, have a number of historical interrelationships and common features in terms of culture and spatial structure.

1 Nine Core Network Corridors were identified in 2011 as part of the European Union's TEN-T (Trans-European Transport Network) policy (EC 2011).

2 Pan-European Corridor X, leading from Salzburg, Graz and Budapest towards Sofia, and Thessaloniki and Igoumenitsa in Greece, was identified in 1997 as one of the ten most important corridors stretching across the entire continent (ECMT 1997).

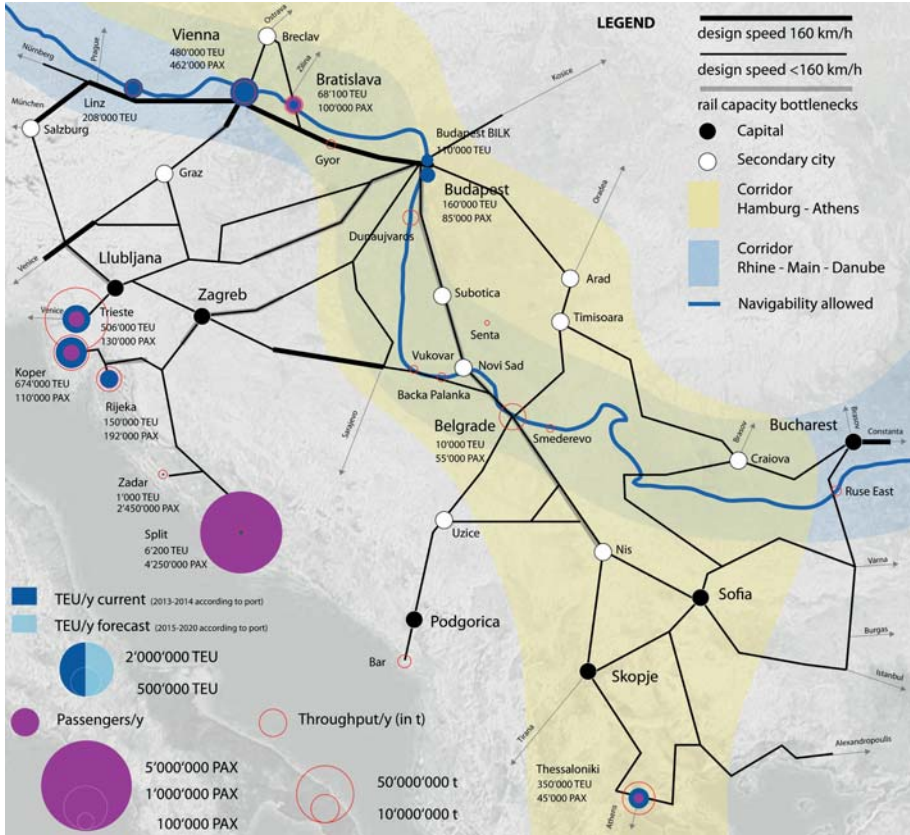


Fig. 1: Overlapping area of the Orient/East-Med and Rhine-Danube Corridors / Source: Ana Perić, Mathias Niedermaier, ETH/IRL, Chair of Spatial Development

These growing metropolitan regions have faced and continue to face common challenges, which can be grouped into several categories. First, with regard to the Danube river as a natural environment, a topographical feature and a navigable waterway, the following measures are defined:

- > Safeguarding the natural environment and landscape with its productive and re-productive spatial functions;
- > Designing near-natural, fit-for-purpose recreation areas and riverbank zones;
- > Safeguarding the water supply and waste water management;
- > Long-term flood protection measures;
- > Safeguarding the energy supply from renewables, and agricultural production;
- > Building river crossings (bridges and tunnels) for public transport and private motorized vehicles.

Second, taking into consideration the transport infrastructure, the main aims are defined as follows:

- > Building multimodal links and developing port facilities;
- > Redevelopment and transformation of railway stations (both terminal and through stations);
- > Construction and expansion of efficient public transport networks;

Finally, with respect to urban neighborhoods and their future development, the main goal is to achieve coordinated infrastructure and spatial development by designing multifunctional, mixed-use neighborhoods and public spaces that allow housing, jobs, recreation, commercial and industrial production to be located in close proximity to one another.

Such a comprehensive approach calls for multi-dimensional, multidisciplinary and inter-sectoral cooperation. In addition, as the territorial scope of this area forms a trans-metropolitan region, which is a kind of macro-region, there are several EU strategies that can serve as a basis for further spatial development and, ultimately, the elaboration of a spatial strategy. Certainly, the EU Strategy for the Danube Region (EC 2010) is a particularly relevant starting point for further elaboration of the issues along the OEM backbone.

## 2 Vienna and Bratislava

The two European capital cities of Vienna and Bratislava, known as the Twin Cities, are located only 60km apart on the River Danube, bordered to the north and west by the foothills of the Alps, i. e. the Vienna Woods (Wiener Wald), and the Little Carpathians (Malé Karpaty). They have a common green center – the Danube area and a national park along the rivers Danube–March/Morava–Thaya – and they each have an international airport, a port, and two major railway links. Their relative size in terms of population is currently around one million in Bratislava and four million in Vienna. Numerous smaller and larger surrounding communities are located within the catchment areas of both cities. The Vienna Metropolitan Region (Fig. 2), which encompasses greater Vienna plus parts of the neighboring federal states of Lower Austria and Burgenland (including the UNESCO World Heritage site Lake Neusiedl and the border region to Hungary), is currently, in an Austrian context, considered to be the Eastern Region, and within the wider context is part of the CENTROPE<sup>3</sup> area (Voigt 2012).

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3 The Central European Region CENTROPE was established in 2003 and comprises a total of 17 cities and regions in four countries: Austria, Slovakia, Hungary and the Czech Republic. This position at the interface of four EU Member States – a unique situation in all of Europe – provides former border regions with the opportunity of intensive cooperation in order to prevail in the competition between European regions (Stadt Wien 2018).

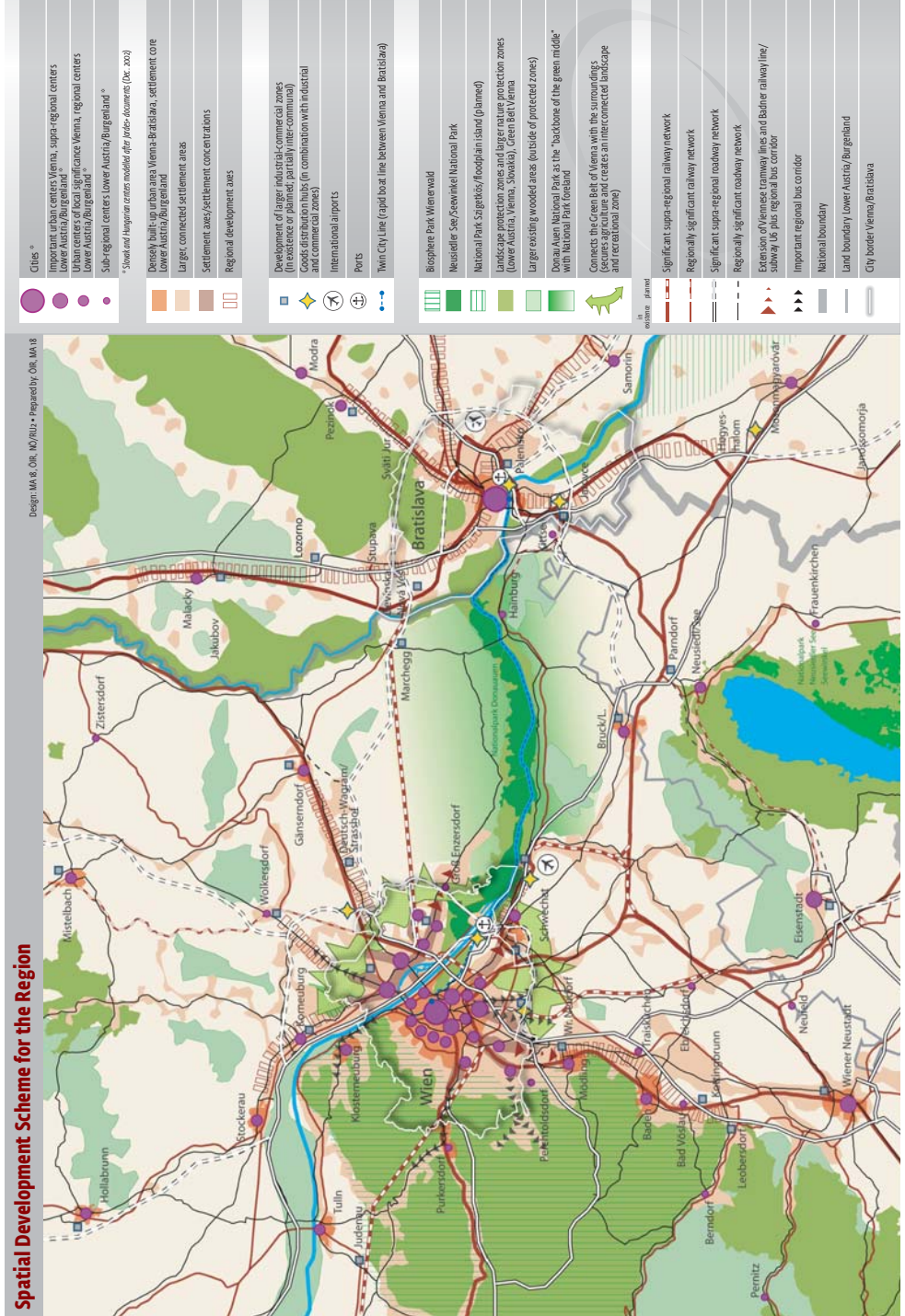


Fig. 2: Vienna and Bratislava region (Spatial Development Scheme for the Region) / Source: City of Vienna 2005



'Vienna is growing' is an essential parameter for the spatial development of the city and the Vienna Metropolitan Region (City of Vienna 2005) (Fig. 3). This growth mainly relates to an expected increase in population as a result of immigration from Europe and the rest of the world, meaning that Vienna could potentially reach the two-million-inhabitant mark once again. This was already the case at the end of the Austro-Hungarian Empire at the turn of the 20<sup>th</sup> century, though the city's population depleted significantly to 1.5 million after the two World Wars. The 1989 fall of the so-called Iron Curtain, which separated 'western' from 'eastern' Europe in the aftermath of the Second World War, caused tremendous political and social change and therefore enabled and supported further economic and spatial development in the Vienna Region (Voigt 2012).



Fig. 3: Vienna at the Danube river and New Danube (two river channels), with Donauinsel and Donau-city, looking southeast from Nussberg /Source: Author

Within this context, the city of Vienna and Austrian Federal Railways (ÖBB) initiated many plans and spatial and infrastructural projects and began to realize them (City of Vienna 2014a, 2014b):

- > New main railway station (*Wien Hauptbahnhof*)<sup>4</sup> (in full operation since 2014/15);
- > Renovation of the railway stations *Wien Mitte*, *Westbahnhof* and *Praterstern* (completed);
- > Extension of the underground lines U1 and U2 (completed);
- > Construction of the partly new underground line U5 (under construction);

<sup>4</sup> The station is situated on the 55-ha regeneration zone gained through reorganization of the former terminal stations (*Ostbahnhof* and *Südbahnhof*) into a through station (*Wien Hauptbahnhof*).

- > Construction of a new freight center (Vienna south, *Inzersdorf*, in operation since 2016);
- > Inward development on former railway premises (*Nordbahnhof* and *Nortwestbahnhof*); and
- > Redevelopment areas such as the former airfield Seestadt Aspern (under construction).

The high-speed network of the Austrian Federal Railways (ÖBB-railjet) was extended to Vienna International Airport in 2016/17 and, in combination with the existing S-Bahn and City-Airport-Train (CAT) connections, provides an improved passenger service that has led to better spatial integration of the airport into the metropolitan region of Vienna (ÖBB 2018).

The ‘Twin City Rail’ link, from Vienna via Aspern and Marchegg to Bratislava Main Station (*Bratislava hlavná stanica*), located on the left side, i.e. north of the Danube river, is under construction (to be completed by 2023) and will result in an improved service (ÖBB Infra 2018). The service currently operates every hour and the travel time is 1 hour from one main station to the other. The second connection, from Vienna Main Station to Bratislava Petržalka station, located on the right side, i.e. south of the Danube river, operates every 2 hours (ÖBB-Infrastruktur AG 2018). In addition, the so-called ‘Twin City Liner’ connects the city centers by river, with a current travel time of 75 minutes (Fig. 4).

The following topics could be of additional importance for the spatial development of Bratislava as the second pole of the Twin Cities:

- > Rail link from Vienna International Airport to Bratislava (re-connection of line from Wolfsthal, Austria to Petržalka, Slovakia);
- > Rail link from Bratislava Main Station to Bratislava Petržalka station; and
- > Rail link to Bratislava Airport.

Bratislava (from the main station) has an additional direct rail link to the OEM Corridor in a northwest direction via Břeclav onward to Brno and Prague (Fig. 5).

Within the context of the aforementioned growth predictions the question arises as to how this should be dealt with in future. The collaborative development of open spaces, multimodal spatial infrastructure and settlements has enabled the initiation of extensive inward development as a response to the challenge of growth, and will continue to do so (Voigt 2012). This is of significance for Greater Vienna, Greater Bratislava and the Vienna-Bratislava region. Such dynamic urban development is also positively affected by the TEN-T policy, institutional harmonization and decentralization of administrative structures. Nevertheless, the lack of efficient cross-border institutions is still considered a barrier to reducing conflicts and stimulating integration (Brzica 2009).



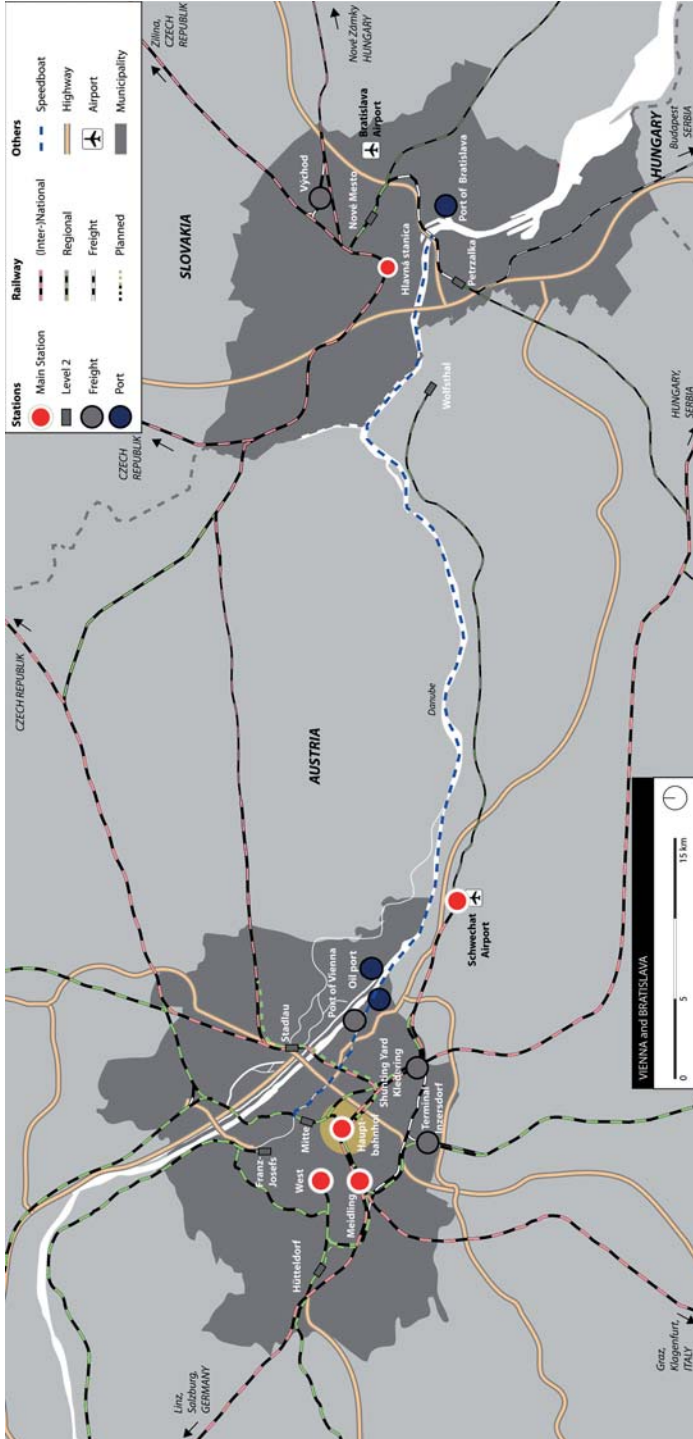


Fig. 4: Infrastructural connections between Vienna and Bratislava / Source: Mathias Niedermaier, ETH/ IRL, Chair of Spatial Development



*Fig. 5: Bratislava on the Danube river, northwesterly view /Source: Author*

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### **3 Budapest and Belgrade**

From Bratislava Main Station there is a direct rail link to Budapest Keleti (eastern) station, a terminal station on the eastern side of the city. This connection runs parallel to the Danube river from the north. On the southern side of the Danube there is a connection between Vienna and Budapest via Hegyeshalom. In addition, transit between Vienna and Budapest is also possible via airplane and by ship along the Danube (Fig. 6). Due to their common historical, cultural and spatial characteristics, the capitals of Vienna and Budapest could likewise be regarded as Twin Cities.



*Fig. 6: Budapest on the Danube river, looking from Buda hill in a westerly direction /Source: Author*

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The City of Budapest has initiated many plans and spatial infrastructure projects in order to strengthen both the metropolitan area as a node and the links along various corridors intersecting the Hungarian capital, among others the OEM Corridor (see the chapter *Contemporary Perspectives of Railway, Logistics and Urban Development in Budapest* in this book). In Budapest, the primary axis of the OEM Corridor, leading onward via Arad, Timișoara, Craiova and Calafat-Vidin to Sofia, disconnects from the Danube region. However, a direct rail link from Budapest Keleti via Subotica and Novi Sad to Belgrade main station is available, thus making the OEM Corridor branch operational. In addition, a new Budapest-Belgrade railway line is under construction.

Belgrade is undergoing a huge spatial transformation process: within this context, the City of Belgrade, with great support from the national government, has initiated numerous plans and spatial infrastructure projects and begun to realize them. Some of them directly affect future development on the Belgrade riverfront (Fig. 7).



Fig. 7: Belgrade on the confluence of the Sava and Danube rivers, looking northwest from the Kalemegdan fortress / Source: Author

The most important infrastructural project is the development of the new main railway station, Prokop. The project was elaborated back in the 1970s, when the first construction works also took place, demonstrating the firm intention to establish an efficient connection between the old part of the city and New Belgrade. The station, although not yet fully operational (in terms of missing connecting roads to/from the station itself), now serves as the main station of Belgrade, hosting both domestic and international train services. The former main railway station (closed in July 2018), which due to its location provided good connectivity to the historic city core, will be transformed into a cultural complex (most probably a museum), while the area is being redeveloped to tie in with the Belgrade Waterfront project (see Čukić/Perić in this book). The main current challenges are the safeguarding and further development of public transport, especially in the context of the above-mentioned waterfront project, and the spatial integration of the new main railway station.

## 4 Conclusion

To summarize, all the aforementioned challenges require sustainable inward development of the spatial, infrastructural and settlement systems through systematic transformation and renewal of the existing built fabric with due regard for the cultural heritage (Voigt 2012; Doytchinov/Đukić/Ioniță 2015). The overlap area of the OEM and Rhine-Danube corridors, seen as a backbone for integrated infrastructure and spatial development, also promotes territorial cohesion and connectivity. This can be intensified within and between the metropolitan areas of the corridors and between the corridors, between railways and the Danube waterway, between main railway stations, ports and airports. Vienna and Bratislava, Budapest and between Belgrade are the main hubs in this process. In this context – and in addition to the ongoing activities – specific attention should be given to the following railway links: Budapest–Belgrade–Niš–Skopje–Thessaloniki; Timișoara–Belgrade, and Sofia–Niš (Fig. 8).

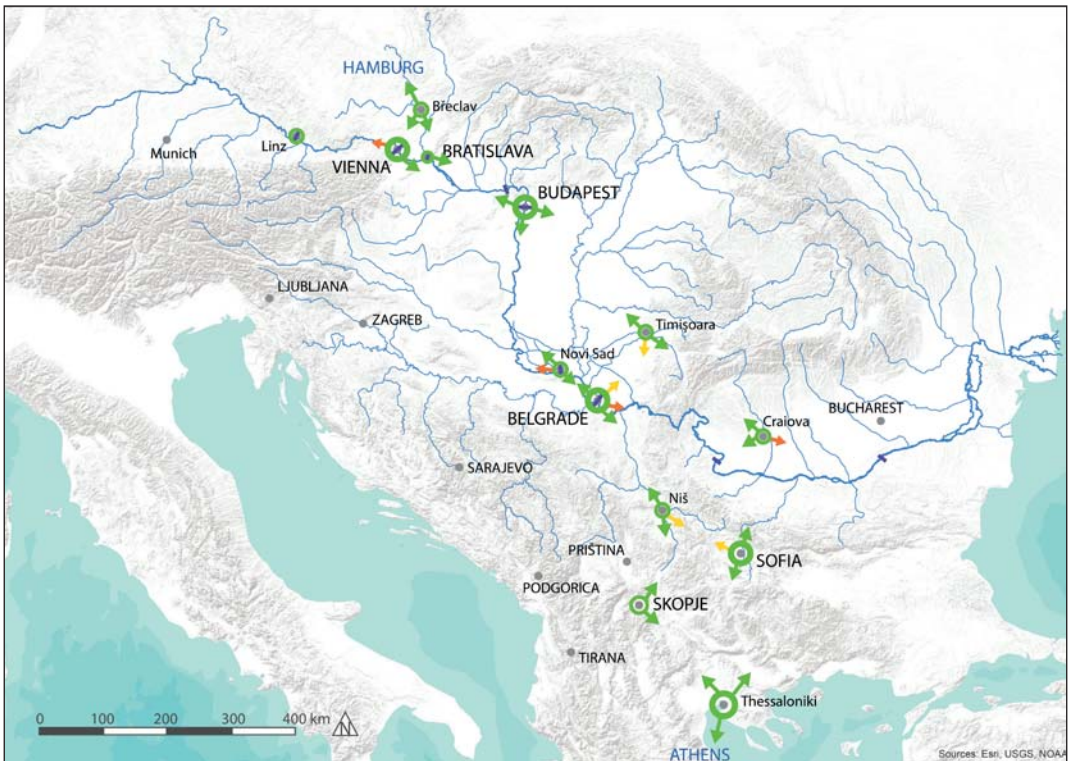


Fig. 8: Trans-metropolitan region as the backbone for integrated spatial and transport development along the OEM Corridor / Source: Andreas Voigt, Julia Pechhacker, TU Wien (Legend: green circles: strategic nodes, green arrows: main axis and branch, yellow arrows: strategic interlinkages between OEM-main axis and branch, violet bars: major bridges across Danube, orange arrows: main interlinkages with Rhine-Danube Corridor)

All this calls for innovative integrated spatial concepts and integrated informal and formal planning procedures. It is advisable to learn from one another while taking due account of differences in planning cultures.

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