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Cyprien Richer, Patrick Palmier

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Public transport in Eurometropolis Lille-Kortrijk-Tournai: Is the border effect still visible?

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Introduction: Is the border effect still relevant in cross-border metropolises?

Borders are geographical limits at the heart of territorial appropriation dynamics. Since antiquity, they have been associated with the idea of delimiting space “in the sense of an extremity beyond which the unknown often begins”¹. However, it was not until the birth of modern States that they were defined as limits to sovereignty. Today, this definition has been challenged by the creation of international spaces of cooperation and the free movement of people and goods. The trend towards more porous borders is particularly visible in the European Union thanks to the single market and the Schengen Area. Consequently, borders have come to be considered privileged places of exchanges and encounters,² while continuing to mark political, legal and, indeed, cultural differences of varying degrees. This transnational dynamic has regularly been interrogated by research in the field of geography because the apparent “devaluation” of borders³ is never exempt from social, spatial or political discontinuities on either side of a State’s border.

More specifically, on the scale of urban systems, it is worthwhile considering the role of metropolisation in transcending these territorial limits. The metropolisation process is characterised by a concentration of management activities (economic, political and cultural, among others) and higher tertiary functions at the top of the urban hierarchy. By relying on powerful connections (transport and telecommunications), metropolises assemble and reassemble systems of networks between territories.⁴ Indeed, mobility is a major development challenge, and requires the existence of efficient public transportation networks, which is an important factor in the formal integration of cross-border conurbations.⁵

In other words, will metropolisation, which promotes ever greater mobility, fluidity and interdependence, signal the end of borders? The answer is obviously complex and varied: the presence of an international border within metropolises can serve as both a barrier and an opportunity to creating new links and generating new exchanges.⁶

¹ J. Lévy & M. Lussault, *Dictionnaire de la Géographie*, 2013, Belin, Paris.

² Groupe Frontière, “La frontière, un objet spatial en mutation”, <https://www.espaces-temps.net/articles/la-frontiere-un-objet-spatial-en-mutation/>. Consulted on 4 July 2023.

³ M. Foucher, *La République Européenne*, 2000, Belin, Paris.

⁴ J.C. Gallety (eds.), *Le processus de métropolisation et l'urbain de demain*, 2013, collection Essentiel n°15.

⁵ A. Bayer & B. Reitel, “Les systèmes de transports publics comme mesure de l’intégration transfrontalière”, *Géo-Regards*, 2011.

⁶ B. Reitel, C. Sohn & O. Walther, “Analyse compare de l’intégration métropolitaine transfrontalière en Europe”, *Territoire en mouvement*, 2007.

The case of cross-border metropolises (Lille, but also Strasbourg, Basel or Geneva) is a singular one⁷: the border, although devalued and easily crossed, continues to exist (political, legal differences, etc.). In the case of the Eurometropolis Lille-Kortrijk-Tournai, are the public transport systems integrated? Or, on the contrary, do discontinuities persist?

The aim of this chapter is to examine whether there is a border effect on mobility between France and Belgium, and, more specifically, between the three entities responsible for local mobility of the Eurometropolis Lille-Kortrijk-Tournai: The *Métropole Européenne de Lille* (MEL, also known as the 'European Metropolis Lille' in English), Flanders and Wallonia. Do integration factors in the Eurometropolis (devaluation of borders, absence of natural barriers, integrated economic functioning, urban continuity, etc.) combine with integration through the networks, notably public transport?

To achieve our aim, we draw on several kinds of data: mobility surveys to examine differences between the various entities of the Eurometropolis; an analysis of integration relating to information and pricing; and, above all, a comparative measurement of public transport accessibility. Our investigations led us to question the role of the integrated public transport network within the Eurometropolis given cross-border mobility issues.

Eurometropolis Lille-Kortrijk-Tournai: What kind of spatial integration through transport?

Mobility in metropolises and cross-border conurbations

Metropolisation is a process that raises new questions about territories. This phenomenon is now crucial to how we understand urban transition.⁸ On the one hand, advanced and strategic services, which attract the "creative classes",⁹ are concentrated in the heart of metropolises, generating the bulk of these areas' economic growth.¹⁰ On the other hand, metropolitan spaces continuously expand their influence across shifting territories with blurred contours, the limits of which depend on the criteria and indicators used to measure them.¹¹

The term "metropolis" refers to an urban form that is characterised by a large-scale urban area. It should not be confused with the administrative status assigned to groupings of municipalities with more than 400,000 inhabitants in France. Its functional space, which generally covers several public action spheres, tends to make metropolises "ungovernable".¹² The intensification of metropolitan mobility¹³ requires

⁷ P. Pupier, *Recompositions scalaires en Europe occidentale : la construction de régions métropolitaines transfrontalières dans l'Eurorégion Transmanche et le Rhin Supérieur*, Geography thesis, Université d'Artois, 2021.

⁸ F. Bachelet, P. Menerault & D. Paris (eds.), *Action publique et projet métropolitain*, 2006, L'Harmattan, Paris.

⁹ R. Florida, *Cities and the Creative Class*, 2005, Routledge, London, New York.

¹⁰ L. Davezies, *La crise qui vient: la nouvelle fracture territoriale*, 2012, Le Seuil, Paris.

¹¹ D. Pinson & S. Thomann, *La maison en ses territoires. De la ville à la ville diffuse*, 2002, L'Harmattan, Paris.

A. Bretagnolle, "La naissance du périurbain comme catégorie statistique en France. Une perspective internationale", *L'Espace Géographique*, 2015.

¹² B. Jouvre & C. Levèvre (eds.), *Métropoles ingouvernables*, 2002, Elsevier, Paris.

¹³ L. Vodoz, B. Pfister & C. Jemelin, *Les territoires de la mobilité. L'air du temps*, 2004, Presses polytechniques et universitaires

the creation of high-performance transportation systems that limit congestion. Controlling the traffic flow is all the more complex when an urban system's area of influence extends beyond national borders, as is the case of cross-border polycentric metropolitan regions.¹⁴

Nevertheless, the stakes are high as analyses of mobility attest to the specificities of cross-border commuting. In particular, commuting in cross-border areas is characterised by extensive car use and the long distances covered to arrive at work.¹⁵ In the Luxembourg cross-border region, private car is by far the most common mode of transport employed by cross-border commuters.¹⁶ Motorway congestion is a recurring problem and public transport has struggled to expand or is underperforming. The same applies to the Geneva region and the Franco-Swiss Jura Arc, where private cars dominate cross-border travel.¹⁷ Public transport services are poorly adapted to needs¹⁸ and cross-border commuters contribute to the heavy congestion of the local road network.¹⁹ Studying the case of Basel, Yann Dubois' thesis has highlighted three structural weaknesses that can be found in other cross-border regions: "1) large differences in living conditions between cross-border and non-cross-border commuters; 2) significant traffic flows; 3) the functional and social specialisation of a conurbation's territories".²⁰ Dubois concludes by adding that these weaknesses highlight the need for some form of flow regulation and more hands-on management to handle the impacts of open borders. The difficulty of developing efficient transnational public transport often leads to a shortage of alternatives to private cars. In the end, traffic conditions, transport times and the absence of alternatives leave individuals vulnerable and dependent on their cars, which exacerbates the environmental impact of mobility.

The question of transport regulation, a recurring theme in metropolitan areas,²¹ arises from a different perspective when the metropolis physically and functionally straddles two countries. The challenge of managing transport is particularly complex in the

romandes.

¹⁴ ESPON, *Metroborder, Cross-border Polycentric Metropolitan Regions*, Final Report, 2010, European Union.

¹⁵ C. Enaud & P. Greber, "Beliefs about energy, a factor in daily ecological mobility?", *Journal of Transport Geography*, 2014.

G. Drevon, O. Klein, L. Gwiazdzinski & P. Gerber, "Frontière et espace de vie : comparaison de deux faisceaux de mobilité quotidienne", *Espace Populations Sociétés*, 2015.

P. Gerber, T.Y. Ma, O. Klein, J. Schiebel & S. Carpentier, "Cross-border residential mobility, quality of life and modal shift: a Luxembourg case study", *Transportation Research Part A: Policy and Practice*, 2017.

¹⁶ É. Auburtin, "Anciennes frontières, nouvelles discontinuités: les impacts du développement du travail frontalier sur les populations et les territoires du Nord lorrain", *Espace Populations Sociétés*, 2005.

¹⁷ A. Vigani, "Transports, frontière et développement territorial de la Regio Insubrica", *Géo-Regards*, 2011.

¹⁸ A. Audikana, V. Kaufmann & M.A. Messer, "Governing the Geneva tram network: Making decisions without making choices", *Journal of Urban Technology*, 2015.

S. Munafò, V. Kaufmann, D. Christie, S. Vincent-Geslin & E. Ravalet, "Dispositions et usages de l'automobile et des transports publics entre 1994 et 2011: Analyses des cas de Berne, Genève et Lausanne", *Revue d'Économie Régionale & Urbaine*, 2015.

¹⁹ A. Vigani, "Transports, frontière et développement territorial de la Regio Insubrica", *op. cit.*

E. Barth, *How international borders affect local public transport*, thesis, ETH Zurich, 2014.

²⁰ Y. Dubois, *Les frontières au quotidien? Modes de vie dans l'agglomération trinationale de Bâle*, thesis, Laboratoire de sociologie urbaine, École Polytechnique Fédérale de Lausanne, 2017.

²¹ C. Gallez & P. Menerault (eds.), *Recomposition intercommunale et enjeux des transports publics en milieu urbain*, PREDIT report on the ADEME-INRETS convention, 2005.

N. Douay, *La planification urbaine à l'épreuve de la métropolisation : enjeux, acteurs et stratégies à Marseille et Montréal*, urban planning thesis, Université de Montréal & Aix-Marseille Université, 2007.

P. Estèbe, *Gouverner la ville mobile. Intercommunalité et démocratie locale*, 2008, Presses Universitaires de France Paris.

M. Claux, *La ville mobile gouvernée: intercommunalités, politiques de déplacements et trajectoires de développement dans la région urbaine marseillaise*, thesis, Université de Marseille, 2014.

S. Döry & A. Decoville, "Gouvernance and transportation policy networks in the cross-border metropolitan region of Luxembourg: A social network analysis", *European Urban and Regional Studies*, 2007.

absence of shared governance between actors on either side of the border.²² Yann Dubois and Patrick Rérat (2012)²³ have pointed out that a border separates two distinct institutional systems. Yet, the existence of an international border in a functional area of everyday transport can be an opportunity to create new forms of governance, forge new links and generate new exchanges.²⁴ While some inter-communal bodies are now called “European Metropolises” or have been working to establish European Groupings of Territorial Cooperation (EGTC), the different actors are yet to find an optimal form of cross-border governance to manage mobility.²⁵ Resources dedicated to intervention in this area remain modest and the tools for observing and analysing cross-border realities are still rare. This plethora of actors and action frameworks leads to complex, often multi-level and multi-channel governance, and results in diverging interests.²⁶ In all cases, cross-border spaces can be understood as privileged sites for observing how transport systems are restructured and how their territorial governance evolves.²⁷

Eurometropolis Lille-Kortrijk-Tournai: A polycentric cross-border conurbation?

Eurometropolis Lille-Kortrijk-Tournai is a European Grouping of Territorial Cooperation (EGTC) composed of the Métropole Européenne de Lille, four Belgian inter-communal bodies (two in Flanders, two in Wallonia) and various other administrative structures on either side of the border: one French *département* and two provinces in Belgium; one French *région* and three federated Belgian entities (the Walloon Region, the French Community and the Flemish Region, which partly merged with its Community in 1980); and the two states. Created in 2007, the group encompasses 14 partners from four institutional levels covering 157 communes.

Historically, this particular EGTC is the result of several successive forms of cross-border cooperation in the Eurometropolis. The *Conférence Permanente Intercommunale Transfrontalière* (COPIT), established in 1991, was the first joint tool to be developed. An association under French law since 2001, it was a steering and consultation body operating in the same area as the future EGTC (covering five inter-communal structures, four Belgian, one French). After an experimental phase aimed at implementing a cross-border development policy, the framework for cross-border cooperation in the Franco-Belgian metropolis evolved further with the Brussels Agreement’s entry into force in 2005. On 1 June 2006, the members of the COPIT created a Local Cross-border Cooperation Grouping (LCCG) called “Lille Eurométropole franco-belge” to succeed the COPIT association. At the same time, a

²² M. Guérois, A. Pavard, A. Bretagnolle & H. Mathian, “Les temps de transport pour delimitier des aires urbaines fonctionnelles ? Une investigation critique à partir de trois métropoles Européennes”, *Belgeo*, 2016.

²³ Y. Dubois & P. Rérat, “Vivre la frontière : les pratiques spatiales transfrontalières dans l’Arc jurassien francosuisse”, *Belgeo*, 2012.

²⁴ B. Reitel, C. Sohn & O. Walther, “Analyse compare de l’intégration métropolitaine transfrontalière en Europe”, *op. cit.*

²⁵ A. Beyer, *La construction d’un espace européen des transports. Du principe de souveraineté nationale aux modalités de son dépassement*, HDR Université Paris IV Sorbonne, 2014.

²⁶ V. Biot, “Les systems de gouvernance des territoires transfrontaliers : la mise en oeuvre du règlement européen sur les GECT”, *Belgeo*, 2013.

F. Bachelet, P. menerault & D. Paris, *Action publique et projet européen*, *op. cit.*

J. Nelles & F. Durant, “Political rescaling and metropolitan governance in cross-border regions: Comparing the cross-border metropolitan areas of Lille and Luxembourg”, *European Urban and Regional Studies*, 2014.

²⁷ B. Jouve, *Coopération transfrontalière et services urbains en réseaux*, thesis, LATTs-Université Paris-Val de Marne, 1992.

A. Beyer, *La construction d’un espace européen des transports*, *op. cit.*

B. Reitel, *Villes et frontières : un jeu de construction de territoires*, HDR, Université de Nanterre, 2010.

Franco-Belgian parliamentary working group developed the constitution of a “Eurodistrict”, which led to the establishment of an EGTC in 2007.

In the meantime, the presidents of 23 French and Belgian public bodies signed a declaration of intent for the Lille Metropolitan Area in 2005. Associating the “southern” part of the former mining basin with the cross-border area around Lille, this “informal transnational cooperation body was later dissolved after a poor assessment in 2019 and it remains an example of an institutional structure that was not supported by a genuine cross-border political project supporting its development”.²⁸

The city of Lille is the principal hub of this polycentric urban system of over 2 million inhabitants. The Lille metropolis encompasses overlapping geographical features that can be understood from different scales, each bearing meaning in relation to the concept of “metropolis”.²⁹ These scales range from the city of Lille, which is “symbolised in its metropolitan dimension by Euralille”, to its urban region, which includes, “in addition to the Belgian sector of the cross-border metropolis, the coastline of the Opal Coast and the eastern part of the Nord department, constituting, within an hour or so of the metropolis, a functional regional system with a very high urban density (over 300 inhabitants/km²)”.³⁰ Since a long time, the Nord and Pas-de-Calais *départements* have been identified as a study area corresponding to the Lille metropolitan area.³¹ These two departments count approximately 4 million inhabitants also includes Belgian cross-border territory around Tournai, Mouscron and Kortrijk, a sector at the limit of Brussels’ and Gent’s influence.

Residential sprawl and the development of large industrial and commercial zones have led to the gradual formation of an almost continuous urban belt from the French towns of Arras and Cambrai in the south to the Belgian towns of Roeselare and Waregem in the north. Internal relations within this cluster have become increasingly intense and spatially expansive; not only do they involve employment and real estate markets, but they also encompass training, commerce, services and leisure activities, among others. These internal relations are complex, multi-polarised and vary considerably depending on the themes and territories concerned. None of them can be defined strictly along the lines of a centre-periphery relationship, even if they undeniably resemble the ever-expanding phenomenon of metropolisation.

Sabine Barles and Marc Dumont (2021)³² have described several autonomous territorial layers that make up the present-day Lille metropolitan system:

- The first layer is “historically made up of the main dense urban hub of the Lille system (20% of inhabitants) combined with a double linear conurbation representing 40% of inhabitants”³³; it covers Lille and Roubaix-Tourcoing on the northeast side and Villeneuve-d'Ascq in the east.

²⁸ S. Barles & M. Dumont, *Métabolisme et métropole. La métropole lilloise entre mondialisation et interterritorialité*, 2014, Autrement, Paris.

²⁹ D. Paris, “Lille, de la métropole à la région urbaine”, *Mappemonde*, 2002.

³⁰ *Ibid.*

³¹ F. Damette (ed.), *La région du Nord-Pas-de-Calais, Villes et Systèmes urbains*, Report for the Agence de Développement et d'Urbanisme de Lille-Métropole, 1997.

³² S. Barles & M. Dumont, *Métabolisme et métropole*, *op. cit.*

³³ *Ibid.*

- The second layer which is added to this first dense structure comprises “the cross-border and European metropolis, a territory of experiences and projects implemented institutionally within the framework of the Eurometropolis”.³⁴
- The third layer refers to another scale, that of the “urban area”, made up of “networks of towns linked together in a broad system of functional interdependence: the southern arc – comprising the mining basin, Arras, Béthune, Lens, Douai and Valenciennes – the Cambrai and Maubeuge regions and the Opal Coast, which is repositioned as part of a vast extended coastline that includes Dunkirk in the framework of this new region”³⁵.

These three layers can be contextualised by considering the transport networks that help shape their practical and political realities. As far as the MEL urban area is concerned, this can be seen from the development of metro networks, first between Lille and Villeneuve d'Ascq, then between Lille and Roubaix and, later, Tourcoing. These two light rail lines “are perhaps first and foremost vehicles for unifying the metropolitan area”.³⁶ At the level of the urban region, it has been the Regional Express Transport (known as Transport express régional or TER in French) that has played a structuring role. The anticipated regionalisation of Nord-Pas-de-Calais at the end of the 1990s revitalised the train network and transformed it into a metropolitan resource. The innovation of TER-GVs (TGVs used for high-speed regional services) was driven by regional planning considerations with the political objective of ensuring that various conurbations of Nord-Pas-de-Calais were within an hour's travel from the Lille metropolis.³⁷ Even if Nord-Pas-de-Calais' merger with the *région* Picardie has altered regional strategies, recent projects for a Metropolitan Express Service (MES) or a Metropolitan Regional Express Network (known as Réseau Express Régional or RER in French) highlight rail transportation's enduring importance in this expanded urban system.

Unlike the central urban hub and the urban region, however, the cross-border and European metropolis does not appear to be supported by any overarching public transportation infrastructure. Despite the urban continuity between Tourcoing and Mouscron (60,000 inhabitants), the metro line ends just a few metres short of the border. Moreover, the MEL decided to proceed with the construction of high-frequency tram and bus lines around the Lille hub and the northeast side of the Eurometropolis (Roubaix-Tourcoing) as recently as 2019. The final routes were approved in 2022 and they will not cross the border.

In this first section, we highlighted the particular problems related to mobility in cross-border metropolises. The polycentric, multi-scale nature of the Eurometropolis makes it difficult to apprehend mobility issues at the EGTC level. To examine the situation further, it is necessary to look more closely at mobility practices and conditions in the territory.

³⁴ *Ibid.*

³⁵ *Ibid.*

³⁶ P. Menerault & A. Barré, “De la description des circulations à la territorialisation des réseaux : 35 ans de géographie des transports dans ‘Hommes et Terres du Nord’”, *Territoire en mouvement*, 2006.

³⁷ S. Delmer, V. Facchinetti-Mannone, P. Menerault & C. Richer, “L'appropriation locale de la grande Vitesse ferroviaire en Europe : Trajectoires croisées: Anvers, Lille, Metz-Nancy, Saragosse”, *Revue d'histoire des chemins de fer*, 2012.

Mobility in the Eurometropolis: Between contrasts and discontinuities

Contrasting mobility profiles

In France, local mobility surveys comply with a national standard certified by Cerema.³⁸ Cerema certified mobility surveys (EMC2) provide a snapshot of travel practices in a territory every decade or so. For cross-border metropolises, their challenge is to find a common research method with partners on both sides of the border in order to carry out an assessment on a relevant scale. In 2006, the MEL established a partnership with Wallonia to carry out a survey, but not with Flanders. In Wallonia, the survey was conducted using the Walloon Mobil method, a self-administered mail survey with subsequent follow-ups. In Belgian Flanders, the MEL expanded its methodology to survey border communes. In 2016, a partnership was established with Flanders and Wallonia to carry out a survey using the Cerema method by telephone (in French and Dutch) on the perimeter of the Lille-Kortrijk-Tournai Eurometropolis.

An initial finding of this survey was that mobility (number of trips per person per day) was lower in the Walloon (3.65) and Flemish (3.18) regions than in the MEL (4.07). The higher proportion of public transport in the MEL (12%) than in the Belgian regions (between 5 and 6%) could be explained by the difference in transport supply between the territories: the MEL represents a dense urban hub covered by metro and tram lines, whereas the territories surveyed in Flanders and Wallonia are comprised of medium-sized towns and rural areas with no major public transport networks apart from the train. The survey also found that the proportion of residents who got around by cycling was significantly higher in Flanders than in the MEL and Wallonia. Some striking results emerged that were related to, for example, differences in bike use; it was 10 times higher in Menen than in Halluin, even though there is a continuous built-up area at the border between these two communes. Conversely, people in the MEL were twice as likely to walk than in Flanders or Wallonia. In Wallonia, given the low bike use and the lack of structured public transport services, private cars dominated local mobility with a modal share of 73% (driver and passenger), as opposed to 63% in Flanders and 57% in the MEL.

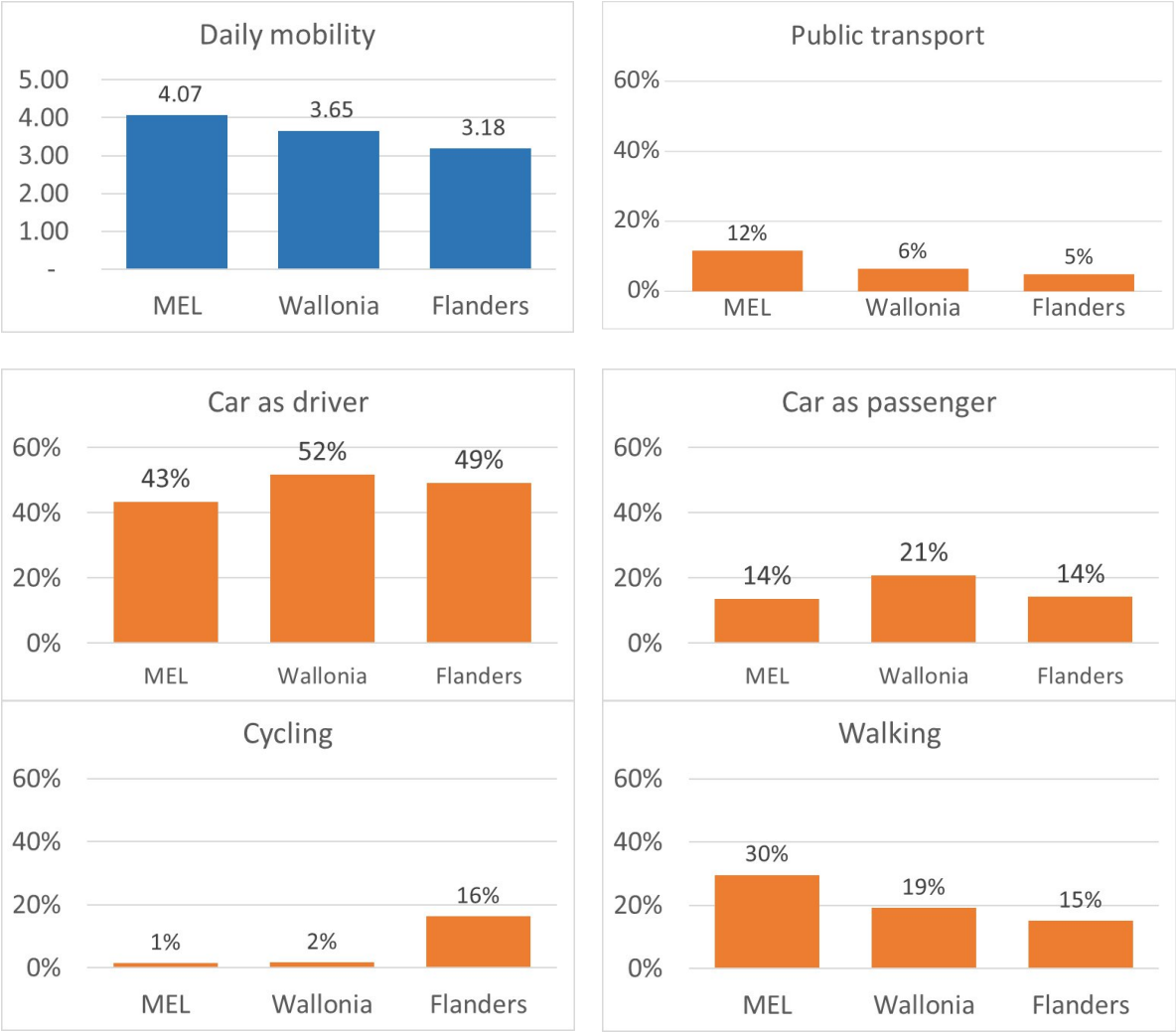
In the MEL, a Diagnostic Énergie Émissions des Mobilités (Deem) was carried out using the data from 2016 Cerema Certified Mobility Survey. The method applied provided detailed and precise analyses all the way down to each leg of each trip. Emission factors were added at a disaggregated level for each leg of every trip. The aim was to establish a quantitative assessment of the environmental impacts of travel on the scale of an urban region (Hivert et al., 2015).³⁹ In 2016, most of the greenhouse gas (GHG) emissions linked to mobility were generated by passenger transport by car (nearly 70%) compared with 30% for freight, although the latter was increasing more rapidly. Overall, transport-related GHG emissions rose by 7.2% between 2006 and 2016. For travellers, the breakdown of GHG emissions by type of trip showed that 72% of the environmental impact was linked to the density of mobility within the MEL (72%).

³⁸ The Centre for Studies and Expertise on Risks, the Environment, Mobility and Urban Planning, or Cerema, is a French public establishment of an administrative nature operating under the joint authority of the French Ministry of Ecological and Solidarity Transition and the Ministry for Territorial Cohesion.

³⁹ B. Grosjean, "Les ambiguïtés de l'Eurométropole Lille-Kortrijk-Tournai, à travers ses représentations régionales", *Belgeo*, 2019.

However, exchange trips (between the MEL and another territory) and transit trips (between two territories passing through the MEL) accounted for 28% of GHG emissions, even though they only accounted for 11% of all trips. Consequently, the impact of external journeys was particularly important for environmental balance, as these were longer and more dependent on travel by car.

Figure 1. Comparison of daily mobility in the three Eurometropolis territories - Source EMC² Métropole Européenne de Lille 2016, Graphs drawn up by Richer and Palmier-2023.



A persistent border effect on flows

The dynamics of mobility flows attest to a border effect. For MEL residents, cross-border traffic is lower in volume than those with other territories (south of the metropolis). This traffic also covers shorter distances between the MEL’s border areas and, especially, Wallonia (Comines-Warneton, Mouscron, Tournai); there is very little traffic between the MEL and Flanders, which emphasises the language divide between these areas. The flows of Walloon residents reflect those of MEL residents. There are local exchanges within the border sectors (Comines-Warneton-Mouscron and Tournai), but a similar border effect is perceptible for traffic between Flanders and

Wallonia. On the other hand, commuting between Brussels, Flanders and Wallonia is significant. Residents of Flanders commute almost exclusively within the Flemish region and thus rarely commute to French-speaking areas, whether they be in Belgium or in France. In the Eurometropolis, there are, therefore, two types of boundaries that cross this EGTC; “one is political, state-based, the other is linguistic, cultural, and the two do not overlap.”⁴⁰

Maps of private car travel also show that flows are much reduced near the international border, as well as between Flanders and Wallonia. Conversely, flows are very heavy between both Flanders and Wallonia and the Brussels-Capital Region. Concerning heavy goods vehicle traffic, this trend is less pronounced, but flows are significant between the Netherlands, Flanders, France axis along the A1 freeway, which corresponds to the route of long-distance goods flows from North Sea ports (Antwerp, Rotterdam) towards France and the Mediterranean regions.

Gradually replacing rail with road

The cross-border rail network has gradually contracted due to the closure of several lines. Up until the 1930s, there were six Franco-Belgian rail links. The local cross-border links between Armentières and Comines (Belgium), Tourcoing-Roubaix-Wattrelos and Herseaux, Lille and Comines (Belgium), and Tourcoing and Menen (Belgium) were closed to passenger traffic in 1937, 1939, 1955 and 1971 respectively. Today, there are still two international rail links between Lille and Kortrijk and Lille and Tournai that passengers can take to cross the border. In the second half of the 20th century, road and motorway links underwent rapid development, particularly from the 1970s onwards with the construction of the A22 (E17) to Kortrijk and the A27 (E42) to Tournai. During the 1980s and 1990s, other roads to Comines, Menen and Dottignies were improved. Some segments, however, took a long time to complete, such as the cross-border stretch of the M700, which was opened in 2005 between Wattrelos and Estaimpuis, 13 years after the preceding segment was opened.

The development of the car has been accompanied by the production of cross-border maps so motorists can find their way in other countries. Companies, such as Michelin, have long been concerned with cross-border issues. Today, thanks to the development of satellite imagery and new technologies, road information no longer stops at the border. The border is now relatively imperceptible to motorists; border posts have disappeared and road signs are fairly similar from one country to another. These different elements demonstrate the gradual integration of cross-border practices, especially where road links are concerned.

In the end, transportation choices and mobility practices illustrate that road transport plays a key role in the running of the Eurometropolis. These dynamics call into question public policies related to the consequences and limits of the private car’s hegemony in cross-border mobility. In the following section, the analysis continues with public transport accessibility considered as an “indicator of the degree of formal integration of cross-border conurbations”.⁴¹

⁴⁰ *Ibid.*

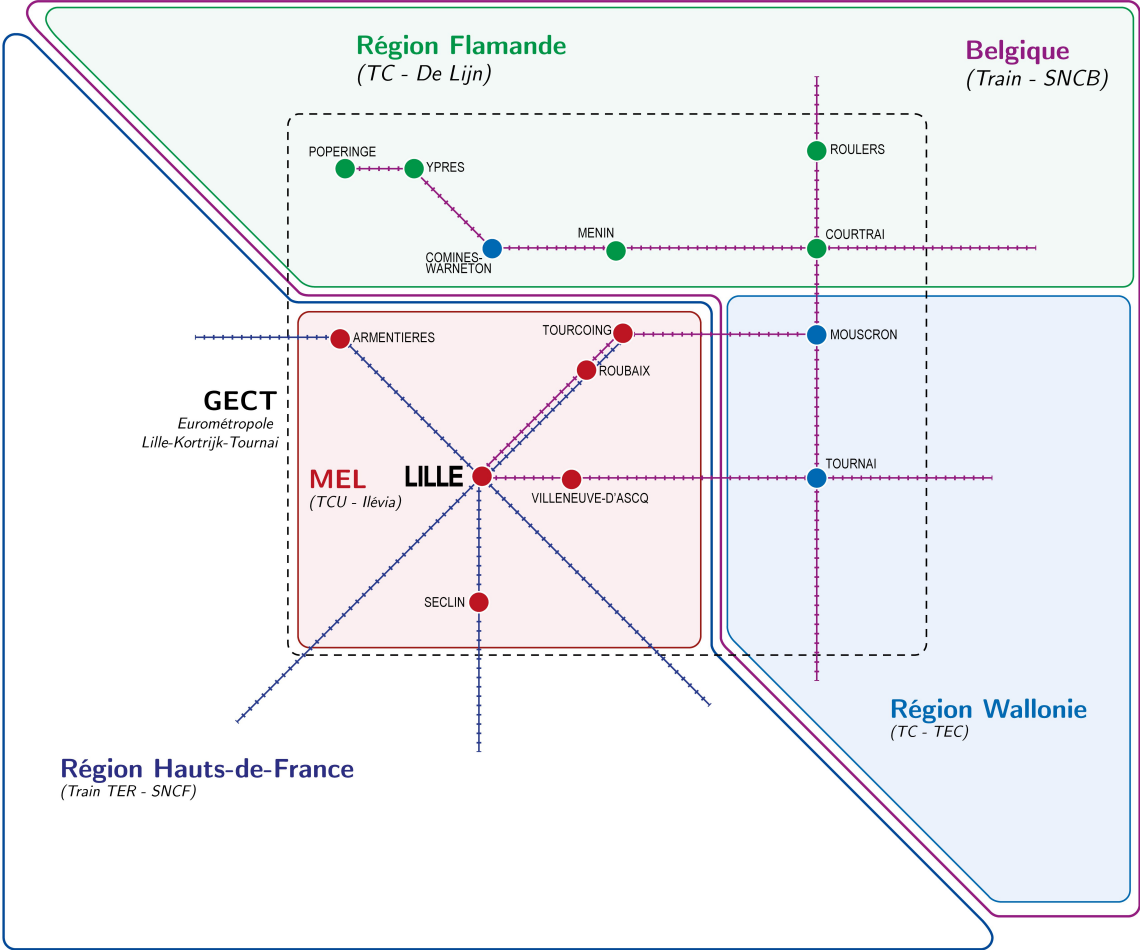
⁴¹ A. Beyer & B. Reitel, “Les systèmes de transports publics comme mesure de l’intégration transfrontalière”, *op. cit.*

The difficulty of cross-border integration through public transport networks

Overlapping public transport authorities

In a multipolar Eurometropolis with a population of 2.2 million, one might expect public transport to play a structuring role. However, public transportation in this area has struggled to contribute to closer-knit spatial integration and offer a credible alternative to car transport. There are several factors that have limited the ability of public transportation to play a leading role here. First, institutional overlap has held back greater intermodal organisation.

Figure 2. Authorities responsible for transport in the Eurometropolis - various sources, Graphs drawn up by Richer and Palmier- 2023



In Belgium, the regions are responsible for mobility and manage their public transport networks through different operators (the TEC for Wallonia, De Lijn for Flanders and the STIB for Brussels-Capital). The rail network is managed by the SNCB at a federal level. In France, responsibility for mobility is shared between two levels of organising authority: one at a local, generally inter-communal scale (for Lille, the Métropole Européenne de Lille) for bus, tram and metro services; the other at a regional level for intercity trains and coaches (*région* Hauts-de-France). The Eurometropolis' public

transport therefore requires effective coordination between five major network operators (the SNCF, the SNCB, Ilévia, the TEC and De Lijn). However, public transport network plans are limited to the respective territories of each operator without including the neighbouring areas.

Crossing the border by public transport: Rare and subject to conditions

Only one bus line and two train lines can really be considered cross-border lines within the Eurometropolis. Where buses are concerned, the most fully developed example is the Mouscron-Wattrelos-Roubaix (MWR) cross-border line. The Conférence Permanente Intercommunale Transfrontalière (COPIT) – which benefited from the first European Interreg programmes (I and II) – introduced this cross-border bus service between Mouscron and Wattrelos in 1992 and it was extended to Roubaix in 1995.⁴² The MWR line was a “genuine new cross-border line”⁴³ according to Frédérique Durand. It was created specifically to meet a cross-border need and was not simply a redevelopment of an existing line for a start. Moreover, it has been co-managed and co-financed by two operators (Ilévia and the TEC).⁴⁴ This line appears in the MEL network plan, but in the form of a schematic representation in Belgium. Furthermore, this line is subject to a specific, more expensive fare system and does not fall within the scope of social pricing or free travel for 18–25-year-olds in the MEL.

Figure 3. MWR line pricing compared to the Ilévia network (MEL)– Source Ilévia 2023 - Richer and Palmier 2023

	MEL	MWR Line (no connections)	MWR Line (with connections)
Single Ticket	1.80€	2.25€	2.45€
Pack of 10 tickets	15.40€	18.20€	20.20€
Travel Pass	54.00€ / month	13€ / week	Unavailable
Travel Pass -18 years	free	13€ / week	Unavailable

Other bus lines cross the border, but they are simply extensions of a particular operator's line. For example, as of 2022, the Flemish Region has been trialling the extension of a bus line to Armentières station (Line 72 Ieper-Le Bizet) with the aim of improving Flemings' access to the French rail network. However, the line does not currently appear on the MEL map, and travellers have to purchase tickets in Flanders (i.e., a De Lijn ticket) or with the De Lijn smartphone application. The service runs a return trip every 2 hours, which is adjusted according to the arrival and departure of trains at Armentières station.

⁴² F. Durand, “Émergence d'une gouvernance métropolitaine transfrontalière au sein de l'Eurométropole Lille-Kortrijk-Tournai. Analyse des relations entre les organisations dans le domaine du transport public transfrontalier”, *Annales de Géographie*, 2013.

⁴³ *Ibid.*

⁴⁴ *Ibid.*

It is also worth noting that several of the MEL operator's main lines (express buses called "liane") have terminuses close to the border. However, the continuity of urbanisation and the presence of stations on the other side of the border could encourage extensions. This is the case for the L90 line (terminus at Comines, 1 km from Comines (B) station in Belgium), the L4 and L91 lines (terminus at Halluin, 2 km from Menen station) and the L8 link (terminus at Tourcoing, 4.5 km from Mouscron station).

Regarding train travel, the links between Lille and Kortrijk and between Lille and Tournai are included in the respective maps of the TER Hauts-de-France and the SNCB. However, not all intermediate stations are indicated. The lack of a truly cross-border map makes it difficult to travel from one intermediate station to another as they only appear on the map of the country to which they belong.

In Hauts-de-France, the rail network is powered by a 25kV alternating current, whereas in Belgium the network is powered by a 3000V direct current. This means that trains servicing the cross-border lines require dual-mode locomotives, as is the case for SNCB trains, or diesel locomotives, which have a far less favourable carbon footprint. Today, all cross-border services are operated by SNCB trains with dual-mode locomotives.

As with the MWR bus line, cross-border train fares are complex and specific. By design, the fare policies of Hauts-de-France and Belgium differ, so setting prices for the cross-border line requires agreement between all concerned parties: the Hauts-de-France Region has reached an arrangement with the SNCB so that the fares offered for cross-border links are identical on both sides of the border. However, as the table (Figure 4) below shows, the price of cross-border tickets can still vary depending on the purchasing platform used:

- For the Lille-Tournai line, the prices on the regional TER, SNCB and TrainLine sites are identical as advertised. However, the SNCF website, SNCF Connect, sells the same single ticket for €8.20 instead of €4.60, which is 78% more expensive. Discrepancies also exist in the way tickets can be purchased. For instance, it is not possible to purchase a ticket from the regional TER website for travel between Baisieux in France and Froyennes in Belgium, two intermediary stations on the Lille-Tournai line. Moreover, SNCF Connect charges €6.10 for a ticket between these stops instead of €3.70.
- On the Lille-Kortrijk line, the differences are even more pronounced. A Lille-Kortrijk ticket cannot be purchased on the regional TER website, whereas it is available for Lille-Tournai. While the SNCB and Trainline sites charge the same fare of €5.30 for a second-class ticket, SNCF Connect charges €8.90. On the Tourcoing-Mouscron cross-border route, SNCF Connect's fare of €10.60 is more expensive than the Lille-Kortrijk fare, although services covering the latter line travel a greater distance.

Figure 4. Comparative pricing of cross-border rail lines – source: Various operator websites March 2023, Richer and Palmier - 2023

	SNCF-Connect	TER Hauts-de-France	SNCB	Trainline
Lille-Tournai	8,20€	4,60€	4,60€	4,60€
Baisieux-Froyennes	6,10€	Unavailable	3,70€	3,70€
Lille-Kortrijk	8,90€	Unavailable	5,30€	5,30€
Tourcoing-Mouscron	10,60€	Unavailable	3,70€	3,70€

The principle of systematically repeating routes and timetables at regular intervals, which was adopted by the *région* Hauts-de-France in 2020, has enabled rail services to be restructured along similar lines to those in Belgium. Although this interval system has not been perfected, it has had a significant impact on cross-border train travel. Previously, on the Lille-Kortrijk route, some trains spent 20 minutes waiting at Mouscron station to align themselves with the Belgian timetable. There are approximately 78 trains per day travelling between Tournai and Mouscron and 66 travelling between Tournai and Kortrijk. Conversely, there are only 32 and 35 trains covering the cross-border lines between Lille and Kortrijk and Lille and Tournai respectively.

Ultimately, research on mobility as a service (MaaS) allows us to assess the integration of transport in the Eurometropolis. MaaS consists of grouping all mobility services available in an area on a single platform, which may be a smartphone application or a website. The first stage of MaaS concerns the integration of information, the second refers to the integration pricing and the third involves the integration of mobility services and governance.⁴⁵ In the case of the Eurometropolis, the situation is currently at the minimal, first stage: information sharing. Trip planners still only partially cover the range of transport options on offer in neighbouring regions, and the lack of a shared platform means that transport networks cannot be identified beyond institutional borders.

Measuring accessibility via public transport in the Eurometropolis

To contribute to discussions surrounding the degree of cross-border public transport networks' integration, we propose an original method to measure territorial accessibility. Accessibility is "essentially a spatial concept which aims to assess the effort required to travel through space to reach a place where a resource is located".⁴⁶ This spatial potential will be measured here by examining the timetable structure of public transport services.

We approach accessibility through an analysis of timetable data. This data can provide us with a more detailed picture of mobility potential and is more closely linked to usage constraints than other indicators, such as shortest trip time. To carry out this assessment, we have identified and analysed various timetable databases. In France,

⁴⁵ J. Sochor, H. Arby, I.C. Karlsson & S. Sarasini, "A topological approach to Mobility as a Service: A proposed tool for understanding requirements and effects, and for aiding the integration of societal goals", *Research in Transportation Business and Management*, 2018.

⁴⁶ A. L'Hostis & A. Conesa, "Définir l'accessibilité intermodale", In A. Banos & T. Thevenin (eds.), *Systèmes de transport urbains. Caractérisation de l'offre et estimation de la demande*, 2010, Hermès-Lavoisier. Cachan.

public transport timetables are made available by Hauts-de-France Mobilités, which provides them to the Hauts-de-France Regional Directorate for the Environment, Planning and Housing (DREAL), which, in turn, adds them to a database. A considerable amount of timetable data is also available at the national access point.⁴⁷ Equivalent timetables are also available in Belgium (from De Lijn, the TEC, the SNCB and the STIB), either by direct download or by signing a user agreement. Currently, these data can be used to calculate cross-border multimodal routes or cross-border accessibility maps by using, for example, the “networks” plugin of the QGIS Geographic Information System, which was developed for this purpose by Cerema with an open-source license. This plugin can be used to create multimodal networks which combine services that are both road-based (walking, cycling, car, etc.) and based on timetables and calendars (public transport, train, plane, ferry, etc.). This tool can also be used to analyse multimodal services and produce multimodal accessibility maps in the form of isochrones or catchment areas.⁴⁸ The isochrone maps are generated according to the “Limewise” algorithm.⁴⁹

A cross-border multimodal network for the Eurometropolis was thus compiled based on data from the following operators: Ilévia (bus, metro, trams in the MEL), the SNCF (the TER in the *région* Hauts-de-France), the SNCB (trains in Belgium), the TEC (public transport in the Walloon Region) and De Lijn (public transport in the Flemish Region). We have not included private coach or high-speed rail services in our analysis as they have no impact on trips limited to within the Eurometropolis.

As there are many potential elements to assess, we have chosen a model that allows us to focus on the hourly accessibility of the Eurometropolis’ three main cities: Lille, Kortrijk and Tournai. Consequently, the map (figure 6) is made up of three superimposed measurements that correspond to public transport arrivals before 9am in these three cities. The zone depicted covers the areas where travel time does not exceed one hour to reach one of the three destinations before 9am.

Optimal routes have been calculated using generalised time primarily to set weightings for walking time (50% penalty) and transfer time (10-minute penalty). Generalised time is the same as a time period in which each of its components (time on board a vehicle, waiting time, walking time, transfer time) is associated with a weighting that makes it possible to simulate actual user behaviour. The parameters chosen were defined based on exploratory research aimed at reconstructing, through modelling, trips recorded on the Lille Métropole public transport network.⁵⁰ These measurements are in line with other studies that have attempted to estimate users’ perceptions of connections.⁵¹ Walking time is penalised by 50% in generalised time. According to this model, a user will prefer a 20-minute trip on public transport to a 15-minute journey by foot.

⁴⁷Retrieved from: <https://transport.data.gouv.fr/>. Accessed 4 July 2023.

⁴⁸ P. Palmier, “Muslhw. Logiciel de calcul d’accessibilité multimodale SETRA”, 2011.

⁴⁹ P. Palmier, “LIMEWISE: A deterministic line-based interpolation methodology for a realistic multimodal accessibility representation”, *Geomatics Workbooks*, vol. 12, 2015, FOSS4G Europe.

⁵⁰ P. Palmier, *Étude sur les flux en transports collectifs urbains sur Lille Métropole*, Report for LMCU, CETE Nord-Picardie, 2009, p. 51.

⁵¹ F. Dobruskes, M. Hubert, F. Laporte & C. Veiders, “Réorganisation d’un réseau de transport collectif, ruptures de charge et mobilités éprouvantes : l’expérience bruxelloise”, *Articulo*, 2011.

Figure 5. Description of the generalised time calculation, -Richer and Palmier 2023

$$t_{\text{generalised}} = C_{tc} \cdot t_{tc} + C_{\text{waiting}} \cdot t_{\text{waiting}} + C_{\text{walking}} \cdot t_{\text{walking}} + C_{\text{connection}} \cdot t_{\text{connection}}$$

$t_{\text{generalised}}$: Generalised time

t_{tc} : Time on public transport

t_{waiting} : Waiting time

t_{walking} : Walking time

$t_{\text{connection}}$: Sum of minimum connecting time: Minimum connection time: 2 minutes

C_{tc} : Weighting of time on public transport: 1

C_{waiting} : Weighting of waiting time: 1

C_{walking} : Weighting of walking time : 1.5

$C_{\text{connection}}$: Weighting of minimum connection time: 5

Furthermore, “available” walking time must also be determined. The maximum allotted walking time was set at 30 minutes for an entire trip, which is equivalent to walking 2 km (no U-turns, walking speed set at 4 km/h). This maximum limit is supported by the results of mobility surveys, which generally show that the modal share of walking for a trip remains significant up to 2 km, but negligible beyond this distance. Therefore, the cumulative walking time to reach a public transport stop from home, to make any connections and to reach the final destination (Lille, Kortrijk or Tournai stations) must not exceed 30 minutes. If a trip exceeds this threshold, travel by public transport is deemed unfeasible.

Influence of institutional borders on public transport accessibility

Our results demonstrate that accessibility is particularly consistent within the respective institutional boundaries of the Eurometropolis. Beyond the three main cities, few areas display much accessibility potential for trips to Lille, Kortrijk and Tournai. In other words, outside of these cities, it is difficult to benefit from favourable accessibility conditions to cross a border, whether it be between France and Belgium or Flanders and Wallonia.

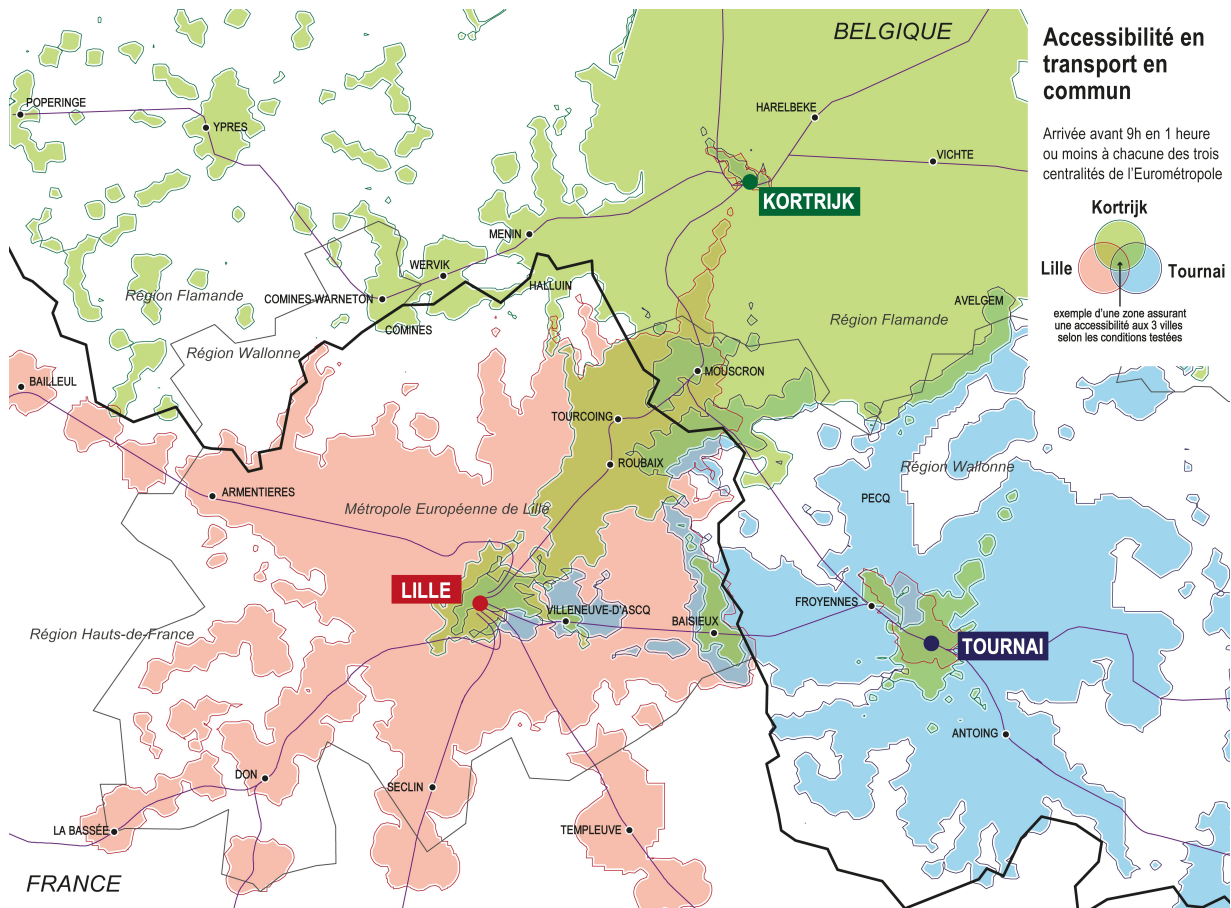
There are two notable exceptions: the cross-border areas around Mouscron and Baisieux stations. Both of these areas provide comprehensive access to Lille, Kortrijk and Tournai. Access to the Belgian rail network and also provides regular connections to Kortrijk.

Under the conditions tested, we found that Kortrijk was accessible within an hour from Lille and around the railway axis at Tourcoing and Roubaix, close to the border. It should also be noted that the towns of Roubaix and Tourcoing do not fall within the Tournai accessibility area. These results show that public transport services are primarily directed towards Lille.

Lille’s accessibility area covers the entire MEL. Some areas to the west (in the Weppes) and north of Lille, towards Comines, are more unevenly covered. The Lille-Comines railway line was discontinued in 2019 and buses operating along this corridor are less convenient in terms of travel time. As a result, the French town of Comines is neither integrated into the Lille area (an averages bus trip takes 68 minutes), nor the Kortrijk area as it takes 12 minutes to walk from Comines station in France to Comines

station in Belgium and catch a connecting train on the Belgian rail network. To the south and west, Lille's accessibility extends beyond the MEL along the rail network.

Figure 6. Measuring accessibility by public transport in the Eurometropolis: arrival before 9am in 1 hour or less to the three main cities, Lille, Kortrijk or Tournai. Source: Base de données régionale de l'offre de transport multimodale – millésime 2022 - DREAL Hauts-de-France, Richer and Palmier – 2023.



The bus network around Kortrijk provides a relatively large and homogenous accessibility area. The Flemish city is also accessible from the main hubs to the west around Ypres and Poperinge, primarily by train. The network is more fragmented around Tournai in Wallonia, which is due to the lower density of urban centres located close to the city.

In short, there is a clear border effect between France and Belgium, but also between Flanders and Wallonia. The situation is straightforward; where public transport is concerned, the institutional framework imposes itself on the functional territory of the Eurometropolis. According to Jean-Marc Offner and Pierre Zembri, various politico-administrative levels and the operators' areas of responsibility prioritise intra-territorial routes (particularly between the centre and the periphery) and neglect those that cross borders,⁵² as is the case in the Eurometropolis.

⁵² J.M. Offner & P. Zembri, "Les réseaux, entre territoires fonctionnels et territoires institutionnels", *NETCOM : Réseaux, communication et territoires*, 1994.

Conclusion and prospects

This chapter has examined the territorial dynamics at work in the Eurometropolis Lille-Kortrijk-Tournai. Studying mobility with a particular focus on measures of accessibility confirms the persistence of a border effect. Possibilities for public transport travel within this Eurometropolis are hindered by the administrative boundaries of the organising authorities. There are numerous aspects that indicate that there is a real cleavage at the border, namely in terms of information provision, ticketing differences and network coverage. Improvements to public transport services in the three territories that make up the Eurometropolis have not helped improve cross-border links.

In fact, over the long term, it is no longer public transport that structures Eurometropolitan integration, but road connections, which have been expanded, become more accessible and are free of charge. The discontinuation of certain rail lines has not been adequately offset by cross-border bus routes. Finally, no new cross-border route has been established since the “MWR” line (1992) which is now over 30 years old. These discontinuities ensure that travel by car has a considerable advantage over public transport for those who wish to cross national or regional borders within the Eurometropolis.

Of the three layers that make up the current Lille metropolitan system,⁵³ the cross-border metropolis is the only one that is not structured by a public transport network. It occupies an “in-between” zone that is neither covered by the main urban transport lines (bus, metro, tramway), nor is it fully incorporated within the “Metropolitan RER” that is oriented towards the southern rim of the former mining basin.

Actors in the Eurometropolis are attempting to establish frameworks for cooperation that will provide effective cross-border governance in relation to mobility. The Eurometropolis Agency recently organised a meeting on the theme of mobility and public transport (February 2023). This issue is an important one in the European grouping, which has encouraged dialogue between Walloon, Flemish and French actors, as well as the main transport operators. However, although the assessment of the situation is widely accepted, the measures undertaken to improve it remain modest or fragmented; this state of affairs is hindering the creation of a genuine cross-border network. In the end, regional and local authorities have been unable to reach an agreement over the removal of obstacles or guarantee cross-border services.⁵⁴ As a result, the ambiguity of the Eurometropolis, as identified by Bénédicte Grosjean (2019),⁵⁵ remains unresolved. On the one hand, there is a desire to be fully involved in the process of metropolisation by establishing a “multicultural regional entity for the purposes of visibility and attractiveness” (Grosjean, 2019).⁵⁶ On the other hand, the Eurometropolis remains the “sum of its territories”, a “mosaic of juxtaposing fragments” characterised by its inability to implement an efficient cross-border public transport network.

Cyprien Richer & Patrick Palmier (2024)

⁵³ S. Barles & M. Dumont, *Métabolisme et métropole*, *op. cit.*

⁵⁴ A. Beyer & B. Reitel, “Les systèmes de transports publics comme mesure de l’intégration transfrontalière”, *op. cit.*

⁵⁵ B. Grosjean, “Les ambiguïtés de l’Eurométropole Lille-Kortrijk-Tournai”, *op. cit.*

⁵⁶ *Ibid.*