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Iedereen aan boord? Een besluitvormingsondersteunend instrument voor de Brusselse Noord-Zuid spoorverbinding

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Introduction: many parties, one decision

- 1 Many Brussels mobility projects stagnate for not only technical but also political/administrative reasons. Decisions are taken laboriously or not at all due to the fragmentation of competences across a large number of actors on different administrative levels. [Frenay, 2009; Damay, 2014; Hubert et al., 2013; Lebrun, Dobruszkes, 2012]. The Brussels North-South Connection is emblematic for such projects. This main junction and bottleneck in the Belgian railway network is a major and administrative challenge [Abu Jeriban et al., 2015].
- 2 The Federal Government, responsible for the SNCB and Infrabel, is the formal leader of the project, but every possible solution requires the cooperation of a multitude of institutions, bound to different territories and different administrative levels, but also of private actors and civil society organisations. All these players defend different interests, which makes it difficult to find a solution that satisfies everyone. How can all these parties make a single broadly supported decision?

- 3 This article presents an instrument to support the decision-making process (Competence-based Multi Criteria Analysis; COMCA) specifically designed for the multi-actor, multi-level issues that are typical of the Brussels context. The instrument is illustrated by an application on the North-South Connection, as a participatory component in the study Rail 4 Brussels, commissioned by the Federal Public Service Mobility and Transport.
- 4 The purpose of the article is not to give advice on the *best* solution for the North-South Connection, as this would require a more comprehensive analysis of the project variants than the framework of this study allows. Furthermore, the final decision will be the result of a negotiation process in which intervene political and strategic factors outside the scope of this analysis will intervene. The article and its case study will however show how COMCA can be used to structure the interests and preferences of the various parties and thus identify the socio-political feasibility of complex trans projects.
- 5 First we will address the technical and administrative complexity of the North-South Connection issue, followed by an explanation of the theory and operation of the COMCA method. The next section describes the successive steps of the application in the project, followed by a discussion on how the result supports the decision-making process.

1. Background: the Brussels North-South Connection question

1.1. A technical challenge

- 6 The North-South Connection is one of the busiest rail tunnels in the world and, with its more or less 1 200 trains a day, by far the busiest stretch of the Belgian railway network [Infrabel, 2010]. The three busiest stations of the country are located on the North-South Connection. It constitutes a bottle neck in which any incident affects directly the entire network [SNCB, 2015]. Although different studies vary widely, they all agree on a further growth of the passenger traffic by train to and from Brussels [Abu Jeriban et al., 2015]. On top of that, the capacity of the tunnel will be put even more under pressure with the full commissioning of the Municipal Express Network (RER) [Hubert et al., 2013].
- 7 Policy makers and academics have been searching for years for a way to deal with the increasing mobility demands and make the Belgian railway network more robust [Dobruszkes, 2004] . Only after finding a solution to that problem can the future of the three major Brussels stations - in dire need of renovation - be decided. The planning and construction of infrastructure takes a very long time (the construction of the 1.25 km long Schuman-Josaphat tunnel lasted 25 years), so the sooner the solution is found, the better. The studies on possible solutions done so far mainly focused on a capacity expansion of the North-South Connection [for an overview, see Abu Jeriban et al., 2015].

1.2. An administrative challenge

- 8 The issue of the North-South Connection is primarily about rail transport, but it has also an impact on urban planning, regional planning, local public transport, economy and environment, both in Brussels and in the other regions. A solution to the issue is the responsibility of different authorities, bound to different territories and to different levels of Government (municipal, regional, federal). Even the cooperation of authorities

with a relatively small role in the project is necessary, as they can block projects on a higher level. In 2010 for example, the Linkebeek municipality successfully challenged the doubling of railway line 124 for the RER [Council of State, 2010].

- 9 Projects crossing administrative borders - a frequent phenomenon in and around Brussels - are likely to be faced with such complications. The benefits and obligations of projects differ according to their location and level of scale; each project has relative winners and losers. When a railway line is constructed, some municipalities will get stations, while other municipalities will have to tolerate only trains passing through their territory.
- 10 Although the Federal Government (responsible for Infrabel and SNCB) is the initiator, it has no control over many domains of the project. There is no *de facto* overarching decision-making authority, so the different authorities and other socially relevant actors will have to try reach a joint compromise.

2. Decision making with COMCA

2.1. The social optimum and the greatest common divisor

- 11 Inter-institutional planning exercises, such as the North-South Connection, risk to be confronted with a problem that Scharpf [1988] describes as the *joint decision trap*. In the end, instead of opting for the most socially desirable solution, the lowest common denominator is chosen. In other words, the solution that is acceptable for all of the actors. If in such a situation, a minority of actors is not willing to make a sacrifice, they will block the optimal solution for the group of actors as a whole.
- 12 Hooghe and Marks [2003] credit this to the fact that jurisdictions do not internalize the positive and negative externalities of their decisions; the negative or positive effects of their decisions that occur outside their territory are irrelevant for local authorities. Even if local authorities support the same ideology, finding a common solution remains a challenge, because they have no mandate to act on the scale of the entire project and are only interested in the optimization of the project for the benefit of their own territory and inhabitants. The discussions between the regions about the flight paths from Zaventem or the lay-out of the RER [Damay, 2014; Frenay, 2009; Lebrun, Dobruszkes, 2012] are illustrative of this phenomenon. COMCA makes it possible to estimate the largest common denominator and the social optimum.

2.2. Multiple criteria, multiple actors

- 13 When planning infrastructure, governments mostly rely on *ex-ante* evaluation techniques such as (social) cost-benefit analysis or multi-criteria analysis. With these instruments they weigh the expected utility of the different project variants or alternatives against each other. In their classic form, however, these techniques are less useful for cross-border projects, because they only look at the effects for a single actor, while a project has different effects in different locations with various levels of authority. So what matters always is on *whose* costs and benefits and on *whose* criteria a project is evaluated. Stakeholder management in such projects must therefore take into account the spatial dimension [Dooms et al., 2013].

- 14 Participatory methods such as Multi Actor Multi Criteria Analysis (MAMCA) [Macharis, 2005; Macharis et al., 2012] offer the possibility to evaluate alternatives by multiple actors at the same time, with their own criteria. MAMCA weighs several policy options against each other, taking into account the different interests of the parties involved. COMCA is an extension of MAMCA that structures actors and their interests based on their role in the decision to be taken.

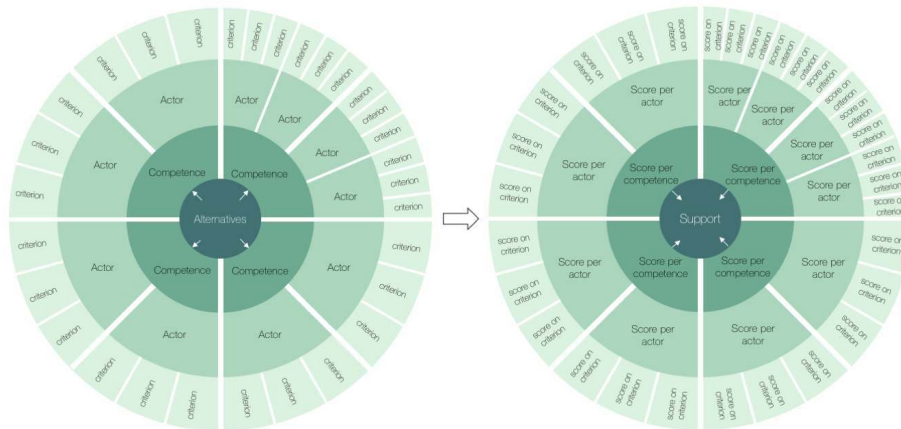
2.3. Competence as a basis for participation

- 15 In complex administrative situations the actors can influence in different degrees and different ways, depending on their administrative level or their mission. If you want to illustrate the socio-political feasibility of a project, you cannot compare their interests and preferences on one level. How can we group the actors?
- 16 Complex projects are composed of multiple subtasks. A project can only be realised if it is accepted by the actors needed for these subtasks. Within a project, we can classify actors on the basis of their *competence* in fulfilling a subtask. In this article, we define the term "competence" as "the control of resources needed for the project". Those resources can be financial, legal (competence) and intellectual (technical knowledge and skills). As Mitchell et al. [1997] define it, *legitimacy*, *power* and *urgency* are significant.
- 17 Therefore COMCA starts with the breakdown of the project into subtasks or domains of competence. Then competent actors are found to share or block subtasks. Actors with the same competence are considered each other's equivalents. An actor who is able to perform a particular task is more responsible than actors who share their skills with others. The extent to which the judgement of an actor is decisive therefore depends on the extent to which the actor is responsible for a subtask within the project.
- 18 This is how COMCA brings structure in a heterogeneous group of actors (private, civil society, public, municipal, regional, federal actors). The nominal, institutional hierarchy is not important in absolute terms, but only how it makes an actor competent in the context of the project. The grouping of actors per competency also prepares the distribution of tasks and responsibilities in the final realization of the project.
- 19 Support among the actors with essential competencies is an indication for the minimum support of a project. The analyst can, however, choose to check decisions for a broader support. There are various methods for organizing stakeholders in groups.
- 20 Within COMCA groups can be included as a competency level, so authorities can, for example, decide to give a voice to local residents or local entrepreneurs, even if they do not have the financial or legal competence. This allows COMCA to structure the process and the content of civic participation.

2.4. COMCA step by step

- 21 COMCA divides the decision-making process in eight steps. In addition to MAMCA [Macharis, 2005] there are two additional steps: the identification of competences and the aggregation of ratings per competence level.

Figure 1. COMCA, schematic



- 22 1. Identifying the problem and project alternatives
2. Determining competencies
3. Identifying of actors
4. Formulating criteria
5. Evaluating alternatives based on criteria
6. Determining weight for criteria
7. Scoring of alternatives per actor
8. Scoring of alternatives per domain of competence

3. Application of COMCA in the project Rail 4 Brussels

3.1 Rail 4 Brussels background

- 23 The Rail 4 Brussels project originated out of the North-South Connection issue, but the assignment was explicitly to think outside the box of infrastructure. The intended result of the study was a vision of the future for the railway in Brussels, taking into account other modes of transportation and changes in technology, demographics, economy and lifestyle. The study was a first, in the sense that all relevant stakeholders in the issue were assembled [Abu Jeriban et al., 2015]. We will now show how COMCA was applied in this case.

3.2. Step 1: Identifying the problem and project alternatives

- 24 The North-South Connection requires a combined approach of "soft" measures (exploitation, rolling stock, relatively small-scale technical adjustments) and "hard" measures (new infrastructure). The final choice will thus consist of a package consisting of an infrastructural measure, an operating schedule and a number of accompanying measures. Unlike the "soft" measures, the possible solutions for the infrastructure issue cannot be combined into a package, but a choice will have to be made. Therefore COMCA was applied for mapping out the desirability of different infrastructure variants for the "operation and transit of the railway in the Brussels-Capital Region in 2030" [Abu Jeriban et al., 2015].

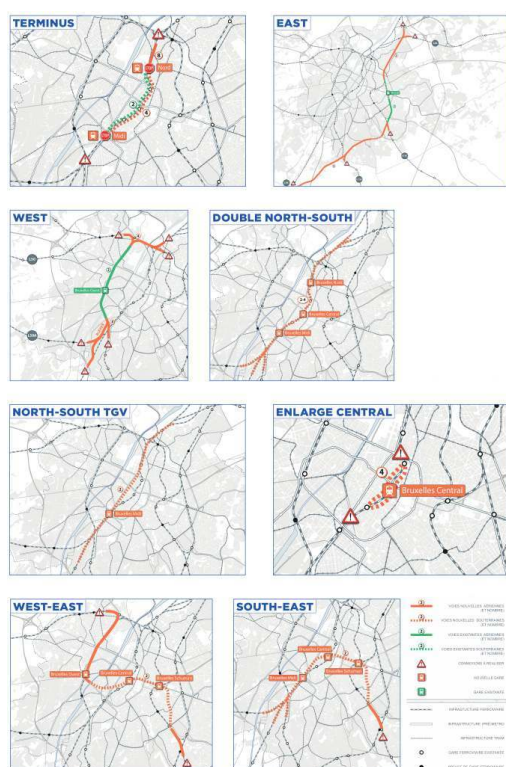
- 25 Previous studies describe dozens of possible alternatives [Federal Public Service Mobility and Transport, 2009; SPRB (Brussels Regional Public Service) Mobility, 2014; Tritel, 2012], which can be divided into *families*. Experts of the Rail 4 Brussels project team selected the most plausible sub-variants. This resulted in the following eight alternatives. For a more detailed description of the alternatives, as well as the families from which they are chosen, see Abu Jeriban et al. [2015].
- 26 0. *Zero new infrastructure*: no investment in new heavy infrastructure. In the evaluation (step 6) this option was chosen as a reference scenario to which to compare all other options.
1. *Terminus*: the North-South Connection is closed for domestic transit traffic, so Brussels-North and Brussels-Midi become end stations. Two of the six tracks in the tunnel are reserved for high-speed international trains, the other four are for shuttle trains between Brussels-North and Brussels-Midi. This is the only alternative that deals with the issues by reducing the capacity instead of increasing it. With this solution disturbances in the tunnel have a smaller impact on the rest of the net, but more travellers will have to change trains more often. This alternative implies interventions to the Brussels-North and Brussels-Midi stations to allow trains to change direction. Further study is needed on the possible variants on this alternative, such as the use of only two tracks for shuttle trains and four tracks for transit traffic, or the use of Schaerbeek instead of Brussels-North as a terminal station.
 2. *East (L26)*: upgrading of the eastern ring railway (line 26). This line is relatively underutilized and could partially relieve the pressure on the North-South Connection. To achieve this, extensions to 4 tracks are necessary north of the Josaphat station and south of the Delta station. Furthermore flyovers will have to be built at the intersections of rail line 26 with the lines 36, 124 and 161. The Merode station will also have to be extended because of its important role as a transfer point between train and subway.
 3. *West (L28)*: upgrade of the Western ring railway (line 28). Just like the eastern ring railway, the western ring railway is underutilized. This variant also requires a partial extension to four tracks and heavy work to connect to the other railway lines. Line 28 offers good connections with the local public transport, but passes through a zone where the mobility issues are currently not as pressing as in the central or eastern parts of the Region. A choice for this alternative must therefore go hand in hand with a proactive policy to economically develop the western part of the Region.
 4. *Double North South*. This ambitious solution is also the most studied. A tunnel with 2 to 4 tracks is dug under the current North-South Connection. This solution also requires a duplication of the three connections with the southern railway lines and the two connections with the northern railway lines. Major enhancements are needed in the Brussels North, Central and Midi stations.
 5. *North South TGV*. This solution also provides for a tunnel under the current North-South Connection, but dedicates it only to international high-speed trains. The advantage over above solution is that only the Brussels Midi station will have to be extended and that less connections need to be duplicated. On the other hand, this solution has less added value for domestic or local traffic.
 6. *Enlarge Central*. The actual bottle neck on the North-South Connection is the Brussels Central station, with only six tracks. A widening of the station with four additional tracks is sufficient to meet the capacity issue, but the underground works bring significant challenges in the field of technology, security and continuity of service during the

construction.

7. *South East*. This new tunnel between Brussels-Midi, Brussels-Central and Schuman does not increase the capacity of the North-South Connection, but relieves this axis by adding new connections. Travelers from the direction of Ghent (line 50A) can directly reach the European district without making the loop via Brussels-North. For this ambitious option a tunnel should be dug, partly under the current railway tunnel and partly under the metro tunnel at Schuman. The stations South, Central and Schuman will also have to be extensively converted.

8. *West East*. This alternative also provides for a tunnel that enables new connections. It is a new east-west tunnel between the West station, Central station and Schuman, but also a partial duplication of line 28. This option requires a large-scale renovation of Brussels-West, Central and Schuman.

Figure 2. The eight alternative solutions for the North-South Connection in Rail 4 Brussels [Abu Jeriban et al., 2015]



Source: Report Rail 4 Brussels [Abu Jeriban et al., 2015]

3.3. Step 2: Determining competences

- 27 The next step is to determine the subtasks for all of the alternatives above. First of all, this project is about constructing railways. But operating the railway is also essential. Other tasks involve the integration into the spatial planning and the mobility policy on the different authority levels. The connection with the local public transport is also one of the tasks. Adequate support from the municipalities, residents, travellers and companies is indispensable, so these "tasks" were also included as competencies in the process. An overview can be found in table 1.

3.4. Step 3: Identifying actors

- 28 The relevant actors were selected by asking: "who has the competence to share or block subtasks?". Table 1 shows the competencies and associated actors. Some pragmatism in the grouping of the actors is inevitable. Mobility policy, regional planning and local public transport, for example, were all grouped under the regional government. Nevertheless, in this project, the administrations and the public transport companies were considered as separate actors because of their relative independence. For practical reasons, it was also decided that interest groups would represent certain large groups of actors such as citizens, travellers and municipalities.

Table 1. Competences and actors in Rail 4 Brussels

Competence	Actors
Management infrastructure	Infrabel (Belgium)
Rail operator, stations	SNCB (Belgium)
Federal mobility policy	FPS Mobility and Transport (Belgium) Beliris (Belgium)
Regional mobility policy	Brussels Mobility Service Public de Wallonie – DGO2 Mobiël Vlaanderen (MOW)
Regional planning	Gewestelijke Overheidsdienst Brussel – Brussel Stedelijke Ontwikkeling Ruimte Vlaanderen Service Public de Wallonie – DGO4
Local public transport	MIVB (Brussels) De Lijn (Flanders) TEC (Wallonia)
Representation of the Brussels municipalities	VSGB (Association of the city and municipalities of Brussels)
Representation of citizens and companies	BRAL, IEB, BBL, IEW; ARAU, Febiac, VAB, Touring, Agoria, VOKA, BECI, Brussels Metropolitan, UWE, VBO, TreinTramBus, Gutib, Navetteurs.be

- 29 The grouping principle relies on the fact that each domain of competence consists of enough actors who support the project, so the tasks and subsequently the project as a whole can be carried out. Thus we see that actors as Infrabel and SNCB each form a separate domain of competence; their participation is paramount.

- 30 Strictly speaking the cooperation of regional authorities like Brussel Mobiliteit, SPW-DGO2 and Mobicel Vlaanderen is essential, but the competence of these actors applies only to the part of the project on their own territory. In order to avoid a situation in which the local interests take precedence over the general interests (*joint decision trap*; see 2.2), in Rail 4 Brussels "geographically equivalent" actors were grouped within the same domain of competence. They have identical skills, on the same administrative level, but in another territory. Their interests are basically similar, but because they represent these interests only within the limits of their territory and not on the scale of the project as a whole, these interests often compete with each other.
- 31 COMCA first makes a horizontal comparison between the actors on each level and then a vertical comparison between the levels. As a result, instead of the contradictions between the localities (i.e. Brussels vs. Wallonia vs. Flanders), the differences between various levels of authorities are highlighted (all regions vs. all municipalities vs. the Federal level). By merging these geographically equivalent actors, competing interests are compensated, while shared interests are safeguarded.

3.5. Step 4: Formulating criteria

- 32 In COMCA (and MAMCA) each actor determines his own criteria. Therefore the actors and not the analysts determine what is relevant and what is not. So actors should not have long discussions on shared values or goals, as opposed to other group applications of multi-criteria analysis. Table 2 gives an overview of the 40 criteria proposed by the actors. The criteria of some actors are similar, but focus on the individual situation of each of those actors' territories. For example, the *spatial impact* or *traveller's' acceptance* of a project on Flemish territory, is not a matter for the Brussels administration, and vice versa.
- 33 Actors are free to choose their own criteria as long as they are useful in the assessment of alternatives (step 6). To ease the work of the participants, the Rail 4 Brussels project team suggested to each actor a list of possible criteria that he was allowed to change at his sole discretion.

Table 2. The criteria of all actors

Theme	Criterion
Mobility and capacity	Supplying the need of rail capacity Using the existing capacity Supplying the Belgian mobility needs Supplying the Brussels' mobility needs within the BCR Supplying the Brussels' mobility needs elsewhere Supplying the Flemish mobility needs to or by the BCR Supplying the Walloon mobility needs to or by the BCR
Operational	Contribution to the robustness of the railway network Contribution to the connectivity of the railway network Contribution to the safety of the railway network

Spatial integration	Compatibility with Brussels RO objectives Compatibility with Flemish RO objectives Compatibility with Walloon RO objectives
Other transport modes	Intermodality Complementarity with the MIVB network Complementarity with the MIVB infrastructure Complementarity with the De Lijn network Complementarity with the De Lijn infrastructure Complementarity with the TEC network Complementarity with the TEC-infrastructure Reduction of the Belgian congestion Intermodality train-car
Feasibility	Length of time commissioning Technical feasibility Financial feasibility
Environment	Climate impact Spatial impact infrastructure in BCR Impact works to enhance mobility Spatial impact infrastructure in Flanders
Acceptance	Acceptance travellers and mobility generating actors. Belgium Acceptance travellers and mobility generating actors. BCR. Acceptance travellers and mobility generating actors Flanders Acceptance travellers and mobility generating actors. Wallonia Traveller's satisfaction SNCB Traveller's satisfaction MIVB Traveller's satisfaction De Lijn Traveller's satisfaction TEC
Economic	Return on investment Infrabel Return on investment SNCB Return on investment De Lijn

3.6. Step 5: Evaluating the alternatives based on criteria

- ³⁴ In this step, the performance of the alternatives on the criteria is assessed. In Rail 4 Brussels, each alternative is awarded a score for each criterion on a 5-point scale. This pragmatic approach was appropriate for this stage of the project, but in a follow-up study more precise estimates can be made based on more precise data. A thorough evaluation requires the translation of alternatives into scenarios. The evaluation's thoroughness depends on the available data, expertise and resources, but a certain degree of

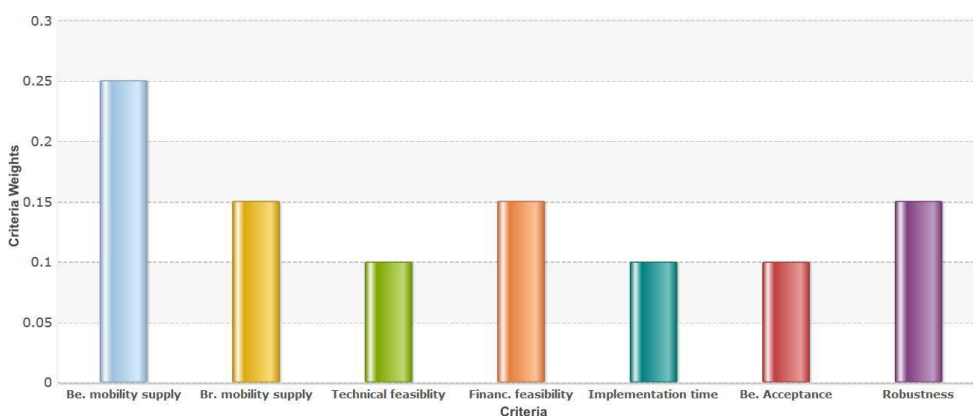
uncertainty is inevitable. Therefore, for both these reasons it is recommended to perform a sensitivity analysis which will map the influence of the individual scores on the final verdict.

- 35 The evaluation can be conceived in two steps: 1) the assessment of the objective impact of each alternative on each criterion (usually quantitative), and 2) the translation of this assessment into a subjective, relative score of how each alternative performs relative to the other alternatives on each criterion (mostly qualitative). In Rail 4 Brussels and for practical reasons, not only the first but also the second step were carried out by an expert within the project team, using data collected in previous studies [SPF *Mobilité et Transport*, 2009; SPRB *Bruxelles-Mobilité*, 2014; Tritel, 2012]. This approach reduces the amount of work for the actors, but it is possible that they would judge otherwise about how (un)favourable a particular impact is and that they would translate the (quantitative) data differently in a qualitative assessment.

3.7. Step 6: Determining weights

- 36 In this step, actors express their priorities by attributing a weight to the criteria. Different methods exist [Eckenrode, 1965; Macharis et al., 2012]. In Rail 4 Brussels, the MAMCA online software was used (www.mamca.be, see Figure 4) [VUB-MOBI, [s.d.]]. This program allows participants to perform the exercise wherever and whenever it suits them. Just like in step 5, it is advisable to perform a sensitivity analysis afterwards in order to assess the influence of the individual weights on the end result.

Figure 3. Screenshot of the criteria and weights attributed by an actor via the MAMCA software [VUB-MOBI, (s.d.)]



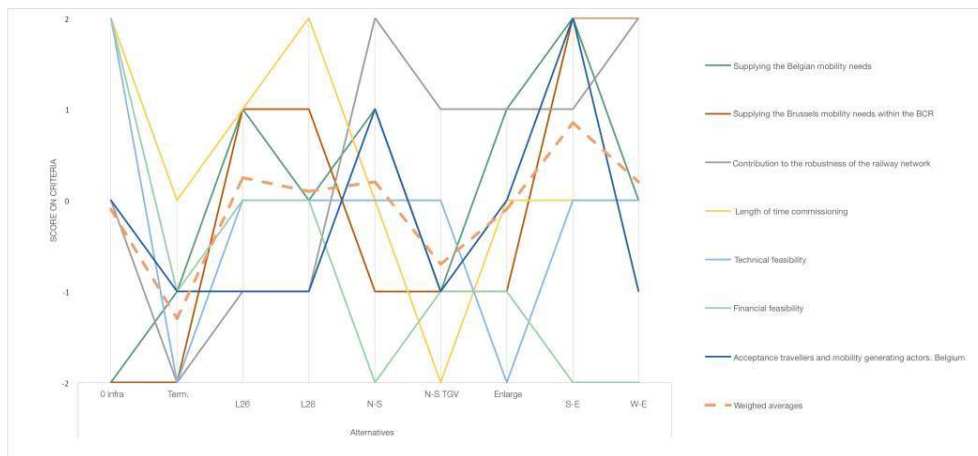
3.8. Step 7: Scoring alternatives per actor

- 37 Now that we know the criteria used by the actors, how the alternatives score on the criteria and the relative importance assigned to the criteria by the actors, we can assess the appropriateness of the alternatives per actor. In Figure 6, the lines show how the alternatives score on the criteria chosen by the actor on the same scale as used in the evaluation. The dotted line shows the average score of the alternatives taking into account the weight attributed by the actor to the criteria.
- 38 A large number of multi-criteria analysis techniques can be used to calculate the average score, such as AHP [Saaty, 1980] or PROMETHEE II [Brans, Mareschal, 1986]. In multi-actor

issues, however, it is important that the participants fully understand the process and *stay in touch* with the result. Therefore it is recommended to use a less sophisticated method as a *weighted sum-technique*, in which the final score of an alternative simply is the arithmetic average of the evaluation scores on the various criteria, each in function of the weight attributed by the actor (Stirling, Mayer, 1999).

- 39 Although for this actor in Figure 4 some alternatives on average score significantly better than others, there are no alternatives with a positive or negative score on all points. By the time he has to make the ultimate choice for an alternative, this actor will have to make concessions on some points. The average provides a guide, but it is up to the actor to determine which concessions are acceptable.

Figure 4. Estimation of the desirability of alternatives for one of the actors (2 = very positive, -2 = very negative)

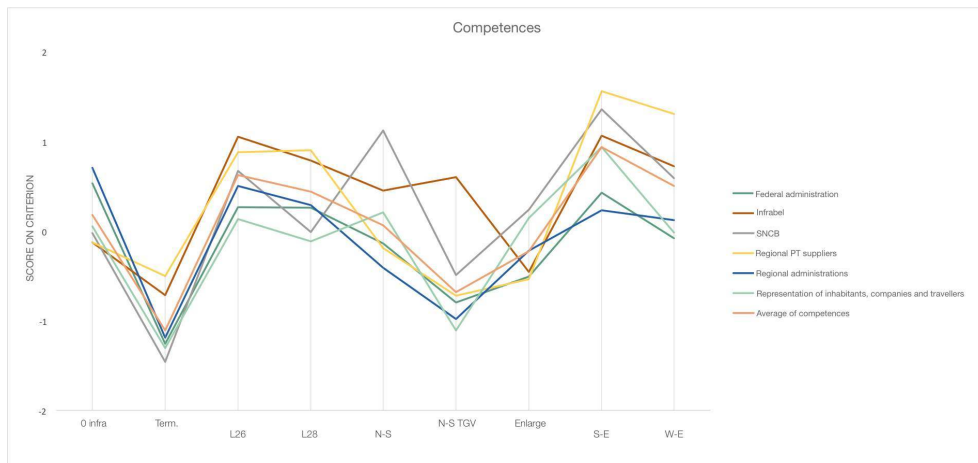


Source: own formatting, based on data from Abu Jeriban *et al.* [2015]

3.9. Step 8: Scoring alternatives per domain of competence

- 40 Once we have calculated the scores per actor, we can compare them in order to get an indication of the support per domain of competence and thus for each subtask in the project, with the idea that if there is support for each of the subtasks, there is also support for the project as a whole.
- 41 In Rail 4 Brussels the choice was also made to group equivalent institutional actors in a same competence domain. Strictly speaking, they do not have an equal, but an equivalent task and are individually able to block the project. However, in this case and as explained in section 3.1, most institutional players only represent the interests of a part of the project area. By analysing them jointly, we can estimate the appropriateness of the alternatives for the project area as a whole.
- 42 In order to get an overview, the scores of the alternatives for all domains of competence are represented in one diagram, as can be seen in Figure 5. The diagram gives a first rudimentary indication on the alternatives which seem promising. Variants that provide tunnels that do not run parallel to the existing North-South Connection (South-East and West-East) and variants that use the ring tracks (L26 and L28) seem particularly well qualified for deeper research. Note that the score of the 0-infrastructure variant is not particularly unfavourable.

Figure 5. Scores of the alternatives per domain of competence



4. Interpretation and follow-up

- 43 The purpose of the COMCA application in Rail 4 Brussels was a first exploration of the alternatives and the structuring of the actors, their roles and their interests. The synthesis of the process as shown in Figure 5, however, should not be interpreted as a blueprint for the final decision, for several reasons.
- 44 The choice of an infrastructural alternative cannot be separated from an operating schedule. Logically the way the SNCB will organize its network in the future should direct the choice of infrastructure, instead of the other way around. The choice of infrastructure should also be embedded in a broader vision on a spatial development of the Brussels metropolitan area. For example, the difference in impact of the L28 or L26 alternatives on the spatial structure of the city is important.
- 45 The follow-up of the study could focus on "packages" of infrastructural alternatives, matching operation schedules and accompanying measures. Therefore, the Rail 4 Brussels study paid a lot of attention to non-infrastructural measures, all the more because for instance in the phased commissioning of the RER, the operational aspects more than the infrastructure create a bottleneck.
- 46 The publication of this study also allows for a readjustment of the alternatives which do not work well in their current form. If, for example, for political or other reasons there is a certain interest for the terminus alternative, then other subvariants of this alternative can be investigated by examining which impact on which criteria is problematic and which possible measures can be taken to mitigate these negative effects. This can prevent a *lock-in* caused by the premature rejection of alternatives; a common pitfall in decision-making for large projects [Palmer, 2010].
- 47 Decision-making in such projects is rarely linear, but rather circular, or "organic" [Miller, Lessard, 2007; Dimitriou et al., 2013]. COMCA may be useful in the structuring of this process and in the construction of a "learning" project organization [Dimitriou et al., 2013; Nooteboom, 2006], or an "institution in action" [Dale et al., 2013] in which project alternatives, actors and their roles are further developed of new alternatives can even arise [Salet et al., 2013].

- 48 The choice of a project alternative ultimately lies with the politicians. Cabinet employees were involved in the preparatory phase of Rail 4 Brussels, but did not supply input in the COMCA application. Therefore, the official input used gives a picture of the interests of an authority, but cannot predict the decision making. At the political level, other strategic factors play a role beyond the reach of the Rail 4 Brussels study. Strictly speaking, in the Belgian system administrations or authorities on different levels do not operate independently, but may coordinate their behaviour via party political structures. COMCA should therefore support and not replace the decision-making process.

Conclusion

- 49 The future of the Brussels North-South Connection is a complicated technical and also political question. Like many other public projects in and around Brussels, the decision-making process is likely to come to a standstill because the various authorities and other actors are unable to reach a joint decision. COMCA is a decision-making tool that can help to solve this issue. It groups actors and their preferences based on their role in the project and checks the support for the different types of projects. In this way, COMCA also takes the different levels of organisations or persons into account.
- 50 A distinctive characteristic of cross-border projects is the fact that a rational decision-making behaviour of individual actors is not in the interest of the group and the project as a whole. COMCA's goal is to identify these different interests. The process produces multiple intermediate outcomes which can be used as input for subsequent negotiations. It scores project variants per criterion, per actor and per domain of competence. The classification of actors according to their competency is also a first step for a division of labour in the final realization. Actors get a view of how their input compares to that of others and how it is processed.
- 51 The application of COMCA in Rail 4 Brussels took place in a constructive atmosphere and brought stakeholders around the table who never before had discussed this issue together. A first exploratory analysis suggests that rather than the much researched "doubling" variants of the current North-South axis, the variants allowing for other connections are promising and certainly qualify for further study.
- 52 As with any ex-ante evaluation technique the COMCA results will have to be dealt with caution. Especially in such a complex project the result of a one-time application should not be seen as a decision, but rather as the beginning of a still to be developed in-depth process. The choice of certain infrastructures is linked to an integrated development vision of both the Belgian railway network and the Brussels metropolitan area.
- 53 The final decision for the North-South Connection will be the outcome of negotiations with a strong political character. COMCA does not pretend to replace this process, merely to offer a rationalized and transparent input, when the parties are ready to accept it.

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ABSTRACTS

Administrative complexity is a major challenge in the planning of large-scale projects in Brussels. For want of an overarching authority, multiple actors with different functions or powers have to make and implement a concerted decision. The COMCA method is used to determine the support for multi-actor, multi-level projects and thus to assist policy makers in their decisions. The various players are classified according to their role in the project. Project alternatives are assessed on criteria established by each of the actors. The desirability of each alternative is evaluated for each actor, but also for every group of actors responsible for a specific task in the project. This article describes how the method was applied as a participatory component in a study on infrastructural alternatives for the Brussels North-South rail link. Variants allowing for new rail links appear to be more promising for further study than the frequently examined doubling variants of the current North-South axis. However, the purpose of the application at this stage is not to offer a final solution, but to design an evaluation and consultation structure that provides input for the political decision-making process.

Dans le cadre de la planification de grands projets à Bruxelles, la complexité administrative représente un grand défi. En l'absence d'une autorité centrale, plusieurs acteurs aux fonctions et compétences différentes doivent prendre et exécuter une décision. La méthode COMCA permet de déterminer la portée de projets impliquant plusieurs acteurs et plusieurs niveaux et de soutenir ainsi les décideurs dans leur prise de position. Les différents acteurs sont répartis sur base de leur rôle dans le projet. Les divers aspects d'un projet sont testés selon les critères présentés par chacun des acteurs. Ainsi, l'opportunité de chaque aspect est évaluée pour chaque acteur, mais aussi pour chaque groupe d'acteurs, responsable d'une tâche déterminée du projet. L'article décrit l'application de la méthode en tant que volet participatif d'une étude de solutions d'infrastructure pour la jonction ferroviaire Nord-Midi de Bruxelles. Ce ne sont pas tant les variantes, longuement examinées, de doublement de l'actuel axe nord-midi, mais plutôt celles qui rendent possibles de nouvelles liaisons ferroviaires qui paraissent prometteuses pour une prochaine étude. Le but de l'application, dans cette phase, n'est cependant pas d'offrir une

solution définitive, mais de donner forme à une structure d'évaluation et de concertation susceptible d'amorcer le processus politique de prise de décision.

De bestuurlijke complexiteit vormt een grote uitdaging voor grootschalige projecten in Brussel. Bij gebrek aan een overkoepelende autoriteit moeten meerdere actoren met uiteenlopende bevoegdheden gezamenlijk een beslissing maken en uitvoeren. De hier besproken methode beoogt het draagvlak te bepalen voor dergelijke multi-actor, multi-level-projecten. De verschillende actoren worden ingedeeld op basis van hun rol. Projectalternatieven worden getoetst op criteria die door elk van de actoren worden aangedragen. Hiermee wordt de wenselijkheid van elk alternatief ingeschat voor iedere actor, maar ook voor iedere groep actoren die verantwoordelijk is voor een bepaalde taak. De methode werd toegepast als participatief luik binnen een studie naar infrastructuur-alternatieven voor de Brusselse Noord-Zuid-spoorverbinding. Niet zozeer de veel-onderzochte verdubbelingsvarianten van de huidige noord-zuidas, maar vooral de varianten die nieuwe spoorverbindingen mogelijk maken lijken veelbelovend voor verdere studie. De studie streeft in deze fase niet naar een definitieve oplossing, maar een gemeenschappelijke basis voor het politieke besluitvormingsproces.

INDEX

Mots-clés: aire métropolitaine, aménagement du territoire, communauté urbaine, développement territorial, infrastructures urbaines, institutions, mobilité, politique régionale, RER, transports publics

Trefwoorden GEN, gewestelijk beleid, grootstedelijk gebied, instellingen, mobiliteit, openbaar vervoer, ruimtelijke ordening, stadsgemeenschap, stedelijke infrastructuur, territoriale ontwikkeling

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