GOVERNANCE OF MOBILE COMPLEXITY

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CO-EVOLUTIONARY MANAGEMENT TOWARDS A RESILIENT MOBILITY IN FLANDERS

Introduction

>> Recently, the Flemish administration published a decree on complex projects. This decree should allow the Flemish government to implement complex projects more quickly and efficiently. It should also improve the quality of complex projects as well as complex decision processes. Usually, these include big and disputed infrastructure projects, like the Oosterweel-link or new aviation routes for the Zaventem Airport, or highly contested environmental and spatial projects, like big shopping malls in the periphery of major cities and their expected influence on traffic congestion (Ronse et al. 2014). In order to deal with these major environmental mobility challenges, the decree drafted by the Flemish government has the following main requirements: (1) a thorough pre-consultation, (2) closer involvement of advisory bodies, (3) the combination of zoning and licensing into one step, (4) prevention and exclusion of disputes on the basis of formal requirements and (5) the designation of responsibility and accountability to a single government.

Each of these proposals would reduce the fuzziness of Belgian administrative responsibilities and would allow more opportunities for the participation of involved stake- and shareholders. However, it is also possible that this decree, with four decision phases and three decision moments, would simply add to the existing laws and procedures, eventually complicating complex decisions even further. Moreover, it is feared that it would infringe upon the equity of those decisions, thereby realizing the opposite of what was actually intended (Beyers 2014, SERV 2014). Furthermore, complex processes follow an a-linear path rather than a four-phase linear course of decisions (Boelens and De Roo, 2014). Therefore, one could even wonder if the decree would bring about the implementation of contested infrastructure projects sooner, or if it would just extend decision processes. The ongoing and ever-growing discussions about the Oosterweel- and U-place projects, with their expanding involvement of new opponents, experts, and additional stake- and shareholders, and the inclusion of more alternatives, additional studies, adaptations and extensions to the final decision would suggest that decision processes are more likely to lengthen. The present reality is dynamic and volatile, due to the ever-new insights derived from substantial augmented research and the involvement of changing views in multi-media, to the point that it wouldn't comply with the decree on complex decision-making. Thus, the key question is how to deal with these complex issues in an ongoing networked, fragmented, and empowered world.

Complex decision situations

In order to answer this question, we need to delve deeper into the underlying structure of complex decision-making. That subject has already been intensively discussed in various domains (Anderson 1999, Yaneer Bar-Yam et al. 2005, Snowden et al. 2007 Qudrat-Ullah et al. 2008, Teisman et al. 2009 etc.). From these discussions, we can see that most complex decision making proposals – such as, in this case, the Flemish legislation proposal – try to reduce complexity by selecting and categorizing issues from an infinitely chaotic and complex outer world, using an outside-in project management model, which looks for outer insights, new expertise or participatory involvement. However, these are incorporated within a demarcated and closed decision system. According to Luhmann (1997), the interior of decision systems could be regarded as zones of reduced complexity and, as such, could be 'operationally closed'; yet they also have to be regarded as fundamentally open in relation to their outer world. Society encompasses several systems (economic, political, cultural, educational, infrastructural, ideological etc.) that influence each other continuously and reciprocally. Social consistency would then have two tiers: on the one side, social systems would be islands of reduced complexity within an infinitely fuzzy world, on the other side, they would be conditioned, dependent, adaptive and co-evolutionary to their surroundings. Therefore, new insights in complexity theory and practice show that the decisions of complex projects need to be highly relational in respect to other projects, systems and their changing settings, such as shifting stakeholders and opinions. They have to be embedded in a complex management system or, better still, an interactive or even dynamic management system (Hertogh & Westerveld 2010). In other words, these kinds of dynamic systems need co-evolutionary governance (Van Assche, Beunen & Duineveld 2014) and an actor-relational approach to planning as 'undefined becoming' (Boelens & De Roo 2014) to address these complex wicked problems; that is, problems for which every solution or decision (about complex projects) would pose new problems.

Unfortunately, academics, practitioners and politicians alike too often confuse complex projects with complicated projects (Heurkens 2012; Schönwandt et al. 2013). This seems to be true of the aforementioned decree about complex decision-making. A *complicated system*, like a clock or turbo machine, is sophisticated, consisting of several parts all working together as one unit. For a specialist, it would be possible to break up the system's whole, analyse the system's parts separately, and then put it back together again without the loss of any information. This is because the relations between its parts would not change but would continue to function in a closed, static and rational way. In a *complex system,* however, this can't be the case. Each part influences the others reciprocally; all exchange (or dissipate) information with each other in accordance with specific circumstances or contexts. Taking the system apart and putting it back together again, if at all a realistic option for complex systems and their fluid behaviour, would not work because the conditional circumstances would have changed in the meantime, as the system, its parts and the context are in discontinuous flow. As such, a complex system could never be grasped as a whole,

because there are just too many interactions and too many flows and movements running through and around the system. Moreover, next to its parts, it is exactly those movements, flows, and interactions that constitute the system. In other words, a complex system exists because of its relations. Breaking up the system in an attempt to find some basic principle that governs all causes this relational information to get lost (Cilliers 1998).
In some way, this distinction between complicated and complex systems is reminiscent of Hertoch and the Westervelds' (2010) distinction between detail complexity (with its focus on many components, which all have a specific degree of interrelatedness) and dynamic complexity (which refers to living systems that evolve over time with a high degree of self-organisation and co-evolution and therefore offer only a limited, snapshot understanding and limited predictability). In that respect, complex decision-making refers to the evolving, a-linear, dynamic, contingent and situational *relations* between the elements (as in a weather system or social system), rather than the *distinct elements* themselves put together in linear, strategic, and additive ways (such as in a clockwork system) (De Roo et al. 2010, 2012). In this respect, it is awkward for the Flemish administration to mandate four additive phases of complex decision-making and expect that they will tame, solve or manage the complexity at hand. It would be no easier to plan, tame, solve or manage other complex systems, such as the weather.

Therefore, far from being fixed and predictable, complex decision-making is highly situational and co-evolving with dynamic insights and social changes in the outer world. As such, it is fundamentally different at various moments in time and space (Bovaird 2008). As said before, complex decision-making addresses wicked problems, which are defined as problems that are difficult or even impossible to solve, not only because they are usually adjoined by incomplete, contradictory, and changing requirements, but also because the effort to solve one aspect of a wicked problem often reveals or creates other problems (Rittel and Webber, 1973). In that respect, wicked problems cannot be tackled with the traditional approach in which problems are defined, analysed and solved in sequential steps. Instead, we have to learn to live with them in a complex, adaptive way, whereby, step-by-step, little solutions are proposed within an adaptive overall outline, progressing according to the labyrinth-like, a-linear steering-seeking of Niklas Luhmann's *Society of Societies* (1997).

Therefore, in this contribution I will address an alternative mode of governance in complex situations that opts to 'try and ride' such complexity, accepts it as the natural and even welcomed state of affairs, and facilitates and adapts to it instead of 'combating' it with rule, order, laws and decrees. While recognizing the importance of this realm of rule and order, we will go further to sketch a governance of complexity capable of co-evolving with a government of regulations and 'complicatedness'. Moreover, I will focus on the *governance of complex mobility systems*. While treated as an 'open system', as it is never closed or self-referential, mobility is, in fact, always relational and therefore adaptive to other activities, functions or domains in society.

First, I will describe mobility as a complex adaptive system. I will discuss the interactive domains of project and infrastructure planning, the traffic and transport market, formal and informal institutionalisations, involved stake- and shareholders, and how they are reciprocally interlinked with environmental issues, energy transition, demography, life- and mobility styles and spatial ambitions, interests and settings.
Secondly, I will delve into the evolving self-organised realms of mobility, wherein self-organisation is one of the main elements of complex systems. Here I will explore not only the emerging self-organising elements of actors of mobility – those of the civic, business and public society – but also (being mindful Actor-Network-Theory) the self-organising elements of new technologies, IT-Mobility, integrated traffic management and co-sharing organisations.
Third, I will elaborate on the elements of governance in facilitating and dealing with these emerging, self-organised features in a more resilient way. I will outline several possibilities for an environmentally engaged and socially responsible model of governance for addressing these kinds of mobile complexity. These will extend beyond the recent decree of the Flemish government towards a co-evolutionary system of structure and emergence.
Finally, I will outline an agenda for complex governance research. I will emphasise the need for an agenda of complexity, which is becoming part of the mobility (co-) evolution itself; not embedded in the ivory tower of science, but operating in the middle of real life settings in the mobile world.

Mobility as a complex adaptive system

In literature, a complex adaptive system (CAS) is defined as a 'complex macroscopic collection of relative similar, connected micro-structures, formed in order to adapt to a changing environment' (Axelrod and Cohen, 1999, Stacey, 2001). A CAS is *complex* because it consists of a dynamic network of interactions, and these relationships are not an aggregate of individual static entities. CAS is *adaptive* in that the collective behaviour mutates and co-evolves with the changing environment or the changing initiatives and evolving features of the subsystem itself (Holland, 1992, Solvit, 2012). In this way, mobility can be regarded as a complex adaptive system within the greater system or environment of society. Although some parts of the existing mobility volume can, despite the telematics revolution, still be regarded as a necessity (albeit an ongoing, lesser part, wherein one can voluntarily decide if or when the trip is made), even here the way mobility is executed is dependent on possible means, finance, personal convictions, self-esteem, relocation options etc. Mobility thus *adapts* itself to external possibilities and internal considerations, and vice versa (Schwanen 2011, Dijst, 2014). In the same way, mobility is *complex*, consisting of various volatile and changing features, which influence each other continuously, reciprocally, and in an ever-greater diversity. A recent overview study about spatial planning for urban form and sustainable transport (cf. Williams et al., 2005) concluded that the choice between compact or suburban developments is not only highly situational, but also

that socio-demographic factors would be equally if not more important. All of these factors and elements matter, namely macro- and micro-economic trends, as well as socio-cultural trends, the pluralisation of lifestyles and subsequently mobility styles, the specific (possible or intended) activities during, before and after being mobile, the impact on pollution and health, as well as technological and logistic innovations, and the respective policies in question. In fact, the study concluded that researching mobility has become highly and ever more complex, whereby not only additional insights would be needed for each of the features mentioned above, but also, and especially, an understanding of the reciprocal interactions among them (Williams, 2005, 11-12).

Consequently, present day mobility needs more nuanced and sophisticated approaches and thus has moved beyond a relatively simple transport versus land-use feedback model within, if necessary, a multi-level approach (Switzer et al., 2013). More than 15 years ago, Egeter and Van Riet (1998) described the interplay between the *demand side* (socio-economic attitudes and trends) and the *supply side* of mobility (technological and infrastructural means and political strategies) wherein they distinguished between a *travel market* (with the travel volume dependent on socio-demographic factors, spatial density, diversity, telecommunication etc.), a *transport market* (which is dependent on the modal choice, system efficiencies, transport information and communication etc.) and a *traffic market* (which is dependent on traffic efficiency, infrastructure design, vehicle technology etc.). Subsequently, Lauwers and Allaert (2013) made this interplay more situational by adding the available *resources* (economic, ecologic, and spatial) versus their *impacts* on the situation itself (with respect to the added value, environment and quality of life). While each of these features can be regarded as complex adaptive systems in and of themselves, this multi-CAS model of complex adaptive mobility becomes more complex than complex, possibly even 'complex squared', with multi-dimensional and multi-perspective levels. It becomes impossible for anyone to oversee all its inter-connected features, let alone the impacts of intended proposals on each of them (if ever possible with regard to the embeddeness of those impacts in specific settings).

Nevertheless, if each of the interconnected features mentioned above is approached as an arena – that is, as a specific domain of Luhmannian 'reduced complexity' wherein intentional actors operate, each with their own ambitions, impacts and possible alliances or couplings among themselves – it would be possible to grasp these kinds of highly complex systems from the bottom up. This would also lead to the Actor Network Theories (ANT) of Callon (1986, 2009), Law (1986, 2004) and Latour (2004, 2005). A central element in ANT is the network defined by Latour (2005) as 'sets of associations between elements which are always mobile and fuzzy, going everywhere, but are specifically in need to create and maintain'. Thus, the network among actors and between those actors and their surroundings is in ANTs that are never static or given but always fluid, organic and multi-dimensional, while different elements can be involved in more than one network with different impacts, consequences and causalities. Since no one can oversee all these kinds of fuzzy and

changing networks, ANT focuses on the smallest element and follows the actors themselves, their routines, ambitions, interests and traces. In other words, ANT uses a 'flat' approach instead of a pre-determined or pre-structured ontology. This idea is stretched to its upmost because a key element in ANT is that main or important actors are not only human, but also inhuman; not only a politician, businessman or inhabitant, but also old or new infrastructures, available technology or other innovative breakthroughs that could have a major impact on what is happening or not. In other words, according to ANT there exists a 'radical symmetry' between the social and the material known as the coined term 'actant'. Each of these actants could have a specific impact on spatial or, in our case, mobile developments, depending on their relations with each other and their fit within a specific time or situation. This would allow us not only to perceive complex situations from the interrelatedness of leading actors of importance (those who are willing or able to 'invest' in their surroundings, for example, for the sake of self-interest), but also to take new innovations into account that could have a major impact on the long run. Here Geels distinguishes those innovations as non-linear processes of niches, moving towards patchwork regimes and socially accepted 'landscapes' or domains; ANT identifies *'policies in the making'* along four phases of translation – problematization, interessement, enrolment, and mobilization (Callon 1986) – or four stages of 'the collective': wonderment, consultation, hierarchisation, and institution (Latour 2004).

Self organized mobilities

Whatever it may be, this feature of complex adaptive systems puts the idea of self-organization at the core of complex decision-making. Self-organization refers to the spontaneous formation of patterns or structures towards a higher or accepted social level, therefore creating a more broad impact out of the interactions between individual actors at the small, niche or local level (Heylighen, 2008). This kind of formation is a spontaneous, a-linear process, as the emerging interactions between the actors are not induced, coordinated or externally controlled by a higher power or institution, be it formal (law, rules, organisations) or informal (norms, attitudes etc.). However, this wouldn't mean that decision-making or steering becomes superfluous and without any effect. On the contrary, even (complex) decision-making or steering could have, like the other actants, a major impact on the course of those self-organizations. It is crucial, however, that it not work from the outside-in as an external power based on premeditated or pre-structured ideas about a just, good or sustainable transport. Instead, that kind of steering or complex decision-making has to evolve from within, whereby those powers and ideas about a just, good or sustainable transport have to become mutually respected, obvious and self-evident in the co-evolving actant-network assemblage itself. The crucial question, then, is how this is to be done. How could complex decision-making and steering become an obvious partner in co-evolving assemblages and, as such, shape those processes of self-organisation in a more sustainable or, better still, 'resilient' way? That question becomes even more crucial as self-organisations manifest themselves more and more,

even within the highly instrumental and technologically stratified domain of civil engineering and regulatory mobility.

Due to the ongoing traffic jams and the repeated misfits of the traditional public transport systems, and as a result of climate change and the financial, economic and governance crises from 2008 onwards, this kind of self-organization has also become increasingly prominent within mobility systems. More commuters, businesses and mobility-providers are starting to organize mobility by themselves. Paradoxically, the new and elaborated means of mobile telecommunication and the all-encompassing information systems are making that organization possible. In order to develop more robust, interest-focussed, and sustainable transport systems, new waves of self-organized mobility systems pop up with an ever-growing impact. Businesses, new stakeholders, intermediaries and even local authorities and citizens increasingly initiate a wide range of projects. This has been the case in Flanders.

The Industry-bus (or I-Bus) system, for instance, is an initiative of several major companies in the Antwerp harbour area – such as. Bayer, Evonik, Ineos, Lanxess, Monsanto and Solvay, in cooperation with the Chamber of Commerce of Antwerp – working together to replace the existing public bus services with one integrated, privately-owned bus network designed as a hub with several spokes. At the moment, the system comprises some 40 bus routes moving from the outskirts of the provinces of East-Flanders, Antwerp and Flemish Brabant towards a single hub in Antwerp Harbour, from which the commuters are transported to the respective companies. Every day since 2009, some 3,000 commuters have been served in three waves working around the clock.

Likewise, *Uber,* or *PickMeUp,* is a new rider-share service where passengers use a smartphone application to connect with passing drivers who are willing to use their private vehicles for hire. Originally launched in June 2010 in San Francisco, the service is now available in 45 countries and in more than 200 cities worldwide. Although Uber has meet with growing protests and institutional barriers from regular taxi-drivers and taxi companies (for instance, in Germany, France, England, Belgium and the Netherlands, these rider-share companies are considered illegal taxicab operations), Uber can hardly be contested in traditional ways. It also expands its services to other areas, like the so-called "*BelBus-system*" and the "*Pool Van System*". Such new applications are still evolving.

Additionally, *mobility-sharing* has reached ever-greater heights. Shared car systems like Greenwheels and Mywheels in the Netherlands and Cambio, Bolides, Tapazz and Partag in Belgium have emerged at a growing pace since the beginning of 2000. At the same time, bike-sharing systems are now operational in more than 500 cities worldwide. Local authorities themselves often initiate them; for instance, these systems exist in Brussels (Villo, since 2009), Antwerp (Velo, since 2011) and Namur (Libiavelo, since 2013) and are financed by the public budget, parking fines, or congestion charges, respectively. Additionally, public transport companies –

e.g. the NS, NMBS and De Lijn—have initiated bike-sharing systems on their own; however, these blue-bike systems are organised according to a back-to-base principal. Therefore, they are cheaper than the city bike systems (1/6th of the total cost), but are also less user-friendly. Nevertheless, city bike systems already serve some 70 to 75,000 customers in Belgium, of which 75% are also bike owners. At the moment, blue-bike is operational at approximately 50 hotspots in Flanders

Last but not least, *citizens* have also taken the mobile-issue into their own hands. For instance, since 2012, some 25 citizens in Ghent have initiated new experiments and exemplary case-projects related to sustainable transport within inner-city districts. One of the first was *'School-streets'*, where citizens themselves assigned certain streets as car-free during the opening, break and closing-hours of primary schools in order to create safe zones and avoid traffic accidents. Another initiative was *'Living-streets'*, in which residents created more liveable streets according to their own interests and ideas. There is also the *Sustainable Shopping System*, *M-score* and the *Inhabitants bike-network*, wherein citizens themselves organised communal shopping for daily necessities, transportation to hospitals and leisure and sports facilities, and a network of individually owned bikes for communal use. Furthermore, not only in Ghent, but also in Antwerp, citizens, together with some hired experts, have taken matters into their own hands regarding the complex Oosterweel project mentioned above. These parties have organised broad support and arranged sufficient crowd-funding in order to promote their own alternative project: Ringland. At the moment, this idea has even gained momentum in the political domain and has thus become a major actant in the field of complex-decision making.

Consequences

In fact, each of these initiatives challenges the existing traffic and transport system in several ways.
First, each of these initiatives, in some way or another, is structured by the transition management idea, which is characterized by a multi-actor approach, learning by doing, and a span across multiple domains and levels of complexity in several spaces and times. The core of transition management starts with niche innovations in small networks and then moves throught experimenting with them towards a so-called dominant design, resulting in new 'windows of opportunities', niche stabilization and finally new markets, technologies and/or policies (Geels & Schot, 2007, Loorbach 2007, Foxon et al., 2009, Teisman et al., 2009). Nevertheless, for each of the initiatives mentioned above, it is not clear in which phase or transition they really operate.
Even for the I-bus and popular bike sharing systems, it is not clear if they have really opened up new markets and/or technologies, and if they will survive in subsequent administrations with their public budget cuts or firm's policies. Therefore, it is not clear if the institutionalised traffic and transport experts can simply ignore these initiatives as merely temporary fads, or if they have to take them seriously as a new mobility feature to facilitate or explore.

Second, these initiatives present mobility planners new challenges. Planning develops a thorough and insightful knowledge of the possible impact of an initiative in space in order to propose long term strategies or governmental tactics. However, for these initiatives, not only is it unclear if they will continue or die out, but it is also uncertain how they will evolve, in which direction and/or with what kind of impact or intensity. Therefore, it is hardly possible for planners to set a fixed point in the future to integrate or facilitate the initiatives with new long-run strategies for housing, working and leisure areas, additional infrastructure measures or supporting spatial policies. Moreover, planners can hardly use and maximise the possible spatial windows of opportunity for these new, self-organised initiatives, let alone predict which new ones will arise in the future. The situation requires a new kind of *'adaptive planning approach of undefined becoming'*; an approach with which, unfortunately, planners in general, and especially traffic and transport planners, have had hardly any experience (Boelens and De Roo, 2014).

Third, although the impacts and progress of the self-organising initiatives are still unsure, they already challenge dependencies on the existing institutional pathways to their core. Take *Uber,* for instance. *Uber* is banned in Amsterdam and other cities in the Netherlands because the local governments fear a new 'war' of taxi-drivers and operators; *Uber* services are suspended in Brussels due to public court verdicts. Nevertheless, at the moment, it is still unclear how the existing laws and rules would be applied, and if these new rules and laws would ban those systems indefinitely or simply facilitate another '*Uber*-system' or other possible rider or transport sharing systems, some of which are still to be developed. However, in the meantime, in spite of these ongoing discussions *Uber* is already illegally evolving in practice, even in banned city-areas like Amsterdam (De Volkskrant 12th of October 2014). As a result, taxi operators are already sharpening their blades, watching the developments with suspicion, and Brussels Airlines has already withdrawn their free *Uber-Vouchers* for Brussels proper, fearing the actions of the official taxi-drivers in and around the Zaventem Airport.

Last but not least, although they have hardly matured, these initiatives are already putting a heavy burden on available budgets. The Villo system in Brussels, for instance, is financed by the existing budget for public space maintenance, the one in Antwerp by parking ticket revenues, and the municipality of Ghent is deliberating on whether to incorporate 'Leefstraten' as a core project in its municipal spatial policy, which would require extra funding. Each of these initiatives therefore competes with the existing mobility programmes and results in a financial shift from institution-alized projects towards new ones. It induces heavy debates and comparisons between all kinds of preliminary ideas and windows of opportunity, especially in times of neo-liberal budget-cuts; some even fear hidden-savings because when, after a while, those new ideas and opportunities prove to be unstable or inefficient, authorities will simply skip finance altogether. Moreover, even when those self-organised projects prove to be robust and sustainable, they are institutionalized and included in the

existing governmental and political path dependencies through financing at a very premature phase, possibly not allowing for the expansion of all its (self-organising) potentialities. As such, these innovative policies could even turn to the reverse, limiting all real innovation from the bottom-up (Boonstra and Boelens, 2011).

As a result, actual public policies for traffic and transport are highly fuzzy or even obsolete. Official documents – like the Flemish Government Policy on Mobility and Public Works 2014-2019 – hardly deals with these new and ongoing self-organizations in traffic and public transport. In general, these initiatives are treated casually; at best, they are approached pragmatically, with neo-liberal jumps from project to project without any general idea about their ongoing complexity, which is in essence characterised by the features of self-organization. In fact, the current laws in the Netherlands and Flanders regarding complex projects don't treat them as complex systems as such. At best, they are approached as complicated systems, with a focus on more efficient management and cost and time reduction. New approaches are needed to exploit the new windows of opportunity of self-organization, which will go beyond the realms of strategic, goal-oriented planning.

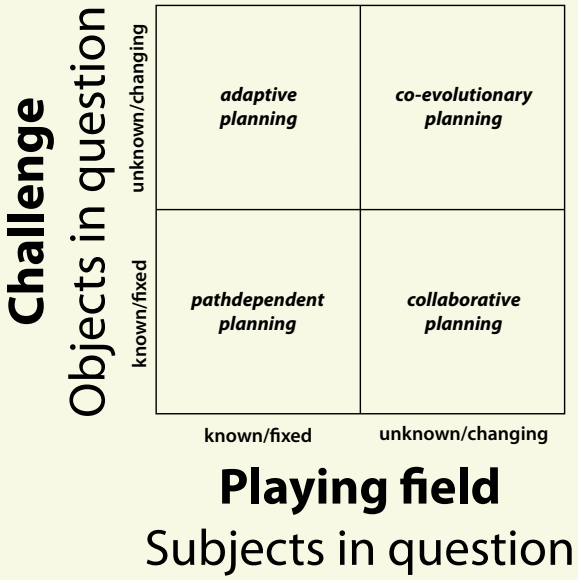
New approaches

As a result, the search for new approaches is receiving growing attention in theory and practice alike (Hillier 2008, Boelens 2009, Urhahn 2010, De Roo et al. 2010, 2012, Moulaert et al. 2013, Rydin 2014, Rauws 2015, Boonstra 2015). However, despite the growing international attention on planning for complex systems, experimentation with planning tactics of complexity in real life remains scarce since structuralist strategic planning is still the mainstream in planning theory and practice. Within this kind of ontology, politicians, planners, cooperating actors and others tenaciously cling to the idea of *strategic* planning, whereby strategic targets need to be met over time and, if necessary, in subsequent phases through several sub-stations of pre-, mid- and post evaluations, or by implementing them co-productively with various stake- and shareholders. These kinds of approaches deal with real life, which can be modelled, steered or guided in a certain direction over time. Although these approaches could be useful in fixed contexts, *complex* systems are much more a-linear, fuzzy, multi-dimensional, and unpredictable, and therefore undefined, than these strategic points, which can be set and maintained on a fixed timeline. Instead, complex questions and challenges need a more *tactical* approach than a strategic one, focusing on the various mutual reinforcing, dissipative decisions and activities, while realising that in complex settings decisions and activities could go several ways and are highly situational and fluid over time, without the ability to predict, let alone direct or plan them (Boelens 2010).

Furthermore, we become increasingly aware that there are not one but several grades of complexity. We distinguish at least four, based on the fuzziness of the context or the playing field versus the object or planning problem in question (Hertogh &

Westerveld 2010, Boelens 2015, Verbeek & Boelens 2015, Terryn, Boelens & Pisman 2015, Boelens & Goethals 2015).

FIGURE 63



In the bottom-left field of figure 63, planners encounter a relatively fixed playing field made up of the so-called *'usual suspects'*, with a relatively *'closed'*, well-known object of planning. Here a path-dependent, procedural planning model could succeed, whereby each decision would be evaluated in pre-, mid- and post evaluations and redirected, if necessary, towards the overall strategic end goals.
However, these types of planning situations are increasingly rare in our (physical and thematic) cross-bordered, volatile and networked society. More and more, there are also situations in the bottom-right field of figure 63, where, although the object of planning is still more or less clear or well-known over a longer period of time, the number of involved actors is growing or even changing (due to empowerment, contingent settings or other drivers) and therefore requires a kind of participatory or collaborative planning.
There are also situations in the top left field of figure 63, wherein the (leading or involved) stake- and shareholders – both the actively involved and passively interested, or the 'drivers' and the 'pushers' – need to solve a fixed or well-known problem or planning challenge, like those in the bottom-right corner of the matrix. However, because the object of planning is so new, innovative or interrelated, the possible solutions, including ideas on how to get there, could change dramatically over time. Here an adaptive planning is needed to navigate through an ocean of changing winds, currents and waves towards the intended goals.
Furthermore, there also appears to be a growing number of situations in the top right field of figure 63, wherein neither the involved actors nor the precise challenges or objects of planning are clear, fixed or 'closed'. Here planners encounter an

ever-growing state of fuzziness, contingency and complexity, which can only be 'solved' by becoming an integral part of the planning process itself, co-evolving with the changing contexts and objects of planning themselves. In this context, major planning challenges can only be encountered step-by-step by *'trying to ride the issue itself'*, while neither the specific object nor the (courses of the) involved stake- and shareholders are clear in advance. This co-evolution between evolving objects and evolving subjects could lead anywhere, although it is hoped it will move towards a more resilient assemblage in the long run, creating a system that is robust and strong enough to survive socio-economic and/or socio-ecologic hazards over time. It is precisely that 'ambition' that could become the predominant intermediary task of co-evolutionary planners who work with complex situations seeking to translate them to more resilient systems able to cope with high levels of contingency.

Explaining and translating these ideas of varying degrees of complexity to meet the new challenges of mobility planning would lead to the following examples:
The bottom-left field would represent the traditional and present *degree on complex mobility projects*. It would refer to path-dependent, procedural planning, wherein brown and green papers would be followed by white policy documents, including several phases of participation by invited (mediated) actors, in pre-, mid- and post-evaluations, and would move towards (adapted, if necessary) implementation and/or the iteration of the process all over again.
The bottom-right field would be representative of the *Oosterweel-project,* wherein the object of mobile planning remains mostly fixed over time (closing the Ring of Antwerp as a solution for ongoing traffic jams), but the involved actors from BAM, via Straten Generaal, Ademloos, Ringland etc. have changed and are still changing enormously, including the involved interests and resulting actions; here a mediating planning model is needed.
The top-left field of the matrix would refer to a situation like the *Lab of Troy project* in Ghent. Unlike the Oosterweel project, here the involved actors are more or less clear (engaged inhabitants, the Ghent Climate Trust and the local administration), while the initiatives of mobile planning are still highly unclear and could go in several ways. Each of the initiatives (*Living Streets, Sustainable Shopping System, M-score, Inhabitants bike-network, etc.)* needs to be translated into a more resilient form, a process that could change them massively. Accordingly, the process would require a kind of adaptive mobile planning.
The top-right field represents a mix of all the self-organising processes described above, especially those dealing with shared, digital and emerging cooperative solutions of mobile complexity. This field requires an inclusionary planning attitude that would become a part of the evolving ideas and therefore could be considered co-evolutionary.

Therefore, the future of complex settings drives towards not a single but rather a multi-planar attitude of mobility planning. In addition to path dependent, procedural planning approaches and collaborative and adaptive ones, planners increasingly need to cope with 'full-settings of complexity', or in other words, co-evolutionary

planning ideas of self-structured becoming. Like evolutionary theories, these ideas of co-evolution are rooted in general Darwinism with its notions of heritage, fitness, survival of the fittest, mutation and variety. However, they also go beyond these classic evolutionary concepts to the point that groups of organisms are evolving not only by themselves in specific biotic circumstances, but also changing in explicit circumstances through reciprocal selective interaction with other related organisms, contexts or systems (Ehrlich and Raven 1964). As such, over time and space, subjects and objects dissipatively and continuously influence each other, co-evolving towards a new and, if possible, more resilient state. (Durrant and Ward, 2011). As stated before, here the dissipative arrangements between the species or elements and their settings or contexts become more crucial than the evolution of the elements themselves. In other words, within co-evolutionary approaches, the networks or evolving assemblages between the elements become the main focus for receiving useful insights or coping with complexity.

Mobile Living Labs

Whereas procedural (Faludi, 1986), mediating and collaborative (Innes, 1995, Healey, 1997) adaptive planning approaches (Ovink et al., 2011) have been sufficiently described elsewhere, this kind of co-evolutionary planning remains highly untouched. Therefore, there is a call to give these ideas of co-evolution increasing attention (AESOP 2014). This is especially true as those full settings of complexity with fuzzy emerging undefined objects placed within changing settings of stake-and shareholders gain increasing importance in mobile planning systems. Therefore, there is a growing plea for further experimentation with those 'full complex questions' in theory and practice in order to enhance the conditions of co-evolutionary planning. The platform of this experimentation refers mainly to the idea of Mobile Living Labs, whereby planners, politicians, entrepreneurs and civilians alike become equivalent partners in order to negotiate and test new solutions for complex mobility patterns (Boelens & De Roo 2014).

These Living Labs are real-life testing and experimental environments for user-driven information (Desouza 2013, 2014). Originally grounded in technologically driven innovations, which embrace urban regions as testbeds where experimentation and dissipative innovation can be tested before putting new technology on the market, Living Labs have expanded across administrative, social, economic and infrastructural issues. As such, Living Labs also involve crowdsourcing ideas and actively engage citizens, businesses and public administrations in the experimentation and solution development (www.openlivinglabs.eu). In this emerging field of Living Labs, Planning or Mobile Living Labs are immensely scarce; one could even claim non-existent. Therefore, we have proposed to create two Planning Living Labs in the Flemish Government's *Policy Research Centre on Spatial Development 2012–2015*, in order to develop co-evolutionary resilient planning tactics for the Flemish peri-urban situation: one for polycentricity as a guiding concept for analysis and future planning,

and one for resilience as a guiding concept for analysis and future planning. Here we will discuss the first, which is focused on latent sustainable translations of the N16 corridor between the municipalities of Temse and Willebroek. This Planning Living Lab is connected not only to the evolving PhD-research within the Policy Research Centre itself, but also to the evolving Master programme of Urban and Regional Planning at Ghent University. Thus, this Planning Living Lab serves as a quadruple helix between scientific, civic, business and public interests, not only serving co-evolutionary translations on the ground, but also serving the possible scientific and educational renewal of planners' foundations towards undefined becoming. In discussing this idea of a Peri-Urban Living Lab with the involved businesses, civic interest groups, municipalities and other (intermediary) organisations, we soon discovered that a growing interest evolved in and among several issues, ranging from sustainable energy transition to food production, healthcare and mobility issues, all working in close reference to each other. A great majority of the stake- and shareholders was willing to experiment with the idea of the Peri-Urban Living Lab for these issues, agreeing that they could not execute the new transition challenges alone and needed mutual collaboration. Therefore, the Living Lab was initiated in February 2014, with a rough focus on mobility and energy transition and the aim to evolve to more resilient assemblages in these areas. A Living Lab coordinator was adopted, a mutual 'curratorium' installed, the Policy Research on polynuclearity was focused on N16 and master studios and theses were prepared, all with the aim of *'trying to ride the issue'* without knowing beforehand how, where or even when it would end.

Discussion – towards a balanced planning tactic-strategy of complex mobility

Currently, the actant-relational lab is still ongoing, and it is still unsure if the stakeholders will come to an agreement and subsequent implementation with the help of their complex surroundings (multi-level governments, citizens, their shareholders, other actants etc.). The proposals are still fragile and could fail or move in another direction. Nevertheless, some preliminary conclusions can already be drawn.

First, we can conclude that the actant-relational approach is promising for the governance of complex mobile settings, but it needs further elaboration. The alternative, top-down, deterministic strategic planning approach – be it technological, rational comprehensive, participatory or collaborative – is no longer tenable in situations where complexity has replaced complicatedness, and where objects and subjects change their numbers and insights regularly (see diagram 1) and thus have become highly situational in time and space. Defining specific long-term strategic goals, and breaking them down into several consecutive, manageable project-decisions of reduced complexity (albeit with feedback loops) – which is at the moment the typical way of dealing with complex projects and has subsequently

inspired the Flemish law on complex projects – is no longer operational in a world that has become highly fragmented, volatile, a-linear and contingent, moving in various, fuzzy ways. Instead, we need in these complex settings of changing objects and subjects a type of co-evolutionary approach where evolving projects and changing surroundings influence each other reciprocally; the process must become intentional, but also highly undefined.

Second, although these complex processes are, to a certain degree, undefined and (co-evolutionary) self-reliant, this wouldn't mean that they can't be moved or facilitated in a certain direction. As said before, this would require a radical turn in managerial orientation. Instead of working from the outside-in and acting as a neutral referee or objective researcher (if at all possible), for the sake of some predetermined idea for a good, just or sustainable society, the manager, governor, planner or researcher needs to become an integrated, common and respected part of the evolving, self-organising assemblage. While complex projects and their co-evolving processes are highly situational, this kind of 'process-included-position' needs to be repeatedly invented and maintained. Moreover, to tackle possible objections to such an inclusive and highly involved perspective, governors, professional planners, complex managers etc. would have to do more than simply follow or propose their own professional intentions. On the contrary, we still need to distinguish within these self-reliant processes of complexity the various moments or, better still, attitudes of undefined becoming: problematisation, interessement, enrolment and mobilisation. Each of these moments or attitudes of assembling would require specific intermediary actions from the planner, manager, governor or other actor in order to move or facilitate complex self-reliant processes between and among the involved actants/surroundings: fundamental research about trends, impacts and possibilities, seducing actants towards what-if scenarios, path-creation towards new possibilities, and institutionalisation of, if necessary, new and embedded frames.

Third, in her study about self-organisations, Boonstra (2015) distinguishes at least three intentionalities for including steering professionals from the bottom-up. These are composed of an intriguing mix of planning tactics and strategies of undefined becoming. The first is *'interfering for a change'*, based on tactics that open up. It is an intentionality that focuses on how things could be made better, according to the actors involved, including the professional planner himself. What is considered 'better' is not a given truth or a fixed optimum, as is the case in strategic or comprehensive rational planning, but rather something that is contextual, situational and thus constructed within the assemblage itself over time and space. This intentionality has been the main professional driver for the mobile living lab described above. According to Boonstra, the second intentionality would be *'networking for a fit'*. This would function with a navigating strategy whereby the association of complex processes would be gradually strengthened, expanded and made robust not only in terms of the (number and ambitions of the) actors involved, but also in respect to their surroundings. The third intentionality would be *'assembling to maintain'*, a structured coupling tactic focused on the maintenance, homogeneity

and coherence of the actor-network, which would, in the end, provide resources as well as a restraint on the heterogeneity of complex processes. Boonstra concludes that in planning processes of complexity and/or self-organization, the case is often 'either or'; however, she proposes a real multi-planar strategy, tactic and focus. Therefore, the agenda of mobile complexity would be multidimensional with several focus points for governmental planners and policies: one to open up 'social mobile capital' and one to institutionalise networks for matching and maintaining the interactions among all the mobile initiatives. The result is an inspiring actor-relational agenda for a sustainable future.

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