UNRAVELLING THE FLEMISH MOBILITY ORGWARE
Analysing the role and relations of governmental institutions from the view of actor-networks in the transition to a sustainable mobility

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Abstract

Mobility policy in Flanders faces major challenges regarding the liveability and sustainability. The Flemish government therefore wants to update the mobility system to the present needs and to launch the sustainable mobility transition. In this respect most mobility transition research focuses on (socio-) technical innovations (software) or infrastructural innovations (hardware), managing the demand side of mobility. However, the role and innovations of the organisational struct remained unclear. This research addresses this hiatus, by analysing the actors and factors of importance and their interconnections within the Flemish mobility system, and secondly by proposing possible orgware improvements. Hitherto there is no clear idea of how different mobility (related) organisations, e.g. companies, lobbies, governments, institutions and projects, are associated with each other. Moreover various innovations of the socio-technical nature challenge the present governance. Because the existing institutions and formal rules are regularly not (yet) harmonized with these innovations. To overcome these challenges and to accomplish the sustainable objectives, one needs to discover the underlying mechanisms and potentials of the mobility systems with regard to the travel, transport and traffic mobility markets. For that purpose, the analysis draws upon the literature of actor-network theory combined with institutional theory insights, both applied on conceptual mobility frameworks. Accordingly, we finally propose a conceptual framework for the analysis of the Flemish orgware, in order to come up with possible improvements regarding sustainability objectives.

1. Introduction

Mobility policy in Flanders faces major challenges in setting out the policy objectives for 2020 and beyond, in making or maintaining Flemish cities attractive, liveable and also sustainable. First transport emissions are to be reduced and the factual footprint of transport (infrastructure) has to decrease over the next decades as well, to make a real transition towards sustainable mobility. But while most mobility transition research focuses on (socio-) technical innovations (software), or infrastructural innovations (hardware), the role and innovations of the organisational structure (orgware), has remained unclear. This is hiatus is also addressed by Jessop (2001, p. 1221), an authority in the field of institutional theory:

Further steps on a research agenda might include questions about institutional embeddedness or about institutional governance, i.e., the governing of institutions and inter-institutional relations and their systemic environments (Jessop, 2001, p. 1221). This research wants to address this hiatus, by setting out a framework for the analysis of the actors and factors of importance and their interconnections in the Flemish mobility system. Further research will include the factual state of affairs of the Flemish orgware and the proposal of possible orgware improvements.

Hitherto there is no clear image of how different mobility (related) institutions (organisations, companies, lobbies, governments, projects, funds,) interact with each other. Moreover various inn of the socio-technical nature make the present governing strategies more difficult to manage. In order to make important decisions, e.g. selecting niche-innovations to be implemented, and in order to launch the sustainable mobility transition, one has to know the leading mechanisms and potentials of the mobility system. The decision-making levels are to be questioned as well. For instance, decision-making powers could have to be reallocated to other policy levels or other arenas to increase efficiency.

Consequently the research question here is how the orgware could be adapted in order to make the Flemish mobility system as an actor-network assemblage more sustainable. Therefore the mobility system itself has to be unravelled first. How does the Flemish mobility system looks like? Which underlying arenas are to be defined? Which actors or institutions hold key positions in these arenas? These questions are addressed in the research. Based on the literature of actor-network theory combined with institutional theory, a literature framework is set out and applied for the conceptualisation of the Flemish mobility system.

The paper is structured as follows. The second chapter elaborates on the conception and definitions of the term 'governance'. In a third chapter some insights of institutional theories are adopted. The *what?* and *how?* of institutions is theorized and the conditions for an institutional chapter four, a framework for the mobility system is then to be considered, next to the already conceptualized context of institutions. In chapter five the actor network theory (ANT) is discussed. This theory proves useful in the conceptualization of how actors organize themselves and form actor-networks in order to survive. In a sixth chapter, the institutional theory insights, the mobility framework and the ANT are then combined in a conceptual research framework for the unravelling of the Flemish mobility orgware. Finally, outlines for possible new governance systems and further research are discussed.

2. Governance

The term Governance is used in many ways and covers many aspects. Hence, befo literature for the theoretic framework, we need to clarify our perception of the term governance . This paragraph tries to overcome the vagueness of governance by giving an short overview of important literature on governance.

Jessop (1997) describes governance as *the complex art of steering multiple agencies, institutions and systems that are both operationally autonomous from one another and structurally coupled through various forms of reciprocal interdependence* (Jessop, 1997, p. 1221). Or in other words, as the complex of mechanisms behind (or resulting in) the network. The word governance is in the litera advocated for as the more de-centred and horizontally organized counterpart of a strongly top-down and vertically oriented government (Boelens, 2010; Scharpf, 1997). Governance is gaining importance i todays world, where public-private partnerships are no longer an exception, and where small decentralized initiatives are gaining ground (Jessop, 1997). Sharpf describes governance by advocating for another way of governing since *the advantages of a hierarchical coordination are lost in a world that is characterized by increasingly dense, extended and rapidly changing patterns of reciprocal interdependence, and by increasingly frequent, but ephemeral interactions across all types of pre-established boundaries, intra- and inter-organizational, intra- and inter-sectorial, intra- and international* (Scharpf, 1997, p. 37). Stoker (1998) also discusses the duality between government and governance, but argues that it is not a harsh one. According to Stoker governance is rather a change in meaning or interpretation of the existing term government , implying a new p (Rhodes, 1996, pp. 652-653). Governance is about creating the conditions for ordered collective action , also referring to the bottom-up approach instead of the top-down approach government used to have. But governance is used in many different ways. The baseline however is that governance, as Stoker (1998) says, has to do with the *governing styles in which boundaries between and within public and private sectors have become blurred* (Stoker, 1998). In some cases, though we will not elaborate on this, Governance is also used to provide covering for Consequently governance is in this manner used as a *code for less government* (Stoker, 1998, p. 18).

Jessop formulates three levels of embedded social organization, or thus governance levels. Going from rather simple to more complex, first there is the social embeddedness of interpersonal relations (Granovetter, 1985), second and more complex, there is institutional embeddedness of inter-organizational relations (Keohane & Nye, 1977), and the third and most complex form of governance exists in societal embeddedness of functionally differentiated subsystems (P Pearson, 1957). However from Jessop s work probably the most important thing to acknow

Successful governance is always provisional, localized, and partial and always has unintended consequences which operate to the detriment of other subjects, interest, and projects and may eventually prove counterproductive even for those who instituted the governance mechanisms and projects in question (Jessop, 1997). Jessop provides also outlines for further research in the context of the embeddedness of institutions and institutional governance, the latter seen as the governing capacity of institutions and the inter-institutional relations and their environments (Jessop, 2001, p. 6).

3. Institutionalism

According to ANT and institutionalism the key players or actors, the variables and the context in the field of mobility and the tangent policy fields are to be analysed in order to gain insights in the Flemish mobility system (Boelens, 2010; Giddens, 1984) . The context or structure determines possible outcomes and is in itself determined and changed by the players within this structure, in order to enable their objectives. Hence the focus can not only be on the actors, while neglecting the broader context of institutions. For Law denotes that actors, thus people, entities, resources that are connected, only have meaning within and through their network (Borgatti, Everett, & Johnson, 2013; Law, 1986) and Jessop states that *institutions never exist outside of specific action contexts* (Jessop, 1997, p. 8). Thus, before examining and listing all important actors and factors within the mobility field, we need to indulge in the institutional theories. Next, the focus is on the institutional turn, since the objective of making the mobility system more sustainable needs such an institutional turn. Therefore the conditions for this change are discussed in order to identify or see possibilities in making it possible.

3.1 Why Institutions?

Why do we have arrangements called institutions? North states that *the major role of institutions in a society is to reduce uncertainty by establishing a stable (but not necessarily efficient) structure to human interaction* (North, 1990, p. 6). Also DiMaggio already mentions in 1988 the uncertainty-reducing capacity of institutions, and Giddens (1984) denotes the institutions as solidity-giving features across time and space. He calls them *the more enduring features of social life* (Giddens, 1984, p. 24). Lock-in, then, is the result of the uncertainty reducing activities of actors-networks (assemblages). According to Greener (2002, p. 616) *Lock-in is not the exception, it is the rule, in fact it is required by markets in order to allow actors to order the complexity which would otherwise dominate. Once the market is organised, and the actor-network stabilised, it is possible for agents to make decisions within it* . Here Greener makes the connection between institutional theories and actor-network theory, which proves useful in the conceptualization of a framework for the Flemish mobility system as well.

3.1.1 Path-dependency & Lock-in

Ideas of path dependency and lock-in are important to understand the context and the need for institutional change. A few quotes grasp the meaning of path-dependency well: *In the path-dependent model, actors are hemmed in by existing institutions and structures that channel them along established policy paths. Therefore, in any system, big (non-incremental) change is unlikely, however not impossible.* (Wilsford, 1994, p. 251). Or as Machiavelli ones acknowledged: *There is nothing more difficult to manage, more dubious to accomplish, nor more doubtful of success t order of things. The reformer has enemies in all those who profit from the old order and only lukewarm defenders in all those who would profit from the new order* (Machiavelli: as in Wilsford, 1994, p. 251).

A path-dependent sequence of (political/economical) changes is one that is tied to previous decisions and limited by existing institutions. For in path-dependent models a choice made in the past, albeit random or not, and by individuals or not, has consequences and can limit options and choices in the future. Hence, one can speak of a depended path . Very early in the evolution of th can be equally suitable. But once a given path is chosen, it becomes increasingly likely to continue along this path. Because, over time little adaptions along this path will have the lowest transaction costs, which leads onto incremental changes all within the margins of this chosen path (Greener, 2002). Moreover

these choices in the past, initiate a certain course, that is already trodden. In essence there is nothing wrong with this kind of path dependency; it will save energy and support added value. But also lead to lock-in situations, in which possibilities are limited just because of those (small) decisions from the past (Greener, 2002; Wilsford, 1994). However, change is still possible, following Wilsford (1994) *it is the combination of path-dependent limits along with occasional windows of exceptional opportunity, or conjunctures, that determine the ways small or big that a political system responds to policy imperatives* (Wilsford, 1994, p. 252). This view has some things in common with the ideas on institutional change of Burch et al. (2003) and Kingdon (1995) namely, the critical moments and windows of opportunity . Path-dependency differs from historical determinism, in the way that one can choose to reshape the path incrementally or to create another path, because history matters, but history doesn t determine everything. Path-dependency theories thus allow for deviations from the trodden path (Greener, 2002; Wilsford, 1994). Path dependency theory looks upon institutional change as follows: *It is the combination of path-dependent limits along with occasional windows of exceptional opportunity, or conjunctures, that determine the ways small or big that a political system responds to policy imperatives* (Wilsford, 1994, p. 253).

In institutional theories, the path dependency perspective brings us the notion of history matters . In this respect, North states that the structure for human interaction possesses already future developments and thus future institutional changes in itself. Thus one can speak of an institutional path, (partially) determined by events, made choices, in the past (North, 1990, p. 6). Also Giddens struct theory follows in a certain way the path-dependency perspective, because both structure and recursively make changes upon each other and in this way change through time, along a path shaped by the structuration process. Giddens provides with his structuration theory an ontology of time-space as constitutive of social practices, which begins from temporality and thus, in one sense history (Giddens, 1984, p. 3). Furthermore, Giddens proposes with his structuration theory that *rules and resources drawn upon in the production and reproduction of social action are at the same time the means of system reproduction* (Giddens, 1984, p. 19). In institutional path-dependency approaches the focus is predominantly on rules and routines, and their importance within organisations (Olsen & March, 1989).

3.1.2 Sociological institutionalism

But critiques to all of the above mentioned institutional perspectives are that, in spite of the bounded rationality (Simon, 1986) of actors taking into account the uncertainty in the world, not all institutional changes bring forth an increasing efficiency. Therefore the sociological perspective on institutions draws attention to the more symbolic and cognitive dimensions of institutions and institutional change (Olsen & March, 1989). The main finding here is that institutions have cultural significance. They start from the idea that not technical rationality but social rationality, which is value-based, guides institutional change. Furthermore, institutional change is assumed to be initiated internally in this approach, while it in the path dependent perspective the incentives for change are perceived to be caused externally. Here, in the sociological perspective, the process of institutionalisation is defined as *a process in which fluid behaviour gradually solidifies into structures, which subsequently structure the behaviour of actors* (Arts & Leroy, 2003, p. 31). Although Giddens structuration theory adopted predominantly the pa dependency perspective, his view refers to the sociological perspective; *structure* is not external to *individuals: as memory traces, and as instantiated in social practises, it is in a certain sense more* internal than exterior to their activities ( ) Structure is not to be equated wi *both constraining and enabling* (Giddens, 1984, p. 25). Following Weimer (1995) institutions result from a gradual evolution that is punctuated by acts of purposeful design (Weimer, 1995). Buitelaar *et al.* (2004) add that institutionalisation is *accompanied by the development of particular discourses, power and resource relations* . (Buitelaar, Jacobs, & Lagendijk, 2004). Furthermore, specifically in the context of policy-making, Linder & Peters (1995) recognize institutions *as both socially embedded practices and frames and historically contingent responses to collective action* (Linder & Peters, 1995, pp. 133-158).

According to these ideas, institutions are often seen as *social practices that are regularly and continuously repeated, that are sanctioned and maintained by social norms, and that have a major*

significance in the social structure (Jessop, 2001, p. 6). But on the other hand, institutions are popularly seen *as organizations or social bodies that have major significance for the wider society and act in a quasi-corporate manner* (e.g. the branches of government, thus institutions as part bodies) (Jessop, 2001, p. 6).

3.2 Conditions favouring Institutional Change

3.2.1 Institutional insights for institutional change

Following Giddens (1984); Jessop (2001) institutions are both constraining and enabling. They refer to the reciprocal relation between agents and institutions (or structure); institutions are the resources and simultaneously also the means for institutional change. Consequently structure and institutions change predominantly incrementally. On the how and why of this institutional change, the perspective of Buitelaar et al. (2004) seems useful, because their research focus is about *why, under seemingly comparable conditions, some cases show substantive institutional transformations while others do not* (Buitelaar et al., 2004, p. 4).

DiMaggio (1988) already suggested the necessity to bring interest and agency more centrally into the institutional debate to gain progress in defining the conditions for institutional change. He stressed that actors always (but not always explicitly) strive certain objectives, and for this they have always some interest in acting in certain ways. Moreover, some researchers acknowledge the tendency of (key) actors to use institutionalized rules for their own objectives, which typically refers to the regime theory (Jacobs, 2004; Stoker & Mossberger, 1994). The conceptual institutional theory of Buitelaar et al. (2004) elaborates the alignment of the interests of three streams: the societal stream, the policy at hand, and the political endorsement and support base (see later). For arriving at an institutional change, they underline the importance of alignment in time of these streams, and the availability of a viable alternative that has to be accepted by institutional regimes to change (Buitelaar et al., 2004). But while focussing on the actors of the system, resulting in the three streams, also the different degrees of power or the acting of the actors within the framework have to be taken into account in order to identify conditions of institutional change (DiMaggio, 1988, p. 12). The latter will be addressed in the chapter on actor network theory, with the concept of translation .

Burch et al (2003) theorized the critical moment for institutional change as *sufficient pressure, whether internally or externally driven* [ ] (Buitelaar et al., 2004; Burch et al., 2003). In this moment, leading and existing institutional frames or hierarchies are questioned and there are alternative discourses rising. The critical moment can then further evolve into a criti opportunities are actually grasped and changes are effectuated (Burch et al., 2003). But to recognize these critical moments, linked to certain conditions, one has to look at Kingdon s ela stream approach, which is specified for policy agenda setting. In his conceptual model three streams of development are simultaneously aligned, the first stream being the societal problems that are conceived important , the second one the policy solutions at hand and the third stream is formed by the political endorsement and support (Kingdon, 1995). The critical moment in Kingdon s conceptualizatio formed by the matching of these three streams and is named the window of oppor point in the latter theory is based on the existing institutional organizations and frameworks. As in Burch et al. (2003) also in Kingdon s conceptual model, there has to be sufficient pressure, caused int by alternative ideas (or solutions) and actions affecting the present situation and/or externally by societal trends. At the same time acceptable other logics and discourses[1] need to be present to lead onto the

[1] The definition of discourse as provided by the Oxford dictionary of Geography is suit specific assembly of categorizations, concepts, and ideas that is produced, reproduced, *performed*, and transformed in a particular set of practices . This dictionary refers to the definition of Schott (2007) *Tijdschrift* **98** defines discourse as a social process which can be called inclination of sense or, in a manner, genesis of meaning Mayhew (2009) also proposes to take a look at the sense o proposed by Foucault (1980) in which a discourse is like a system of exclusion. *Discourses create their own*

possible opening of a window of opportunity. Following Buitelaar et al. (2004) after the first window of opportunity, a moment follows where alternative discourses can compete with each other for support base and where they can enforce their positions within the disturbed institutional hierarchy. Buitelaar et al. (2004) contribute to the conceptual model by adding a second window of opportunity after this in-between moment, where problem and solution ideas have to be matched. Or thus, when one can speak of a consolidation of a particular problem-solution combination, which is followed by a critical juncture leading onto institutional transformation (Buitelaar et al., 2004, p. 14).

3.2.2 Transition management approach

In the research field of transition management, the multi-level perspective (MLP) is widely accepted (see figure 1). This approach starts from the assumption that transitions are non-linear[2] processes resulting from the concurrence of various developments considered at three levels (ranked from the least stable to the most stable): the first level is the niche (or the locus for radical action or cha second level is that of the socio-technical regimes. At this level the established practices and rules are situated. The third level consists of the exogenous socio-technical landscape (Frank W Geels, 2002; Frank W. Geels, 2012). These different levels, as Frank W Geels (2002) calls them, have their own rhythm or inertia and will react upon changes during another moment or even period. Although on an overall scale the general transition coarse of innovations is well represented by the MLP, we want to express a few remarks here. The first one is about the level in multilevel perspective. Acco ideas, these levels should not be named levels , since this suggests a kind of barrier or threshold wi the evolution or transition process to attain the label of the next level. Secondly, and related to the first critique, we want to underline that this gradual evolution can be subject of discussion. Not every innovation is equally successful after all. Some innovations never leave the niche sphere, or some will never become institutionalised in the regime. Thus, not every innovation will have trodden the same path or will have followed the same stages in the proposed order. We conceive these levels of actors as contingent and coevolving over the various levels. Consequently, we would preferably speak of arenas , and accordingly of a multi-arena perspective instead of a multilevel perspective.

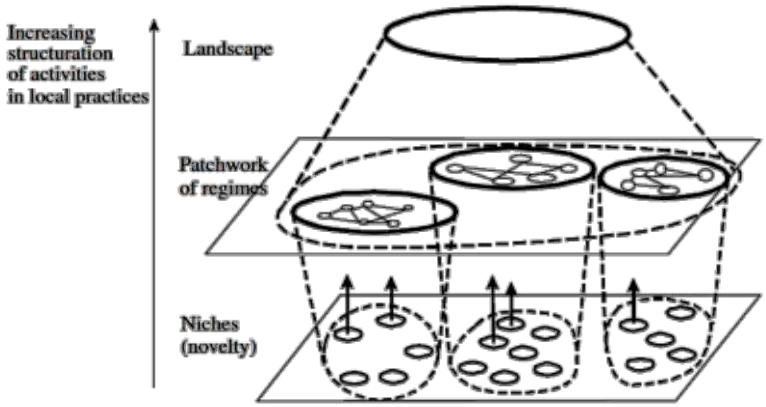

Figure 1: Multiple levels as a nested hierarchy (Frank W Geels, 2002, p. 1261)

However from this framework the distinction between the levels provided by the multilevel perspective proves useful. Representing these levels, e.g. whether or not an actor s initiative or a institutionalized or not, can be interesting in order to define or estimate the capacity to change and the accessibility to resources as a means for change. However to capture what these levels or this transition approach means for mobility, we have to elaborate on mobility frameworks first, in order to merge these transition arenas with a conceptual framework for mobility.

regimes of truth *the acceptable formulation of problems, and solutions to those problems* (M. Foucault, 1980 as in Mayhew, 2009).

[2] Non-linear processes, here conceived as following an s-curve. In general, typically with very low impact in the beginning, then after a longer period suddenly the innovation really takes off with a more than linear impact or growth. In the end a growth rate reduces again.

4. Conceptual mobility framework

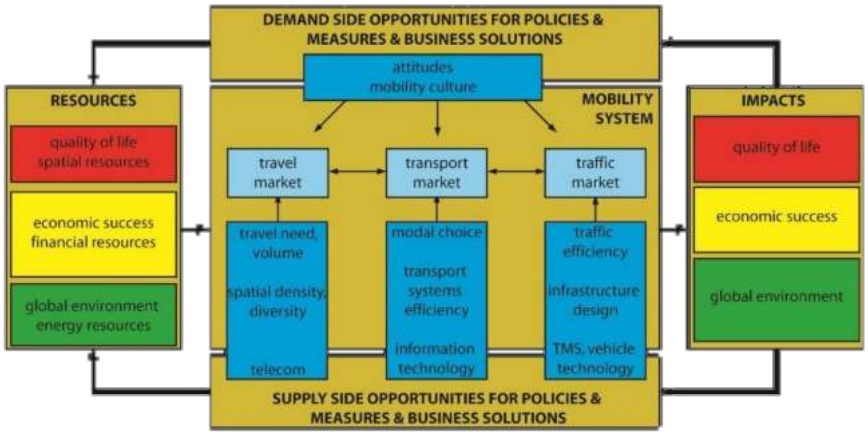

Figure 2: Mobility system approach (Lauwers & Allaert, 2013: based on Egeter and van de Riet, 1998)

In their search for an heuristic framework for transitions of mobility systems, Switzer, Bertolini, and Grin (2013) combine the transport land-use feedback cycle model with the multilevel perspective transition approach. However, we would rather propose the framework of Egeter and van de Riet (1998) since their model is a more elaborated equivalent of the transport land-use feedback cycle. Later, also (Lauwers & Allaert, 2013) further refined this model, by embedding the mobility system in a broader context of inputs and outputs and by indicating feedback loops between the components (see figure 2). The conceptual model divides the mobility system in three connected arenas instead of two; not only land use versus transport is considered, but instead a travel market, a transport market and a traffic market are identified, each time with a supply and demand side. The travel market consists of the demand and supply side of functions and concerns activities that lead to the need for transportation. In this arena people can choose to participate in activities and decide if the trip is necessary/worthwhile. The spatially distributed functions or activities they want to engage in determine the space and time of the displacement. If one decides to make the trip, one comes automatically in the demand side of the transport arena. Here one has to choose the transport modality of the trip: bike, car, public transport, etc The supply side in this arena consists of various transport mode suppliers, e.g. public transport companies, private parties. Then, when the transportation mode is finally chosen, the space (travel route) and chosen travel time slot are decided upon in the traffic market. The actual trips are undertaken and defined in space and time. The outcomes of the generated trips could have impacts: e.g. congestion along the chosen route, negative health impact, environmental impact Thus these arenas are embedded in a broader context of attitudes and culture. All mobility system arenas are connected with each other, direct or indirect via feedback loops. The order of the arenas, as described above, does not imply that the travel market and the traffic market are not connected. The spatial developments or even road construction works have a direct influence on the chosen route, while they have also to do with the travel market and the spatial context.

From transition theory the multilevel perspective is useful. When applying this scheme of arenas, i.e. Travel Transport Traffic Environment (inputs and outputs), from the proposed mobility framework to the multilevel perspective, with the niche regime landscape distinction, we end up with identifying for each of the first arenas the three different types of actors. So that in fact per mobility arena different niche actors, regime actors and landscape actors can be distinguished. However the positive transition curve towards institutionalisation is not necessarily the only way (or may be not the most desirable way) of becoming . Not every innovation is equally successful, or generally app innovations will never leave the niche sphere, and for this will never become institutionalized. For the setup of an analysis framework for the Flemish mobility system we encounter some conceptual challenges here. First, the framework we are looking for should be able to explain the success stories of some actors, while some others fail under the same conditions. Secondly we have to incorporate both actors and structure in the framework, because they have a reciprocal relationship. Actors are influenced by present institutions but at the same time arrange and influence themselves this structure. To overcome

these challenges, we draw upon the contributions of the actor network theory literature for the conceptualization of the becoming of actors. *How do actors organise themselves and their envir Who do they (temporarily) act with?* These are questions that cannot sufficiently be addressed by the institutional (change) theories. This challenge is already addressed by Greener(2002), he proposed to theoretically fine-tune the accounting for behaviour of path-dependent structures in order to gain insights in the means by which structure becomes limiting and to gain insights in overcoming these lock-in situations and break free of them. For this fine-tuning he proposed to take a closer look at the actor network theory contributions (Greener, 2002).

5 Actor Networks

5.1 Actors or agents with agency? Some definitions

Actor network theories typically do not differentiate between human and non-human actors; all entities belong to the sole actor category. Actors that have a leading role are called **actants** Latour, 1996). An actor becomes an actant when he acts or when he is granted power or permission to act by others (Latour, 1996, p. 7). However, following Boelens (2010) and later also acknowledged by Latour, non-living (and non-human) entities are not able to negotiate or even communicate themselves. Consequently, they are better served by so-called **intermediaries**, things or actors who speak for those non-human entities, without changing their identity. Non-living things can speak for themselves by their presence for instance. On the other hand they can be represented or impersonated by **mediators,** thus, when another human entity advocates for the non-human one. Giddens (1984, p. 9) distinguishes between agency and action . ***Agency*** *refers not to the intentions people have in doing things but to their capability of doing those thing in the first place (which is why agency implies power)* (Giddens, 1984, p. 9). ***Action*** depends upon the capability of the individual t make a difference *state of a*ffairs or course of events. An agent ceases to be such if he or she loses a difference , that is , to exercise some sort of power (Giddens, 1984, pp. 14-15). The **A duality** is to be seen as an inseparable whole. The actor is then the concrete outcome or crystallization of the actor-network at a specific time and place, while the network is the abstract structure in which the actors are connected on various levels. By this the duality between the individual (actor) and collective (network) has been eliminated (Callon & Law, 1997; Latour, 1996). According to Latour it is not possible to trace where the individual elements stop and from where the collective (network) takes over. Note that following Latour (1996) there is nothing but networks, everything is network (Latour, 1996, pp. 5-10).

5.2 Actor-Network Theory

Callon & Law have been conceptualizing an actor-network theory based on four principles. First, they see the social as heterogeneous in nature. Secondly, they state that all entities are networks of heterogeneous elements. Those networks act unpredictable and are not fixed in form, space or time. Their identity changes while interacting in the network, it is only within and through (re)actions within this network that entities have a meaning. And finally, every stable social arrangement is simultaneously a point (individual) and a network (a collective). By these four rules they overcome the individual/collective and the agent/structure dualism, by stating that this dualism does not really exist, but is only a matter of perspective (Callon & Law, 1997).

> *There is no difference between the person and the network of entities on which it acts. Or (the real point) between the person and the network of entities which acts through the person. Network and person: they are co-extensive (Callon & Law, 1997, p. 169).*

ANT is based on actors and their relations (also called networks), these relations are not only between actors themselves, but also between the human and non-human actors, which could be the more local conditions or the legal framework. ANT stresses that such networks are not necessarily stable or fixed between all heterogeneous actors. In fact, ANT assumes that all actors are continuously reassembling

and organizing their network in a certain way to become more innovative and vigorously (Boelens, 2010, p. 36).

Callon elaborates four phases of translation . Quoting Callon (1999) translation is the process *during which the identity of actors, the possibility of interaction and the margins of manoeuvre are negotiated and delimited* (Callon, 1999, p. 59). Equally translation is in ANT-terms *the possibility equivalence, the possibility that one thing (for example an actor) may stand for another (for example a network)* (Law, 1992, p. 386). Consequently, translation demonstrates how ideas or visions are introduced, framed and taken up in the collective agenda. The translation of ANT similar to the path of the path-dependence theory, only in actor network theory the focus is on the role of (each of the) entities in shaping the path, while in the path-dependency approach there is only the resulting path. Or in Kingdon s case the ANT-translations refer to the three acting streams, as a wh or a resultant force, with no specifics for the shaping (f)actors. Additionally, this translation concept is related to the centrality within social network analysis. We elaborate on the because this enables ANT to incorporate interest and agency into the conceptualisation of actor-network behaviour. And because this allows us to understand why, under the same conditions, some actors or actants are successful while others are failing. The four translation phases in ANT are: 1) problematization; 2) interessement; 3) enrolment; and 4) mobilization of allies. The first phase contains the highlighting of a problem, resulting in a common problem definition. The relevant actors can be identified or representatives can be chosen in order to include all relevant stakeholders into the debate. In a second phase, there is the built up of interest. In this phase one looks first, for ways in which all those actors can become actually interested and engaged in the search for solutions, and secondly, for the terms of commitment in which these actors want to become engaged. A third phase has to align all the interests of the various actors, and rearrange and convert these in order to create potential associations in these interests. Enrolment is about the registration and the li (also with regard to access to resources) on the basis of which their possible role in the whole story can be defined. The last phase contains the mobilization of allies. In this phase one is predominantly looking for support for the chosen actions and solutions. The embedding of the solutions in the wider setting, or the institutionalization is also situated in this fourth phase (Callon, 1999). With the focus on these translation phases within the actor network approach, we have brought interest and agency into our framework.

5.3 ANT critiques: ARA

Boelens (2010) criticizes the broad Actor-Network Theory (ANT) discourse of Callon, Law and Latour. In his work he focuses on the useful aspects of ANT, but he also points out the imperfections of ANT. A main objection following Boelens (2010) is that ANT does only say something about how things have become this way, but ANT does not say how or under which conditions the situation can be improved. The translation phases, by which the actor-networks take shape, gain interest and form assemblages and coalitions, stop where planning ought to start (Boelens, 2010, p. 38). Another important shortcoming of ANT can be found in the equalization of humans and non-humans in the actor networks. Boelens divides the non-humans in intermediaries versus mediators, respectively when they adopt a passive role in the first case or are represented by another actor in the latter case. Furthermore, it is important to differentiate between actors and actants , with actants being the more dominant actors defining and/or organizing the network, and with actors as all other associations and acting bodies (Boelens, 2010, p. 37; Latour, 1996). The last objection in respect to spatial planning is that, in the creation of a support base in the last translation phase (Callon, 1999), one has to take into account the effects for actors (entities, people, resources) of future generations, that are not yet but will become part of the network, especially in the context of taking sustainable measures (Boelens, 2010, p. 39).

Therefore he suggests going beyond the ANT onto a more outside-in, instead of inside-out approach, an actor relational approach (ARA) is suggested. Thus not only the actors are important, but also the actions and reactions they provoke (resulting in a network). Boelens sees a role for planners to re-orientate their perspectives profoundly, starting from the outside, from the aims of key stakeholders in civic society and business society. The public society becomes just one of the three types of players, next to the civic

and the business type (Boelens, 2010). The connections actors make, albeit between or within the types, give meaning to the actor-network assemblage. For according to Law (1986) every (social) action is fundamentally relational, it can only occur as a consequence of the specific connection between the heterogeneous material forming the network. It is only within this network that people, entities and resources have meaning (Boelens, 2010, p. 36; Law, 1986). But also the opposite is through it is only within specific action contexts institutions do exist. Indeed because the actors are not only engaging in action within a given institutional framework, but also recursively making and reconstituting the institutional matrix (Jessop, 2001, p. 8).

> *The approach is not about actors as such, in the broad sense of interactive planning (i.e. all affected parties), but about leading actors, who are primarily encountered* in the world of human action. ( ) Here we distinguish between leadir the business society ( ), within the public society ( ) and within ( ) (Boelens, 2010, p. 41).

What we attempt with our analysis, namely the unravelling of the Flemish mobility system, fits within the framework of the ARA-approach. Especially the first and second phase of ARA contain the focus of our research: 1) Interpreting the problem by determining the focal actors and unique core values and 2) Actor identification and actor analysis (Boelens, 2010, p. 43). The key actors and institutions in the broad field of mobility are to be mapped in order to identify possible connections and common aspirations for the transition towards a more sustainable mobility.

6. Towards a conceptual framework for the Flemish Mobility System

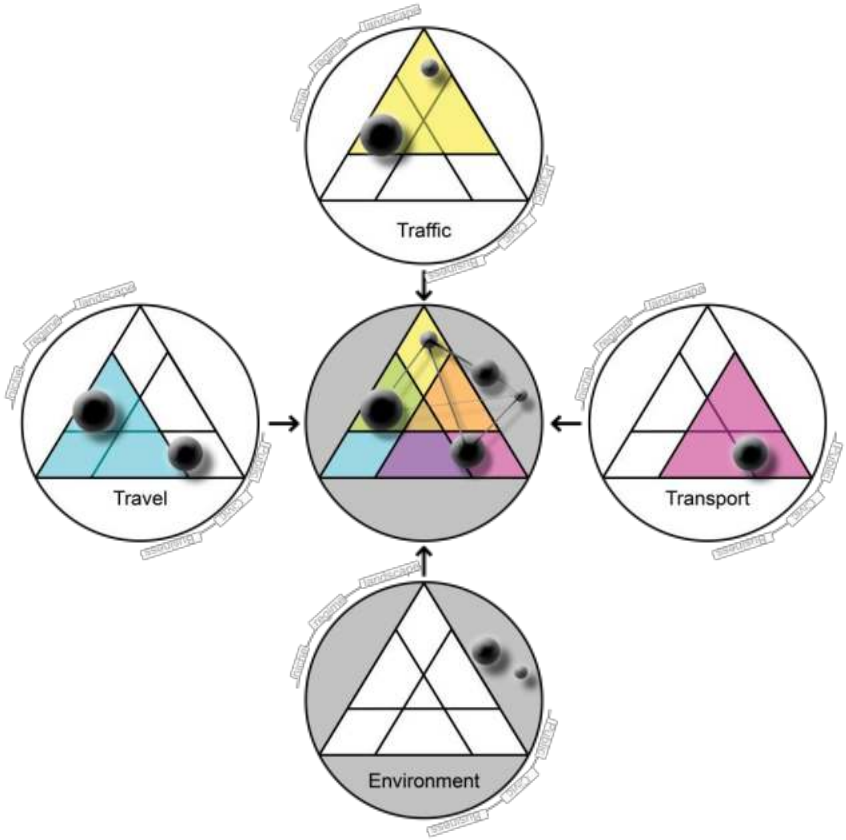

Figure 3: Proposed conceptual framework for analysis (own elaboration)

Figure 3 gives an idea of the conceptual framework we propose for the analysis of the Flemish mobility system s orgware. From actor-network theory and actor relational approach we retain the notion of actors forming actor-networks and becoming assemblages, with actants being the key actors, that have agency. According to the ARA approach we distinguish between civic, business and public types of

actors, typically represented by a triangle scheme (which we retain here). Within the actors, we can also distinguish between niche/regime/landscape, which we retained from the multilevel perspective. For the context or the conditions, in which the shaping of the actor-networks take place at a certain time with certain intentions, we built on the institutionalisation theories of path-dependency. The conceptual model of Egeter and van de Riet (1998) as elaborated by Lauwers and Allaert (2013) provides us three interconnected mobility arena s within a greater system (the interconnection is graphic by overlap of the arenas). This conceptual framework also fulfils the preconditions of a stronger integration or collaboration between land use planning and mobility planning as is strongly put forward by amongst others (Banister, 2008; Bertolini, 2012). The idea of a fourth arena, covering the rest of the indirect influencing actors and factors comes from the institutional theories and the ideas of structuration as well as from the landscape as mentioned in the MLP, to avoid misunderstandings, we called the fourth arena environment . This conceptual scheme enables further research with the actual mapping of the mobility-related actors. By considering the translation phases of ANT, Interest and agency are corrected for. After the mapping, possible windows of opportunity can be identified then, based on Buitelaar et al. (2004); Kingdon (1995).

7. Conclusions

To get an idea of how to make the Flemish mobility system more sustainable one has to know the system. In order to reach the sustainability objectives, insights in the governance or orgware of the system are to be attained. Hitherto the focus in the field of mobility was predominantly on (socio-)technical innovations and knowledge (software) and on the infrastructure (hardware). However, the governance component has remained under the radar so far. We believe that the governance of the system can no longer be ignored. Challenging initiatives, like Uber or driverless cars, will threaten present governing strategies and institutions, while they could be considered as innovations with a lot of possibilities. Leaving them out of consideration will expose the system. Therefore we built a research framework that would enabled us to conceptualize the Flemish mobility network. Starting from the institutional theories and perspectives of path dependency, we retained the notion that history matters, but still allows for change. The existence and representation of actors is based on the actor-network theories and the actor relational approach. Business, civic and public actors form dynamic assemblages arrange the context, and are simultaneously influenced themselves by the institutional context. The mobility framework divides the broad field of actors in three (non-exclusive) arenas: the travel market, the transport market and the traffic market. Further, all of these are embedded in a fourth environment arena, hereby representing the reciprocal relation of the mobility arenas with the context (the structure, institutions). With this framework the unravelling of the Flemish mobility system can start. The analysis of the actors and factors of importance and their interconnections in the Flemish mobility system can be carried out after which possible orgware improvements and conditions for change can be identified.

8. References

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