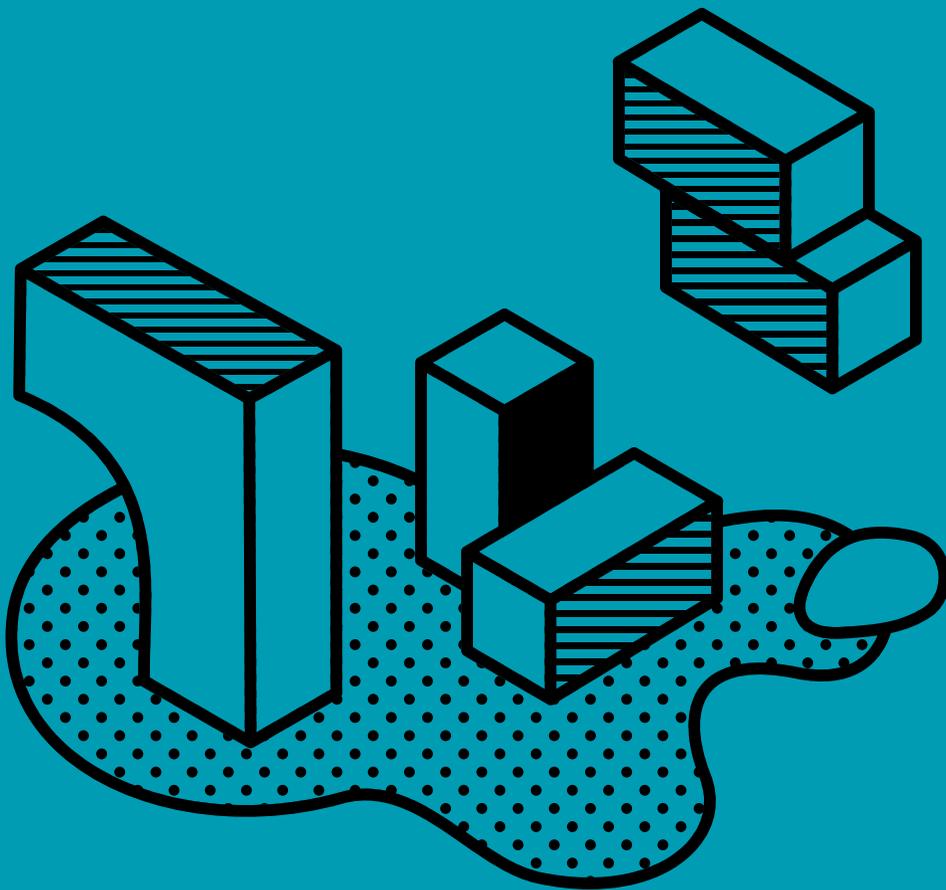


# Designing Brussels Ecosystems

Metrolab Brussels MasterClass II



Bernard Declève  
Geoffrey Grulois  
Roselyne de Lestrangé  
Andrea Bortolotti  
Corentin Sanchez Trenado  
(eds)



Metrolab series

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# What compass is needed for socio-ecological transition in Brussels?

Bernard Declève, Geoffrey Grulois,  
Roselyne de Lestrangé and Andrea Bortolotti

### Introduction

The purpose of the Designing Brussels Ecosystems MasterClass was to think about the notion of ecosystem in its relationship with public policies. The MasterClass offered about thirty researchers an opportunity to conduct a collective survey on different urban transformation processes underway in Brussels. The aim was to describe them from an ecosystem perspective.

Applying the notion of ecosystem to Brussels is a theoretical, methodological and political challenge. Theoretically, it is a question of testing the potential of a notion that has now been adopted by many disciplinary fields. In what way is it really a resource for public policies? How can the ecosystem approach help us ensure the conditions for a public action of ‘socio-ecological transition’? How can it help us take into account both the local and global scale of the issues? How can it help us integrate the system of interdependence between human and non-human agents mobilised by public policies? In this article, we seek to contribute to a deeper understanding of certain transversal lessons to be drawn from this experience.

### Innovative projects and niche situations in the socio-ecological transition of ecosystems in Brussels

Over a two-week period, the researchers took up the challenge of the ecosystem approach and attempted to make a critical and prospective analysis of socio-spatial innovation processes identified during the Brussels Ecosystems Conference. The focused on four thematic fields:

- Agriculture, through a description of the Brussels archipelago of agri-urban practices;
- Work, by studying the phenomenon of ‘third places’ as new social economy ecosystems;
- Density, by exploring the impact of temporary occupation processes on urban densification;
- Circularity, by developing the concept of hotspots in the circular economy.

One of the main theoretical references discussed in the MasterClass was the multi-level perspective on transition toward sustainability drawn up by Schot and Geels (2008; Geels, 2011). The discussion, however, revealed a significant difference between the position of these authors and that of the MasterClass group: while Schot and Geels conceive of socio-ecological transition as a process whose key factor is technological innovation (see diagram 1 below), the MasterClass group explores the hypothesis that socio-ecological transition results from an evolution of daily socio-spatial practices. It redirects the idea of technological ‘innovation niche’ towards that of a socio-spatial innovation system. Schot and Geels’ s multi-level perspective is based on what Dominique Bourg calls an ‘economy of technological promises’ (Bourg, Kaufmann and Médal, 2016, p. 15), while the MasterClass proposal is based on a critical description of the potential for change conveyed by the ecosystem of daily socio-spatial practices. Although both approaches are distinct, we shall see further that they are also intrinsically linked.

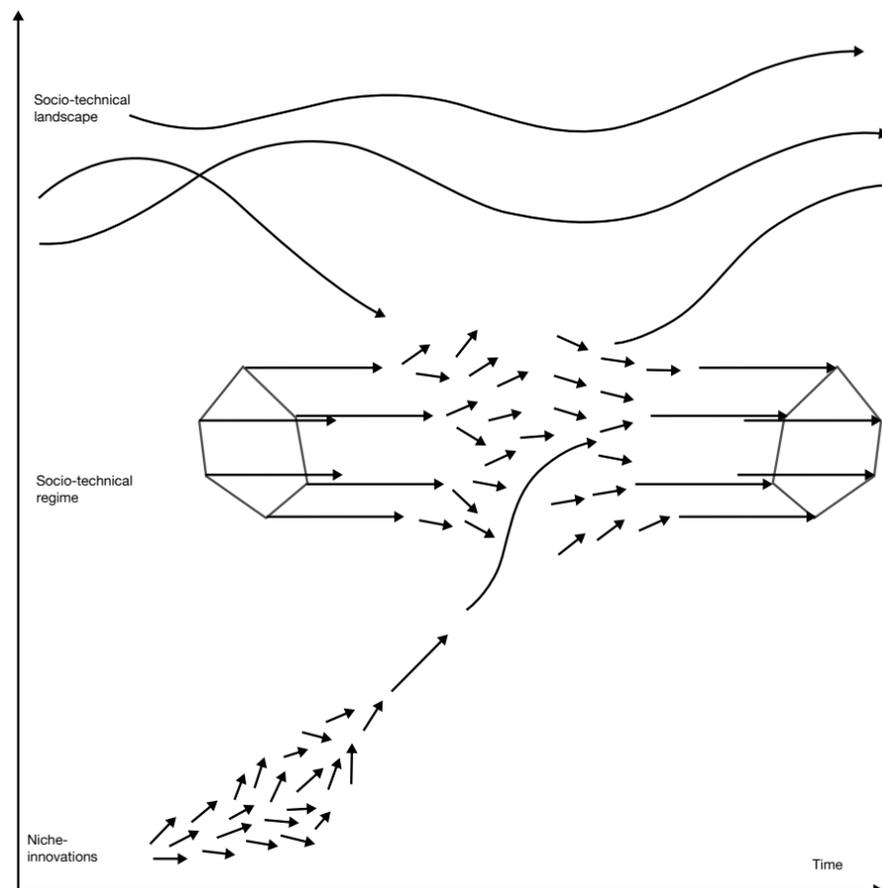


Diagram 1 — The multi-level perspective on transition toward sustainability according to Geels

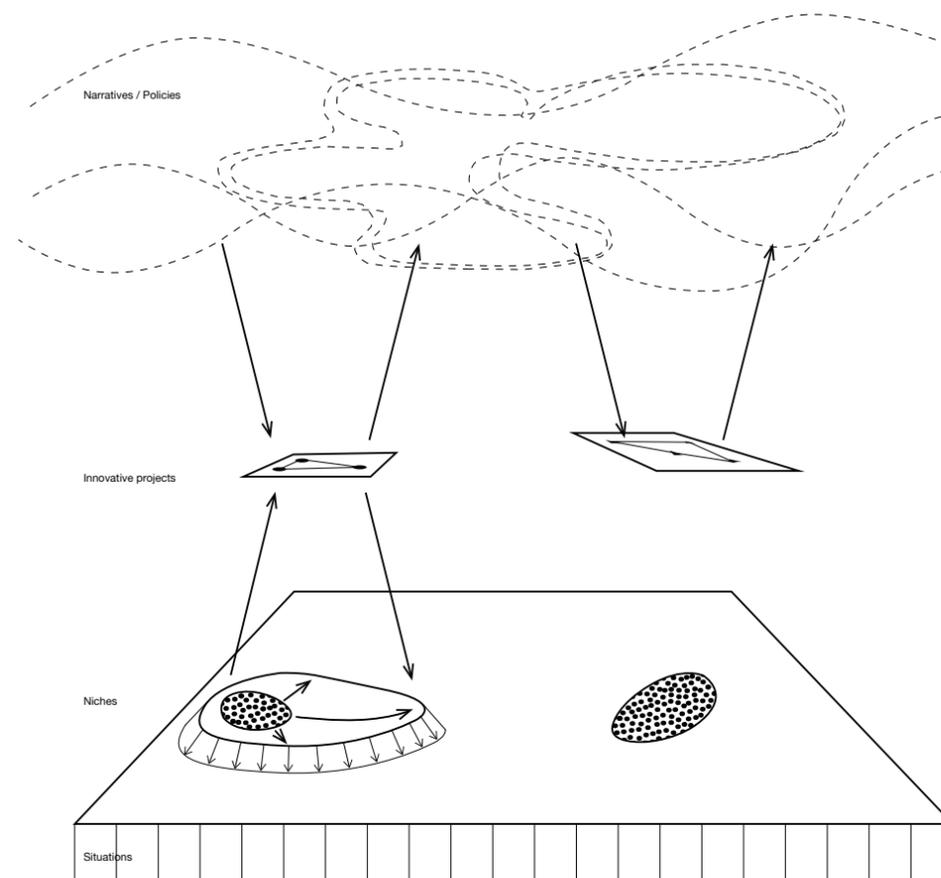
### **Innovative projects**

In the MasterClass perspective, an ‘innovating project’ is a spatial and socio-organisational system that transposes regional and European transition policies (smart, green and inclusive) into socio-technical projects (see diagram 2). These take shape in a spatial layout and underpin the socio-organisational dynamic over time. European Regional Development Fund (ERDF) projects are a good illustration of what this idea covers. They are socio-technical infrastructures financed by public authorities at the intermediary level of the multi-level perspective; their format is framed by European policy and related values carried out, at a higher level, by European and regional narratives and policies: sustainability, circularity, social inclusion, etc. They follow a top-down trajectory, where the values and narratives (top level) are translated into specifications, operational standards or infrastructures (intermediate level) in order to orient the socio-spatial dynamics in the field, in what we call niche situations (base level) (see diagram 2b). On the other hand, the project dynamics generate interactions and feedback from the ‘field’ (or the socio-spatial context in which the innovative project is located), which may (diagram 2a) or may not (diagram 2b) generate adaptations or changes at the intermediate or even, with time, at the higher level.

### **Niche situations**

Some of the MasterClass groups described another kind of trajectory, inspired not by broad narratives at the higher level but from what the MasterClass identified as niche-situations. This term refers to a situation where the project promoters (ERDF and others) are present in the field long before they seek support from innovative projects. They first invest energy in revealing and developing potentials of socio-spatial innovation, put into place by civil society and social movement, that may further the transition process in the Brussels-Capital Region. These niche situations develop their own socio-technical systems and networks (see diagram 3 — lower level). Only some of them are looking for support (logistics, financing, infrastructure) and applying to calls for innovative projects such as ERDF (see diagram 3 — intermediate level). By answering the call, they translate the idea of project into ‘project file’ in order to comply with the technical-administrative framework of urban policies. If financing is granted, the project enters the implementation phase and follows a twofold pathway back at the lower level: at the same time they transform spatio-environmental forms and adapt socio-organisational structures. Emphasis should be placed on the system of interactions between both the lower and intermediate levels during the implementation cycle: administrative and regulatory constraints that define the European and Regional frameworks can occasionally hamper the development of the project’s innovative goals and the niche situation’s layout. Work on third places has shown how cultural organisations such as Recyclart and Zinneke social economy locations (niche situations) take root in their neighbourhoods by making use of financing in sustainable neighbourhood contracts, urban renewal contracts and subsidies from the ERDF programme (innovative projects, intermediate level) that help develop a niche situation by consolidating it.

Designing Brussels Ecosystems has demonstrated that the layout of niche situations and innovative projects come with a socio-ecological transition. The MasterClass also demonstrated the interactions among the three levels — niche situations (low), innovative projects (intermediate) and European policies (top) — needed to carry out the transition process. Niche situations tend to lose steam without support from innovative projects which, in turn, depend on European policies. On the other hand, innovative projects not backed by an existing niche situation do not tend to make a place for themselves in the field and disappear when their financing runs out. In terms of public policy, the MasterClass raised the question of identifying niche situations with the potential to lead to a socio-ecological transition in order to orient the strategic choice of which innovative projects are to receive support from authorities and public policies. This raises the question of the ecosystemic interdependence between niche situations, innovative projects and public policies (regional and European) in undertaking and developing a socio-ecological transition.



**Diagram 2 — Interconnecting an innovative project with a niche situation in order to ground socio- ecological transition**

### **What orientations should the transition follow?**

The descriptions produced during the first week of the MasterClass contributed to an atlas of 'ecosystems' with multi-level interdependencies among stakeholders, innovative projects and niche situations related to four themes linked to regional and European policies: agro-urbanism, transitory densification, work-territory relations and circularity. The second week was devoted to drawing up scenarios to orient the transition of these ecosystems.

One of the main difficulties the groups encountered was that of identifying an adapted 'orientation system' for conducting the socio-ecological transition. By 'orientation system' we mean, following Bruno Latour, 'an agent and a principle capable of reorienting the world's compass, of drawing a project horizon, of enabling us to share the same culture and of dealing with the challenges of the new climate regime. This orientation system must be a cultural, political and ecosystemic movement that mobilises coalitions of stakeholders and generates a collective experience (Latour, 2017).

The MasterClass work highlighted the tension between two competing systems that orient the socio-ecological transition. The first one is the left-right orientation indicated by Schot and Geels in their multi-level perspective diagram for sustainability transition (see diagram 1): when adapted to the technological regime, innovative projects help further the ecological modernization advocated by the dominant narratives on sustainability (smart, green and inclusive). The so-called modernization implies a technological adaptation without calling into question the fundamentals of Modern Thought nor the social and political forms of advanced capitalism. As we will see in the following paragraphs, this is not necessarily the preferred orientation of the change trajectories studied by the MasterClass. The four pioneering trajectories described hereafter provide other clues about a reorientation of the socio-ecological transition process within the territory, including the socio-political challenges of integral ecology. Tending more towards a bottom-up direction, they demonstrate the role played by niche situations and innovative projects in the socio-ecological transition process.

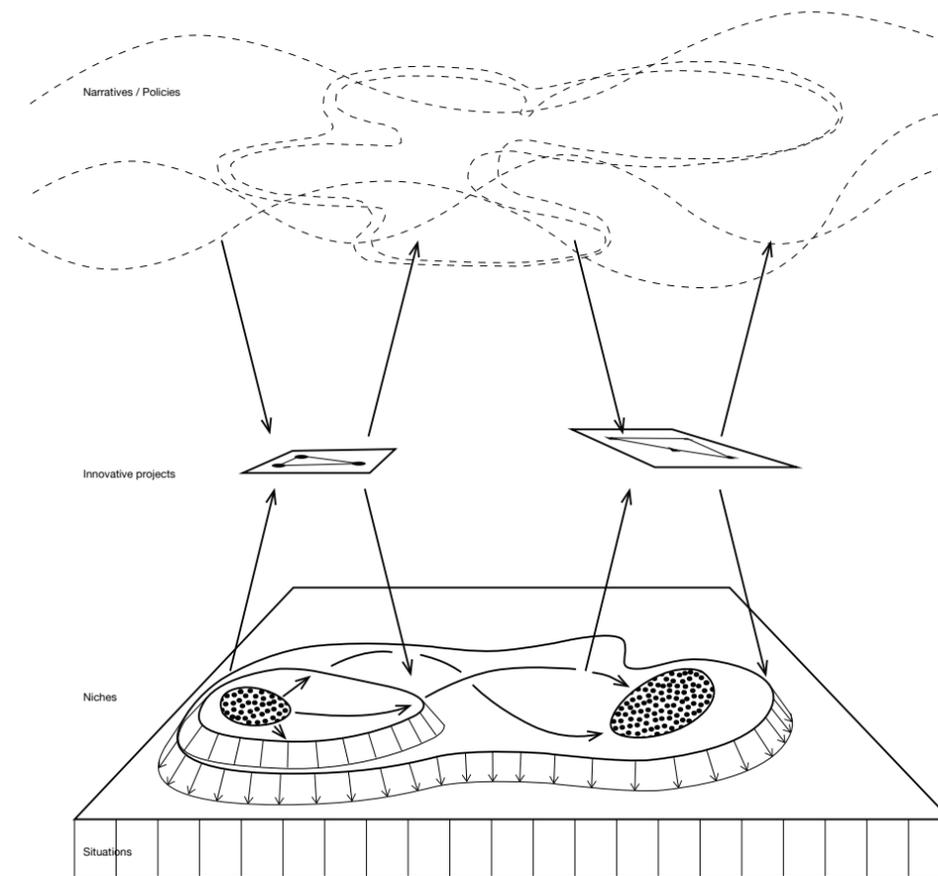


Diagram 3 — Agglomeration of innovative projects and niche situations in order to consolidate the socio-ecological transition

### **The four pioneering pathways identified during the MasterClass**

#### **Pioneering trajectory #1: A network of agro-urban practices**

The agro-urbanism group focused on a pioneering trajectory entailing the emergence of a 'yellow network' (de Lestrangle, 2019) at the scale of the 'Bruxellian bioregion' (de Lestrangle, 2017) that creates a network of isolated, unconventional agricultural practices disseminated throughout the territory, taking advantage of the niche situation in virtue of the social importance of food supply. This constitutes a latent potential for a project, whether at the scale at which each isolated practice is developing or else at the Bruxellian scale where the yellow network achieves ecosystemic consistency.

Taking into account this agro-landscape network – which fulfils a nourishment role, but also ecological and sociocultural roles – integrates innovative projects such as BoerenBruxselPaysans into a multi-scale geography in which neighbourhoods in the dense city form interrelations with the spatial, ecological and agronomic resources of the bioregion and where the forms of the 'little horizontal metropolis' (Secchi and Vigano, 2010) are conceived in a spirit of reconciliation between the city and the countryside, corresponding to

what the urban farmers in question are building close-up from the inside. This is also a pioneering trajectory in that it invites us to reorient policy actions in the perspective of a 'Bruxellian metropolitan community', a neologism whose invention could, paradoxically, restore the threads of Belgian territorial history. This distinguishes us from our English, German and French neighbours in that it bears witness to the Belgian territorial system's resistance to the city-country division established by the industrial territorial regime. As Bénédicte Grosjean clearly showed (2010), quite early Belgium adopted diffuse cities as the principal behind its territorial organisation, resisting a territorial structure centred on large cities surrounded by an industrialised countryside. This territorial vision handed down through history, together with ecosystemic common sense, was reduced to a utopia. It was supplanted by a forced realism requiring Brussels institutions to dream up densification on 162 km<sup>2</sup> of land, without taking into account the risks of expanding impermeable surfaces and rapid exhaustion of unconstructed land resources.

#### **Pioneering trajectory #2: Transitory densification**

A second pioneering trajectory uses time as the active partner of quality urban densification. Here, the niche situation is the entire real estate production system in a city covering 162 km<sup>2</sup> and confronted with demographic growth that exacerbates contradictions. This pioneering trajectory mobilises temporary occupation practices at sites and buildings, produces new forms of accepting the short timeframe of real estate projects and designs new sustainability figures that could bring new meaning to Brussels' densification strategy. The narrative of the researchers in this group reveals a project horizon organised around a non-commercial occupation programme for occupied properties and an economic ideal of collaboration and negotiated management of community property within the framework of the open perspective described by Elinor Ostrom (2010). It is in contrast to the prevailing view (business as usual) promoted by the dominant socio-technical regime in real estate development, which views demographic growth as a social constraint to be managed by a policy of urban densification that places priority on new construction based on commercial value rather than the value of how space is used. In this mainstream outlook, temporary occupation is at most an opportunistic promotion and a momentary management measure with no lasting constraints on the spatial form and its social organisation.

Using two examples to show how 'niche' situations of temporary occupation slip into the property production system, this narrative not only outlines a pioneering trajectory, it also shows the change in orientation needed for this pioneering trajectory to become a movement. The new map of projects in the city arising from this change in orientation shows that time has been integrated as a project resource and an active agent for innovation: its acceptance as an ally in the transition enables temporary occupation to take root in the territory, step-by-step prefiguring another possible future different from the one programmed by the socio-technical regime responsible for public densification policy. This map and the existing buildings also appear as priority resources rather than as constraints for real estate project.

The leading edge of tensions between these two worldviews is the field of transitory urban occupation, an expression of the sustainable insertion of the transitory into the project's technical programme.

As a pioneering trajectory, transitory urban occupation invites us to call into question the Brussels densification strategy, which remains confined to an outlook of major real estate projects and an economy of new housing production, while the Brussels building stock contains reservoirs of under-exploited real estate resources whose activation would let us view the demographic challenge from an angle that is more respectful of ecological balances. From the pioneering perspective of transitory urban occupation, densification is no longer an irrefutable condition in housing rights and the right to the city. It is a territorial regime in which democracy plays its role as a mediating authority through systems centred on 'the division of power against itself' and on the multiplication of spaces of 'free organised discussion' (Paul Ricœur, quoted by Declève, 1994).

### **Pioneering trajectory #3: Reinventing work as an urban value**

This line of narrative is based on the observation of three social economy projects. The purpose is to describe how each project leads to a situation in the city by weaving a system of relations between the place(s) where workers live (first place), their workplace(s) (second place) and third places where public life is exercised. It puts into perspective a niche situation, the 'hatching of a third place ecosystem of social economy' for which we can develop a typology based on three images: the magnet, which attracts or pushes away (Recyclart); the door, which opens and closes (Zinneke) and the bubble, which lives for itself and flies away (Smart).

The heart of the narrative is the acceptance of work as an urban value. The inquiry shows how this narrative is based on roots and a re-composition of the relationship between productive labour and personal life within a domestic sphere. The group borrowed the term 'roots' from Simone Weil. Roots refer to the objective dimension of work (meeting the body's needs — finding sustenance or improving the work situation) and its imaginative dimension (nourishing the soul — projecting an individual, community or social dream into reality).

Some practices observed in the third places visited illustrated attempts to recompose the relationship between two complementary experiences of the city that modernity and capitalism have carefully divided through spatial, social and functional separation of the productive sphere and the domestic sphere. We can see signs of this re-composition in the acoustic environment of the Zinneke workshops, where music selected by the artisans repairing the metal frames covers the noise of the machines; or the collaborative implementation of certain services traditionally related to the domestic sphere: community bar/restaurant (Recyclart, Smart), gym open to the neighbourhood, day-care, extracurricular activities, package reception (Smart). In the cases of Recyclart and Zinneke, training is a major factor in this re-composition.

The inquiry also describes contrasting modes of internal governance: a cooperative model for Smart, a consensus model for Zinneke, an enlightened guidance model for Recyclart. A common trait emerges in all three situations — the question of property is reformulated towards a model of acceptance based on use rather than a legal property status.

### **Pioneering trajectory #4: Circularities**

How can we integrate circularity in the socio-technical ecosystem of construction in the Brussels-Capital Region? That was the initial challenge set by the circularity group at the Brussels Ecosystems MasterClass. Closing the loop in the use of material resources is now one of the pillars of European urban policies. In Brussels, the PREC (Regional Circular Economy Plan) initiated in 2016 defined a general framework for transforming waste into resources while creating jobs in strategic sectors (construction, foodstuffs, etc.). The ERDF projects that we worked with during the MasterClass (BBSM — Brussels Building as a Source for new construction Materials, Usquare, IRISPHERE, Recy-K) defined a range of innovative projects. The ERDF project, BBSM, sees itself as a precise technical model for reuse of construction materials. This project is producing a socio-technical model of a given sector (construction) in order to integrate the circularity transition into it. The IRISPHERE project has a multi-sectorial position, integrating socio-technical issues (network of stakeholders) using the concept of symbiosis. Unlike Usquare and Recy-K, IRISPHERE is not connected to a specific part of the region, but rather seeks to use a large number of niche situations where the circularity of material resources could be developed through collaboration between stakeholders and flow exchanges.

In order to delve deeper into the field and into niche situations, the circularity group applied the concept of hotspots to the circular economy in connection with the construction sector. The two hotspots (Ixelles barracks and the Northern Quarter) studied during this MasterClass demonstrated the importance of coordinating innovative projects both with policies in the field and at the European level. If the circular economy is viewed mainly as a socio-technical model operating at the upper level of European and regional policies, transition from a linear system toward a circular economy in the field calls for in-depth change to the socio-technical ecosystem in the construction and real estate sector. The transformation dynamics in the Northern Quarter, studied during the MasterClass, were clearly demonstrated. The existing socio-technical blockages — independence of the property owners and developers, independence of construction and demolition businesses, independence of the storage and construction-demolition sites, etc., are a major block to the territorialisation of the circular economy. The example of the demolition-reconstruction of WTC I (ZIN) shows that policies and narratives on the circular economy remain at the top level without any anchorage in the field. While the ZIN project displays the circular economy slogan (circular tower), in reality only the lift shafts and a few components of the furnishings were actually reused in the field. The sustainability demands for the new ZIN project are delaying the general reuse of materials in short supply circuits. Collaboration at the Metrolab MasterClass between stakeholders and circular economy projects (IRISPHERE, Chaire en Economie Circulaire, Up4North, etc.) served to identify possible niche actions to drive the transition of the socio-technical construction ecosystem in the Northern Quarter. One concrete example of this is the temporary storage of windows for WTC I for future use in the Brussels-Capital Region. Unfortunately, this niche action ran up against the economic logic of the developer who did not want to pay expensive storage costs without being assured of the return on investment.

The material resource circularity set up in the niche situation at Usquare demonstrates the importance of coordination (steering) and collaboration with the stakeholders involved in the Ixelles barracks for anchoring resource and material circularity in the field. This coordination and cooperation among stakeholders at the barracks are ensured by the ERDF project with a view to applying circularity (on-site disassembly and storage of materials organised by the stakeholders in the ERDF project).

If innovation in terms of circularity, as experienced in the Usquare project, will be able to bring about a general transition in the overall socio-technical ecosystem of construction, public policies must remove the existing socio-technical barriers: independence of the property owners and developers, independence of construction and demolition businesses, independence of the storage and construction-demolition sites, etc.

#### **Four tactics for reorienting socio-ecological transition in Brussels**

For the four themes studied, the Designing Brussels Ecosystems MasterClass was able to see an interdependence between niche situations and innovative projects in the transition process. Several of these innovative projects are financed by the ERDF. Both the innovative projects and niche situations, each in their own way, provided us with information on the paradoxes of a transition guided by the narrative on modernisation and sustainability. They also gave us clues and tactics for guiding a socio-ecological transition that better includes the ecosystem of the stakeholders and niche situations in Brussels. In this third part, we identify five methodological tactics pinpointed during the MasterClass for reorienting the socio-ecological transition by anchoring it in the Brussels territory.

#### **Tactic #1 Grounding and scaling**

The first methodological tactic involves anchoring the transition in the territory. This is Metrolab's fundamental epistemological position: we must abandon the detached position of scientific observers who consider themselves outside the world they are studying. This position has been confirmed in recent works by anthropologist Tim Ingold (2017), sociologist Bruno Latour (2017), and philosophers Catherine Larrère (2017) and Jean-Marc Besse (2018). Designing Brussels Ecosystems sought to participate in experimenting a new way to, scientifically, have their 'feet in Brussels'. The researchers sought to move beyond the dead end of detached research on the 'Great Outside' (Latour, 2017). They took the risk of abandoning a purely objective and quantitative approach that considers the scientist's role to be one of drawing up a model of an ecosystem from the outside and then objectively predicting how it will evolve. In contrast to this approach, they sought to take a closer look at things from the inside, insinuating themselves into the complex network of interdependencies between spatial situations and stakeholder configurations. Giving priority to the city's geography as a system of daily practices, this approach confirms the paradox of the institutional definition of the Brussels Region's territory. For the four fields of practices studied in the MasterClass — unconventional agricultural production, building materials economy, distribution of population densities and social

economy — the scalar layouts and spatiality of the innovative projects do not necessarily correspond to the official borders of the Brussels-Capital Region. This raises the question of the institutional capacity of the Region to face on its own the spatial dimension of the problems it has to manage. We could make a similar observation for other fields such as urban transport networks, aquifer management, the soil decontamination economy, cultural activities or education.

The group that worked on third places notably showed how, increasingly, the equipment of the 'five times capital' metropolis is interwoven into the fabric of 118 neighbourhoods, leading to often original 'multi-scalar neighbourhoods' (Ananian, 2009) between the local city and the global city, between residents and newly arrived migrants, as well as social groups whose interests and living habits are increasingly diverse. With the help of an original map of time use, this group also showed how, from one time of the day, week, season or year to another, the third places analysed revealed different spaces and social mixes that 'momentarily' change the uses and spatial layout of the locations and the conditions for them to open up to the world. These attempts at representation suggest the hypothesis that, in Brussels, we no longer go from Local to Global via a series of embedded levels, as the illusion cultivated by Google Earth would suggest.

#### **Tactic #2 Transdisciplinarity and interculturality**

The required knowledge approaches needed to get through the natural, social and political ecosystems laid down by the MasterClass's introductory methodological framework are a major challenge. This is first of all — and obviously — a transdisciplinary challenge. The MasterClass adventure showed how much these approaches bring about change. It also demonstrated that, when research wants to put down roots in a territory, running inside of the ecosystems and navigating as close as possible to social practices, the demand for interculturality grows beyond the issue at stake in the interdisciplinary dialogue between geographers, anthropologists, sociologists, town planners, landscapers and architects. More generally, what is called into question is the system of interrelations between researchers and socio-technical, political and cultural structures of the territory. The transition is to be considered as a cultural move from one world to another, from academia's ivory tower to the city of practices. It is a challenge at each step of the research process: when defining the main question, the goal and the proceedings of the research, when gathering and processing of information, when producing analysis, when choosing representation techniques and language of communication and when negotiating the uses of the results.

This kind of knowledge approach is fundamentally process-oriented. It does not leave behind any of the activities or stakeholders involved in the causal chain at work in territorial organisation. It requires interactions with ecosystems that the research seeks to represent. These ecosystems are also what enable the research to be carried out. The ecosystem is no longer just a framework, an environment or an object of research, but rather becomes the subject. One aspect of the research is to try to grasp, understand and foresee how it will react to the researchers' questions, hypotheses and proposals.

In such a process-oriented, 'grounded' perspective, the ecosystem contains the research as much as it, itself, is contained in the research. The epistemology

never allows the research system to completely ‘frame’ the ecosystem in which it is embedded. A direct consequence of this is that researchers involved in this kind of knowledge process have no hope of keeping out of controversies. They need a different type of psychological equipment and must be organised to resist.

### **Tactic #3 Collective experimentation**

A third convergence between the pioneering trajectories detected by the different groups was the distance taken from the green and smart urban policies and narratives that give priority to technological answers.

From an urban planning point of view, smart cities seek to optimise their energy consumption and transports by combining digital and high technologies. They define a regime based on an ‘economy of technological promises’ (Bourg, Kaufmann and Médal, 2016, p. 15). This regime assumes that new technologies can provide an answer to the environmental crisis while preserving growth and the lifestyles that come with it. By claiming to meet the needs of the ecological transition through technology, smart cities and geo-engineering merely update the modern belief in technology and science as the answer to our environmental problems. In contrast to this position, the Brussels Ecosystems MasterClass and conference provided arguments supporting the idea that the transition cannot be envisaged with purely technological solutions.

The difficulty caused by the economy of technological promises is the preponderance of technological and industrial answers, which undermines the exploration of contextualisation and understanding of the territory (the ‘Terrestrial’ according to Latour, 2017). Urban policy runs the risk of turning into a set of standardised, context-insensitive technological solutions. Yet, the environmental price of (high) technologies (consumption of fossil fuel, rare metals and pollution due to extraction processes) should lead us to foresee other horizons. If the citizen and the decision-maker have a hard time finding room for themselves in the scientific development of high technologies, they can, on the other hand, claim to have a fine understanding of the environmental context, the ground and the local material economy. These questions were especially covered by the participants in the circularity and agriculture theme groups.

The Brussels Ecosystems MasterClass reinforced the hypothesis that answers are to be found in collective experimentation by identifying interdependencies between humans and non-humans rather than in the development of technological solutions. It notably demonstrated that circular economy projects and agriculture projects are mainly faced with ecosystem problems. Technical solutions usually are clearly identified (reuse of construction materials, recycling organic waste, transitory occupation of abandoned buildings, new channels, etc.). Implementation of these solutions requires a socio-spatial experimentation with a twofold objective: first, to help overcome resistance (legal, administrative, political, economic, social or cultural) that may arise from their integration into the socio-technical ecosystem; secondly, to establish the new regime of interdependence that they require (interdependencies between human stakeholders, but also between humans and non-humans).

That is a conclusion to be drawn from the analysis of certain ERDF projects such as RecyK, IRISPHERE and BoerenBruxselPaysans, all three of

which display their ambition to contribute to the ecological transition movement and to be seen as innovative from a technical point of view. The stakeholders at BoerenBruxselPaysans openly discussed their difficulties in maintaining and consolidating a sustainable local agriculture sector in Brussels. They are not only confronted by economic and legal constraints; they are also up against the configuration of agriculture’s socio-technical ecosystem whose layouts do not correspond to the regional space in Brussels. The IRISPHERE project is confronted with similar difficulties: even if it perfectly fits into the circular economy paradigm put forward as a Brussels priority, in reality its promoters are struggling legally and economically in implementing its projects for reuse of materials and recycling waste.

These case studies confirm the capacity for resistance to innovation and the inertia found in the existing socio-technical ecosystems and regime (construction, agriculture). The more the innovative projects are designed as technical objects independent of the context, the stronger the resistance from the ecosystems and regime. Thus, the abstract model of the circular economy (material waste as a resource) and its technical tools (biomethanisation unit, material disassembly unit, etc.) can only provide concrete solutions if they are integrated into the interdependent construction and agroecology ecosystems. In general, the case studies used during the MasterClass indicated the interest in instituting a regime of collective experimentation for testing innovative socio-spatial agencies.

### **Tactic #4 Designing with**

All of the above invites us to adopt a renewed critical mind to revisit the modern view of territorial projects calling for plans imposed from the outside in a given context and an inert material. Instead of this model projected *on* a material and an inert context, contemporary authors such as Catherine Larrère (2018), Tim Ingold (2017) and Jean-Marc Besse (2018) have suggested substituting a design process *with* the material, the context and the ecosystems. Their work confirms that the distinction between humans and non-humans, between natural and artificial, is now irrelevant to studying ecosystems. This requires a real epistemological revolution: referring again to the example of the construction materials economy, we need to stop thinking that it is enough to take into account the material and energy flows deployed to demolish and/or (re)build the city — whatever the level of expertise required — to define a project to reduce the carbon footprint. Urban operators must understand that (de)constructing the city is not just an abstract manipulation of formal representations of space, but rather implies an in-depth transformation of environmental materials (Ingold, 2017). This was the basic meaning of the exercise the researcher groups did during the MasterClass: shifting focus so as no longer to be stuck on objects and physical infrastructures and to move towards an ecosystem of interdependencies between objects / stakeholders / communities / territories and, within this ecosystem, to try to understand or forge relations that can shift the processes observed in the direction of the socio-ecological transition.

The Masterclass also contributed to highlighting the tensions between two models of coordination within the ecosystems analysed. The first is based on mastery of the project plan or specifications. This works hierarchically,

determining the ecosystem's dynamics in relation to certain themes or certain phases of the project cycle. The financing and legal status of the actions usually depend on this system of coordination. The second model focuses on a principle of transversal actions. It targets mastery and control less than movement, responsiveness and networking. Most of the time, both systems are embedded in a kind of symbiosis process where antagonism does not prevent coexistence. This can be tricky, but over time it gives rise to often original formulas for synthesis. This is the case at Masui, for example, where the cultural ecosystem of the Zinneke Parade — governed by a method of transversal coordination — cohabits with the public economic ecosystem associated with the ERDF project for transforming buildings and recycling materials.

### Epilogue

The research carried out at the Brussels Ecosystems MasterClass demonstrated the importance of socio-spatial innovation beyond the technological issues at stake. It also showed the interdependence of niche situations, innovative projects and certain pioneering trajectories. Lastly, it showed the choice of possible orientations for the socio-ecological transition from modernisation towards sustainability (left-right) and on to the territorial anchoring of socio-spatial innovations. Today, although Brussels is energised by many micro-projects for socio-spatial, economic and environmental innovation, its institutional, administrative and legal complexity sets up many obstacles to a generalised transition of these ecosystems and socio-technical regimes.

The phenomena indicate the need to redefine the guidelines for research on Brussels and urban policies as local objects and global objects. Not only do they call for a transdisciplinary approach to ecology, including the ecology of natural systems, political ecology and social ecology, but more importantly, they indicate that we must build a knowledge ecology if we are to achieve this transdisciplinary change. Designing Brussels Ecosystems is part of a knowledge ecology process that is reshuffling the cards, clouding the references and forms of reasoning in place, running the risk of coming up against increasingly questionable scientific objectivity. The goal is to experiment with research practices that foster training in individual and collective capability to react to the accelerated destruction of terrestrial ecosystems and to break with the lifestyle imposed by the alliance between modernisation and contemporary capitalism.

This need for experimentation applies to all the fields in which the goal is the empowerment of humans firmly anchored in their environment — in other words, political action as well as independent work, leisure activities, artistic, educational and solidarity-based activities, nourishing activities, etc. This means — and this is why we have a radical shake-up and reorientation — that it also covers the city and all its production processes. Between radicalism and reformism, it is up to the Brussels ecosystem to work out the trajectories of its transition. We hope that some of the proposals from the pioneering projects put forward by the four groups in the MasterClass can contribute to giving an orientation and meaning to this process.

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