(Designing) Urban Production

Metrolab Brussels MasterClass III

Carlier Louise
Declève Marine
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Cesari Sara
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(Eds.)

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Foreword

Exploring the relation between production of the city and production within the city

Louise Carlier, Jean-Michel Decroly and Geoffrey Grulois

This book presents the results of the third international MasterClass hosted by Metrolab in January and February 2020, on the theme of urban production in Brussels. This event was devoted to the development of a practical reflection on the relation between production of the city and production in the city. How to approach urban production from a transdisciplinary and critical perspective? Before going deeper into this question, we would first like to situate this project in the context of Metrolab.

Metrolab is a transdisciplinary and inter-university laboratory for applied and critical urban research, funded by the Brussels-Capital Region through its European Regional Development Fund (ERDF*) programme (2014-2020). This laboratory, created by UCLouvain (Université Catholique de Louvain) and ULB (Université libre de Bruxelles), is a collaboration between four existing research centres: CriDIS (social sciences), LOCI (architecture and urban planning), LoUIsE (urbanism, infrastructure and ecologies), and IGEAT (geography).

Metrolab offers a unique opportunity to experiment with new forms of transdisciplinary urban research, embedded in the practical and institutional setting of the Brussels-Capital Region. The European Regional Development Fund for the Brussels-Capital Region provided Metrolab with the means to conduct action-research studies as part of the 46 projects subsidised under the 2014-2020 programme.

The main objective of this academic support to the ERDF* programme is to test the ability of researchers to offer reflection and foster coordination regarding urban policies and projects. The objective is also scientific and epistemological, as Metrolab wishes to test new scientific forms of engagement and positioning in urban research.

In terms of the themes covered, Metrolab's scientific programme is structured around three themes of research: urban inclusion, urban ecology and urban production, which follow the focuses of the European urban policies and match the social, environmental, and economic dimensions of sustainable urban development. In terms of timing, these axes of research form three successive cycles of work.

Reflections on the theme of urban inclusion began in 2015. During the year

2015 and 2016, ethnographic surveys, mapping and co-design workshops were organised around several ERDF* projects in collaboration with local actors and urban project stakeholders.These investigations on urban inclusion and hospitality in Brussels culminated in the conference and MasterClass In/Out Designing Urban Inclusion, organised in January and February 2017. The MasterClass explored how to practically approach the quality of inclusion and hospitality of urban projects and environments, taking different projects as case studies. From a socio-spatial perspective, the issues of inclusion were addressed as much as questions of (architectural) design as of (socio-political) processes. The results of this work were published in the book “Designing urban inclusion” (Metrolab, 2018).

The theme of urban ecology has been explored since 2016. During two years, it has unfolded through seminars exploring the field of political ecology, human ecology, metropolitan agriculture, urban metabolism, socio-ecological transition, etc. In October 2018, the Brussels Ecosystems international conference looked into an integrated approach to environmental, social and political ecosystems. In January and February 2019, Designing Brussels Ecosystems MasterClass was organised as a testing ground for this transdisciplinary approach to urban ecosystems. The results of this MasterClass were published in spring 2020. It explores the ecosystems of innovative projects (such as ERDF*), niche situations and pioneering practices in four thematic ecosystems: agroecology, construction, social economy and temporary occupation. As a conclusion it emphasizes grounding innovative projects and suggests a compass to navigate toward the socio-ecological transition of Brussels.

Each thematic cycle ends with a MasterClass where all the members of Metrolab (researchers, coordinators, professors, administrators) apply methodological innovation to real situations and case studies in coproduction with Brussels urban project stakeholders and local operators (including actors of several Brussels ERDF* projects). This is why the MasterClass is a unique occasion for transdisciplinary experimentation and co-production: it calls upon the skills and knowledge of our researchers; it builds relationships with those in charge of ERDF* projects and other urban projects; it experiments new methods for urban analysis, idea development and urban project improvement. It offers the chance for international researchers in various disciplines (sociology, architecture, political science, landscape architecture, urbanism, geography, etc.) to gather in Brussels, in order to reflect on the local ERDF* programme and develop new and future-oriented suggestions aiming to improve urban policies.

This book presents the results of the third MasterClass, on the topic of urban production. In a context where European and local public authorities are promoting the maintenance and/or reinforcement of productive functions in the city, the MasterClass ‘Urban Production’ pursued the objective of better understanding the interactions between production in the city (productive activities in the urban environment) and the production of the city (the daily manufacture of fabrics and urban projects), and identifying the issues at stake.

How can these dimensions of urban production be approached in an interdisciplinary perspective while taking into account the diversity of productive activities and the diversity of their modes of urban integration? To address this question, this MasterClass proposed to work on two analytical and methodological axes: one relating to the different types of productive activities in the city, the other to their modes of integration in the urban fabric and the role of urban policies in this regard. These two axes cross all the different parts of this publication.

The first part of this publication, entitled ‘Context’, includes several texts that provide an understanding of the topic as it occurs in

Brussels: the different types of productive activities and their historical development in the city (J.-M. Decroly); the different planning tools and city planning imageries’ that have shaped the place and development of productive activities in this urban environment (B. Moritz); and the impact of European urban development policy on urbanistic and economic planning (M. Declève). It also explains the methodology that has been set up to approach this topic during the MasterClass. The last text of this first part presents the three territories explored during this MasterClass. The methodology, thematics and territories of investigation were defined by a group of researchers from Metrolab (Louise Carlier, Romina Cornejo Escudero, Marine Declève, Jean-Michel Decroly, Christian Dessouroux, Geoffrey Grulois, Marco Ranzato, Mathilde Retout, Corentin Sanchez Trenado) in close collaboration with the two Metrolab managers (Sara Cesari and Louise Prouteau).

The second part, entitled ‘Explorations’, has been co-produced with the MasterClass participants – researchers with diverse disciplinary and geographical backgrounds – who worked in close collaboration with economic actors, project leaders and institutional stakeholders from Brussels during those two intensive weeks of research. This part is divided into two sections: the first one, ‘production in the city’, proposed a descriptive analysis on different types of productive activities, based on specific case studies of companies in Brussels which differ both in their modes of production and in their modes of urban integration. The second one, ‘production of the city’, presents a prospective analysis of sites and projects intended for productive activities, whose programming and design were still under discussion during the MasterClass. Based on these case studies, this section addresses more broadly the issue of urban planning of productive activities.

The third part of the publication, ‘Discussion’, includes critical insights on specific issues of urban production addressed during the MasterClass by experts in the field: the tension between old and new types of productive activities (A. Orban & C. Sanchez Trenado), the importance of mixed use neighbourhoods for maintaining urban production (A. Hill); the difficulties encountered in preserving some monofunctional areas for industries in the city (J. Zaman); the redeployment of neo-artisanal activities in urban spaces (based on the case of micro-breweries) (P. Delperdange & M. Zune).

This publication ends up with a conclusion by Metrolab researchers that looks back on the various paradoxes that can be observed between the intention to maintain productive activities in the city and the difficulties encountered in actual practice. It then proposes to address questions often left unanswered in reflections and debates on urban production: why should these activities be maintained in the city? Which activities should be publicly supported, and how? Beyond the matters of design, these questions invite us to consider the issues of inclusion and ecology in the world of urban production.

Lastly, the publication also includes an appendix containing a listing of all the actors, institutions, plans and tools cited in this publication; in order to facilitate reading, each time one of them is cited, an asterix will refer you to this appendix.

We hope the Brussels Urban Production MasterClass and this publication will provide insights for reflection and action on these issues and offer tools for further interdisciplinary research on these questions.

Context

Production in the city: a critical inquiry into the question of urban industry in Brussels

Jean-Michel Decroly

In Europe over recent years, the theme of urban industry has sparked keen interest among researchers as well as citizen associations and public authorities. In Brussels, this popularity has taken shape in a multiplication of studies, plans and projects concerning so-called productive activities.

Alongside works, now classics, by Puissant (2009) and Vandermotten (for a summary see Vandermotten, 2015), a whole series of new research has appeared recently. To begin with we can cite De Boeck (De Boeck *et al.*, 2019, De Boeck & Ryckewaert, 2020, De Boeck *et al.*, 2020) on the building sector, but also work by Sanchez Trenado and Orban (Orban *et al.,* 2021) on industrial activities in working-class neighbourhoods, as well as S. Kampelman (2017) on the circular economy. An abundant production has also seen the light in the field of applied research in architecture and urbanism (for example: the Re:work Brussels MasterClass in 2012, the 2014 ‘Productive BXL’ workshop, the project ‘Productive Metropolis’ in the context of the 2016 International Architecture Biennale Rotterdam), production that culminated with the research project ‘Cities of Making’ financed by the European Union that focused on urban industry in Brussels, London and Rotterdam (2017-2019). The associative sector has also been quite busy, through its mobilisation in favour of industrial activities in working class neighbourhoods and its initiatives in the field of action research (Sénéchal, 2015; Orban and Scohier, 2017). Lastly, the Brussels public authorities have initiated a – somewhat patchwork – series of initiatives illustrating their concern for urban industry. In 2012 it launched an observatory for productive activities (Observatoire des Activités Productives) and drew up several action plans (the Brussels Mobility ‘Goods’ Roadmap – Plan Marchandises* –, 2013; Regional Programme for Circular Economy – PREC*-, 2016; Industrial Plan in 2019). All these actions infused into the region’s inner sanctums the notion of a ‘productive city’ which conveys a positive image of industry installed in the urban fabric. Despite – or in virtue of – the fact that its outlines remain quite vague, it now enjoys a large consensus. A similar consensus can be observed in other metropolises, as shown in the reports issued under the ‘Cities of Making’ project.

The recent interest in the ‘productive city’ is a fairly surprising because it is inversely proportional to the place that industry current holds in the metropolises in the core of the world-system (MCWS). In the context of the new international division of labour (NIDL), these metropolises maintain a key role in

economic decision-making as they are home to the main global stock markets, along with the headquarters of major transnational corporations and other major clients. Often they also play an important role in political leadership, at the national or international level. They are also major hubs in the exchange of goods, people and information. Furthermore, through their universities and research centres, they are also crucial centres for the knowledge economy. They are also the main fora for production and dissemination of cultural activities. Yet, these metropolises are no longer industrial, or hardly. Indeed, while manufacturing was a main employer until the 1970s at least, it presently stands for only a limited portion of total employment: 2% in London, 3% in Brussels and Paris, 4% in New York, 7% in Barcelona and Berlin, compared to 32% in Shanghai!

After a brief discussion of the terminology needed to circumscribe the field of productive activities, this chapter first intends to present the logics underlying de-industrialisation at work in the MCWS for over half a century, taking Brussels as the example. This analysis will show that strong structural logics argue against maintaining a major industrial fabric, especially in the central and close peripheral areas of the agglomerations concerned.

In the second section we identify and discuss a series of recent evolutions that point to a slightly brighter future for metropolitan industry. On this basis we will present and compare three distinct narratives on the productive city: *urban circular production economy, maker city, foundational economy*. We shall conclude by examining how city public authorities account for these narratives in the framework of their industrial plans and policies.

Recent research, studies and plans regarding industry in the city tend to replace the term ‘industry’ with that of ‘productive activities’. This shift apparently has arisen from the degraded image of industry in the core states of the world-system (CSWS): too outdated, too polluting and too tied to the world of workers to have its place in the city! The term ‘productive activities’ is not burdened by these negative connotations, but its definition remains to be stabilised. This is because it comes up against the maximalist notion of actors such as Damette et Scheibling (1995), according to whom ‘productive’ activities – compared to social reproduction activities – refer to those that produce wealth (the sphere of material production: agriculture, industry, construction and public works, and the peri-productive sphere: services to companies, finance, services by networks). It also comes up against more restrictive conceptions, such as that of the Brussels-Capital Region’s (BCR) Observatoire des Activités Productives, which limits the field of productive activities to a set formed by manufacturing, construction, logistics and (public and private) passenger transport. This lack of clarity maintains a certain vagueness on what is covered by this term, and this can have a repercussion on public action: whether certain productive activities are promoted or excluded in the urban space effectively depends on the perimeter retained to define them.

In order to avoid this drift, we suggest adopting a restrictive definition of productive activities and considering them as consisting of all the activities for transforming matter into material goods. The economic agents involved thus effect a qualitative change in the matter so as to adapt its properties so as to better meet the needs of society (Darmangeat, 2016). When iron ore is transformed into girders, the steel companies produce goods that can be of a social use, such as railroad tracks or beams used in construction.

By limiting the field of productive activities to those that effectively do play a role in transforming material, we immediately discard the agriculture, forestry and livestock sectors. Indeed these sectors do not lead to transformation in matter but in socialising the process of biomass production, by selecting certain species and controlling their growth factors in order to maximise the amounts produced. Likewise, we did not retain the construction sector since it leads to assembling materials (bricks, concrete blocks, metal beams) that have already been transformed. Neither did we include logistics, which organises the flow of goods without transforming them; we also discarded activities to produce immaterial goods (audio-visual productions, software, music recordings, call centres, etc.) which, once again, do not change the physical characteristics of goods. On the other hand, we did include activities that occur either downstream from those we discarded (such as the agri-food industry that turns agricultural and livestock products into food for human consumption) or upstream (such as manufacturing building materials, worksite implements, means of transport or micro-computers, etc.).

Altogether, productive activities can thus be assimilated to the manufacturing industry. The two terms will thus be used throughout this text as synonyms. This assimilation, which simplifies the organisation of this discussion, should not let us forget that a growing source of employment and added value to industry comes from activities such as research, management, customer service and quality, except when they are handled by sub-contractors (Daniels & Bryson, 2002). In the CSWS, manufacturing that is purely material is now merely one facet of an industry. Consequently, an industry is now deployed less in its factories than in R&D centres and offices (Veltz, 2017). The recent development of the functional service economy, which tends to replace the sale of a product with the sale of its use, also tends to amplify this process. Along these lines, if it is appropriate to consider that industrial firms are distinguished by the fact that they devote part of their activity to a process of material transform, then one must also admit that, at the same time, they often provide many supplementary activities that contribute to the design of the goods they produce, the supply in inputs, and even the marketing of their products. The usual categories of economic activities, especially those based on NACE codes, are incapable of rendering this articulation of functions around a product or set of products. One workaround would be to emphasize an approach in terms of value chains, which takes into account simultaneously activities that participate in material production and those that provide support for them. Implementing such an approach, however, raises several technical and statistical problems.

Widescale deindustralisation

Since the Early Antiquity, cities have been a home to productive activities, whether crafts intended to meet the city’s basic needs (spinning, weaving, tanning, carpentry and cabinetmaking,…), activities to process food products (brewing, distilling), or luxury crafts (lace, silk, carriage making and, later, printing). Although these activities partly served to distinguish cities from one another at the economic level, they actually employed a small portion of the population and the urban surface. In Europe, North America and then Japan, the situation rapidly evolved during the 19th century, following the Industrial Revolution. This led to the creation of new cities largely dominated by mining and manufacturing. Of some 300 cities with a population of over 100,000, representing the CSWS of 1910, one third of them appeared in the 19th century, mainly in the coal and mining regions (Bairoch, 1985). Furthermore, the industrial revolution furthered the development of productive activities in already-established cities, especially in the largest ones. These activities, mainly directed towards satisfying daily consumption needs, found both the manpower and the markets they needed, at the same time taking advantage of proximity to the centres of economic and political decisions as well as places for innovation, such as universities. In Brussels, for example, urban industry thus saw a remarkable upsurge. Industrial employment grew sevenfold from 1846 to 1930, from 20,000 to 150,000 jobs. Initially specialised in the food and textile industries, the city gradually diversified with the installation of companies in sectors such as pharmacy, chemistry, manufacturing of machines and printing-publishing (Vandermotten, 2015). As in other cities, industries first settled near the historical centre, before moving out along the Brussels-Charleroi canal, in particular in the *faubourgs* of Forest, Anderlecht and Molenbeek-Sain-Jean.

Starting in the 1960s, following distinct chronologies, the MCWS experienced a more or less drastic drop in their productive activities. In Brussels, industrial employment continued to grow from 1930 to 1947, despite the Second World War, and remained at a high level until 1970. From that time on, employment numbers declined drastically. In 1970 in the BCR, some 165,000 people were still employed in manufacturing, representing slightly over one-fourth of the region’s jobs. At that time, Brussels was still the largest industrial agglomeration in Belgium. Since then, employment in the sector has plummeted: from 86,000 units in 1986 (down 48% from 1970), then 38,000 in 2006 (-77% compared to 1970) and on to

22,000 in 2014 (-87% fewer than 1970). At that time, classical industry provided no more than 3% of the total number of jobs and 3% of the regional added value. Furthermore, what remains of industry in Brussels is largely related to management, control and maintenance activities: in 2006, over half the employees in the Brussels manufacturing industry were white-collar workers, compared to one-third at the national level. Only three sectors still have a significant presence in the territory of Brussels: agri-food, chemical and pharmaceutical industry and vehicle manufacturing, with Audi-Forest, the only large industrial firm still located in the Region (with approx. 2,500 jobs). These figures hardly change if we add manufacturing jobs in the circular economy and repairs (1,700 jobs, 0.3% of total employment, in the sectors of water, wastes and computer repair) and those of the digital industries (14,500 jobs, 2.2% of total employment, in the sector of programming, consultancy and other IT activities) (Lennert *et al.*, 2018). On the other hand, the volume of employment devoted to productive activities almost doubles if the construction sector is added to those cited above (33,000 jobs, 4.9% of total employment).

The multiple logics underlying metropolitan deindustralisation

During a first period, in the years 1960-1980, stagnation or decrease in urban manufacturing employment in the CSWS was the result of logics to deploy the Fordism model of industry. The key industrial sectors of the time – especially the automotive industry, electrical appliance manufacturing and furnishings – were looking for vast plots of land, at low property cost, suitable for stretches of horizontal buildings as well as large warehouse and parking areas. They thus preferred peripheral locations, whether in peri-urban zones or in more remote regions, such as the Limburg in Belgium. In parallel, industries already located in cities were faced with unexpected difficulties. While road freight came to dominate to the detriment of other forms of merchandise transform, the increase in individual vehicles gradually led to city traffic congestion, delaying and complicating deliveries. In parallel, the rise of the services sector, in a context that was still one of full-employment, made it harder to hire industrial labourers in the city. In addition, the urban industrial buildings were ill-adapted to new modes of production organisation and prospects for regular productivity gains: insufficient surface to install new horizontal assembly lines or more voluminous storage, access to the buildings difficult for lorries, loading platforms ill-adapted, and so on (Mérenne-Schoumaker, 1977). What is more, because of the rarity and cost of such land, possibilities to grow on site were highly limited. And, to top it all off, urban industry provoked growing hostility (Vandewattyne, 2015). Following the emergence of neighbourhood committees or other local resident defence associations, the nuisances generated (noise, odour, smoke) were no longer grudgingly tolerated, but were contested by those living nearby or even, in some cases, by public authorities. In the face of these multiple constraints many production facilities installed in the city decided to move elsewhere. In Brussels, this was the case of the *Côte d'Or* factory located next to the Midi station. In 1991, after the Belgian chocolate-maker was purchased by the Swiss group Jacobs-Suchard, then by the Philip Morris company, the building was abandoned for new facilities located in Hal, on the outskirts of Brussels. Other production units simply shut down, such as the Nestor Martin factory (oven-builder and foundry) in Berchem-Sainte-Agathe (1989), the H. Demoor & Co. establishment (machine tool manufacturing) on the chaussée d'Anvers (in the late 1980s) or even the coking plant located on the Buda-Marly site along the Willebroeck Canal (in 1993).

Along with the factors mentioned above, also important to cite are the repercussions of the deepening new international division of labour (NIDL) (Starosta, 2016) from the 1990s. Largely driven by transnational firms, the nature of the NIDL is an unprecedented interdependence among productive systems at the global scale, reflected in the multiplication and spread of supply chains. In these chains, manufacturing of a product is fragmented among different places to minimise production costs, through exploitation of the different comparative advantages of nations, regions or cities. This process comes about without undue difficulty thanks to lower transport costs, development of telecommunications and digitalisation of the economy. The NIDL has also increased

specialisation in production spaces. This is because the world's different territories, placed in competition by the global firms, are unequally attractive for different segments of a supply chain. Whereas low labour costs, tax advantages for companies, a weak labour movement and high accessibility are key factors in locating activities with low added-value, on the other hand closeness to the market, availability of a qualified workforce and research laboratories are attractive elements for high added-value activities. In this new context, industrial firms installed in the MCWS, particularly those involved in the least qualified segments of production, find it hard to either continue their activities or remain within the urban fabric. In Brussels, several factories still operating in the early 1990s have now closed down. For example, this is the case of the United Energy plant in Anderlecht, specialised in producing batteries; it employed 450 workers in 1992 and closed in 2000. Other cases are the main site in Forest of Diamond Boart, with 800 jobs in 1992 which moved to an industrial zone in Hainaut in 2004, or the Illochroma printing company in Uccle, employing 400 workers in 1992, which declared bankruptcy in 2008. Altogether, from 1986 to 2019, over 65,000 manufacturing jobs were lost!

During the past two decades, the urban industrial fabric was also under threat through growing competition with the residential function. In the case of the BCR, this competition was fed by the combined effect of several phenomena: steady population growth since the early 2000s, a surge in property value, eagerness by real estate companies to acquire property in the, still partially industrial, working class neighbourhoods along the Brussels-Charleroi canal, and public policies aimed at attracting and/or maintaining the middle or dominant classes in central areas. From the regulatory point of view, the competition was concretised in the definition of a new land use category, Enterprise Zones in an Urban Environment (ZEMU*). It authorises joint occupation of residential and productive functions in zones formerly devoted to manufacturing, reducing the single-function spaces set aside for industry (see the chapter by Marine Declève on this subject p.41). The confluence of these elements has weakened the manufacturing function in relation to the stronger functions, which are now housing – for the middle and dominant classes – and services, especially those with a capacity to attract an external economic potential. One might say that the spaces in which the earlier, industrial, function had been installed represent a reserve of land for contemporary and future development of the second two functions. Paradoxically this reversal is happening at the same time as public authorities are committing themselves to policies aimed at promoting the productive city (see the conclusions of this publication).

It is worthwhile noting that the activities suffering from this ongoing evolution are mainly 'classic' productive activities, primarily established in the city prior to 2000. On the contrary, certain 'new' productive firms, in sectors such as recycling or artisanal agri-food transformation, seem to be getting by, for now at least (Orban et al., 2021). Often quite small, bolstered by images of local production and sustainable development, for the time being they owe their existence to financial support from public authorities.

Altogether, the future of urban productive activities seems to be in jeopardy. Moreover, some consider that policies – and urban struggles – aiming to keep industry in the cities are more 'rear-guard battles' (Vandermotten, 2015), feeble efforts compared to the strength of the structural factor they oppose. Nevertheless, several recent evolutions seem to suggest another path.

A recent evolution in the context: vulnerability of global supply chains and new industrial logics

Over the past decade, even before the Covid-19 health crisis companies fully engaged in the NIDL were feeling its downside. This growing awareness was further amplified by the health crisis of 2020-2021, which also demonstrated how hazardous it was for areas 'without factories' to be dependent on global supply chains. Although these evolutions do not call into question the dominant location mode for productive activities, it has served to draw attention to its drawbacks and also to its alternatives. In parallel, certain recent evolutions in concepts on organising production and industrial techniques could in the future make it easier to maintain or install productive activities in urban areas.

Several recent empirical studies have identified the limits of offshoring

productive activities had for the companies themselves (see for example Bailey & De Propris, 2014; Bost, 2015; Bost & Leriche, 2018; Messadoui, 2018). Some are tied to modes of production in sub-contracting factories or branches, such as weaker productivity compared to the original production sites, counterfeits and copies of models manufactured on site, stealing production technologies or insufficient quality of products delivered by these factories. Other drawbacks are rising salaries in the semi-peripheral countries where assembly line segments had been offshored, totally cancelling the main, if not sole, comparative advantage. Another limit is the gradual increase in the costs of transportation between the production sites and the consumer markets, as well as delays in supply and restocking. This last factor is a considerable drawback in view of the present domination of the *just in time* production logic and companies trying to renew their collections quickly (see for example, *fast fashion* in the clothing sector). Furthermore, the competitive advantages of offshoring can be considerably undercut when robots or production automation in the original sites bring considerable economies. Lastly, some firms try to reduce their dependence on others located abroad or do not want to lose local know-how and skills, because such a loss would make it impossible to reshore production back to the original production sites.

More recently, the current health crisis linked to the Covid-19 pandemic, has revealed quite brutally the vulnerability of companies involved in the NIDL when supply chains were interrupted, even temporarily. The European and North American manufacturing sectors, especially industries with highly fragmented supply chains (textiles, automobile manufacturing, information and communication technologies) were thus heavily impacted by the halt in supplies from Eastern Asia, especially China, South Korea and Japan (Jean *et al*., 2021). Nevertheless, the impact of the supply chain suspensions generally did not last long and will be clearly less drastic than the fall in consumption.

More importantly, the health crisis revealed the fragility of territories where consumption at least partly relies on products coming from global supply chains. Interruptions in the supply of raw material, inputs or finished products considered as essential had a considerable impact. For example in Spring 2020, in several EU countries breakdowns in the supply of masks, protective clothing, antiseptic gel, swabs, respirators or active ingredients for medicines, complicated organisation of effective measures to limit the spread of Covid-19 and/or cure severe forms of the disease (Miller *et al.*, 2021). These unexpected effects illustrate the EU's extreme dependency on the rest of the world for certain strategic products. For example 80% of active pharmaceutical ingredients, the basic components of medicines, are manufactured outside the EU, and 60% are produced in China and India (Jean *et al*., 2020). The fear this situation aroused in the population along with complaints from healthcare professionals but also from pharmaceutical laboratories that no longer had access to products essential for producing their medical drugs, led to several calls to shorten – in number of steps or distance travelled – product supply chains, especially those considered as essential. This shortening, akin to calls for food reshoring and aligning with the need to reduce greenhouse gas emissions, could take shape in the implantation of local or regional supply chains, closer to consumers, or to intra-European supply chains.

Although it is still too early to actually quantify the specific effects of the 2020-2021 crisis and measures implemented in this context on location of productive activities, studies on industrial reshoring in Europe up to 2019 show that cases remain fairly rare. In the case of France, for example, only a few dozen companies reshored their activities from 2008-2017, often in the form of smaller-scale operations, representing less than 0.5% of jobs created (compared to over 3% of jobs lost to offshoring) (Messadoui, 2018). Similar results were observed elsewhere in Europe (Eurofound, 2019). Behind all the media hype about certain emblematic cases – such as the Rossignol ski manufacturer which, in 2010, moved back to Sallanches most of the production it had offshored three years earlier to Taiwan – lies a phenomenon that remains modest. Admittedly, reshoring efforts run up against several difficulties, which increase with the number of years offshore: loss of know-how and skills in

the interval between the two operations, complications in hiring the necessary manpower, problems in setting up a local or regional supply chain, based on exchanges with companies situated upstream from the the production process (Bost, 2015). These observations seem to suggest that despite the Covid-19 crisis and renewed measures in this area, global supply chains will not disappear, despite the detrimental effect their deployment may have on industrial employment in the CSWS, especially in their metropolitan areas. However, it can still be said that the crisis itself highlighted the importance of taking the population's real needs into account and thus of replacing the market-based logics behind NIDL with logics that give priority to meeting these essential needs.

In another aspect, emerging concepts and techniques seem to offer new opportunities for locating productive activities in the city. One illustration is the recent attention on principles of the circular economy. Aiming to address issues linked to a finite supply of resources, the circular economy is a way to organise production and consumption with a view to minimise the net flow of materials in order to reduce the environmental externalities (Arnsperger & Bourg, 2016). Simply stated, the idea is that a product manufactured must serve, once recycled, to make the same product again. Rendering the idea operational thus calls for product design to take into account what the item will become at end-of-life and wastes to be transformed into raw secondary material reused in the manufacturing of new products. As cities produce enormous volumes of wastes, they are seen as prime areas to implement circular economy principles, both by those who promote these principles and city public authorities (Kębłowski *et al.,* 2020*).* Instead of burying, burning and exporting urban wastes, the challenge is to improve collection and sorting mechanisms to make them more selective and closer to the source, so they are turned into material that can be used by locally implanted industries (Kampelman, 2017).

Several cities in Europe, including Brussels, have drawn up circular economy plans over the past decade (Bortolotti *et al*, 2020). In Brussels, for example, they have identified both the main deposits of raw materials that could be exploited (construction site wastes, demolition wastes, used street furniture, used electronic devices, food wastes, clothing, mattresses and household linen, textiles used for professional purposes, etc.) as well as the various actors concerned in each area (waste collection and sorting firms, industrial companies that may make use of the wastes, the responsible administrations). However, these plans are taking their time to get up and running. They are up against several obstacles, both regulatory and practical (Bortolotti *et al*, 2020). For instance, implementing the plans mobilises vast surfaces, as seen in Brussels from the land occupied by the Stevens firm, specialised in recovering and recycling metal (for further details, see the list of companies and sites studied on p. 103 of this publication). Yet, as we have already pointed out, large plots of land held by a single entity are becoming rare in the MCWS, and even more so in the case of the Brussels-Capital Region, for they are highly sought properties. Furthermore, sorting and processing wastes often generate nuisances, either noise or pollutants released in the air or soil. Concretisation of projects to recover urban wastes thus requires a fairly radical transformation of waste recycling modes so that they take up less space and generate less pollution.

In reducing the spatial needs and pollution tied to transformation activities, the notion of industry 4.0, at first glance, seems to open new perspectives. First launched in 2011 in Germany, this concept expresses the will to deeply transform industrial production chains by implementing and articulating cutting-edge digital technologies (Big data, robotisation, simulation, cybersecurity, cloud computing, augmented reality, etc.) (Bidet-Mayer, 2017). This method aims to develop the 'smart factory' of the future, where machines are not just interconnected among themselves, but also in connection with the factory staff (operators, engineers, accountants, marketing executives, etc.) as well as with external economic actors (customers, partners, other production sites). In this context, it should be possible to coordinate a series of activities in real time: manufacturing, logistics, engineering and management. This should make it possible to meet the customer's needs more quickly and also produce customised products in small series.

Among the numerous innovations associated with the industry 4.0 concept, two at least could help mitigate the antagonism between the city and industry. As a start, miniaturising production reduces the size of the workshops, thus limiting the space occupied by urban industry. It also lowers the entry barriers for small producers in the sectors concerned. Lastly, it is apt to cut local nuisances of productive activities settling in the city. In the realm of miniaturisation, the rapid progress of 3D printing technology is particularly exciting. Following a plunge in the price of printers, improvements in their performance (rapidity and precision) and the expanding list of printable matters (metal powers such as steel, titanium, gold and tungsten, polymers, ceramics, composite materials), more and more industrial sectors are now able to use this technology (Shahrubudin *et al.,* 2019). The 3D printers have been put to work in the medical and healthcare industry, for example to build tailormade prosthetics and implants, in the agri-food industry to produce special foods for specific dietary needs (athletes, children, pregnant women, etc.) or even in the automobile industry, for example to manufacture spare parts for old car models. In another facet, the move towards producing small series of customised goods could also be fruitful towards maintaining or developing productive activities in the city. This change would indeed reduce the impact of industry's effects of scale and volume and, on the other side, increase the weight of factors such as high qualification levels for the workers and the need to be close to the demand, where cities hold a comparative advantage.

Although Industry 4.0 offers new prospects for urban industry, one must nevertheless remain circumspect. To begin with, from a technical point of view, changes are coming about slower than predicted. From this point of view, 3D printing is emblematic. Indeed, despite its heavy media coverage, its implementation in industry is proceeding at a relatively modest pace and is still confined solely to the areas of prototyping and production of low volumes and customised goods. Consequently, conventional means of production remain largely dominant and will probably remain so in the medium term. Secondly, from the economic point of view, as shown by the example of the Internet economy, only a limited number of cities will manage to benefit from temporary income linked to any transition towards the 4.0 economy, likely those that became involved earlier in the stage and have invested more. Thirdly, from the socio-economic point of view, implementation of industry 4.0 replaces work with capital, which leads to greater productivity but fewer jobs, especially those less qualified. Consequently, the development of the 'smart factory' in an urban environment could result in fewer industrial jobs, at the same time excluding low-qualified workers even more than now.

Three contrasting narratives of the productive city

As we saw in the previous section, despite recent changes in the economic and technical context of its evolution, in the CSWS the destiny of urban industry, indelibly marked by decades of withdrawal, hardly seems to be a workers' utopia. Quite the contrary. Nonetheless, productive activities have not disappeared, not even in the BCR: 'classical' industrial establishments are still located in the city, and new production units – small, specialised in niche sectors (artisanal agri-food processing, wood recycling) and with funding from public authorities – have settled in. Moreover, the Covid-19 health crisis emphasised the importance of being able to produce locally the goods that meet the inhabitants' immediate needs, for example in the realm of health. It is thus crucial to examine what could guide an urban industrial policy in the upcoming years. To do so, in the following lines, we will present three urban narratives that presently lend themselves to reflexions on the productive city and we will attempt to pinpoint some elements that could guide future public action.

Urban narratives are explicit and formal representations, promoted and helmed by different actors (researchers, economic agents, public authorities) or else propelled by target publics/opponents of projects formulated by those actors (Genard & Neuwels, 2016). They are well worth discussing for they directly or indirectly influence how actions regarding the city are undertaken. Furthermore, the narratives are themselves driving the action, at the same time as they are also the object of controversies, even conflicts. As concerns the

productive city, three distinct narratives have emerged over the past two decades, namely, in chronological order: the *urban circular production economy*, the *maker city* and the *foundational economy*.

The narrative of the *urban circular production economy* arose from the circular economy concept, which itself originated in the work undertaken in the 1970s along the lines of the Club of Rome report 'The Limits to Growth' (1972), which was based on the passage from a linear economy to one that was a loop. For its contemporary promoters, presently including the European Commission and the Ellen MacArthur Foundation, the priority objective is to close economic circuits and supply chains inside the metropolitan areas themselves, by strictly limiting exchanges with the outside and as far as possible mobilising deposits of material linked to urban wastes (Kampelmann, 2019; Borlotti *et al*, 2020). The urban circular production economy narrative also calls for multiplying micro-factories, located near the customers' place of residence, in order to limit storage and transport, heavy consumers in space and energy. In some of its versions, the narrative also refers to opportunities offered by the 'smart factory', praising the merits of miniaturising the tools of production, the Internet of Things and manufacturing in small series adapted to consumers' specific expectations. This narrative also actively promotes an economy of functionality or use of goods. In this context, remember, it is no longer a question of selling a good but rather a service that fulfils the same roles as the product. Several firms have already adopted this principle in actual practice. Xerox, for example, has replaced the sale of printers-photocopiers with invoicing by number of photocopies/printouts. Another example is the SEB company, which is experimenting a solution of renting cooking appliances to a clientele of private users.

The *maker city* narrative emerged in the United States in the early 2000s. It originated in Silicon Valley, from the 1990s, in the convergence between the IT industry and the 1960s hippie counter-culture (Turner, 2012). The movement is now highly mediatised, through associations, magazines, publications, conferences and trade fairs. As evidenced in the titles of the publications championing their principles (Makers: The new industrial revolution, by C. Anderson, 2012; Maker City: A Practical Guide for Reinventing American Cities, by P. Hirshberg, D. Dougherty & M. Kadanoff, 2016), this narrative lacks neither ambition nor pretension. It encourages re-organising the workplace, militantly advocates for co-working and calls for multiplying sites that foster creativity, such as living-labs. Yet, at the same time the maker city narrative is particularly attentive to the question of productive activities. On this subject, its mantras can be summarised as follows: goods should be produced in small workshops (the makerspace and fablab) which combine practices that are more akin to DIY and crafts than industry, a collaborative culture (such as pooling machines and tools) and a horizonal organisation of labour relations (Ambrosino *et al.,* 2018). Obviously, ever true to its birthplace, this narrative emphasises the importance of implementing new digital technologies, such as 3D printers, in productive activities. The objective is to make these advanced technologies more accessible: thanks to resource pooling, equipment that may be outpriced for anyone other than large companies becomes available for sole proprietorships, very small enterprises and/or non-professionals, allowing them to take advantage of this equipment to make their own objects their own way. The makers movement places great importance on the symbolic dimension of goods (see the chapter by Pauline Delperdange and Marc Zune). They make a distinction between their maker production and standardised mass-produced goods. To do so, they stress fabrication of customised objects, in small series, emphasising the semiotic content of their activity through refined storytelling.

Driven by a group of primarily European economists, the *foundational economy* narrative appeared after 2010. Aiming to propose an alternative to the prevailing neo-liberal logics, it is both neo-Keynesian, through the will to maintain systems of social regulation set up in the framework of the Welfare State, and environmental in its endeavour to limit the footprint of production and consumer modes that prevail in the CSWS (Bentham et al., 2013). At the heart of its project is the idea that public authorities must develop and finance strategies to secure the supply of basic goods and services for all citizens living in their territory. In addition,

foundational economy stresses that the goods and services concerned, as far as possible, must be produced locally. This concept, inspired by the basic consumption theory, promotes activities that enable a city to operate day by day, by ensuring access to all citizens, regardless of their income, to the resources essential for their existence (De Boeck et al., 2019). Along these lines, the first priority for public policy must be to establish and maintain in an urban territory the productive activities that are essential to the daily operation of the city and its inhabitants: agri-food companies, and not just those that cater to a niche clientele; companies in the construction sector and housing renovation; firms that produce building materials; firms specialised in recycling and transforming textile products used in certain sectors useful for inhabitants (such as hospitals, public transport, housing construction); firms that repair mechanical and electronic goods, and so on. By supporting these sectors the public authorities contribute not only to meeting the inhabitants' material needs, but also maintaining access to low- and medium-qualified jobs for citizens who are now barred from the working world – those who can only count on their own capital, their own network and their own investments.

Only the first two narratives have already taken shape in urban space, through actions by public authorities to favour their implementation and increase in the number of companies or associations whose activities draw inspiration from the narratives' principles. To our knowledge, the more recent foundational economy narrative has yet to be actually put into practice.

These three narratives, at least in pairs, share certain common points. The goal of both the circular production economy and the foundational economy is for cities to become more independent economically, by limiting imports of goods from outside the area and increasing production destined for local consumption. In this way, these narratives remind us of policies on import replacement and self-centred development followed in several developing countries from the 1960s. In another area, the circular production economy and the maker city both, but for different reasons, promote integration of digital technologies in production processes. These points of convergence nevertheless cannot obscure the fact that these three narratives all pursue different objectives. The circular production economy aims first and foremost to reduce the environmental footprint of production and consumption in cities by making economic use of urban wastes. The maker city, through its freethinking sources of inspiration, seeks to make the most sophisticated tools of production accessible for all, in order to free 'creative energy'. Lastly, foundational economy places priority on social objectives, as it endeavours to ensure access for all citizens to jobs and essential goods.

This last narrative is not without critiques, especially because of the universalist view it adopts of needs. Consequently, it overlooks the issues of class linked to the social construction of these needs and the different standing for an offer of the same good addressed to different social classes (Sanchez Trenado, 2021). On the other hand, the foundational economy is the only narrative that seeks to resolve the socio-economic dualism that characterises the MCWS, with respect to both qualifications and income. By specifically encouraging activities that offer direct services, but jobs as well, to the city and its inhabitants, this narrative, if applied, could generate high added value, both social and environmental. Along these lines, even if, strictly speaking, construction activities are not part of industry (see section 1 above), construction, especially massive renovation of housing is an essential priority. As the stage of daily life, the main space where individual existence is lived out and the anchoring point for family life, housing is a major resource for each citizen (Dessouroux *et al.,* 2016). Yet, most MCWS lack sufficient housing for lower-income households, a growing number of which are living in insufficient housing. Reabsorbing this structural crisis would reduce intra-urban inequalities, whilst offering the advantage of providing jobs and income for the type of companies that are usually more anchored than others in urban territories and thus less open to intra or international competition. The effects of such polity would be even more beneficial for the city if it were part of a circular economy logic, for example by stressing eco-construction.

In its principles, the maker city narrative also holds a potential for social emancipation

for it aims to extend access to sophisticated means of production. However, in its implementation, these promising aspects are generally void. Results from empirical research conducted in North America on the makers themselves and the neighbourhoods where they install their activities make no doubt (for example see Curran, 2010; Ocejo, 2017; Sprague & Rantisi, 2019). Subsidised by public authorities in the initial development of their activities, makers are often of middle-class origin. They frequently have a college level diploma and, prior to their maker activity, often pursued a white collar career related to their diploma. Strong proponents of an ideology that prizes hands-on experience, they are active in a diversity of sectors that range from food transformation (butcheries, bakeries, breweries) and fabricating objects used in daily life (furniture, kitchen appliances, clothing, cosmetics, etc.) but also include personal care services (hairdressers, barbers) or nightlife (mixology). Paradoxically, advanced technology tools are rarely employed in these activities. The goods and services, often produced in limited series, are generally destined for well-off consumers. Lastly, development of 'hipster' productive activities, which often take place in or near city centre industrial neighbourhoods, tend to lead to a gentrification of manufacturing spaces. Through its pressure on real estate, but also through residential and commercial transformations it entails, this development undercuts the 'classical' industrial activities still going on. In these different ways the maker city narrative tends to amplify the socio-economic duality of cities rather than resolving it.

On paper, a strong point of the circular production economy narrative is proposing solutions to mitigate today's environmental crisis, for example by recommending that supply chains be closed inside the metropolitan areas themselves. We can nevertheless criticise that in trying to 'turn our wastes into resources' (Berlingen, 2020) it helps perpetuate the use of disposable short-life cycle products. It is hostile to the approach aiming to increase the usage time of goods, so as to 'not turn our resources into wastes'. Elsewhere, as mentioned earlier, rendering this narrative operational faces several regulatory and practical hurdles. Furthermore, circular activities that have been developed suffer from a constant precarity, especially in the work conditions and unstable budget (Kębłowski *et al.,* 2020). Despite it all, given the major environmental issues it addresses, this narrative cannot be swept aside.

Conclusion

Throughout this chapter we have shown that metropolitan industry, despite its marginalisation over the past 50 years, remains a major urban player. Three narratives that have grown around this issue paint contrasting futures for urban productive activities. In conclusion, basing ourselves on the example of the Brussels-Capital Region, we would like to return briefly to the position of public authorities towards these narratives.

In Brussels, the regional authorities seem to have made up their mind! Whereas in 2019, perspective.brussels, the centre for expertise in land use, hosted the 'Second Colloquium of the Foundational Economy Collective' and whereas the public authorities, notably through the Regional Programme for Circular Economy (PREC*), recommend exploiting deposits of matter linked to urban wastes, in practical terms, at least for now they primarily promote the maker city. For example they encourage swarms of coworking spaces and multiplication of small productive units managed by individual entrepreneurs, especially through the concept of business nurseries. At the same time, the regional authorities do not seem to want, or be able to, stem the exodus of longstanding productive activities, such as building material production or the agri-food industry, despite their occasionally significant role in meeting the basic needs of the population, the working population and other businesses established in the city. Thus the sharp tensions between the productive and other functions in the city, are compounded by tensions between the productive activities themselves, more precisely between those that seem to embody industrial innovation and those that reflect a bygone past.

In order to move beyond these impasses and meet the challenges posed by the environmental crisis but also by the Region's too heave dependency on import of goods considered as essential for its inhabitants, other paths must be laid. The work undertaken by the MasterClass (Designing) Urban Production aimed to explore these

new challenges for urban industry. In this area, it underlined the need to preserve the last Urban Industrial Zones (ZIU*) in the sectoral plan, but also to facilitate productive activities providing direct services to the inhabitants, by including them in social economy measures, similar to what was done with Travie in Anderlecht, a company that transforms, assembles and packages food products which employs over 300 workers with a disability. Furthermore, in our opinion, public authorities should draw more inspiration from the foundational economy which, whilst placing highest priority on social objectives in the context of territorial development, is nonetheless attentive to environmental questions. In the final chapter of this publication we will also present some proposals that go in this direction.

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Insights from a local stakeholder

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Productive activities have become a crucial issue. Brussels, in fact, was a highly industrial city that became deindustrialised. However, this is not a problem specific to Brussels, there is a general pressure on land, thus a need to know which activities are maintained in the city and which are not. Brussels is now a city highly deindustrialised. Very few locally useful activities remain in the city due to real estate pressure and the administrative stranglehold around the Region. Unlike other cities, the Brussels-Capital Region is unable to spread. The few [land] reserves left to host or preserve productive activities have been whittled away to almost nothing. They were protected for quite a long time, thanks to so-called 'single function' zones, such as urban industry zones. Due to population pressure, some of these zones were opened to allow housing. Productive activities were undermined in the name of functional mixity. Furthermore, it is not quite clear what 'productive' covers in the Brussels-Capital Region. It refers not only to material production *stricto sensu* (production of goods), but also includes all that relates to immaterial production, in other words, the makers and creative sector. The latter trades find it much easier to integrate in the urban fabric and thus enter in competition with goods production activities, which are already fragile.

Through its conception of functions in the city, the Brussels-Capital Region at first favoured office space. Then once offices were seen as a pressure on housing, Brussels switched its preference to the latter. At first a weak function, housing now holds a large spot in public policies due to people [the middle class] returning to the city, attractiveness of the real estate sector and population pressure. While at the start, housing was located near small production sites (highly mixed zones), this configuration is disappearing more and more.

The Brussels-Capital Region is now becoming aware [of deindustrialisation] but time is growing short. There are attempts to maintain single-function zones and older urban industry zones, and to recreate productive zones (productive strips*). Measures have been taken, but real estate is still the underlying logic (for example the Canal Plan*, the Regional Sustainable Development Plan – PRDD*, etc.)

As real estate in Brussels is rare and expensive, public authorities – when they wield control – should not distribute these plots over the private market but set up measures to capture the added-value (due to changes in land use). Priority should also be given to activities that correspond to the Brussels workforce (i.e. low-qualified), especially in the construction and logistics sector. Priority should also be given to endogenous activities (like logistics, agro-food, recycling) rather than ones that address transit or international needs.

In my view, the interest of Metrolab's MasterClass is found in the way it promoted an interdisciplinary approach, even if it would have been interesting to have economists. This is all the more true that a weakness of Brussels public authorities is to think more in terms of architecture or land use planning than in terms of economics. Nevertheless, the MasterClass offered a forum for exchanges and knowledge between operational actors and the students who have the advantage of a new look at these problems. I found immensely interesting the approach of going out to meet the companies and actors in the fields to understand their needs, learn why they are in the Brussels territory instead of going into meta-analyses. The six companies chosen provided an interesting scale of reflection.

The ‘city planning imageries’ of the productive city in Brussels

Interview with Benoit Moritz by Louise Carlier

Who are the main public actors defining the model of the productive city that is being developed in Brussels?

We can identify two main sets of actors who influence how the ‘productive city’ is conceived of and envisioned in Brussels, each with their own vantage point.

On the one hand, you have the urban policy actors, whose view of the productive city is primarily infrastructural (the Region, through various instruments such as the Canal Plan*). Citydev* and the Port of Brussels* are examples of major institutional actors that influence the role of productive activities on a regional scale. Accompanying them in their missions are various regional actors involved in territorial strategy (Pespective.brussels*), architectural quality (BMA*) and issuing permits (Urban.brussels*)

In this realm we can also note the important role of certain large property owners, even if the media has less to say about them.[1]

Then, on the other hand, in Brussels you have actors in employment, such as Hub.Brussels* (which aims to facilitate economic development in the Region by assisting companies), employers (BECI, the chamber of commerce representing business and industry in Brussels), Actiris (the public service office responsible for helping job-seekers find employment), trade unions (representing workers).

This second type of actors have little involvement in reflections on the urban development of the productive city, even though it should be contributing to reflections on the type of economic activities to be developed in Brussels.

We can thus see a sharp separation between the city’s infrastructure policy and its employment policy. As such, the productive city conceived by the urban policy actors is mainly limited to not removing certain activities from the Region’s territory. In Brussels, the definition of the productive city, from an infrastructural point of view, is incomplete for it is essentially negative: it refers to activities that are not housing, not commercial, not offices nor services. Furthermore, it is hard for these activities to find their place and legitimacy in the city in a context where real estate is becoming increasingly rare and under pressure from population growth. It does not revolve around thoughts on priority sectors in the aim to foster employment.

Along these lines it is interesting to see that no one has ever asked about or calculated the number of jobs created under the Canal Plan* (2014-2019), nor, for that matter, in which sectors the jobs were created.

1 A good example is the Solvay company, which owns 22 ha of property in Neder-over-Hembeek to the north of Brussels, presented as an ‘Innovation Campus’ which, in addition to its own activities, hosts other companies (Corden Pharma, Sarolea, etc.).

Project for the reconstruction of the Molenbeek neighbourhood, which was gutted by the construction of the metro. Craftsmanship is back on the streets.
© Moureaux, S., Culot, M., Schoonbrodt, R. & Krier, L. (Collectif) (1982).
La reconstruction de Bruxelles. AAM éditions.

What different models, in your own words ‘city planning imageries’, of the ‘productive city’ has Brussels followed over recent decades? What projects reflect them? At what times did things bifurcate?

In Brussels over the past few decades, we can identify various city planning imageries for the productive city.

Imagery of the Functional City

The first period was that of the 1960s-1970s, which imagined an international city, giving priority to the service economy. It is expressed in urban space through application of function-based principles such as those defined by the Athens Charter, which divided the city into single-function and specialised sections.

This imagery took shape in a series of plans and projects, such as the Manhattan Plan, which transformed the urban fabric to the benefit of offices and commercial space. Industrial activities were banished to the city outskirts, along the motorway or in business parks developed in the Brussels-Capital Region (for example the Da Vinci Research Park in Bordet) or in the periphery (for example th Grand Bigard zoning)[2].

Even though the heyday of this imagery was the 1960s, it is still timely: Citydev* still follows its lines by developing various productive activity sites in the periphery, such as the Erasmus North and South parks in the 1990s in Anderlecht, or more recently, on the rue Nestor Martin in Berchem-Sainte-Agathe where 6,000 m² of land is presently under development.

Imagery of Rebuilding the City

The second major productive city planning imagery was promoted by the ARAU[3] from the late 1970s and early 1980s, in strong opposition to the functional and modernist principles. This imagery involves rebuilding the European city, with preference to mixed functions and the model of a dense city built around public spaces, giving new value to the city’s classical and historical urban forms. This concept promotes a strong mixity and proximity between housing and productive or artisan activities which once again find their place in the centre of town.

This is apparent in the counter-project ‘for rebuilding the Molenbeek neighbourhood uprooted through construction of the metro’ (ARAU, 1982) which foresaw a kind of mini ZEMU*[4] before its time, located above the Comte de Flandre metro station, with the buildings integrating woodworking shops and artisanal activities. Nevertheless, until the Region was created, this model was primary of a critical nature; it was not concretised in the urban space. (See left page illustration)

The Regional Imagery

The third productive city planning imagery emerged when the Region was created in 1989 and the ideas of ARAU[5] became institutionalised. This imagery promoted the integration of economic activities in the city in projects with mixed functions and it took shape through the growing influence of new institutional actors and a set of projects. During these same years, the Brussels-Capital Regional Development Agency (SDRB)[6], a

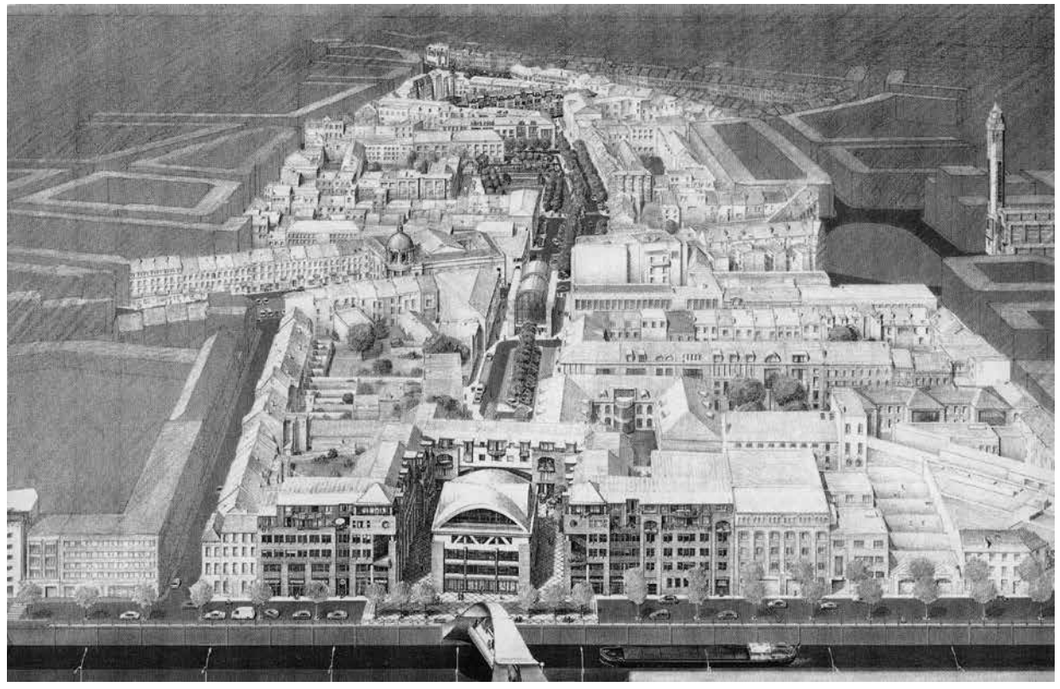
2 On this subject see Ryckwaert R. (2011). *Building the economic backbone of the Belgian welfare state – Infrastructure, planning and architecture 1945-1973*, éditions 010 Publishers.

3 *Atelier de Recherche et d’Action Urbaine*, founded in 1969 with the aim of defending the ‘right to the city’ at a time of large modernist projects, defending urban heritage and calling for more transparency and concertation in Brussels urban projects.

4 ZEMU* stands for Enterprise Zones in an Urban Environment (see the glossary). If this assignment consecrates the idea of a functional mixity that theoretically guarantees occupation by productive activities on the ground floor, what actually happens, except for a few rare projects, this intended use is diverted to the benefit of other quasi-wholesale functions or occupation by service activities or liberal professions.

5 On this subject, see Levy, S. (2016). *La Planification sans le plan – Règles et régulation de l’aménagement du territoire bruxellois.* ASP Publishers.

6 SDRB became Citydev* in 2013.



Projet Rive Gauche – 1990
The Rive Gauche project aims to rebuild a corridor left open by the construction of the metro in the historic centre of Molenbeek-Saint-Jean. The project consists of the construction of housing units on top of ground floor spaces dedicated to productive activities.
Copyright: Citydev.brussels / Art & Build

provincial public institution created in 1974, at the time responsible solely for developing economic activities in the city, was also assigned an urban renovation mission.

In 1989-1991, the first ‘Masterplan for renovation and development’[7] of the Canal announced the objective of preserving the economic and logistics activities along the canal and to combine them with housing. In 1995, the very first strategic planning document to be issued in the Brussels-Capital Region, the Regional Development Plan (PRD*) clearly affirms this political will and devotes a whole chapter on bringing industry back into the city.

At the time of the Region’s creation, several vacant industrial buildings were redeveloped and assigned a new use. Various renovation projects to host new economic activities were developed, such as the Usines Gosset[8], a former cigarette factory, which became the headquarters of the SDRB along with other productive activities. Another type of renovation project remodelled former industrial buildings to contain housing, such as a rue de Ribaucourt project targeting the old ‘Nestor Martin’ factory renovated in 1998 by the Atelier d’Art Urbain on behalf of the SDRB[9]. On this subject we should note that in the early 2000s, several industrial buildings were transformed into lofts; the city also tends to lose productive surface area.

Lastly, we can also point out the first mixed projects that integrated housing and economic activities, such as the project for the former Bulex water heater factory, on the rue de Birmingham[10] along with the project at the Bara-De Lijn[11] site. These projects, integrating a functional mixity in a horizontal form, can be seen as precursors of the ZEMUs*, reflecting the regional actors’ appropriation of the mixed city paradigm.

Nonetheless, once achieved, it was hard for these projects to achieve the initial mixity ambitions totally. For example, in the Rive Gauche project, the building located at the corner of the rue du Comte de Flandres and the quai des Charbonnages[12], designed in line with the principles of a vertical mixing of housing and workshops, could not find occupants for the space set aside for economic activities. This led to a change in property use in the final phases of the project and, ultimately, the complete disappearance of economic activities in the building.[13]

Despite problems linked to maintaining and developing productive areas in the city, the Region’s will to redevelop economic activities in the city was clearly affirmed, at different times, through a series of plans and programmes. Creation of the ZEMU* in 2012-2013 was an additional step in regional policies on the productive city, which consecrated the paradigm of functional mixity through the obligation to maintain areas for economic activities on the ground floors of buildings. (See left page illustration)

The ‘productive city’ is now entrenched as an incontrovertible notion in the glossary of Brussels urban policy actors.

In the aim to maintain and develop productive activities in the city, affirmed as a regional goal, a series of planning projects have been undertaken, especially under the ERDF* programmes. The earlier programme (2007-2013) produced leverage in achieving this model of productive city, which became

7 Ministry of the Brussels-Capital Region, 1989-1991

8 A work by the modernist architect A.Blomme, built in 1929, the factories were renovated in 1993 by the architect J.Claisse.

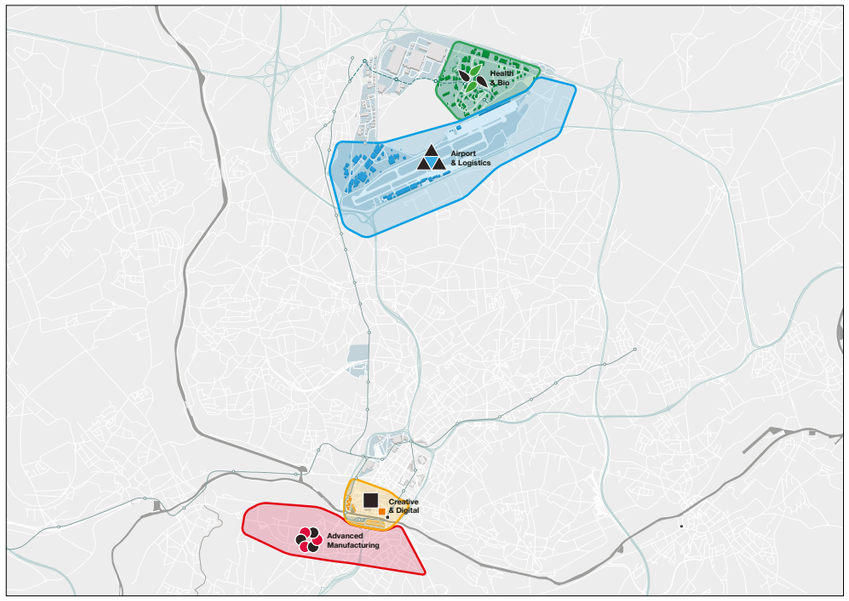
9 The so-called “Les Jardins des Fonderies” project.

10 The site was acquired in 1999 by the SDRB, which developed according to a programme for mixed housing and economic activities in a public-private partnership with JCX Immo. The entire project was delivered in 2008. The architect agency GUS was responsible for undertaking the project.

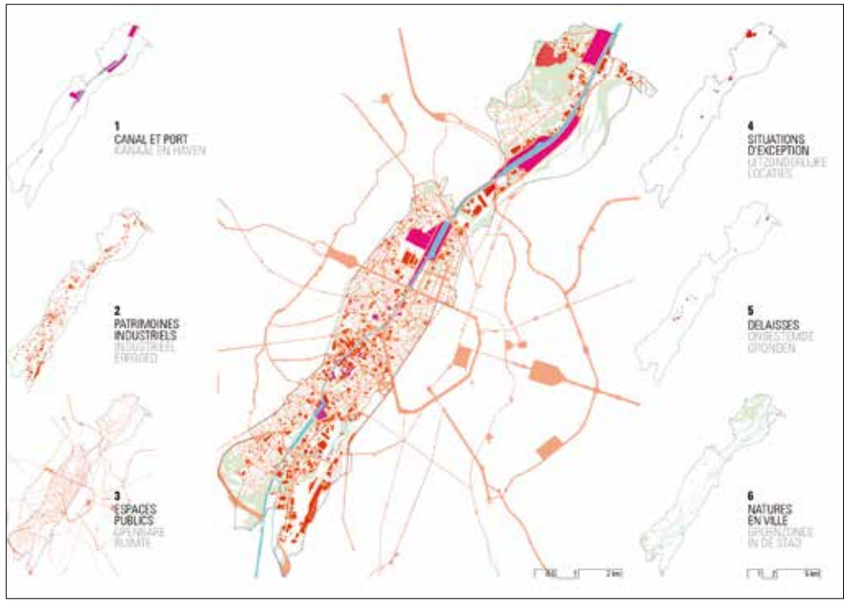
11 Acquired in the early 2000s by the SDRB, the site was developed according to a programme for mixed housing and a workshop. It was inaugurated in several phases and the completed project was delivered in 2014.

12 Architects : Art & Build on behalf of the SDRB, 1995

13 The premises initially designed to host workshops became the headquarters of the International Association of Public Transport – UITP. This association moved into the building in 2001.
As the premises were finished in 1995, they thus remained unoccupied for over six years.



Plan Catch – 2018
The economic activities are spread over the urban area of Charleroi in various clusters based on sectoral themes.
© MSA for DU Catch



Canal Plan – 2014
The Canal Plan aims to maintain economic activities in the city and to strengthen its urban integration.
© Région de Bruxelles-Capitale / Alexandre Chemetoff & Associés

the byword at the same time as projects were undertaken in this framework: Foodmet located on the site of the Abattoirs, Recy-K and Coopcity, two infrastructures located along Canal, Greenbizz at Tivoli, as well as several others.

How would you describe the ‘productive city’ model that currently prevails in Brussels?

The productive city model that prevails today is essentially infrastructural, which especially interests and involves architects and urbanists, but has little room for economic and industrial actors – and these latter actors are developing their own model. This is precisely the main shortcoming: this prevailing ‘productive city’ model would gain a lot by involving and integrating these actors directly concerned and taking their views into account. In particular, this would help identify sectors on the rise and/or appearing important to maintain in the city. It would also help identify their needs in terms of space and the types of jobs they can offer.

To my knowledge, an analysis relating to these questions did not occur until quite late under the Industrial Plan*, when it was actually needed further upstream to guide the city’s infrastructure policy.

For example, let’s look at Charleroi and its ‘Catch’ plan: at the very start of the plan, four sectors were identified as areas that would create jobs and promote the city’s economic development in the coming years; a location strategy was drawn up for each one. No such study was made to guide the regional infrastructure and spatial policies of Brussels’s productive city. What’s more, nowadays who talks about or even remembers the Industrial Plan* that nevertheless set the broad outlines? (See top left page illustration)

That said, and despite its limitations, this productive city model led to discussions and undertakings that were particularly interesting from the architectural and urbanistic point of view, demonstrating that it is indeed possible to preserve and integrate industrial functions in urban environments – an idea that does not seem so obvious in our times. The idea that productive and industrial activities have their place in city zoning is still predominant.

Along these lines, Greenbizz, is a unique project, in its integration of functional mixity at the city block scale, in the city’s first periphery.

What are the main logics that can be seen with respect to maintaining or reconverting industrial spaces in Brussels?

From the early 2000s we have seen industrial space being turned into lofts, especially along the Canal. Industrial buildings are clearly real estate opportunities, as the purchase price is relatively low.

The 2014 Canal Plan* affirmed the will to maintain productive activities in the city and to redirect land use towards economic activities – by getting the institutional actors, such as the SAU* or Citydev*, involved in developing projects. (See bottom left page illustration)

Nevertheless, even as the ‘productive city’ has become incontrovertible in Brussels, we see that industrial buildings continue to be reconverted to other functions. The most emblematic example is Kanal, the former Citroën garage that has been transformed into an arts and cultural centre.

At present, we no longer see the creation of new urban industry zones embedded in the urban fabric of the consolidated city. Zones planned to integrate productive activities still always include housing. In Wallonia, however, we find examples of recently developed instruments, plans and projects that allocate urban spaces fully to production.

Wallonia’s Sector Plan defines mixed activity zones dedicated to installing productive and economic functions. (In Wallonia, mixity is defined as a mixture of economic activities, while in Brussels it is always understood as functional mixity.) You might say that these zones function somewhat like a ZEMU* with no housing. This is the case for the Pieper ‘street of companies’ in Liege, developed by the SPI[14]; the main street is laid out as a small business park in the city organised in plots. It functions like a small street of industries, where various SMEs are located – as if Greenbizz were open and transversal.

14 https://www.spi.be/fr/zoning/view/45/pieper-liege

In Brussels, we are still struggling to envisage ‘mixed’ zones along this model that do not include housing. Urban revitalisation is conceived on the basis of housing, infrastructure and public areas, but never based on economic activities. Yet, as evidenced by the American economist Michael Porter, economic and productive activities can provide powerful leverage for urban renovation. Porter wrote an interesting article on this subject that sheds new light on the issues involved (Porter, 1995). Although the text reflects a clear neo-liberal tendency, its interest lies in presenting a new interpretation of urban renovation under the angle of economic development and job creation.

What are the main difficulties and constraints that city planning actors in Brussels must face in developing productive activities in the city?

One difficulty is related to the real estate market itself: we find no private actor or real estate promoter developing urban renovation projects that integrate productive spaces combined with a housing programme. We find no private businesses wishing to build a ZEMU*: it is easier for real estate developers to split up projects, and in an urban context the other functions are more profitable – the less a project integrates productive activities, the more the real estate actor can count on rising land value. Real estate promoters developing spaces for business activities are not urban promoters; their angle is the business park model. Citydev* is the only actor to integrate a vertical mixity in renovation projects. In Brussels, even when we do find vertical mixity at the scale of a building or property, it is often something the local municipality has imposed on the owner.

Another difficulty concerns the lack of knowledge about the economic actors’ demand and needs: while small productive spaces can always find a buyer, this is not the case for large spaces devoted to economic and industrial activities. It is hard to know in advance which actors may be interested in occupying it.

What do you think are the main limitations and critiques regarding the ‘productive city’ model that prevails in Brussels? What are the issues at stake and the problems that need to be considered and addressed?

As explained earlier, the first limitation concerns a disconnection between the infrastructure-based policy for the productive city and employment policy. It is crucial to establish forms of mediation, a dialogue between these two sets of actors in order to guide policies on the productive city towards sectors capable of underpinning economic development and job creation. In this context, the challenge is to go beyond the mere will to maintain and on to considering the potential of urban development, urban revitalisation through the productive activities themselves. The industrial neighbourhoods located along the Canal historically have been places where the economy and housing, where industrial and productive activities were the vehicle of city life, giving it a rhythm governing its flows.

Which economic sectors could play this role today? Along these lines, how can the tools of urban policy be mobilised to facilitate the return of these activities to urban spaces?

A second limitation concerns the ‘grey areas’ of the prevailing productive city model, in other words territories that do not enter into the debates and discussions of architects and city planners.

These are the industrial parks built along the extensive model of the 1960s-1970s, primarily based on the automotive industry, which now need to be renovated and modernised. Once again, reflections on the evolution of this model are going on elsewhere in Belgium[15], but in the Brussels context there are as yet no means to reflect on this. What are the possibilities for evolution of business parks such as Da Vinci in Evere, Noendelle in Haren, Erasmus in Anderlecht, Galilei in Neder-over-Hembeek or even the Avant-Port zone managed by the Port of Brussels? How can they articulate

15 We are thinking, for example, of Thor-Park in Genk, the Blue-Gate business park in Antwerp or even the Eiland Zwijnaarde park in Ghent.

with the new paradigms now governing the city’s development? Which sectors could or should they welcome? How to integrate soft mobility networks and integrate reflections on biodiversity, water management and ground permeability?

All these different questions now need to be addressed and discussed among all the different actors, both public and private, who are concerned by and involved in developing the ‘productive city’ in the Brussels context.

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Planning production of the city and production in the city: rhythmed by European policy on integrated sustainable urban development

Marine Declève

The spatial planning of economic activities in the city and promoting those considered to be useful for its development are addressed in a series of public policies that are different yet a priori inherently linked. In Brussels, the tension between planning policies and business needs is fed by the European discourse on the Industrial Renaissance along with the paradigm of integrated sustainable urban development. This paper discusses the integration of this European discourse in regional policies, through an interpretation of the main planning, regulatory and operational tools that Brussels public authorities have implemented in the two fields of urbanism and economic development over the past 15 years. On one side it reveals the tools of a land-use planning policy centred on the material production of infrastructures, land and buildings that can suit different schemes for a mixity of economic activity and housing. It also describes the levers available for an economic development policy focusing on public backing and subsidies prioritised for certain types of activities.

The European discourse on integrated sustainable urban development

Urbanism, mobility and the economy are competences of the Brussels-Capital Region that fit in with regional development plans inspired by European policies on integrated sustainable urban development. In Europe's urban context, this 'sustainable turn' articulates environmental objectives with the cities' need for economic development which, in turn, reflects the European discourse on industrial renaissance. The new principles for this urban development are the backbone of the Leipzig Charter on sustainable European cities, signed in 2007. This text is part of Europe's territorial cohesion policy in a long-term perspective for polycentric territorial development. It lays out the principles and operational tools for integrated development, including that of mixity.

Since 2011, the Europe 2020 Strategy* *for smart, sustainable and inclusive growth* is founded on an industrial policy that emphasises the social market economy and the European Small Business Act of 2008. While the text takes up the promising

expression *social market economy* already mentioned in the 1992 Maastricht Treaty, it mainly stresses the need for growth, based on a search to improve European competitiveness and productivity. Since 2012 the EESC, responsible for coordinating the Europe 2020 strategy, has called for the objective of an *Industrial Renaissance*, aiming to raise industry's share of the GDP from 16% to 20%. The Europe 2020 Strategy* led to adoption of the Territorial Agenda of the European Union 2020 (TAEU 2020)[1]. Through these European policies the idea gradually emerged that the sustainable city must be the site of economic redeployment in Europe, largely based on an industrial renaissance.

Drawn up along a 2030 horizon, European environmental goals on the climate target a 40% reduction of greenhouse gas emissions, 27% of energy production from renewable sources and 30% savings in energy. Transport of merchandise in the city and reconfiguring the transport networks for urban logistics is one area the European Commission is counting on to achieve these targets. As such, in 2011 it published a White Paper 'Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system'. One target included achieving 'essentially CO2-free city logistics in major urban centres by 2030'. The roadmap indicates some guidelines in order to achieve these environmental goals, in particular it mentions: consolidation centres, downsizing vehicles used in old centres, regulatory limitations, revising delivery slots, potential use of waterborne transport. Two other guidelines discuss the question of mixing this mobility policy with land-use planning and economic aspects. The first is the will to promote joint public procurement for vehicles in commercial urban fleets. The second is to define a strategy taking land planning into account. As is the case at each technological turn in the history of economics, the reconfiguration of mobility networks, travel modes and communication infrastructures play a key role in the dynamics of urban development. These factors determine the location, relocation and de-location of companies and justify structural transformations of transport infrastructures, the location and forms of logistics warehouses. In the case at hand, environmental agendas and sustainable urban mobility policies implicitly underlie a deep-seated transformation in traditional urban industries that remain strongly based on lorry transport.

Articulating the European discourse with Brussels policies

The Brussels-Capital Region (BCR) implements European policies in a social-economic context defined by it budgetary fragility, an under-qualified workforce, a high unemployment rate and middle-class flight from the city. In the light of this situation, the Region has received European structural funds (ESF) and has drawn up a series of strategic plans in the attempt to articulate the regional and European objectives (Hubert, 2009).

In Belgium, the match between operational programmes (OP) and regional strategic plans is reinforced by the fact that the federal entities[2] have the possibility to alternate as Belgium's representative at the EU Council of Ministers. This enables them to negotiate directly with the Commission, facilitating the coordination and complementarity among the regional policies and European strategies (Hubert, 2009). This is why the agenda and programming cycles of the European Regional Development Fund (ERDF*) and the ESF are determining factors in the evolution of Brussels's urban policies. For instance, the Community Initiative Programme PIC* URBAN II 2000-2006 bolstered the Sustainable Neighbourhood Contracts (CQD*) tool. This in itself can be partly seen as a result of exchange networks set up at the European level on the question of revitalising urban areas in crisis. In the same perspective, the ERDF OP* 2007-2013 offered the Brussels-Capital Region a lever for operational implementation of the 2002 PRD and the Brussels contract for the economy and employment signed in 2005. The ERDF OP* 2014-2020 is less associated directly to a particular plan.[3] The ERDF* projects are linked to sectoral policies such as the Brussels New Deal (pact for sustainable growth signed in 2011 by the Brussels government and the social partners), the Employment-Environment Alliances (Brussels Environment*) or even the Regional Innovation Plan (Innoviris, 2016). The projects thus make it possible to implement certain strategic objectives for the Region. We are thinking, for example, of the Manufakture Abattoir project, where EDRF* financing made it possible to implement the masterplan proposed by the Abattan public limited company to ensure the link between Molenbeek's Canal masterplan (2010) and Anderlecht's Biestebroeck masterplan, designed prior to the Biestebroeck PPAS*.[4] Other ERDF* 2014-2020 projects are linked to the implementation of a Sustainable District Contract* (Abbaye, Halle Libelco). The ERDF* has thus become a major public tool for investment in urban revitalisation in Brussels.[5]

Thus the BCR articulates the integrated urban development discourse voiced at the European level with Regional policies targeting the economy, mobility, the environment and land-use planning. This articulation is based on two policy branches where strategic, operational and regulatory plans intertwine. The first rises from the long negotiation process for the PRDD; it reflects the way Brussels territorial policy has adjusted to encompass sustainable development and its influence on the role of productive activities in the city. The second branch has grown from the Brussels New Deal and reflects how Brussels has appropriated the concept of industrial renaissance. Sustainable mobility, one of the four axes of the New Deal, is solicited to structure this paradigm change.

The urban revitalisation policy and the fabric of the productive city

In the articulation of urban revitalisation policies with the infrastructural fabric of the productive city, support policies are confronted with two realities that are in tension: production of affordable housing to meet the needs of population growth and support for maintaining industry in the city. This confrontation underpins the paradigm of mixity.

As discussed in the interview with Benoît Moritz, urban projects funded by the ERDF (from 1989 to 1999) gave precedence to integration of the European discourse with city reconstruction principles promoted in Brussels by the *Atelier de Recherche et d'Action Urbaine* (ARAU)[6]. The large urban projects in Barcelona, Birmingham, London, Berlin, Lille, Paris, Bordeaux, Hamburg, Genoa, Sevilla and elsewhere were grounds for experimenting this principle. These projects, in particular, provided the

1 The process was repeated during the following decade, leading to the New Leipzig Charter: 'The transformative power of cities for the common good' (30 November 2020) and the 2030 Territorial Agenda 'A future for all places' (1 December 2020).

2 Walloon Region, Flemish Region, Brussels-Capital Region

3 We should bear in mind that Brussels's PRDD* had not yet been adopted in 2013 and was under debate among various ministerial cabinets. A first project was published in December 2013, but the public enquiry on its contents did not take place until 2017. The text was then extensively changed before it was approved and adopted by the government in 2018.

4 The Biestebroeck PPAS*, adopted in 2017, was the first plan in Brussels to propose a spatialised and regulatory definition of the ZEMU* concept. It was nevertheless cancelled in 2020.

5 Between 2000 to 2020 the Sustainable Neighbourhood Contracts* worked from a budget of EUR 685,404,090 (financed by the Region, the municipalities and regional or para-regional agencies). Over this same period, the ERDF* budget for Brussels amounted to EUR 306,739,946 (co-financed by the European Union and the Region).

6 See interview with Benoit Moritz in this publication and Barey A., Culot M., Lefèbvre P. (1980), Déclaration de Bruxelles, Bruxelles, AAM: 'Any intervention in a European city is obliged to create what the city has always been, namely: the streets, squares, avenues, blocks, gardens, in other words neighbourhoods. On the other hand, any intervention in the city must banish urban roads and motorways, single-function zones, residual green areas. One cannot have industrial zones, commercial zones, pedestrian zones… but solely neighbourhoods that contain all the functions of urban life […]' (author's own translation)

opportunity to experiment and consolidate mixity as a positive city value and an alternative to zoning land-use and activities.

At the time when the Brussels-Capital Region was being created, the city's physical and economic structure were undergoing mutations related to de-industrialisation and a growing dominance of the service sector. This change to the economic regime rendered obsolete many factors that had served as arguments in favour of a functionalist discourse on separating functions in the city. From 1995, while Europe was forging the discourse on territorial cohesion and integrated urban development, the young BCR was undergoing a major mutation in its demography. After a period of decline, it began to grow again after 1996. This convergence of these three phenomena – changes in the economic regime, reversal of the demographic curve and generalisation of the sustainable development paradigm – spawned an evolution in the view of the place to be given to economic activities in the city and the fields of action in which public authorities should place their investment priorities. Beyond local considerations, the interaction with the European process also encouraged the Region and the municipalities to experiment with new modes of governance and articulation between strategic, regulatory and operational tools. The process to draw up the PRDD*, adopted in 2018, is a good example of this evolution.

In 2009, the BCR decided to amend its PRD (the two previous versions had been signed in 1995 and 2002). The new PRDD* – with a second D to signify the new objective of Sustainability (*Durable* in French) – is intended to address the rapid mutation of the regional context and integrate the experience and new principles for action declared at the European level. At the same time, the Region undertook its first reflections on the Canal Plan*[7], which would serve as a terrain to experiment with the new tools and procedures for carrying out urban projects. In parallel, at the international consultation Brussels 2040 on the territorial development project, the Brussels government commissioned an evaluation of the land and real estate potential to densify the city through housing. The study concluded that the BCR's present capacity was insufficient to meet the needs for housing generated by population growth at the 2020 horizon and proposed to redefine zoning rules that governed urbanism in Brussels. Along with this measure, the government revised the regional designated land use plan (PPAS*) and in 2013 adopted what was called the demographic PRAS* which created a new legal regulatory status for land use: Enterprise Zones in an Urban Environment (ZEMU*).

The demographic PRAS* and the ZEMU* provide an ambiguous response in virtue of this tension between a context of population growth and the need for a framework for keeping industry in the city. Largely criticised since it was designed, this new regulatory status does make it possible to mix residential and productive activities inside urban industrial zones (ZIU*) where previously the law did not allow housing to be built. This was a de facto opening of single-function zones, hitherto reserved for industry, to housing, businesses and residential equipment. In principle, the concept of the ZEMU* is intended to address demographic challenges through a form of adapted regulation. In practice, and even before the first projects were achieved, the mere announcement of the plan led to a steep rise in the value of the lots concerned.[8] Indirectly, it played a role in rendering the place of productive functions in the city more fragile.

The Urban Renovation Contracts (CRU*) and the Development Masterplans (PAD*) drawn up in the late 2010s for areas near the canal extended the reflection on urban integration of productive functions. They were another response in the aim

7 The Canal Plan* and the PRDD* are now coordinated by Perspective Brussels*.

8 See the Biestebroeck territory and exploration in this publication.

for a mixture of residential and productive functions. The Heyvaert PAD also proposes to create a new provision in the PAD* regulations in order to help maintain and install firms compatible with housing and ensuring balanced co-existence between productive activities and other functions on ground-floors: the 'Productive Strip'* (*Liseré Productif*). Similar to a commercial strip, they are spaces facing the street that are reserved for productive activities, with a framework for establishing the conditions for access. Such devices nevertheless call for a new control of the programming at the scale of each building and requires experimenting with new methods for verification and administration. These provisions for strips also show that the image of the productive city is gradually tending to coalesce in planning tools. Both the ZEMU* and the productive strip are concrete examples of an ideal of urban industry integrated in the urban fabric of the consolidated city.

The Canal territories are a unique field for observing the dynamics of land capitalisation, economic re-development and urban revitalisation. The area embodies the tensions generated between the challenges of residential densification and redeploying urban industry. Indeed, in the same general area we find large plots belonging to old industries that are suitable for densification by new constructions and also for experiments with new forms of mixed housing and economic activities. We also find an Area for Reinforced Development of Housing and Renewal (EDRLR) which, for the period of 2002-2016 was the reference geography for the Sustainable Neighbourhood Contracts*, the main lever for public action with respect to urban renewal. In 2016, the EDLRL was renamed and became the Urban Revitalisation Area[9] (ZRU*). Created in 1993, the Neighbourhood Contracts underwent several evolutions over the years, quite clearly analysed by Mathieu Berger (2019). Since 2010, in the light of particular attention to the environmental facet, the contracts were renamed to Sustainable Neighbourhood Contracts*. The Sustainable Neighbourhood Contracts* are intended to help develop jobs in the new environment professions, but also for the building sector and companies in the socio-professional integration field.

It is worth mentioning that since 2017, the Sustainable Neighbourhood Contracts* have been supplemented with Urban Renovation Contracts (CRU*). These intervene in perimeters covering several municipalities to improve the quality of the environment and foster a dynamic economy for infrastructures that compose the public space and urban networks. In practical terms, due to institutional complexity they are much less efficient that the district contracts in terms of production of the city.

Elsewhere, the Canal Plan*, initiated by the regional government in 2012, is not a planning tool but rather a method that proceeds through successive adjustments. Its aim is to implement the image of the productive city (see the interview with B. Moritz). The first phase of the process (2012-2015) was an international consultation involving the team of Alexandre Chemettoff in designing a process of project-based urbanism that encompassed a metropolitan vision. It proposed to reinforce the mixture of habitations and industry. Since 2014, the Canal Plan* has been led by the bouwmeester maître architecte (BMA*). The Plan is built around a vision that is strategic (function mixity, economic reinforcement and housing creation) and architectural (varied and bold architecture that can meet the challenge of mixity between spaces for economic activity and housing) centred on public space[10] (recovery of industrial heritage, animation of façades and ground floors). In a continuation of Alexandre Chemetoff's initial plan, the projects growing from the Canal Plan concretise the image of a productive city by grouping general housing and new productive activities in pacified public spaces and bespoke architecture.

9 Its perimeter was redefined in 2020 and presently includes the garden cities of the second periphery.

10 Under the Canal Plan*, in 2019 the BCR government approved the BKP* Plan regarding landscaping and planning quality of the canal's open spaces.

The policy of supporting economic activities and production of productive infrastructures

The instruments mentioned above are part of a long institutional process that has accompanied the maturing of the PRDD*. They are both the outcomes and the supports of the Brussels land-use planning strategy. As such, they illustrate the evolution of conceptions and the positioning of the Brussels public institutions with respect to the productive city. This evolution comes with a major document, the '2025 Strategy'* for Brussels. A new economic dynamism for the Region' which formalised the axes of the Brussels New Deal. Signed in 2015, the document is presented as a 'pact for growth' aiming to unite the set of institutional actors in the field around a common 'business friendly' method with four lines of action: education, innovation, mobility and employment. ach of these lines mobilises a series of partners around three objectives. [11] The first objective concerns public production of infrastructures, lots and buildings adapted to the needs of economic activities, taking as a guide two concepts developed by the PRDD*: the 'development hubs' and the 'neighbourhood city'. The second objective is financial backing for certain categories of companies. Lastly, the third objective is assistance and training for workers.
The regional strategy's first objective is undertaken through a public firm created in 1974 under the name of the Brussels-Capital Regional Development Society (SDRB); since 2019 it has worked under the commercial name Citydev*. The company has a double mission: ensure economic expansion by attracting or maintaining companies with a high added value and working to curb the flight of middle-income residents by producing affordable housing. Each facet of this mission reports to a different ministry. For the economic facet, Citydev* acts as a real estate developer: the public company purchases and equips lots and ensures the operational covering costs over time[12]. One example, that was used as a case study for this MasterClass, is the incubator for businesses in the circular economy, Greenbizz financed by the ERDF* 2007-2013 promoted by Citydev* and hub.Brussels*. Located along a covered street that fosters cooperation and mutualisation, this incubator houses workshops for companies primarily involved in the craft economy or micro circular economy.[13]

In 2009, Citydev* integrated in its organisation chart a division for 'mixed projects' to facilitate the growth of projects combining housing and economic activities. The mixity can come about through superposition (vertical mixity) as in Biestebroeck, or else by juxtaposition (horizontal mixity) as found in Béco-Vergote with the Tivoli Greencity project (in which Greenbizz participates). The public company would like the infrastructures it creates to be attractive for any artisanal or industrial company that produces or transforms material goods or services or that produces intangible goods or advanced technology. Activities such as stores, HORECA and local services are also eligible as long as they reinforce the infrastructure's attractiveness and generate local jobs. One determining criteria for acceptance is jobs density, calculated in terms of Full-Time Equivalent (FTE) per hectare. Companies still find it difficult to participate in the Citydev* approach due to the length of operation cycles (7 to 10 years). Citydev* tries to move beyond this limit by developing a prospective approach[14] and favouring space flexibility (taking into account ceiling heights, floor loads and possibilities for loading-unloading).

Besides the equipment of new infrastructures, the spirit of the New Deal can also be seen in the recent interest of public actors in granting temporary occupation rights for unused sites or buildings, for more or less long periods. This is especially the case on the Citygate II and Citygate III, a question that was discussed in the MasterClass.[15] Over the past years, these practices have multiplied in Brussels, mainly in areas undergoing mutation; it assumes different forms depending on the actors and sites concerned. For new companies in the crafts and circular economy sectors and/or social economy organisations, the possibility to occupy unused plots or buildings with rental and safety standards adapted to the precarious nature of the place offers a considerable advantage. At the same time, for the owners and the neighbourhood, it represents a solution to the problem of vacant buildings or lots, something quite relevant in terms of image. Temporary occupation is gradually becoming a structural means to facilitate the installation of companies in the crafts and circular economy sectors or social economy organisations in the impoverished urban fabric of the 'disadvantaged area'.

In the perspective of the second objective of the Strategy 2025* and the Brussels New Deal (2015), the BCR has also developed several programmes to subsidise economic actives deemed to be useful for the city's sustainable development. We can cite the SME Plan* (Small Business Act, 2016) to favour entrepreneurship, which grants subsidies to companies or training agencies to foster the anchoring of economic activities in the Brussels territory and primarily activities that cannot be delocalised.[16] There is also the Industrial Plan* adopted in 2019 which targets the building sectors, along with the sectors of manufacturing and innovative materials, agri-food, healthcare and the creative and cultural field. The Regional Programme for the Circular Economy (PREC*, 2016), now rechristened Be.Circular, also illustrates the Brussels strategy in favour of the green economy in the aim to turn environmental challenges into economic opportunities. Mainly promoted by Bruxelles-Environnement and Bruxelles Propreté, the programme grants funding to any company whose economic model fosters job creation through circular and local-based logics.

The spirit of the Brussels New Deal has also given new life to governance practices and has created new configurations of actors. In 2017, for example, a new agency hub.Brussels* was born from the merging of Atrium, Brussels Invest & Export and Impulse. Hub.Brussels* provides institutional, legal and logistical support to commercial companies working in various sectors such as HORECA, fabric

11 The education focus has assembled: 1819.Brussels, Bruxelles Formation, Cirb.Brussels, Perspective Brussels*, Talent.brussels, La Cité des métiers, Innoviris, Actiris.brussels*. The innovation focus has assembled: Cirb.brussels, Bruxelles Économie et Emploi, Screen. brussels, SAU-msi.brussels*, Perspective Brussels*, Innoviris, 1819. Brussels, Abrumet (Brussels Healthcare network). And for the mobility focus: Bruxelles Mobilité and the STIB. Employment line: Greenbiz. brussels, Bruxelles Pouvoirs locaux, Finance.Bruxelles (SRIB -Brussels-Capital Regional Investent Society), 1819.Brussels, Bruxelles Environnement*, Hub.Brussels*, Talent.brussels, Screen.brussels, Actiris.brussels*, Mad.brussels, Bruxelles Économie Emploi, Easy. Brussels (administrative simplification agency), Urban.Brussels*.

12 For details about the Citydev's* operational covering costs' mechanism see the sheet on Tivoli-Greencity in: Ananian P., Dallaire, J.-P., Declève, B., Jarousseau, E., McCormick, K., Rochefort, M., Said, V., Ternon, A. (November 2019). Innovations dans les stratégies de redynamisation par le projet urbain. Metropolis research report. UCLouvain and UQàM.

13 Citydev* coordinates eight business centres of this type in Brussels.

14 Thanks to the tool Iventimmo, Citydev* has information about availability of and demand for production real estate. The companies contact Citydev, which directs them towards one or another productive space available as a productive space.

15 See the 'explorations' section of this publication.

16 This can also be seen in the search to simplify administration of the legal and fiscal regimes for micro-companies and SMEs. It is particularly complicated and subjects the entrepreneurs to three levels of taxation: federal, regional and municipal. Furthermore, a new Code for Companies and Associations (CSA) was introduced in Belgium through the law of March 2019, which considerably modifies the entrepreneurial landscapes. In particular, the new code puts an end to the proliferation of company forms. Henceforth, there are only four forms of societies: ordinary partnership, private company (SRL/BV), cooperative company (SC/CV) and the public limited liability company (SA/NV). The new code covers both new forms of companies as well as associations and foundations. Henceforth, associations can undertake profit-making activities, just like companies, the only difference between the two statuses being that the associations can only distribute profits for the social purpose defined in their articles of association.

design, events or sustainable building.[17] It coordinates clusters of innovative companies in the same sector, emphasising networking of small-scale activities (start-ups, freelancers, micro-companies, SMEs) which offer solutions to needs in city live and adopt economic models founded on the principles of local-based, circularity and sustainability. The regional agency thus also provides support to these new economies.

The third objective of the Brussels New Brussels, taking shape in the Brussels Strategy 2025 Education Programme, places education and training at the heart of the Region's concerns. As education and training come under the linguistic community jurisdiction, Strategy 2025 brings regional and community actors together. In addition to programmes to finance projects for education, training, company internships, learning the national languages and English, and creating a social centre for training (La Cité des Métiers/ Beroepenpunt, an ESF project managed by Actiris), this partnerial dynamic between the Brussels-Capital Region and the Communities served to establish a city planning tools to promote the integration of schools in the urban fabric: the school contracts.

Company logistics tackling sustainable mobility

As we mentioned in the introduction, production of the city and the distribution of economic activities in the city also largely depend on public strategies with respect to mobility of people and goods. They influence the choices that companies make about location and transport or means of travel. Although it is integrated in the objectives of the Brussels New Deal, mobility nevertheless remains an institutional question entirely administered by Brussels Mobility* and the STIB/MIVB. In the area of mobility, European and regional strategic policies are hard to articulate because the mobility of merchandise, also linked to the development of e-commerce, is a field that is still largely beyond the scope of public authorities. Although public action is essentially regulatory, it nonetheless aims to look for operational solutions. These are based on collaboration with private actors and encourage the establishment of new type of strategic plan, as seen in the Goodmove plan adopted in 2020.

Since 2013, regardless of the field of application, reducing CO2 emissions is a transversal objective intended to ensure coherence of the planning turn in favour of sustainable development. The Air, Climate and Energy Plan (PACE) that Brussels adopted in 2016, is the operational wing of the Brussels Code on Air, Climate and Energy Management (COBRACE), adopted in 2013. This plan proposes 64 measures and 144 actions towards the objective of reducing greenhouse gas emissions 30% by 2025. It mainly targets the polluting sectors of construction and transport and also encourages production of renewable energy.

As regards mobility for companies, two other tools should be considered. On the one hand, the Merchandise Plan* (2013) aims to reduce the pressure of logistics on the urban environment through measures such as rationalising parking space for heavy lorries, adjusting halt zones for loading and unloading, increasing the use of transport with bicycles and cargo bikes or optimizing deliveries. On the other hand, the Regional Plan for Parking Policy (PRPS) finally adopted by the Region in 2013, aims to harmonize parking policies in Brussels's 19 municipalities and also free space on streets to encourage alternatives to personal vehicles.

Furthermore, turning rendering central areas pedestrian and privileging waterborne transport are two main projects in Brussels with respect to mobility. Opting for slowness has become a key component in production of the city. Making public spaces pedestrian and densifying the road network through a new series of slow thoroughfares has a major impact on transforming the urban rhythm and logistics for economic activities. The Port of Brussels* masterplan for 2030 (2013) confirms the economic function of the Canal and proposes development to promote the installation of activities

17 The agency also helps companies solve questions of urbanism and the environment tied to their physical implantation in the city.

related to the Canal and urban logistics via waterways.[18] Achieving these objectives relies on various projects[19] which all have impacts on the socio-economic and urbanistic realities of the neighbourhoods in which they occur as well as on the general structure of the relation between the city and the space of its economic activities.

The principle of modal transfer in order to use transport modes other than roads to enter the city is thus centred on the canal area, which structures the distribution centres intended to attract companies. In actual practice, modal transfer to more sustainable logistic modes (waterways, rail, active modes) is hard to accomplish as it comes up against the issues of economy of scale and profitability.

Requalifying mobility infrastructures and their modernization in favour of shared spaces and active mobility thus seem to be intended more for residential use. The issue of sharing public space is also that of integrating urban logistics linked to the professions that work in the city and keep it running smoothly. Until now, although the plans stipulate the need to help attenuate conflicts between residential and productive uses of the public areas, these measures nevertheless have the effect of forcing plumbers, gardeners, electricians and other professions needed to service the habitat to change their work methods in favour of cargo-bikes or to invest more if they wish to continue using a delivery lorry to move about and bring their merchandise into Brussels.

Synthesis of the chronology and opening a reflection

This article highlights the strategic interlinking between two movements in the economic and territorial policies of Brussels: a first – endogenous – movement centres on a search for public means of action to address challenges posed by the realities and needs of the territory, a second – exogenous – movement aims to integrate in the Region's realities the discourses and strategies drawn up at the European level. The table chronologising the evolution of planning, regulatory and operational tools summarises the two branches that structure the evolution of economic, territorial and mobility policies in Brussels (see table p.52). It also highlights the interaction between the Brussels dynamics and the agenda (2007-2013 / 2014-2020 / 2021-2027) of the different European structural funds programmes focused on the imperative of sustainability, one aspect of which is integrated sustainable urban development. As we saw earlier, the operational programming of these European structural funds articulates the exchange networks that, at both the city and European levels, ensure the circulation of ideas developed in the operational projects. We have shown how the paradigm of integrated urban development, initiated at the European level, affects the articulation of regional policies in the areas of the economy, mobility, the environment and territorial planning. This paradigm is addressed primarily through a policy of modernising infrastructures and building new constructions rather than renovating existing buildings. This makes it possible to accommodate as livably as possible the constraints linked to the mix of housing and economic activities. To attain this objective, the mixed city has become a model deemed acceptable by citizens, academia and political circles alike. This does not resolve certain paradoxes, especially ambivalence in the interactions between the forms and scales of mixity. Functional mixity, social mixity, economic mixity or mixity in uses and flows in public space do not necessarily generate converging or harmonious urban effects. Likewise, mixity conceived at the scale of a building, street, city block or neighbourhood, or else throughout the territory do produce the same

18 A first masterplan, developed in 2007, sketched development of the port until 2015. An updated version of this masterplan was published in 2013, providing a vision until 2030. Since late 2019, a new masterplan views port development from now until 2040.

19 Renovation and extension of the TIR centre (TACT project), construction of the Roll on-Roll off terminal for automobile transport, port extension, creating a trimodal (water-rail-road) economic-logistics centre on the site of Schaerbeek-Formation, construction of a passenger terminal in Neder-Over-Hembeek, construction of the building village, development of an urban distribution network and creating a centre for urban transhipment.

urban scenarios. Each scale raises specific questions about the cohabitation of publics, activities, uses, intensities and flows.

As such, entrepreneurial dynamics and a focus on the sustainable economy of the industrial renaissance do not necessarily target employment for low qualified workers or Brussels residents who are unemployed. While ERDF* projects help create jobs, related issues like socio-professional integration, continued training and employment for precarious publics tend to be covered more by projects financed by the linguistic community commissions (COCOF*, VGC*, COCOM*) and the ESF*.[20] While all these dynamics aim at creating a profitable urban environment to attract workers or productive inhabitants in the city, the meaning of essential work to service the city, life and social action remain in the shadows of the 'sustainable turn'.

20 See also the interview with Benoît Moritz in this publication.

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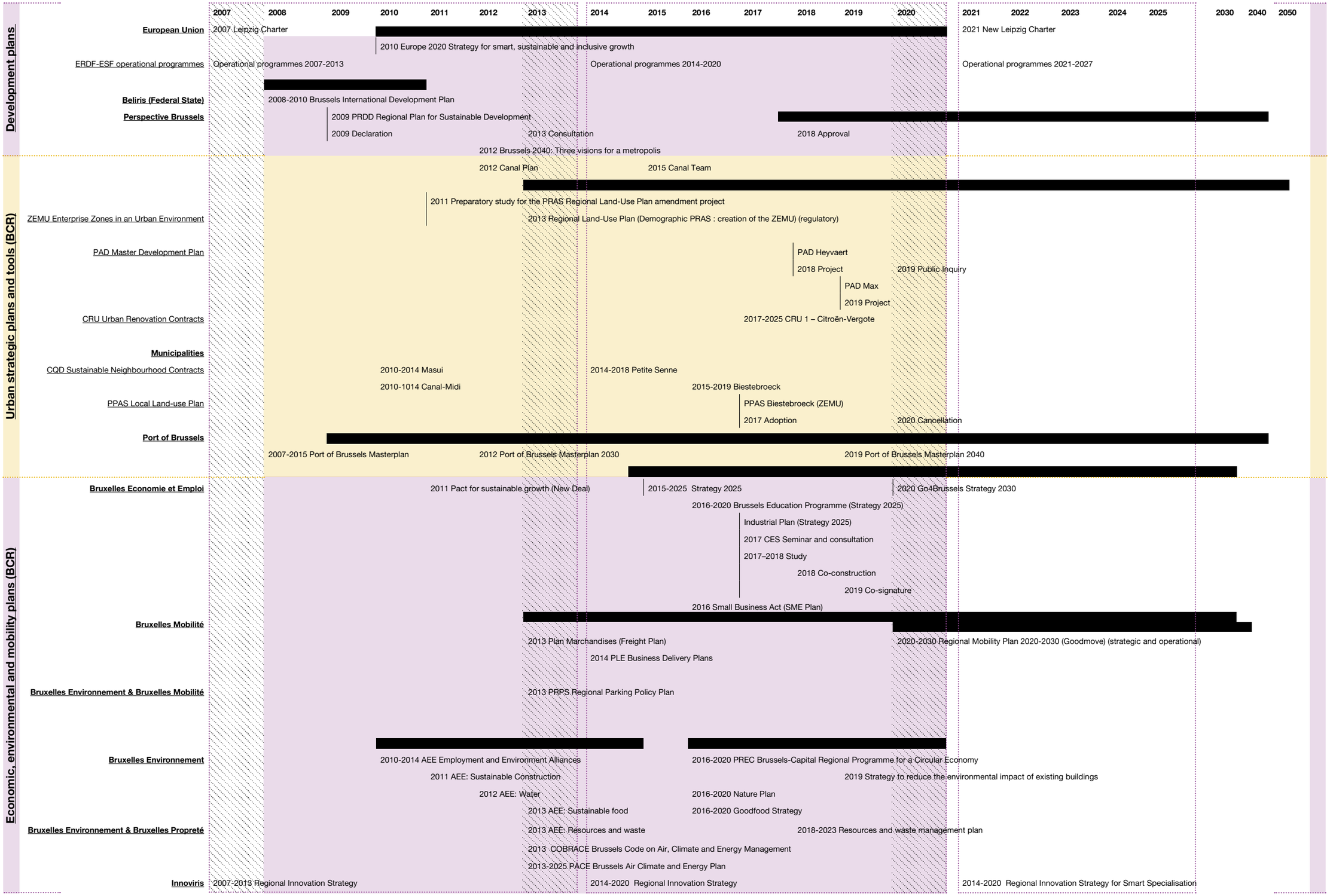
Development plans
Urban strategic plans and tools (BCR)
Economic, environmental and mobility plans (BCR)
2007
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European Union
2007 Leipzig Charter
2010 Europe 2020 Strategy for smart, sustainable and inclusive growth
2021 New Leipzig Charter
ERDF-ESF operational programmes
Operational programmes 2007-2013
Operational programmes 2014-2020
Operational programmes 2021-2027
Beliris (Federal State)
2008-2010 Brussels International Development Plan
Perspective Brussels
2009 PRDD Regional Plan for Sustainable Development
2009 Declaration
2013 Consultation
2018 Approval
2012 Brussels 2040: Three visions for a metropolis
2012 Canal Plan
2015 Canal Team
2011 Preparatory study for the PRAS Regional Land-Use Plan amendment project
ZEMU Enterprise Zones in an Urban Environment
2013 Regional Land-Use Plan (Demographic PRAS : creation of the ZEMU) (regulatory)
PAD Master Development Plan
PAD Heyvaert
2018 Project
2019 Public Inquiry
PAD Max
2019 Project
CRU Urban Renovation Contracts
2017-2025 CRU 1 – Citroën-Vergote
Municipalities
CQD Sustainable Neighbourhood Contracts
2010-2014 Masui
2010-1014 Canal-Midi
2014-2018 Petite Senne
PPAS Local Land-use Plan
2015-2019 Biestebroeck
PPAS Biestebroeck (ZEMU)
2017 Adoption
2020 Cancellation
Port of Brussels
2007-2015 Port of Brussels Masterplan
2012 Port of Brussels Masterplan 2030
2019 Port of Brussels Masterplan 2040
Bruxelles Economie et Emploi
2011 Pact for sustainable growth (New Deal)
2015-2025 Strategy 2025
2020 Go4Brussels Strategy 2030
2016-2020 Brussels Education Programme (Strategy 2025)
Industrial Plan (Strategy 2025)
2017 CES Seminar and consultation
2017–2018 Study
2018 Co-construction
2019 Co-signature
2016 Small Business Act (SME Plan)
Bruxelles Mobilité
2013 Plan Marchandises (Freight Plan)
2020-2030 Regional Mobility Plan 2020-2030 (Goodmove) (strategic and operational)
2014 PLE Business Delivery Plans
Bruxelles Environnement & Bruxelles Mobilité
2013 PRPS Regional Parking Policy Plan
Bruxelles Environnement
2010-2014 AEE Employment and Environment Alliances
2016-2020 PREC Brussels-Capital Regional Programme for a Circular Economy
2011 AEE: Sustainable Construction
2019 Strategy to reduce the environmental impact of existing buildings
2012 AEE: Water
2016-2020 Nature Plan
2013 AEE: Sustainable food
2016-2020 Goodfood Strategy
Bruxelles Environnement & Bruxelles Propreté
2013 AEE: Resources and waste
2018-2023 Resources and waste management plan
2013 COBRACE Brussels Code on Air, Climate and Energy Management
2013-2025 PACE Brussels Air Climate and Energy Plan
Innoviris
2007-2013 Regional Innovation Strategy
2014-2020 Regional Innovation Strategy
2014-2020 Regional Innovation Strategy for Smart Specialisation

Insights from a local stakeholder

Jade Kawan – Perspective.brussels

At the time of the MasterClass, Jade Kawan was a project manager at Perspective.brussels*, the land use planning agency of the Brussels-Capital Region. She works in the Territorial Strategy unit and is responsible for the Heyvaert neighbourhood where a Development Masterplan (PAD*) is underway.

At Perspective, we promote urban productive activities because it is a way to keep production of goods in the city and for the city. This reduces transport time (beneficial from an ecological point of view). We try to foster functional mixity within the city, in other words, a mixture of productive activities along with other functions (housing or collective interest infrastructure, for instance). This functional mixity nevertheless does cause some inconvenience, like annoying traffic, noise and logistics. [Keeping productive activities in the city] is quite a challenge that we try to solve by studying the sources of nuisance and then planning work for these activities upstream so they can be managed better.

As for public authorities, under several urban development plans it is possible to render productive activity on the ground floor mandatory. As such, these spaces are reserved for this activity, which means that the owners are informed ahead of time about these constraints to their project or business plan. Furthermore, a lot of effort goes into forming networks of the different actors, which is needed so these spaces are exploited. On this point, Perspective is making gradual progress: it's a matter both of identifying the places where you want productive activity to be maintained (a priori along the Canal) but also identifying potential project implementers for calls for projects or other networks.

As for the type of productive activity, one of the main challenges is to enter into a circular, rather than linear, economy, one that touches all types of sectors (food, building materials, recovery,…). One goal is thus to preserve storehouse space and to have workshops that transform materials (for reuse in other sectors). Another goal is to link-up the different actors at each step of a project so that the material loops back around.

For Perspective, the advantage of the MasterClass was being able to meet the actors informally, with exchanges that we do not always have time for in our professions. Furthermore, it helps discover new ideas organised by the students to nourish the reflection at the level of the neighbourhoods and our projects.

Insights from a local stakeholder

Marc Renson — Citydev.brussels

Marc Renson works at Citydev.brussels*, the regional operator in charge of developing housing and spaces to host businesses. He is the director in charge of managing sites, subsidies and external missions.

It is crucial to keep a diversity of artisanal and economic activities in, or near, the city, at a scale that fosters their integration in the urban fabric. If only to provide jobs for the residents and meet the challenges of mobility: pushing everyone out to the second periphery or worse, outside the Region, merely generates traffic jams and continuous congestion. This is something no one wants. Maintaining economic activity in the city also favours workplace proximity and simplifies the workers' daily commutes. Keeping this in the city corresponds to technical imperatives in terms of renovation but also to the will to generate a maximum of short cuts.

Support by ERDF* is useful in helping us develop integrated centres of economic activity. This is an opportunity to take on projects that would not be possible without this type of financing. In the previous programming (2007-2013) this financing helped achieve the Greenbizz project next to Tour & Taxis, in which Citydev invested with a series of partners. In the framework of the current ERDF (2014-2020) we are developing the NovaCity project, which is a park for small enterprises in Anderlecht, as well two projects for crèches integrated in housing, the Irisphère project and the CityGate project. The CityGate project is fairly representative not only of the kind of action we undertake but also of the Brussels market.

Also in the Biestebroeck zone, a series of large companies are looking for land in Brussels (for example Travie or Léonidas). Through our marketing team and its database INVENTIMMO, Citydev is in constant dialogue with them. Sometimes, however, real estate solutions that we are able to propose are not suitable for them, so they turn to the private market.

The dynamics in place at Citydev* demonstrate the will to create places to host small companies, in our SME or micro-enterprise park. Sometimes artisanal activities start out being grouped in temporary occupation such as Studio CityGate.

Two companies at Studio CityGate have already found a place in the Newton micro-enterprise park and other sites will be proposed in the near future. Temporary occupation is a real opportunity to combine other complementary functions – sports, cultural or social. The partnership for the Kanaal Hangar brought real added value as it further strengthened the diversity of activities.

There is one danger that can be observed and that we must avoid: on the one hand the economic world continues to run along the same habitual formulas, on the other, a young circular economy is taking its first steps, but the two never cross paths. As a result, the circular economy could not develop without calls for projects and a boost in terms of implantation. At the end of the day, these two types of economies absolutely must meet. This is why we are also developing projects like Irisphère, in the context of which we seek to promote development of the circular economy in existing companies.

Land is becoming rare in Brussels. The SMEs also have a more permanent territorial mooring. The large companies tend more to flee the city for reasons and criteria that, economically, are not always the most logical. We intervene in the urban fabric with projects that are mixed both horizontally and vertically, to promote the urban integration of the SMEs. It is a true challenge to combine several activities on different storeys… but we are launching into the venture with other real estate partners in the Brussels-Capital Region: the housing company (SLRB*), the urban development corporation (SAU*), the municipalities and the public welfare centre (CPAS).

Methodology

Methodology

Louise Carlier and Geoffrey Grulois

Objectives

At a time when European and local public authorities recommend maintaining and/or reinforcing productive functions in urban areas, the MasterClass Urban Production pursued the objective to improve their understanding about how the interactions between production in the city (productive activities in the urban context) and production of the city (daily building the urban fabric and projects) actually come about.

As shown in “Context” part of this publication, urban productive companies are diversified in several manners: in their undertakings as well as in the way they are organised, the jobs they create, their place in the economy and their form of integration in the urban fabric[1]. The MasterClass thus studied the different types of productive economies: classical industrial economy and social economy, and then the new types of productive activities opened by the smart economy (new technologies), the craft economy and circular economy, which are presently put forward by regional and European public policies.

Just as we observed diversity in the types of productive activities, we also noted various specific modes for integrating into the urban fabric, especially in relation to the objectives, devices, rules and means of urban public policies[2]. At present, installing new productive activities in urban space comes about through a logic of grouping in clusters, something that is promoted in most contemporary urban policies[3] and projects funded by public authorities. This logic is embodied in specific spatial forms such as business centres, in line with the principle of concentrating and specialising activities on one same site.

The MasterClass thus proposed to explore these different types of productive activities and their specific modes of integration in the city by preparing case studies on several companies implanted in various urban territories, making a distinction between those that did or did not come under the logic of clustering.

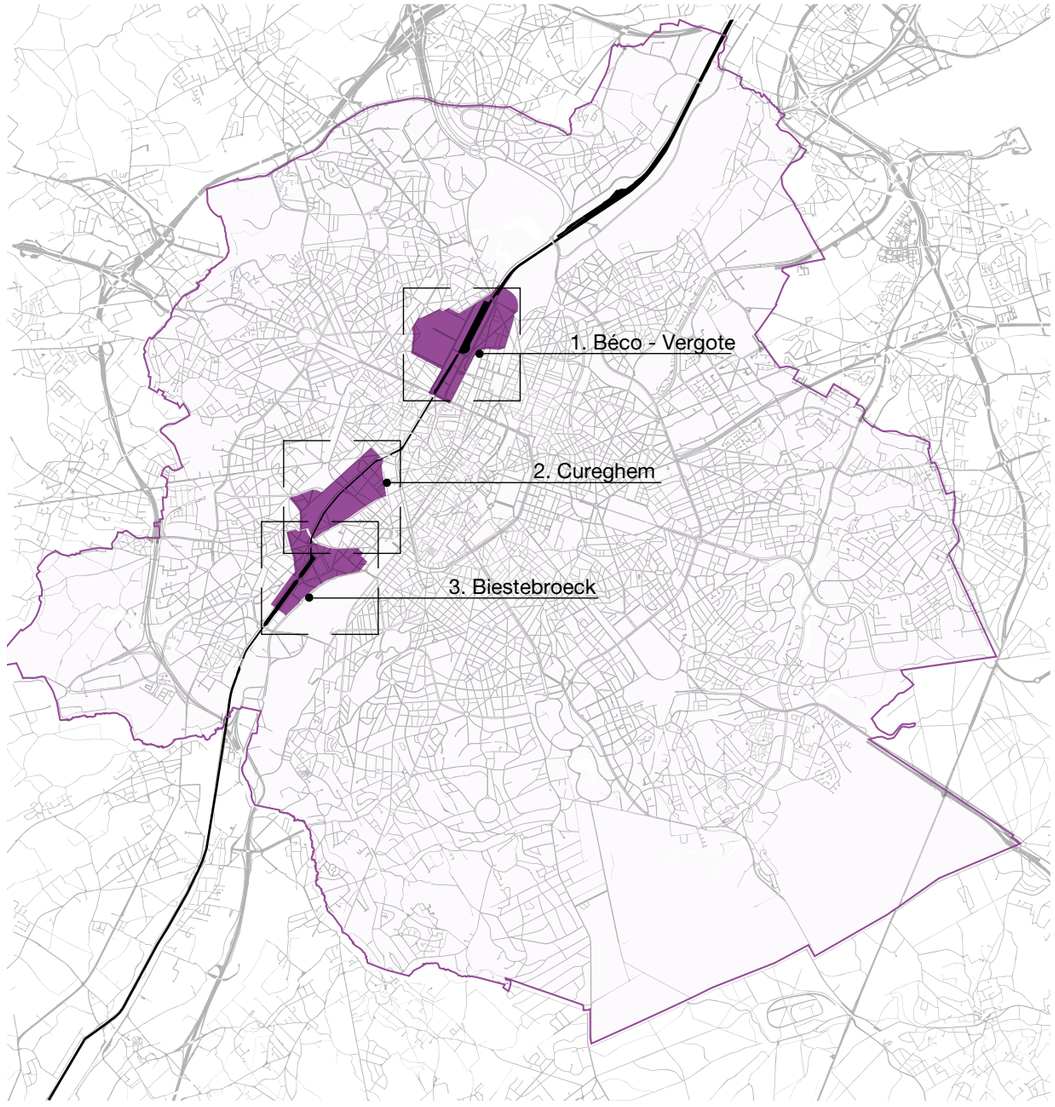
In the light of this general objective, the methodology set up for the MasterClass aimed to analyse the question of urban production from two different angles: one relating to the different types of productive activities in an urban context and the other looking at their modes of integration in the urban fabric and the role played by urban policies in this process. Along these lines,

1 See J.M. Decroly’s contribution on p.15

2 See B.Moritz’s and M. Declève ’s contributions on p. 31 and p.41 respectively

3 For example, the Region’s Industrial Plan states that: ‘Policies for innovation, in a European context, are based on logics of clusters. The geographical grouping of companies and close collaboration among them can have a positive impact on the Region’s level of innovation and economic development. Michael Porter has defined the clusters as “geographic concentrations of interconnected companies and institutions in a particular field” sharing common features and complementarities.’ (https://didiergosuin.brussels/sites/default/files/documents-articles/plan_industriel_fr.pdf)

Map of the three study areas



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we were especially attentive, on the one hand, to the various forms of cohabitation among the different functions found in the territories studied (in a context of pressure from the real estate situation, transformations in mobility and support for extending spaces devoted to middle-class and luxury housing). On the other hand, we looked into planning policies set up to promote and regulate the place of productive activities in these territories.

During the first week of the class we drew up a descriptive analysis in order to hone our knowledge about these types of activities, based on specific case studies of companies in an urban environment, whether or not they were installed there in virtue of a clustering logic ('production in the city'). The second week was dedicated to a prospective analysis of the intended productive sites and projects, the programming and design of which are still under discussion ('production of the city'). With these case studies as our starting point, the analyses give us a broader look at the place of productive activities in the urban fabric.

Case studies

Three territories were proposed as study areas for the MasterClass, all of them located along the Brussels-Charleroi canal. The three sites are neighbourhoods that have hosted productive activities since the 19th century. They are undergoing major transformations (business centres and logistics structures moving in, middle-class and luxury housing built,…), they are territories where urban planning and renovation policies are concentrated, and the regional public authorities have stressed the question of productive activities:

1. **Béco-Vergote**
2. **Cureghem**
3. **Biestebroeck**

For each of these three territories,

— two companies were chosen as case studies for the first week's descriptive analysis phase – one company in each group is integrated in a business centre project[4]:

1. **Béco-Vergote:**
   No Science micro-brewery (business centre: Greenbizz) / Stevens & Co;
2. **Cureghem:**
   Micro Factory (business centre: RecyK) / Océan Marée;
3. **Biestebroeck:**
   La Gadoue, Atelier Pirate, Hey Jute, 3 Studio (business centre: Studio CityGate) / Travie;

— for each territory, one project intended to host productive activities was chosen as a case study for the second week's prospective analysis[5]:

1. **Béco-Vergote:**
   Reconversion of the former *Ferme des Boues* located between the Quai de Willebroeck and the Quai des Péniches.
2. **Cureghem:**
   D'Ieteren plot and warehouse located between the chaussée de Mons and the rue Heyvaert.
3. **Biestebroeck:**
   Citygate III project located on the rue Prévenaire.

The following texts of this publication will lay out the context of these three territories, their productive fabric, the socio-economic issues raised, and the planning policies and projects under way.

4 See the company descriptions from page 103

5 See the project sites descriptions on page 167

Methodology

The work accomplished by the students and published in the second section of this publication ('Explorations') entailed both a descriptive analysis of the productive activities, undertaken during the first week of the MasterClass, and a prospective analysis of the projects planned to host productive activities, undertaken during the second week. For this work the students were split into three groups, one for each territory.

The objective of the descriptive analysis was to refine the understanding and the analysis of the types of production activities studied, their economic logics as well as their modes of integration in the urban environment. On the basis of the knowledge gained, a prospective analysis was then carried out. It focused on the types of productive activities to be recommended on these sites and on their mode of integration in their economic, spatial and social environment – being aware that the programming for these sites was in the definition phase.

Descriptive analysis: production in the city

The analysis drawn up during the first week was based on various methodological tools: observations, visits to the sites and interviews with the economic actors. They were based on the following lines of analysis (include methodology chart):

— Business organisation
A first line of analysis concerned the company's structure and model: sector, size, legal status, internal organisation, staff and workers (number, qualifications required and labour pool), production methods and type of goods produced, professional and commercial network (supply, production and distribution network) and its urban/regional dimension. For this analysis, the different MasterClass groups used the chart shown on page 66 as a tool for analysis.

— Urban integration
A second line of analysis concerned the modes followed by the company or business centre for integration in the urban fabric. This analysis involved looking into:

- The scale for mixity of the functions[6] in the territories studied (at the scale of the building, its immediate environment, the neighbourhood) and the impact of planning tools on the mixity principles observed;

- The degree of visibility for the company and the goods it produced in the urban area. One objective stressed by various public authorities in charge of developing productive zones is that of spatial visibility of the productive activities – from a landscape perspective. The group therefore considered the viewpoint of the economic actors themselves regarding practices for the company's (in)visibility in the urban space;

- Relations of cohabitation between the company studied and the other functions, actors, uses found in the study territory (tensions and resources).
The group thus examined the opportunities and difficulties that an intra-urban location posed for certain production activities.

For the companies installed in a business center, two other elements were considered for analysis:

— Project
The analysis concerned the modes of urban integration of the business centres studied. It examined the spatial form, mixity of functions found in their immediate environment and cohabitation relations with these other functions.

— Pooling
As the logic of clustering aims to reinforce networking and partnership ('synergies') among the economic actors located in the same centre, the analysis called for examining the organisation and management modes of these centres, as well as the advantages, opportunities and constraints experienced by the companies integrated therein.

Following the analyses produced by the three groups during the first week, a smaller set of representatives from each group was assigned the task to prepare a transversal analysis that could place all the case studies in perspective and compare them in relation to the different points of analysis proposed. The aim was to draw some general conclusions about the place of productive activities in the urban fabric.

Prospective analysis: production of the city

On the basis of these elements, the second week of the MasterClass was devoted to a prospective analysis of the sites intended to host new productive activities, but for which uncertainty and debate marked the question of programming (types of productive activity) as well as the anchoring implied by implanting and/or renewing productive activities in these places.

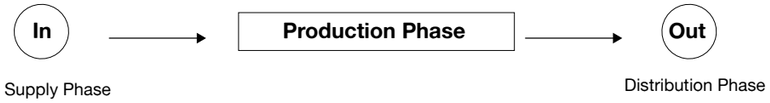
The objective was to question the public policies for urban production that underlie proposals for programming, spatialising and urban integration of productive activities in these three sites, together with those promoting the projects (public authorities responsible, owner, regional institutions concerned, etc.). The prospective analysis revolved around two different scales (site and territory) and two time spans (current situation and projections).

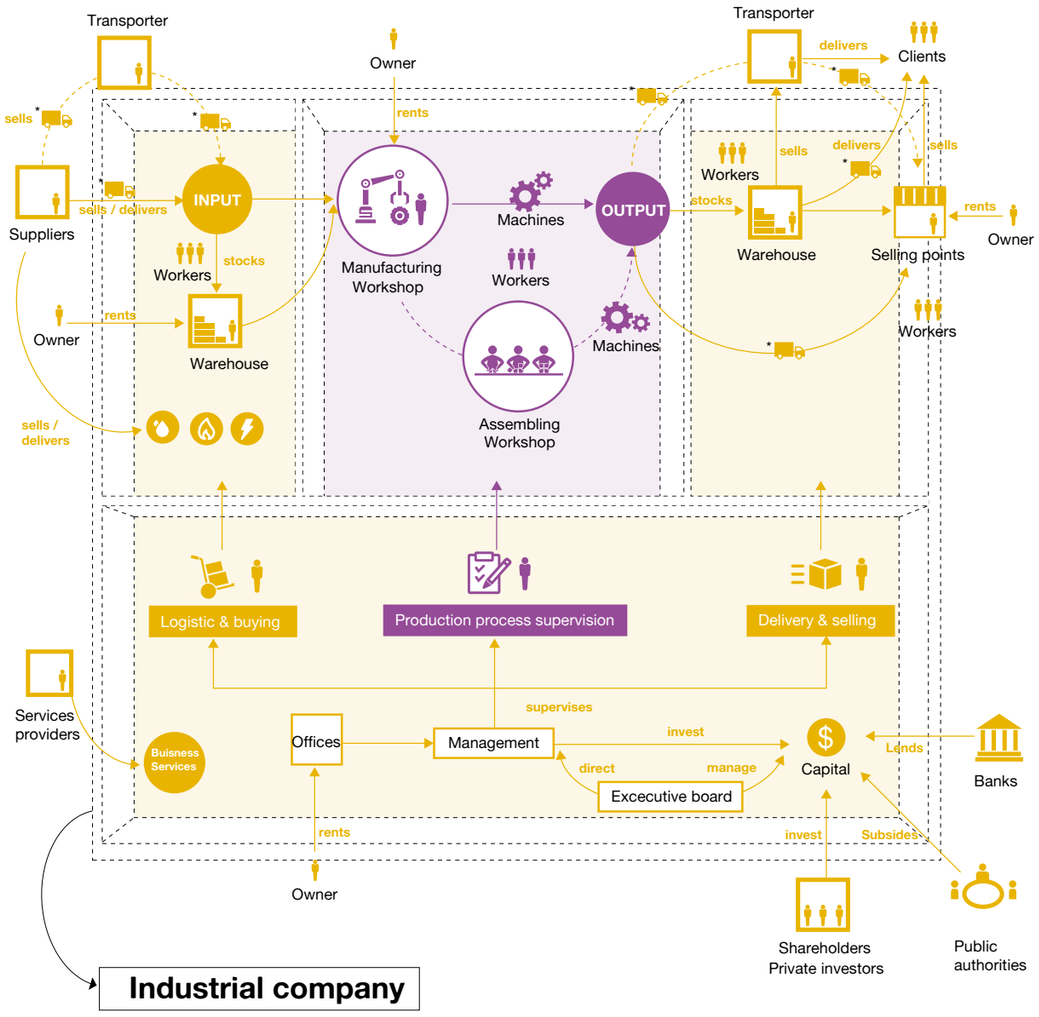
Following a visit on-site and a workshop with the different actors involved in the project, the next step was to acquire a clear understanding of these projects and the issues they raise at two different scales: that of the plot of land studied and the scale of the territory where it is located. The analysis at the project site scale concerned the actors involved, the types of economic activities proposed, spatial development and programming foreseen. The analysis at the project territory scale examined the social-spatial dynamics involved, the ongoing urban policies and development projects, the scales of functional mixity, issues related to the place of productive activities and the stakes involved for socio-economic inclusion in these territories.

The participants were then asked to work on proposals concerning the type of productive activities (programming) that these sites could promote and their logic for integration in their productive, spatial and social environment. In this context, it was suggested that they carefully weigh the issues of clustering, logics for traffic/logistics access and design of public space, compatibility/adjustment to planning and regulatory instruments and regional development strategies.

The analysis tools deployed for this prospective study were the same as those used for the first week's descriptive phase. The overall objective was to develop a critical and prospective reflection to address the issues at stake in urban production in the Brussels-Capital Region.

6 Another aspect was to take into account the logics for functional mixity induced by the urban policies through the different instruments for planning (PRDD-GPDO, PAD-RPA, etc.) and urbanism regulations (Industrial Zone, Zone of Companies in the urban environment, Highly Mixed Zone, etc.) that fostered horizontal or vertical forms of functional mixity.





Legend

- Productive activities
- Relation with other activities

* Various means of delivery

Graphic protocol

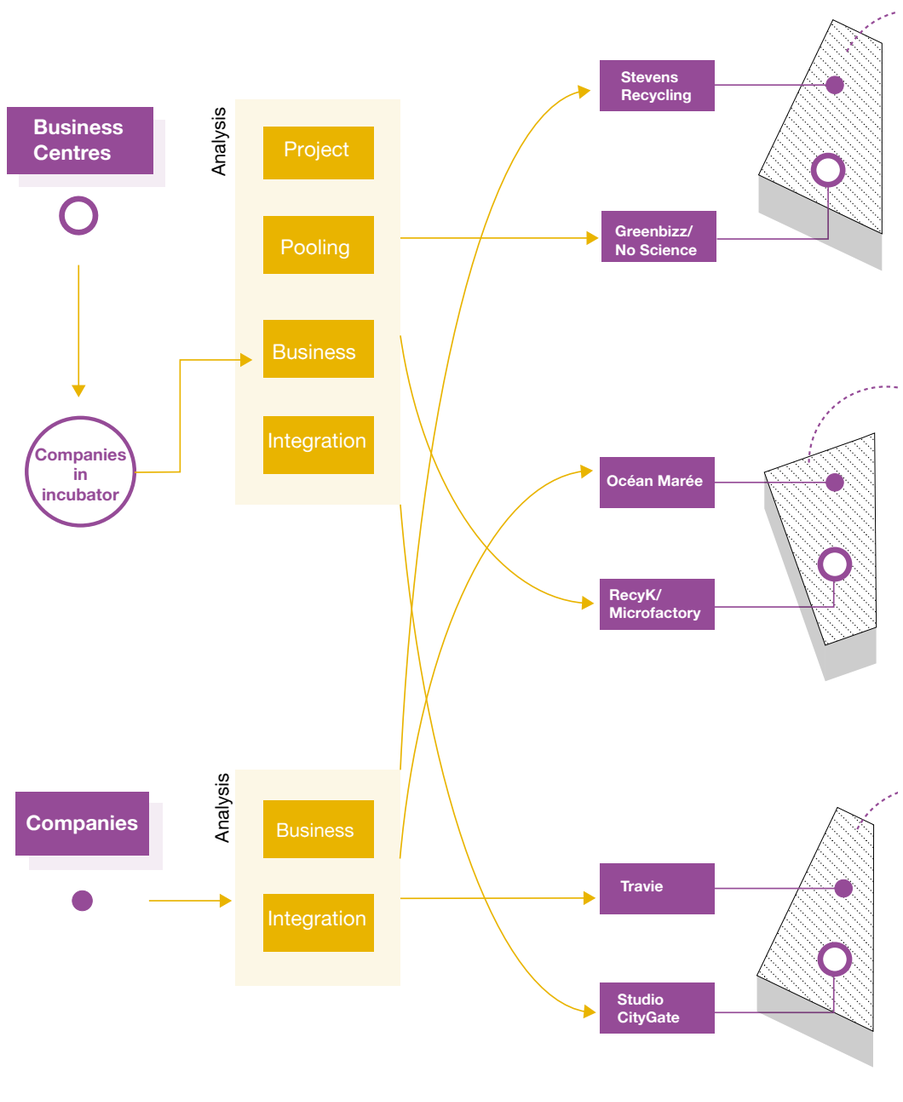
- Existing and background elements
- Productive activities
- Relation with productive activities

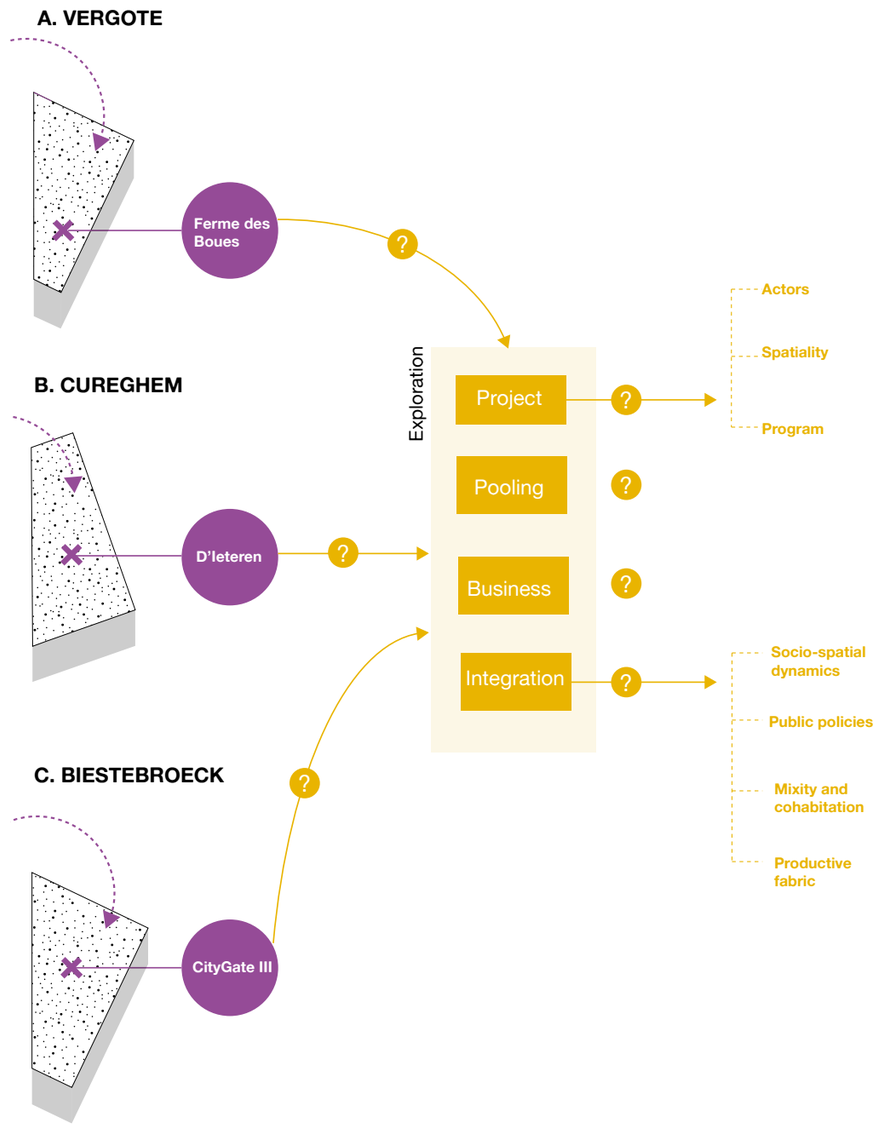
Productive activities

Analysis of the existing situation

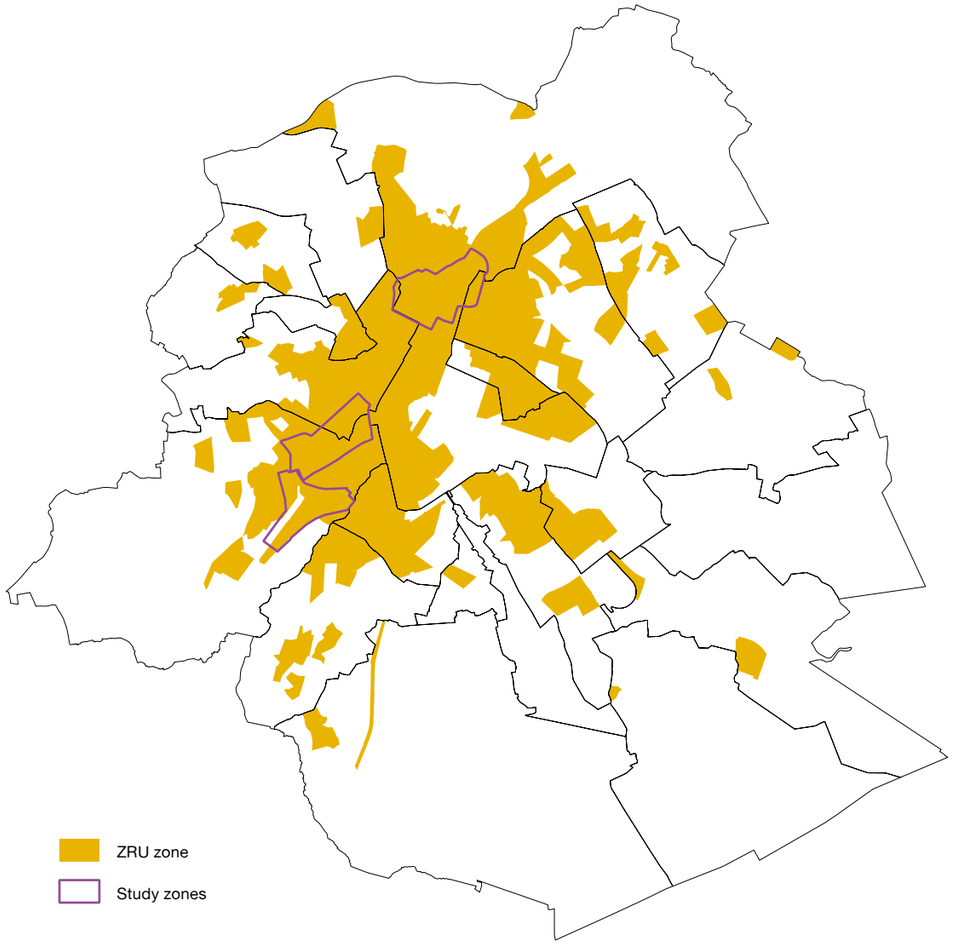
Prospective analysis

Production in the city





Production of the city



Social economic indicators

Mathilde Retout and Romina Cornejo Escudero

Located on both sides of the Brussels-Charleroi Canal (Canal), the three territories chosen are part of the Urban Revitalisation Zone (ZRU*), defined under various socio-economic criteria indicating a certain level of precariousness. Integrating a series of neighbourhoods considered to be in difficulty, the ZRU* forms a perimeter for priority action for public investment, the focus of urban renewal tools.

To begin with, these three territories are quite densely populated. Density is over 10,000 inhabitants per km² in Vergote and around 19,000 inhab. per km² in Biestebroeck, while the regional average is 7,500[1] inhab. per km². These population figures arise from both the density of housing units and also the high average number of household members, over 2.4 persons in most parts of the three territories studies, compared to an average of 2.2 in the Brussels Capital Region (BCR). Nevertheless, both Biestebroeck and Cureghem contain vast industrial zones with a low population density, such as the Industrie Sud zone in Biestebroeck (500 inhab./km²) and Industrie Birmingham in Cureghem (1,300 inhab./km²).

In the three territories studied the high population density is found in a fabric of habitat dominated by housing with a small surface area. While in the BCR, one third of the housing units have fewer than 55 m², the zone under study has up to half that are this small (Quartier Nord in Vergote, Cureghem Vétérinaire, between Biestebroeck and Cureghem).

Another common feature of these three territories is a low socio-economic level. In fact, the net annual income in the neighbourhoods included in these territories ranges from €14,500 to 18,000, in other words under the Regional average of €19,000. Furthermore, the unemployment rate is higher in these territories compared to the Regional average (21% before the 2020 Covid-19 crisis). Vergote is the most affected by unemployment, with a rate of approx. 32%. Biestebroeck and Cureghem show a greater contrast, with neighbourhoods where values approach the regional average (Veeweyde, Scheut) and others with rates close to 35% (Cureghem Vétérinaire, Cureghem Rosée).

The three territories can also be characterised by their youthful population. In the BCR, individuals from 0 to 17 years of age make up 22% of the population. In the territories studied, this cohort represents from one fourth to one third of the population. Furthermore, the population aged 65 and over is under-represented, with 7% to 9% of the population, compared to an average of 13% for the Region. The two exceptions are the neighbourhoods of Veeweyde-Aurore (Biestebroeck) and Scheut (Cureghem), where 12% of the population is 65 or older.

Lastly, these territories are zones of high immigration. As an example, while residents of North African origin (Morocco, Tunisia, Algeria, Egypt, Libya) represent 3.3% of the regional population, this figure is double, or even tripled in most of the

1 The figures have been rounded off for ease of reading; the exact figures are given on the next page.

	Vergote – Masui		Bistebroeck			Cureghem					Mean value (Brussels-Capital Region)
Name of the district accoring to the Area Monitoring	Quartier maritime	Quartier Nord	Veeweyde — Aurore	Industrie Sud	Cureghem Vétérinaire	Anderlecht – Centre	Cureghem Rosée	Duchesse	Scheut	Industrie Birmingham	
Population density (inhabitants/ km²)	10,350	12,100	17,500	500	14,400	19,750	8,800	14,450	14,500	1300	7,500
Median income per tax return (€)	16,300	15,500	18,400	/	14,900	16,650	14,450	16,050	18,250	/	19,000
Unemployment rate (%)	32	33	22	/	34	26	37	31	21	/	21
Proportion of small dwellings (less than 55 m²) (%)	46	50	40	/	53	44	51	50	38	/	35
Average size of private households	2.6	2.4	2.2	/	2.4	2.3	2.5	2.8	2.5	/	2.2
Share of children aged 0-17 years (%)	30	28	24	/	29	27	30	32	27	/	23
Share of elderly people aged 65 years and over (%)	8	9	13	/	9	9	7	8	12	/	13

Soms statistical indicators on the three study areas and their corresponding districts

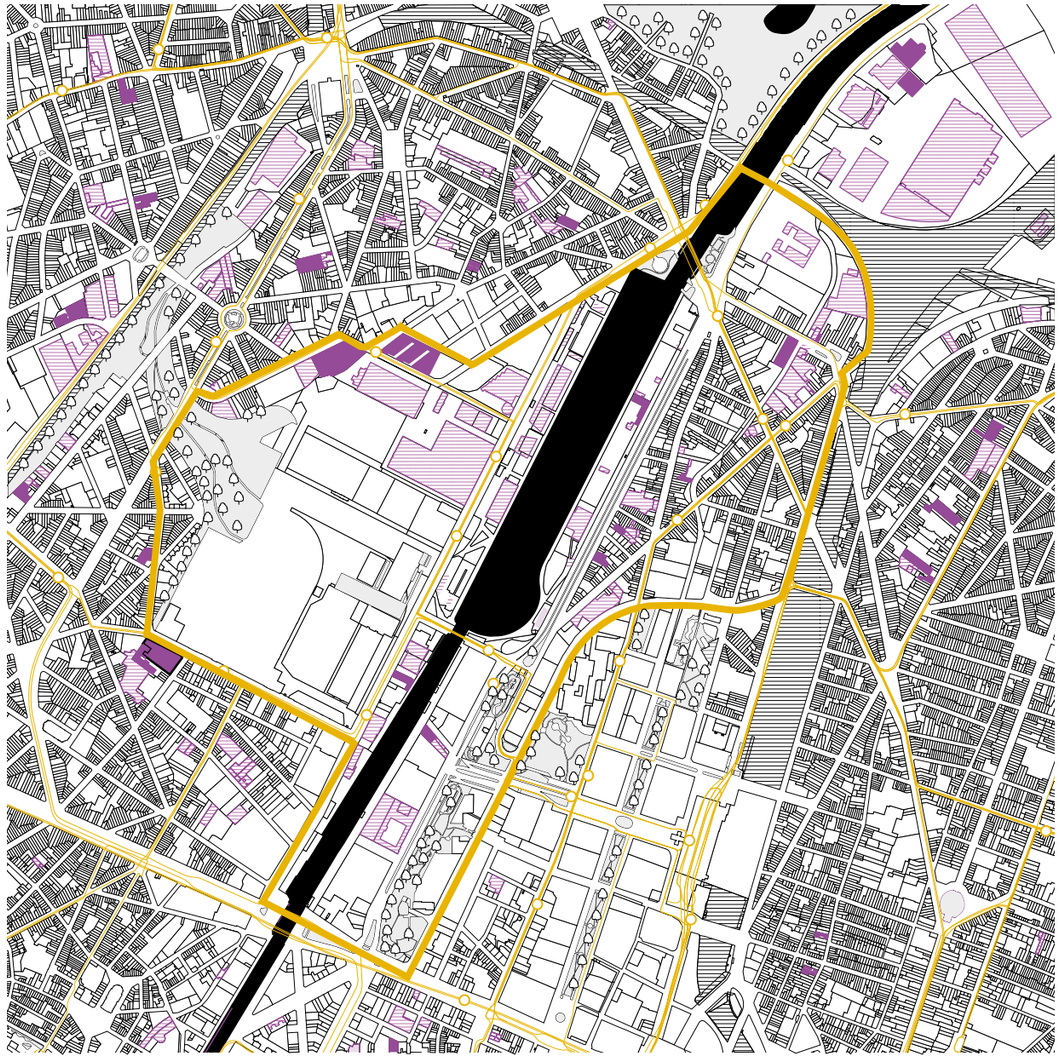
neighbourhoods under study. According to the study by Van Hamme et al. (2016), these neighbourhoods generally follow the model of the Chicago School of Urban Sociology, in that they are transit neighbourhoods for immigrant populations moving up the social ladder, characterised by a negative migratory balance[2] from the rest of the national territory but highly positive from outside the country. Nevertheless, this model must nuanced by the strong anchorage in the neighbourhood of populations who, in virtue of material difficulties, are finding it hard to leave (Van Hamme, Grippa and Van Criekingen, 2016)

In conclusion, these three territories are similar in many aspects. They are spaces confronted with major socio-economic hurdles (high unemployment rate, low annual income), with a high density of population, young and immigrant, living in small housing units. For several years now, they have been marked by new urban dynamics, initiated by public authorities (via urban renewal tools) and by private actors. These dynamics themselves generate tensions on the real estate market with a sharp competition among functions.

2 Migratory Balance: for a given territory, the difference between departures and arrivals of the population (immigrations – emigrations).

References

Van Hamme G., Grippa T., and Van Criekingen M. (2016, 21 March). Migratory movements and dynamics of neighbourhoods in Brussels. *Brussels Studies*, n° 97. https://journals.openedition.org/brussels/1338



Legend

- Productive activities
- Logistic & Wholesale
- Right-of-way
- Canal
- Public park
- Public transport
- Study area perimeter

0 250 500 m

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Béco-Vergote

Louise Carlier, Pauline Varloteaux

The neighbourhoods located on either side of the Béco-Vergote basins, former industrial basins established along the Brussels-Charleroi Canal to the north of the city, compose one of the three territories covered by the MasterClass.

Coexistence of port infrastructures and fragile neighbourhoods

In the 19th century, defining features of these territories were the end point of the Willebroeck canal in Brussels and the Allée Verte station, terminal of the first Belgian railway line between Brussels and Antwerp. At the start of the 20th century, construction of the Béco and Vergote basins along with construction of a large logistics railway complex at Tours & Taxis turned this neighbourhood into a large-scale seaport. The size of these large infrastructures disrupted the fabric of the neighbourhoods along the old Willebroeck canal and the Allée Verte. Then, starting in the 1970s, development of motorway freight transport and relocation of industries and logistics centres to the city periphery led to the economic decline of the neighbourhoods along the Béco and Vergote basins. During these same years, demolition of the housing fabric in the Northern Quarter to make way for the Manhattan Plan intensified the fragility of the area.

Today this territory is characterised by its heterogeneity, both from a social point of view and also in its spatial and functional aspects. Located in a zone that is disadvantaged socially and economically, this territory is home to a large proportion of inhabitants who have just arrived in Belgium, representing a broad ethno-cultural diversity. Various public or private projects, catering to other – better-off – categories of the population, have been developed, leading to cohabitation in this territory of contrasting socio-economic groups.

The perimeter includes various territorial entities, which different in their spatial forms, the productive functions hosted and the urban policies carried out. The socio-economic issues at stake also vary. These entities include the Vergote basin, the site of Tour et Taxis and the TACT, the Béco basin, the Masui neighbourhood and the Northern Quarter.

The Vergote basin

Managed by the Port of Brussels*, owner of the real estate property, the Vergote basin is a site dedicated to productive activities according to the planning tools. The basin hosts ‘classical’ productive activities (construction, wastes/sorting, heavy production, logistics) and does not integrate other functions. From a spatial point of view, it is a distinct entity, disconnected from the surrounding urban spaces, with its own functional logic (linked to the central role of the Port of Brussels*). Relations with other uses and functions thus come about on the outskirts, composed of public spaces (thoroughfares) that act as interfaces. The basin’s ‘landscaping’ integration is presently under discussion, with a view to recognising it as a thoroughly urban element by giving it more visibility (by clearing views on the basin from the public spaces surrounding it).

The Vergote Basin seen from the Boulevard Leopold II.

The Beco Basin seen from the Avenue de la Reine.

The site of Tour et Taxis and the TACT

This second entity contains two complexes that share the same site: Tour et Taxis, which contains no productive activities because the building is mainly home to shops, HORECA and offices, catering to privileged groups, and the TACT, which is meant to host logistics and productive activities. This dual entity functions under a logic of insularity, even though the fringe areas have been remodelled so as to connect the site to its urban environment: public spaces and green areas have been created to form a buffer zone, articulating the (productive and residential) functions and neutralising potential tensions generated by their cohabitation. The fact that some projects integrating productive activities, like Greenbizz and Be-Here, have been undertaken in these fringe areas provides a certain transition between the productive and residential spaces from a spatial point of view. Although spatial and landscaping integration is considered, it nevertheless does not rhyme with social integration and the projects' relations with their environment is still an open question.

The Béco basin

The Vergote basin and the Béco basin mirror each other: the former is acknowledged as having a productive vocation, the latter a recreational and residential function. The right bank of the Béco basin has undergone a particularly rapid and major transformation, through large privately-financed projects, such as the Up-Site tower and the Canal Wharf residential complex and also public projects such as transforming a former automotive site into a museum area (Kanal Pompidou). The left bank is also undergoing transformation. All the housing built is intended for a privileged public; the Béco basin is considered as a territory particularly marked by gentrification. Its recreational, residential, cultural and event functions are a pressure on the remaining productive activities, which are increasingly marginalised. The real estate market, particularly active, along with the different ongoing public and private projects, consolidate this tendency to diminish the recognised role of productive activities. The only productive space still located there is the Ferme des Boues, which houses the logistics activities of the City of Brussels.

The Masui neighbourhood

Masui is a working class neighbourhood with a more classical urban fabric, characterised by strong functional mixity and a degree of socio-cultural diversity. It includes several economic, productive or commercial activities, both formal and informal (service stations, construction, wholesalers, etc.) to which the local workforce have access. The residents and economic actors (often family firms) know each other, which ensures a harmonious cohabitation in a highly dense fabric that integrates many different functions (Cornejo Escudero, 2018). The public space is shared by various users and thus constitutes a space for relations between logistic uses and city life. Several renovation policies (Sustainable Neighbourhood Contracts - CQD*) aim to redesign the public spaces of this neighbourhood where the hierarchy between heavy-vehicle traffic and soft mobility is not clear at all.

The Northern Quarter

The Northern Quarter, located behind the Béco Basin, and adjoining the study perimeter in question, is a central business district. Historically marked by a Modernist development plan (Manhattan Plan) which gave priority to single-functionality, this site is mainly host to service activities, with very few productive functions; it also contains various social housing buildings. With the 'migration crisis' of recent years, the area's public spaces (principally Maximilien park) have come to be occupied by migrants (ARCH, 2020).

Reflections on the place for productive activities in the Béco-Vergote territory revolve around several issues (especially in terms of training and socio-professional integration), given the socio-economic data describing this area (unemployment rate, large number of low-income households, etc.). We can

Rue Masui and the Up-Site tower,
seen from the intersection of Masui Street and Avenue de la Reine.

Northern Quarter, seen from the Place des Armateurs.

also observe sharp contrasts between the different social groups living there: those living in social housing towers and people in the new housing units built for high income residents, the entrepreneurs in the Masui neighbourhood, commuters to the Central Business District, migrants and first arrivals particularly concentrated in this area. The studies and diagnostics conducted on this perimeter also underline the socio-economic contrasts and the tensions among groups with diverging needs and interests.

Plans and projects

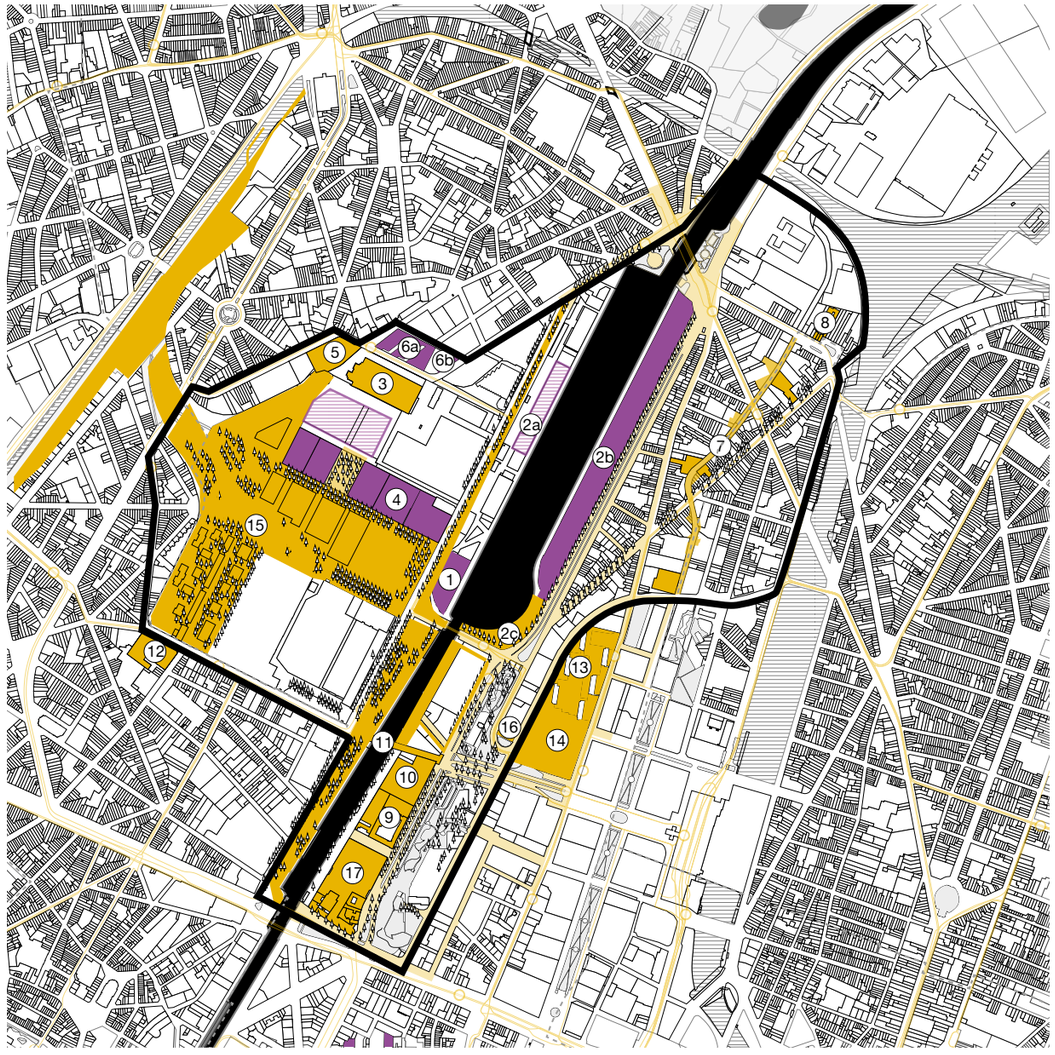
Over time, especially since the late 1970s, this territory has undergone major transformations linked to the process of deindustrialisation and the Brussels-Capital Region's evolution towards service functions. These transformations took shape through the business-based urbanism of the Manhattan Plan in the Northern Quarter, as well as real estate pressure on former industrial grounds. At present, the Béco-Vergote territory is also the object of a whole series of urban development plans and urban renewal programmes undertaken by regional and municipal authorities. As a result, this zone is home to overlapping urban policies and on some parts of the territory a multiplication of both private and public initiatives. Public authorities own large surfaces of lots: both banks of the Béco-Vergote basin, certain plots in Tour & Taxis, the Ferme des Boues, Maximilien park, the Heliport slab, etc. They thus have a broad potential, even if concrete projects are not yet forthcoming for some of these lots.

Concerning the regional land-use plan, this zone demonstrates and is suitable for a certain degree of functional mixity, albeit highly sectorised. Planning tools have maintained the port and transport activity zones along the canal, while the Northern Quarter is reserved more for services. For the rest of the territory, sectors of mixity and high mixity provide a margin for developing economic and productive activities. This perimeter contains four large zones presently considered as priority and strategic (PRDD*): the Canal zone, Tours & Taxis, Maximilien, Vergote and the Northern Quarter. And it is precisely in these zones that redevelopment projects are underway.

The Canal Plan*, the PPAS* Tour & Taxis as well as the PAD* Maximilien Vergote integrate the objective to maintain economic activities, especially productive, in this part of the Region's territories, as well as their integration with the landscape and other urban functions. Along these lines the PAD* Maximilien Vergote, as well as the PAD* Heyvaert , plan to introduce the concept of "productive strips"* as a regulatory tool. The system of productive strips* aims to give priority to productive activities on the ground floor over certain axes. For its part, the PAD* must also coordinate with ongoing reflection processes regarding the Northern Quarter, the so-called 'vision for the north' as well as multiple PPAS* dating from the 1960s and 1970s.

In virtue of its location in an Urban Revitalisation Area* where several socio-economic problems converge, several Sustainable Neighbourhood Contracts (CQD*) have emerged since the early 2000s. The contracts have developed and are still developing a series of operations, especially linked to housing, utilities and public space (such as development of the 'parc de la Senne'). Furthermore the 'Citroën-Vergote' Urban Renovation Contracts (CRU*) is underway on the site. Among other objectives, it aims to interconnect the public spaces and also open up the disadvantaged neighbourhoods, in spaces that are not yet covered by district contracts. The CRU* projects are mainly focused on the Vergote basin side, from the Willebroeck wharf with the Kanal Pompidou project and the Maximilien park, with its redevelopment, as well as reassignment of the heliport pad. The objective of these projects is to reinforce functional mixity and renovate the public spaces in the zone.

As we saw earlier, the Béco-Vergote territory is the focus of multiple public and private investments. Public authorities recently completed various projects linked with economic and productive activities, such as the Greenbizz business centre, Be-Here



Legend

- Projects – productive activities
- Projects – Logistics & Wholesale
- Projects – other program
- PAD perimeter
- Railway right – of – way
- Canal
- Public green areas
- Public transport
- Study area perimeter

1. Project Interbéton
2a. Village de la construction
2b. Masterplan Port
2c. Projet Equipement + parc
3. Centre TIR
4. Project TACT
5. Be-Here
6. Greenbizz
6a. Existing Greenbizz project
6b. Future Greenbizz project
7. Parc de la Senne
8. Project Z, Zinneke
9. Project Ferme des Boues
10. Canal Wharf
11. Passerelle Picard
12. Future Saint-Michel campus
13. Dalle de l'héliport
14. Parc Maximilien
15. Masterplan Tour & Taxis
16. Housing Project
17. Kanal – Centre Pompidou

0 250 500 m

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and the construction village along the Béco basin. The TACT project is still in the project phase. This zone is also attracting increasing attention from real estate promoters developing the Canal Wharf residential complex project along the Quai des Peniches and the new Tivoli 'sustainable neighbourhood' next to Tour & Taxis. Maintaining and developing productive activities in this territory often come up against other urban functions, such as production of (prestigious) housing. Faced with the development of all these different projects, one may well question the dynamics of transformation taking place as regards their ability to address the strong presence of social and economic problems in this perimeter.

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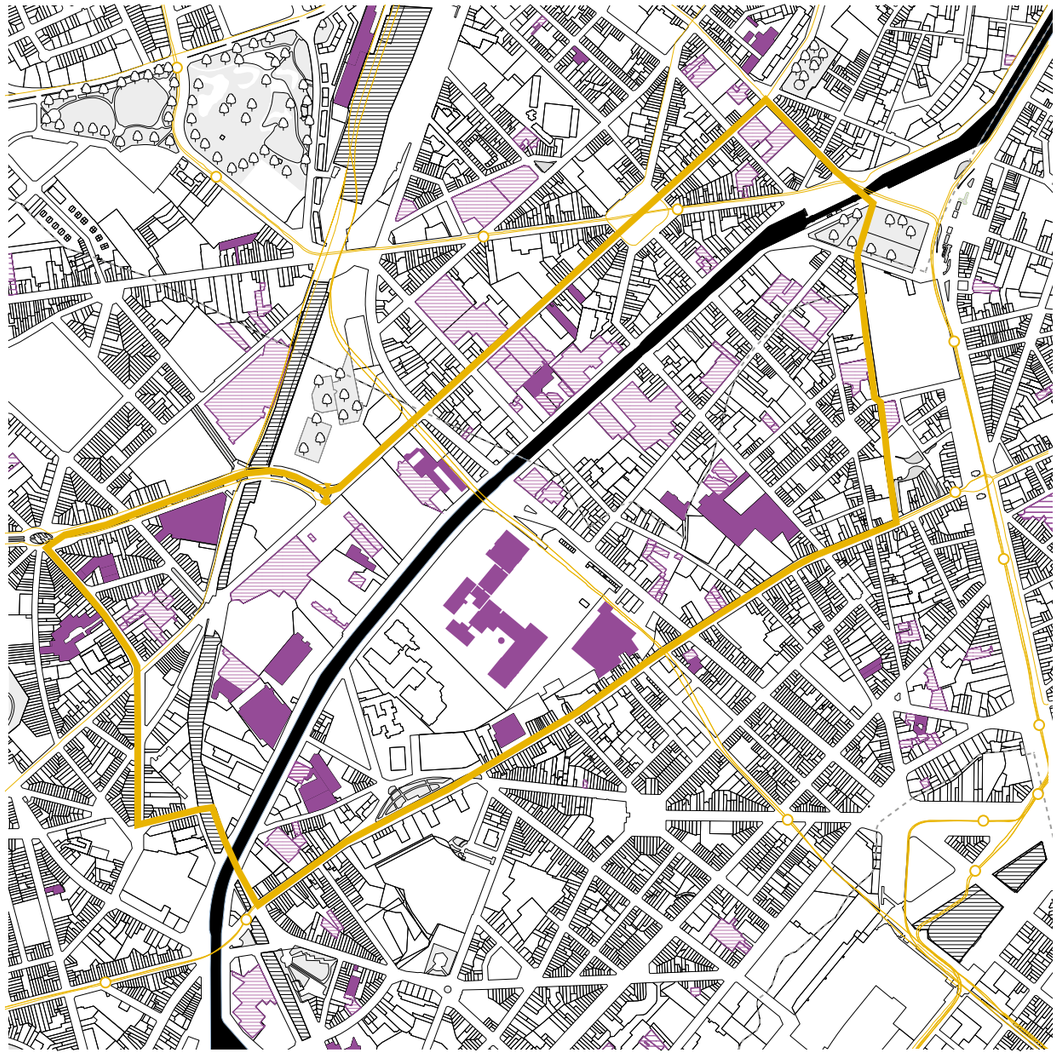

Legend

- Productive activities
- Logistics & Wholesale
- Railway right-of-way
- Canal
- Public park
- Public transport
- Study area perimeter

0 250 500m

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Cureghem

Corentin Sanchez Trenado, Marco Ranzato

Cureghem is a central working class neighbourhood in the Brussels Capital-Region (BCR), located between the municipalities of Molenbeek and Anderlecht. The neighbourhood stretches along the axis of the Midi Station to the east, the Charleroi-Brussels Canal to the west, the city centre to the north and the Cureghem bridge to the south, separating it from the municipality of Anderlecht. It is also structured by a few main thoroughfares: chaussée de Mons, rue Rospy-Chaudron – Clemenceau, rue Heyvaert and the Quai de l'Industrie. Unlike the other side of the canal, and except for the vast site of the Anderlecht Abattoirs (slaughterhouse), a main feature of the neighbourhood is a highly dense urban fabric, with a mixture of habitations and productive activities, a result of the area's industrial history. During the Masterclass, however, the study perimeter was limited to the zone between the rue de Birmingham and the chaussée de Mons.

An anchor neighbourhood

Since the second half of the 19th century, Cureghem has been an industrial neighbourhood in the full sense of the term. Still just a simple village in 1832, the zone underwent major transformations. In fact, during the second half of the 19th century large collective utilities and several industrial sites were established (Terlinden, 2008), with a dense fabric of habitation growing up around it. Among the industrial activities, the Anderlecht Abattoir (slaughterhouse) played a key role in building and structuring the neighbourhood. From the very start, the first slaughterhouse attracted many activities linked to the leather and meatpacking sectors (Bouafif-Hoebanx, 1986). Industrial development also reflected successive waves of human settlement: rural flight of Flemish peasants in the second half of the19th century, Jewish immigration at the start of the 20th century, successive phases of work-related immigration (from Italy, Spain, Turkey and Morocco) which Belgium encouraged from the 1950s. Cureghem has thus always been a first settlement area for migrants (De Caluwe, 2013). In 2010 the neighbourhood's population was slightly over 21,400 inhabitants, of which 71% came from poor countries (Van Hamme et al., 2015).

Nevertheless, starting from the 1960s the neighbourhood began to suffer the effects of Brussels' process of suburbanisation and deindustrialisation (Mistiaen, Meert and Kesteloot, 1995). Cureghem, an area that still hosted numerous economic activities (De Caluwe, 2013) thus gradually saw its companies move out of the area at the same time as middle- and upper-class families moved to the suburbs (Mistiaen, Meert and Kesteloot, 1995). Furthermore, from the 1950s the slaughterhouse activity progressively slowed due to outdated installations and lack of modernisation (Vandemeulebroek, 1984; Sénéchal, 2015). Over the decades that followed, gradual introduction of more stringent food safety standards also hampered the meatpacking sector in the rest of the neighbourhood. In general, during the 1980s-1990s the area suffered a wave of bankruptcies (De Caluwe, 2013) and peri-urbanisation of companies, causing a high

Shops and HORECA establishments located along the chaussée de Mons, the thoroughfare that structures the neighbourhood.

Loading docks used by the meat wholesalers of the Anderlecht Abattoir site.

unemployment rate and major degradation of the buildings.

However, this decline did not end economic activity in the neighbourhood. To begin with, some older industrial firms, active in several sectors (food, metal, printing, recycling, etc.) managed to keep working there. This was especially true between the chaussée de Mons and the canal, an area with large spaces for workshops and warehouses. A striking example along these lines is the purchase of the slaughterhouse by a private company Abattoir. This mobilisation of the neighbourhood's economic actors in the early 1980s helped redevelop and diversify the activities linked to the slaughterhouse site (Sénéchal, 2015). As a result the neighbourhood is still highly affected by meatpacking, especially around the Abattoir, where around 20 meat wholesalers are concentrated.

On the other hand, the arrival of immigrant populations from Latin America and Lebanon, then Africa and, more recently, from Eastern Europe and Syria (De Caluwe, 2013) also led to the development of several activities (retail stores, wholesale and automobile businesses, local associations, houses of worship) that have breathed new life into the area. From the 1980s, several wholesale workshops near the rue Heyvaert were reconverted in an economic centrality closely linked to the used car business. This activity, based on exporting used cars to destinations in Western Africa, is now firmly anchored in the neighbourhood and has generated several other connected economic activities (repair shops, spare parts dealers, service stations) (Rosenfeld, Van Criekingen, 2015). This development is also accompanied by that of HORECA and local businesses catering to the workers in these trades as well as local inhabitants. The main commercial areas in the neighbourhood are the chaussée de Mons, the Delacroix – Ropsy Chaudron – Clemenceau axis and that of Van Lint-Fiennes. The latter are home to a diversity of businesses with a prevalence of HORECA and the food sector. The neighbourhood also holds a large number of wholesalers, especially in foods and beverages. Lastly, the rues Brogniez and Limander are hosts to a third set of activities, mainly wholesale in clothing and textiles. Dressmaking and tailors, historically linked to Jewish immigration in the neighbourhood, have nevertheless become rare.

Cureghem thus gradually affirmed its role as a neighbourhood of first anchoring and transit, a point of access to the city for new migrants seeking to settle permanently or temporarily, pending improvement in their economic and social conditions (De Caluwe, 2013). This zone thus harbours a fragile population and must cope with major socio-economic challenges, especially due to high unemployment rates and the lowest incomes in the Region[1]. The neighbourhood, moreover, has to face questions linked to the cohabitation of social groups with diverging needs and interests: long-time working class residents, new middle-class residents, new arrivals, workers or the managers of the different companies, etc.

Plans and projects

Throughout its history, Cureghem has gone through successive phases of investment and de-investment by public authorities. The industrial heart of the Anderlecht municipality during the 19th century and the first half of the 20th century, it was first the site for substantial investments by local authorities in terms of public utilities and infrastructures (Terlinden, 2008). The oil crisis, gradual deindustrialisation and the state of local finances nonetheless halted the municipal ambitions for this neighbourhood. Over time it was thus abandoned by the municipal authorities (De Caluwe, 2013).

From the 1990s, the work of several organisations and associative projects combined with growing awareness by a new generation of elected officials nevertheless

1. See A. Orban's and C. Sanchez Trenado's contribution in the part "Discussion" of this publication.

Automotive parts stores and import-export garages for used cars, located along the rue Heyvaert.

Refrigerated warehouses (on the right) and metallurgy factory (on the left) located along the Brussels-Charleroi canal, between the rue Ropsy-Chaudron and the rue de Liverpool.

shifted municipal policies towards greater integration of the local populations, especially through (sustainable) Neighbourhood Contracts* (De Caluwe, 2013).

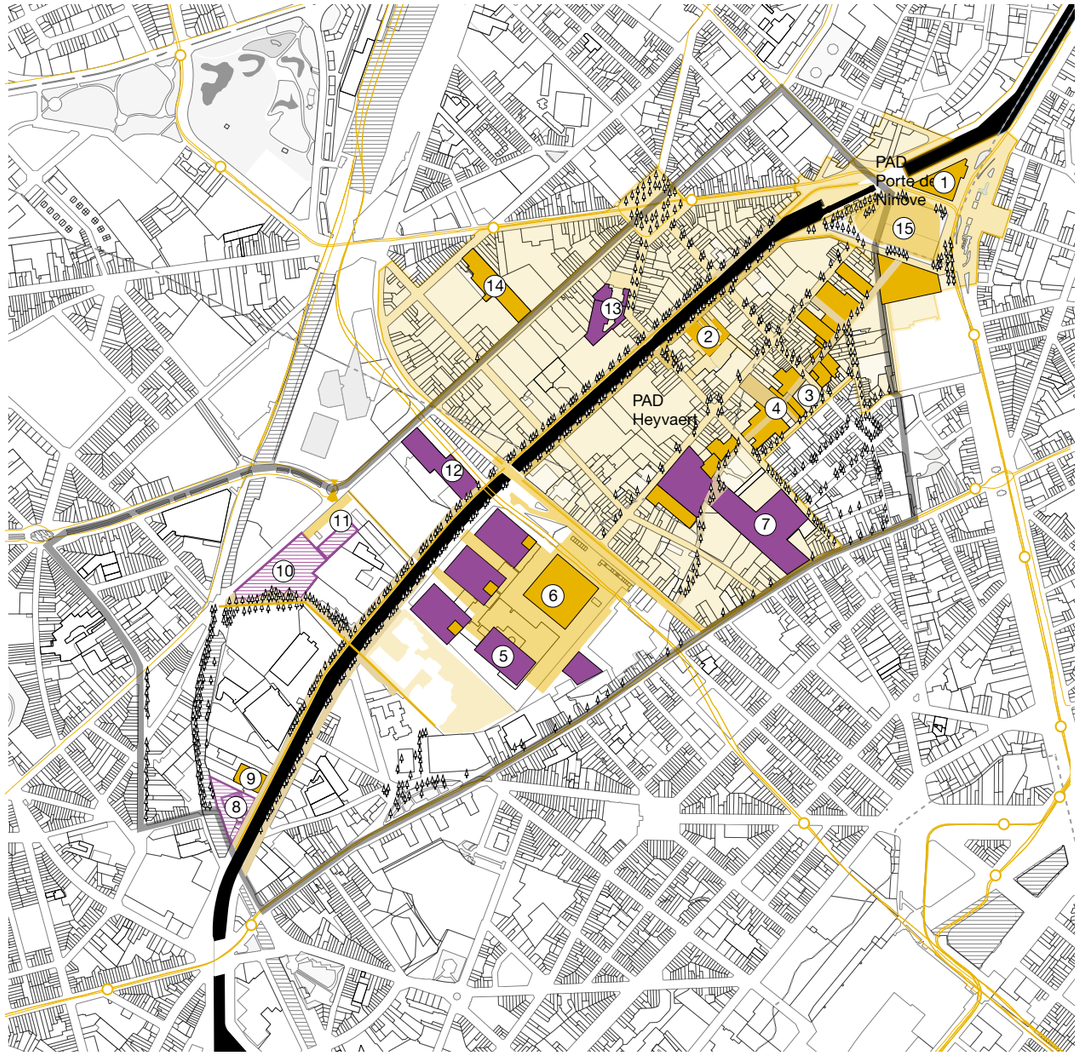
Indeed, since 1997, Cureghem has been the site of about 10 Neighbourhood Contracts (CQD*), an operational tool for urban renewal co-financed by the Brussels-Capital Region and the municipality in question. While the successive Neighbourhood Contracts had certain effects with respect to social housing and design of public spaces, their impact often remained relatively limited (De Caluwe, 2013). Furthermore, the question of developing economic or productive activities has often been left out of this type of programme.

Nevertheless, Cureghem is now the focus of growing attention by regional authorities, leading to the Heyvaert Development Masterplan (PAD*) (Perspective.brussels*, 2019) and the Urban Renovation Contracts (CRU*) of the same name (Perspective.brussels*, 2018). The former, drawn up from 2018, is intended to guide development in the neighbourhood, from both a strategic and regulatory angle. This plan aims to foster and manage housing production, renovate public spaces (especially with the creation of the Petite Senne park) and establishing productive strips*, in other words zones dedicated to productive activities. Although this last point aims to protect the productive function, the space devoted to these activities is nevertheless quite limited; what is more, this perimeter does not totally exclude other functions (collective utilities, shops, housing). Furthermore, some of the activities still present (such as used car dealers) do not comply with the plan's definition of a productive activity. Thus it does not guarantee that large-scale productive activity will be maintained. As for the CRU*, it is an urban operational and 'revitalising' tool similar to the Neighbourhood Contracts, enabling partial financing of the PAD* ambitions, especially in creating the Petite Senne park, a linear park that runs through several blocks presently occupied by used car lots.

Elsewhere, the site of the Anderlecht slaughterhouses is also the object of an ambitious Masterplan drawn up in 2009 by the company managing the site. The plan, in particular, foresaw the construction of a new market hall (Foodmet built in 2013) as well as that of a compact urban slaughterhouse (Manufakture, planned for 2023 but which will actually not host any slaughterhouse activity because of the prohibitively high cost of the operation). The Abattoir company also follows a policy of activity diversification and seeks to attract new companies to its site, especially those in the fields of urban agriculture (BIGH, Champignon de Bruxelles, Urban Harvest) and food recovery (Envie) or to organise events often targeting a public living outside the neighbourhood (an 'after-work party' like the Boeremet, exhibitions, conferences). Furthermore, as the neighbourhood is located in the Canal Plan* zone, its immediate surroundings are also bustling with multiple large real estate projects, promoted as least partially by public authorities (Porte de Ninove, PPAS* Biestebroeck, CityGates, Midi Station); the area is also attracting increasing attention from real estate promoters looking for opportunities to build housing. Over the past few decades, Cureghem also received relatively large public investments through the European Regional Development Fund (Recy-K[2]) and Abattoir (Foodmet) – ERDF 2007-2013, Doctors of the World (social-sanitary centre) and Abattoir (Manufakture) – ERDF 2014-2020). While certain projects, often supported by public authorities, favoured the creation of new productive activities (such as Recy-K or the slaughterhouses) for the time being they are relatively marginal compared to other projects that give priority to housing or public space.

The multiplication of these development projects, often stressing the production of housing, design of public space or installing

2 See the presentation of companies in the part "Explorations", on page 103.



Legend

- Projects – productive activities
- Projects – Logistics & Wholesale
- Projects – other program
- PAD perimeter
- Railway right –of– way
- Canal
- Public green areas
- Public transport
- Study area perimeter

1. Project Port de Ninove
2. Halle Libelco
3. Euclide-Chimiste
4. Parc de la Sennette
5. Project Manufakture
6. Master Plan Abattoir
7. Project D'Ieteren
8. RecyPark
9. Project COOP
10. Project STIB
11. Project Sibelga
12. Recy-K
13. Cultural and productive pole
14. Mixed project Birmingham
15. Project Park Porte de Ninove

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collective utilities nevertheless raises the question of the cohabitation of residential functions with the productive activities taking place in the neighbourhood as well as that of the place these projects truly give to manufacturing.

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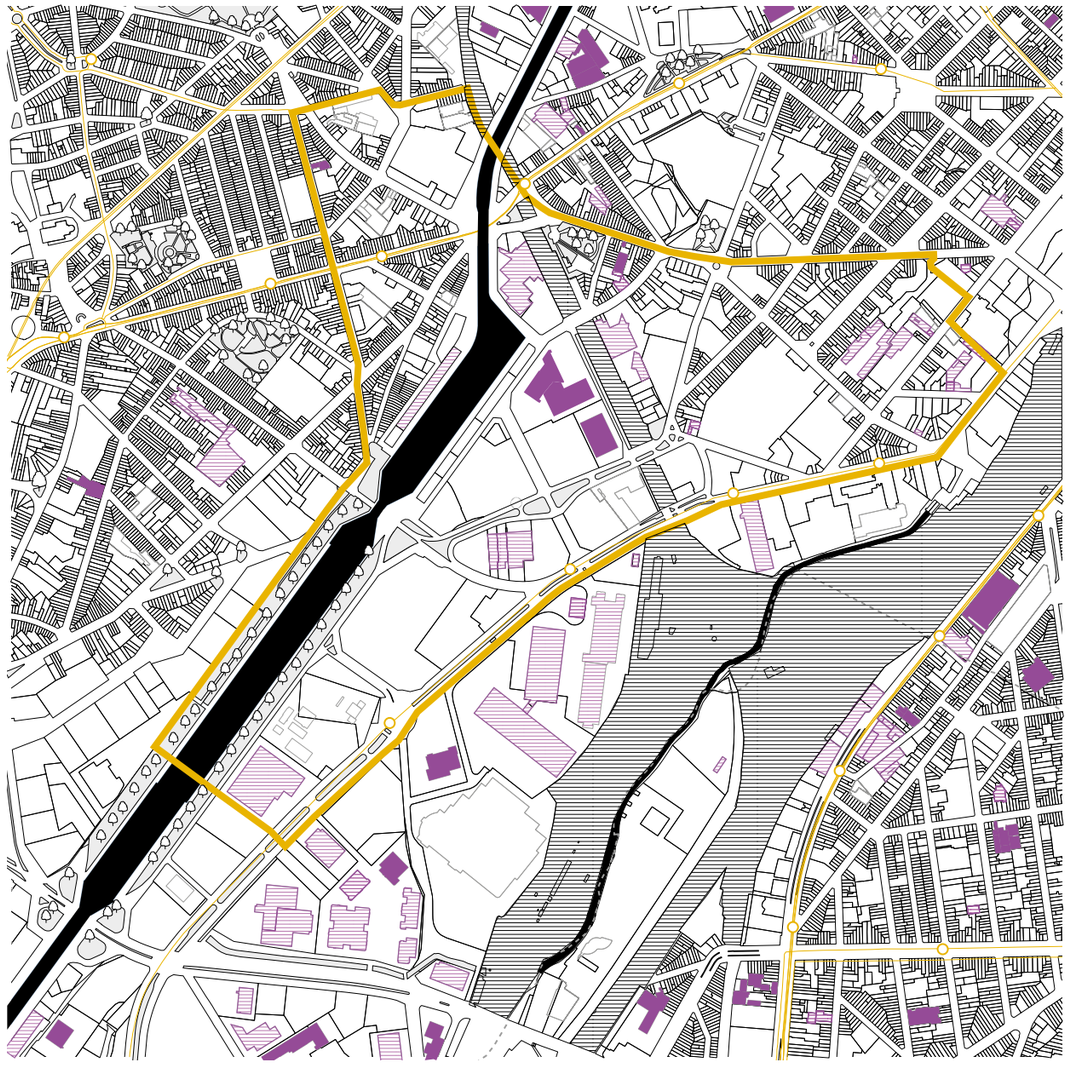

Legend

- Productive activities
- Logistics & Wholesale
- Railway right-of-way
- Canal
- Public park
- Public transport
- Study area perimeter

0 250 500 m

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Biestebroeck

Marine Declève, Christian Dessouroux

Located in the municipality of Anderlecht, the Biestebroeck area stretches along the Brussels-Charleroi canal, straddling the Biestebroeck and Batelage basins. The site is crossed and circumscribed by a series of major transport infrastructures: the canal, railroad tracks and an incoming motorway. These long traces divide the site itself but also separate it from its next-door neighbourhoods Cureghem, Saint-Guidon and lower Forest. This means that the area is somewhat insular from an urban point of view.

The fact that the whole site, and more specifically the lots located to the east of the canal, only became urbanised late compared to the surrounding areas and have been reorganised several times, including at present, gives these areas a highly composite aspect, with no real overall coherency. In roughly the same area we find large logistics and productive spaces, vacant lots, abandoned or reconverted buildings and new building complexes. It is only in the northernmost residential areas, adjacent to the older neighbourhoods, that we find a mixed and more compact urban fabric, dotted with vestiges of the zone's industrial past.

When we analyse the morphology and land assignments of the site under study, we can generally identify three distinct types: residential and mixed blocks to the north; zoning for economic activities along the boulevard Industriel; the redevelopment zone (ZEMU*) along the canal.

The older mixed neighbourhoods

The residential and mixed sections located to the north, beyond the rail and canal belt, are the most longstanding urbanised areas of the Biestebroeck site. They continue on from the Cureghem and Saint-Guidon neighbourhoods. This area is composed of urban blocks where housing, shops, garages, depots, or large and small productive spaces still coexist, although to a lesser extent now. The only exceptions to this pattern are residential complexes recently built in the former school of veterinary medicine, the Goujons social-housing tower, dating from 1978, and a residential development inaugurated by Citydev* in 2014.

The neighbourhood is distinct in the rarity of outdoor public leisure areas, coupled with a high residential density. Many households live in precarious situations. Household income is among the lowest in the region and unemployment rates are high, especially among young people. However, the affordable prices of housing and essential goods (food, clothing, household items) make this neighbourhood one of first arrival and transit chosen by a large migrant population of diverse geographical locations.

Cohabitation with productive activities and the diversity of these activities have shrunk considerably over the past decades. This is largely due to the abandon or transformation of several production sites following a company's bankruptcy or de-localisation (ex: Atlas breweries, Shell depot), but also following reconversion of many productive and logistic buildings into gymnasiums, houses of worship, sales

Biestebroeck, older mixed neighbourhoods. Warehouses and rental property on the rue de l'Electricité. On the left, the warehouse of Vins Abelog can be seen from the Crickx park, looking towards the rue Emile Carpentier. On the right the Knuts Père et Fils antiques shop seen from the intersection of the rue des Bassins-rue Prévinaire and rue de l'Electricité.

Biestebroeck, Enterprise Zones in an Urban Environment' (ZEMU*). To the left, a view of the Roche factory building, seen from the rue Dante. On the right, a view of the railroad and the rue de Sel and rue Prévinaire, seen from Studio CityGate.

outlets or business centres. This is notably the case of the former Danckaert machine-tool factory on the rue Bara, turned into a conference centre and co-working space for companies in the audio-visual sectors and creative professions. Another example is the temporary occupation of the former Leonidas chocolate factory on the rue des Bassins, which Rotor DC is using as a warehouse and sales unit for recovered construction materials.

Zoning for economic activities

In the Regional Designated Land Use Plan (PRAS*) prior to 2013, the whole set of blocks located along the canal and the railroad were indicated as being an 'urban industry zone' that allowed other urban functions such as housing in only a subsidiary and limited manner.

This regulation confirmed the existence of a zoning for productive, logistics and commercial activities which had developed since the 1970s after the boulevard Industriel was opened. Most of the companies located there occupy large functional buildings on vast single-function plots. Some of them occupy the plots of older industrial buildings that disappeared following the zone's redevelopment, such as the Dunlop factory, rue du Sel. Availability of peri-central land, near the motorway and the Midi station, is a strategic location for this type of activities.

One productive activity still found in this area is the TRAVIE Sheltered Workshop. It is located on the former production site of Roche pharmaceuticals, re-purchased in 1999 and enlarged in order to develop TRAVIE's activities of food transformation and packaging, erecting, assembling and storage. We should also mention Plastoria, a company involved in producing and distributing luxury fashion accessories, which built its new headquarters and a production shop in this area in 2007.

Other companies, such as Hospithera (distributing medical devices) or Smals (IT services for the social and healthcare sectors), primarily occupy office space, technical premises and storage areas. Another set of companies only have warehouses or showrooms, such as AB InBev or Gobert Matériaux.

With the modification of the PRAS* in 2013, lots dedicated to this 'urban industry' have been considerably reduced to make way for a 'Enterprise Zones in an Urban Environment' (ZEMU*). The only section that has kept its original land-use assignment is located to the east of the boulevard Industriel (outside the study perimeter); even if it now primarily hosts logistics and business activities, production per se now merely plays a marginal role.

The Biestebroeck ZEMU*

Emerging from the 2013 modification of the PRAS*, a Enterprise Zones in an Urban Environment' (ZEMU*) now covers all the former 'urban industry' plots located between the canal and the boulevard Industriel. Requirements relating to this new assignment aim to address population growth and give wider margin for developing residential functions (housing, utilities). Only the ground floors officially must host productive activities, but integrated business services, shops and wholesale units are also permitted. This has obviously had an impact of the evolution of the zone in question.

The first visible effect was a rise in the property values, for housing is a strong sector in this period of population growth. This is coupled with the wish to densify the built-up surface. It is thus no surprise to see large plots of isolated and low height buildings to be the first targets for changing the zone into a set of buildings more compact and a priori more mixed.

A first real estate complex has been built but it does not (or not yet) host productive activities (phase 1 of the City Dox project). This will not be the case for the CityGate project developed by Citydev*, which is banking on a mixture of housing, utilities, businesses and production workshops. In any case, temporary occupation of the former pharmaceutical site

Biestebroeck, ZEMU*. The Biestebroeck basin and the City Dox project seen from the Canal Bridge.

Biestebroeck, ZEMU*. Port property and site of the Urbanities project, seen from the Pierre Marchant Bridge.

Biestebroeck, ZEMU*. View of the Biestebroeck wharf from the Canal levee. To the right is the Iris TL building, site of the Key West project.

Vesdre Continental by a series of creative and crafts activities, under the name of ‘Studio CityGate’ announces this aim for functional diversification at the zone scale.

For the time being, the zone in question is still largely unfinished from the urbanistic point of view. It is mainly composed of vast vacant lots awaiting the start of several real estate projects (Urbanities, Key West), development of public spaces (park, walkway,…) and better connection to public transport networks.

In the long-term, the ZEMU* plots should turn into a mixed neighbourhood, where residential and productive functions will co-exist, but with a series of activities excluded. For instance, the fuel depots along the Biestebroeck basin will be removed, especially to meet provisions of the SEVESO* directive.

Plans and projects

Since the 2000s the Biestebroeck site has been the object of multiple discussions on how to shape its development and ensure its integration in the surrounding urban fabric, whether in the context of Anderlecht’s Municipal Development Plan (PCD), the demographic PRAS*, the Canal Plan*, the Beeldkwaliteitsplan (landscape and urbanism quality) or the Biestebroeck PPAS*.

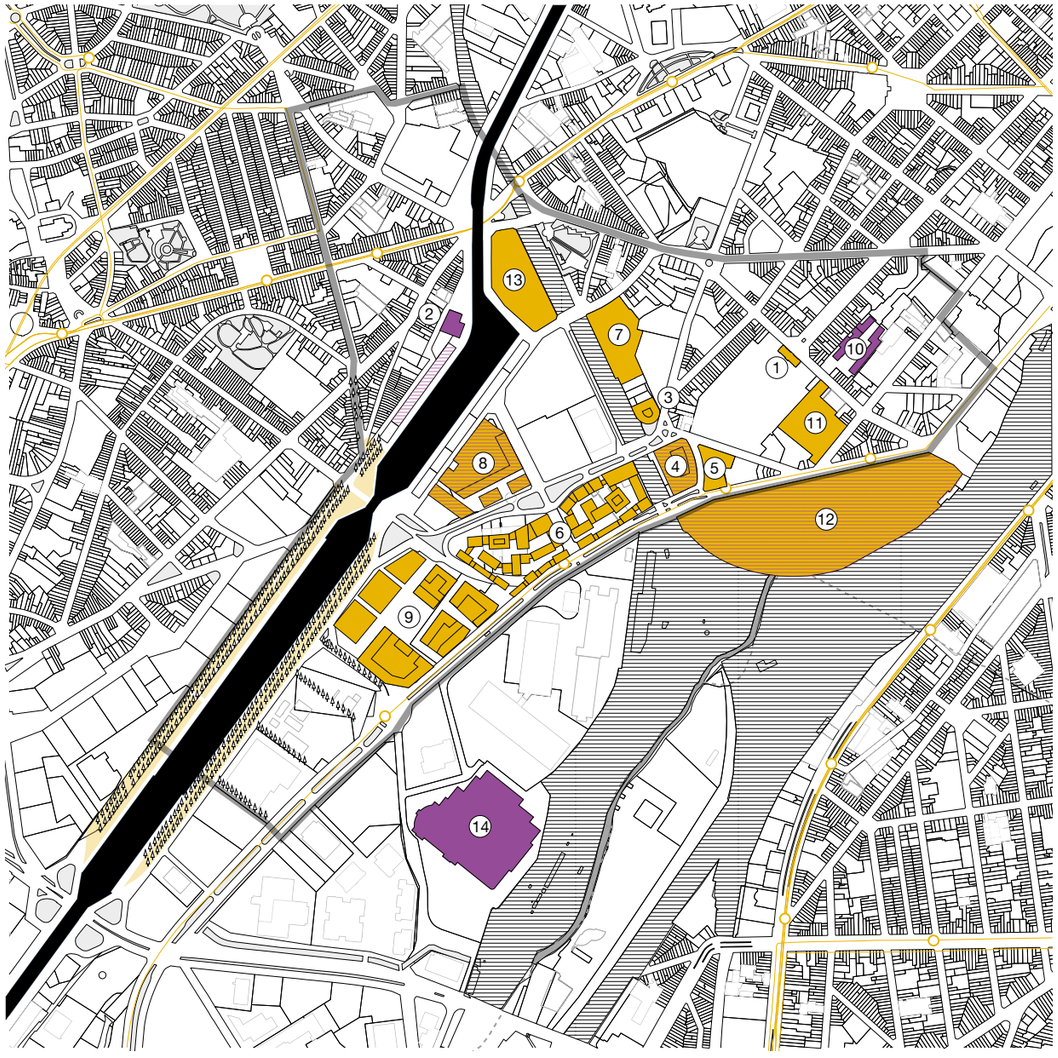
These different strategic and regulatory plans, both regional and municipal, concur on a series of objectives: deploy residential functions, integrate productive activities and densify built-up surface by working with innovative modes for functional mixity; enhance the Biestebroeck basin in its quality as a recreational place and an element of the landscape; reinforce the link between the new mixed Biestebroeck hub and the adjacent neighbourhoods.

It was the 2013 approval of the demographic PRAS* and the requalification of a part of the former ‘urban industry zone’ into a ‘Enterprise Zones in an Urban Environment’ (ZEMU*) that laid the foundation for changes of the site; henceforth the massive deployment of habitations and connected urban functions were authorised. The Anderlecht PCD, approved in 2015, confirmed this regulatory reorientation: it thus proposed to develop mixed habitation-business projects on the right bank of the canal, to reinforce the landscaping and recreational value of the canal fronts along the Batelage basin, all the while preserving canal-road intermodality at the Biestebroeck basin. The bases for developing a mixed urban neighbourhood oriented towards the canal were thus laid. The visual and functional separation from zoning activities located beyond the boulevard Industriel was thus clear.

Preparation of the Biestebroeck PPAS*, based on the guidelines of an earlier masterplan, led to a more elaborate proposal for the future neighbourhood’s spatial and functional organisation. The PPAS*, adopted in 2017, in particular indicated the maximum height of the buildings, the alignments, detailed use assignments and related specific requirements. A study of these requirements shows the constraints placed on productive activities: the admissible surface areas are generally reduced compared to the PRAS* general requirements; aspects such as limiting nuisances, necessary compatibility with habitations and respect of the site’s residential qualities are also mentioned. These criteria obviously play a role in discouraging several productive activities.

For its part, the Port of Brussels* intends to continue the logistics activities along the canal on the property it owns. It currently also maintains a transbording platform at the Biestebroeck basin, which was confirmed in the PPAS*, nonetheless entailing a series of obligations for urban integration.

Following the announcement of this full requalification of the site, most of the industrial properties were sold to private real estate promoters, opening the zone to projects that completely obliterated the previous occupations. The first private real estate projects speculated on transforming the canal into a marina and building prestigious housing. In the face of sharp



Legend

- Projects – productive activities
- Projects – Logistics & Wholesale
- Projects – other program
- PAD perimeter
- Railway right –of– way
- Canal
- Public green areas
- Public transport
- Study area perimeter

0 250 500 m

1. The Faculty (former veterinary school)
2. Brussels Beer Project
3. Citygate I – Goujons
4. Citygate I – Marchandises
5. Citygate I – Kuborn
6. Citygate II – Petite Île
7. Citygate III
8. Urbanities
9. City Dox
10. CityLine
11. The EGG Brussels
12. Ilot des Deux Gares
13. Key West
14. Former sorting center Bruxelles X

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controversy, they backed down giving a place to projects seeking to articulate housing and new productive activities. The CityGate project, initiated by the regional agency Citydev, prefigured the potential for public action in the zone.

Most of the land and buildings located in ZEMU* or in zones of high mixity are now the object of real estate projects. A first indicator of changes to come are the agreements for temporary occupation of abandoned buildings. This is particularly the case of the 'Studio CityGate' project[1] initiated by Citydev and managed by the Entrakt firm – taken as case study for this MasterClass. The Léonidas building occupied (among others) by RotorDC as well as the building hosting the Kanaal Halle are also the object of temporary occupation agreements, but of a different nature.

The main private projects under development include those of City Dox, Urbanities and Key West. These projects include a mix of housing units, businesses, utilities, services and productive and logistic activities. The vast CityGate programme is a large-scale mixed project developed on three sites (CityGate I, II and III) by Citydev, in partnership with the private sector and the Brussels-Capital Region housing company.

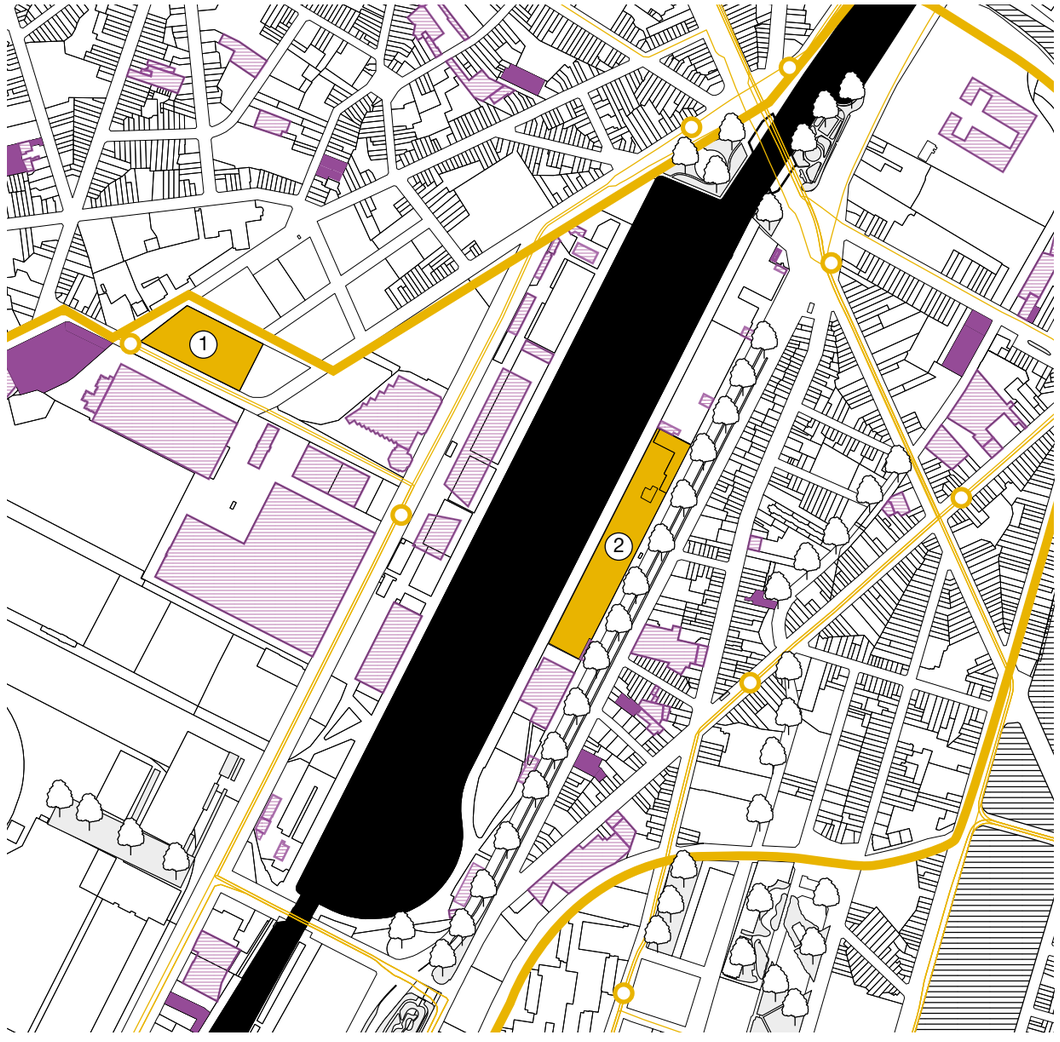
There are hardly any projects for businesses that are entirely productive. The project for the 'Brussels Beer Project' located on land belonging to the Port of Brussels along the Biestebroeck basin is merely an exception.

1 See the description of this project on page 107.

Design Explorations

Production in the city

Map of the companies in Area 1



List of companies and sites studied

Mathilde Retout

Area 1: Béco – Vergote

Stevens Recycling SA

Quai des Armateurs 8, 1000 Brussels

Stevens Recycling SA is a family firm, specialised for the past 80 years in recovery and recycling of scrap metal. More specifically they are involved in urban mining, which consists in waste exploitation to recover rare metals. This process is thus focused on recycling electronic and electrical wastes.

The company capital is held entirely by the family that founded the firm, the Stevens. Created in 1935 in Molenbeek-Saint-Jean, in 1950 it moved to a new location along the Vergote basin in the Port of Brussels. The company now runs four production sites (Charleroi, Willebroek, Brussels and Genk) and two service centres for the whole country. The Brussels site has 20 employees: 10 workers and 10 administrative staff. The metals recovered come from waste brought to the site by private and public entities and individuals for sale to Stevens. The metals collected are sorted into ferrous and non-ferrous metals. The matter also undergoes specific treatment processes to extract any dangerous substances they contain.

The Brussels site's location along the canal makes it available for maritime traffic and enables it to send the sorted metals to the processing centre in Genk.

In 2010, Stevens expanded its offer and also recycles metals in automobiles. In 2020, the company began recycling electronic and electrical equipment.

No Science

Rue Dieudonné Lefèvre 37, 1020 Laeken

No Science is part of Greenbizz, a business incubator established and financed by the Brussels-Capital Region under the ERDF* 2007-2013 programme. Greenbizz presents itself as specialising in the 'circular, innovative and sustainable economy'. The building hosts production areas, office space and meeting rooms.

No Science is a small craft brewery founded by Maxime Dumay. He arrived in Brussels in 2010 to work at Magasin 4 and Moeder Lambic (a job he held, part-time, until 2020). On the side, he and a friend began amateur brewing. In 2016, he launched No Science, a limited liability company (SPRL), in Brussels, a city he says he feels particularly close to.

As he could not afford the high rent of production areas available in Brussels, Maxime Dumay applied for and obtained a work area in Greenbizz, which proposes workshops at affordable prices. He also obtained a loan of €80,000 from Brusoc, a branch of the Regional Investment Company of Brussels (SRIB) specialised in assisting Very Small Enterprises, so he could purchase brewery equipment. He was also assisted by Village Partenaire, a business centre in Saint-Gilles. After a few difficulties starting off, No Science is now a small profit-making company. The beers are produced from French grains and coffee beans. The liquid is brewed for six weeks, then fermented in large vats before it is bottled.

No Science aims to propose beers that differ from typical Belgian beers, produced in a microbrewing process (the opposite of the production modes followed by large Belgian brewers, in Duprey's words grouped in a lobby). The No Science founder readily defines himself as a 'militant craftsman' whose goal is to live as a craft brewer without having to play the marketplace game. His products are sold primarily thanks to word-of-mouth and his own personal and professional networks. As it is not a typical business firm, No Science does not make use of any business or marketing service (for instance, its labels and website were created by Maxime Dumay's friends).

Map of the companies in Area 2

Legend

- Productive activities
- Logistics & Wholesale
- Railway right-of-way
- Canal
- Public green areas
- Cases studies
- Public transport
- Study area perimeter

① Recy-K

② Ocean Marée

Source: Brussels UrbIS®©
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Area 2: Cureghem

Océan Marée

Quai de l'Industrie 214, 1070 Brussels

After it was purchased in 2014, Océan Marée became a subsidiary of the wholesaler ISPC. The latter was then acquired by the Dutch company Sligro Food Group. After its purchase, ISPC specialised in delivery and wholesaling (sales outlets) for the HORECA sector. Sligro Food Group is active in the Belgian and Dutch market in wholesaling of food and non-food (but food-related) products. In 2018, the firm had a turnover of €2,346 million and employs over 6,700 people. The firm is listed on the stock exchange.

Océan Marée is a company involved in transformation and wholesale distribution of fish and sea food, both fresh and frozen. Its products are supplied by several countries throughout the world (including Canada, Turkey, Malaysia and Indonesia), delivered by air to the Netherlands and then driven to Belgium by lorry. To ensure that the fish and seafood are fresh and to comply with food safety rules, supply and delivery must occur within 48 hours.

At its production site, Océan Marée cuts up and packages marine products. Quite recently, the company added a production line to prepare dishes in sauce. Océan Marée employs a staff of 40, of which 30 people work on the production line and/or its cleaning. The others handle administrative and management tasks.

A portion of the overall production remains in Brussels and is delivered by small lorries to prestigious customers in the city (restaurants, hotels, markets). The rest of the production is transported to the ISPC-SILGRO centres (in Antwerp, Ghent, Liège, Rotselaar) for redistribution throughout Belgium. Océan Marée's location in Brussels facilitates both its quasi-monopoly in fish distribution in the city as well as a strategic site for distribution to the rest of the country.

The company emphasises its 'zero wastes' policy. Indeed, a specialised company collects the landing and distribution bins for cleaning and reuse. Moreover, non-consumable fish waste is used for cosmetic purposes.

Micro Factory

Quai Fernand Demets 55, 1070 Anderlecht

Micro Factory is part of Recy-K, a project led by Bruxelles Propreté*. This project is financed and undertaken in the framework of the ERDF* 2007-2013 programme. Recy-K is presented as a circular and social economy platform, specialised in the reuse, repair, recovery and recycling of waste/resources as well as in training and socio-professional reintegration.

As part of Recy-K, Micro Factory is a structure that manages a manufacturing space of over 100 m^2. This area is divided into a series of workshops for woodworking, metalworking, screen printing, electronics, digitization and 3D printing. From a legal point of view Micro Factory is a limited liability company (SPRL) – and aiming to become a cooperative – which employs one person full-time and another person part-time. Micro Factory has 130 members, professionals and non-professionals, who pay a regular fee to have access to the machines and the work area.

Micro Factory does not identify itself as a Fab Lab (despite common points), preferring to use the term Maker Space. The main reason put forward by Micro Factory is that to be designated as a Fab Lab, an entity must sign on to the Fab Lab charter, something that members may not wish to do.

The firm was set up based on the principles of sharing the means of production and the members' regular participation in the life of the workshops. The members use the machines and tools collectively; they are the property of either Micro Factory or else one or several members. Micro Factory's goal is to purchase gradually all the machines and tools in its space. Even if the means of production are shared, the members are the only ones responsible for their orders and their customers.

Although Micro Factory does not benefit from subsidies, it pays a rent that is lower than market prices thanks to ERDF* financing allotted to Bruxelles Propreté* (the owners of the premises).

Map of the companies in Area 3

Legend

- Productive activities
- Logistics & Wholesale
- Canal
- Public green areas
- Cases studies
- Public transport
- Study area perimeter

1 Travie

2 Studio citygate

0 250 500 m

Source: Brussels UrbIS®©
Distribution & Copyright CIBG, MobiGIS

Area 3. Biestebroeck

Travie

Digue du Canal 40, 1070 Brussels

Travie is a Sheltered Workshop (ETA)* founded in 1980 under the name 'Travail et Vie'. Its purpose is to foster the inclusion of disabled people in society by offering them a job that is fulfilling and salaried. The company started its activities in a former industrial building on the rue de Bosnie in Saint-Gilles. It changed premises on several occasions before moving to a former production building of the Roche pharmaceutical company, located on the Digue du Canal. The building spreads over six levels and a working surface area of approximately 21,000 m², of which 15,000 m² are devoted to production and 6,000 m² to storage.

In addition to around 70 people in charge of management, supervising and administration, the company employs about 330 disabled workers handling tasks involved in services to the company's customers: processing, assembly and packaging of fresh or dried food products; pack various products, for example luxury items or electronic equipment; mechanical and electrical dismantling and assembling. The clientele is exclusively Belgian and professional (Business-to-Business).

From a legal point of view Travie is a non-profit organisation (ASBL), specialised in sheltered workshops and as such receives subsidies from the Brussels-Capital Region (European Social Funds – FSE*). The French Community Commission (COCOF*) is responsible for delivering work permits for disabled people seeking employment at Travie.

Studio CityGate

Rue des Goujons 152, 1070 Anderlecht

The Studio CityGate project is a component of a broader urban redevelopment programme, entitled CityGate and spread over three sites (CityGate I, II et III) organised around the rue des Goujons and the rue Prévinaire. The objective is to develop a series of buildings adapted for housing, utilities, businesses and production workshops.

Pending the start of construction on the CityGate II unit, Citydev*, the para-regional public institution in charge of the project, called on Entrakt, a limited liability cooperative company (SCRL) to manage temporary occupation of a large building located on a section of the land, which had belonged to the pharmaceutical company Vesdre Continental.

Studio CityGate is the result of this collaboration. Opened late 2018, its present occupants include a series of artistic and crafts workshops (carpentry, fashion, ironworking, bookbinding, ceramics), a recording studio, events areas, recreational infrastructures (skate park, climbing wall) and a bar. The production workshops, located on certain floors of the building, generally employ one to three workers, over a surface ranging from 24 m² to 100 m².

The building has a total surface area of 22,000 m², spread over five floors and two wings, only one of which will be kept after the site's re-organisation foreseen for 2022.

Area 1:
Béco – Vergote

Alexandre Bossard
Cosimo Campani
Oriane Daugieras
Pauline Delperdange
Alexis Gilbart
Klarissa Pica
Louise Carlier (tutor)
Pauline Varloteaux (tutor)

Companies & business centers: Diagnosis

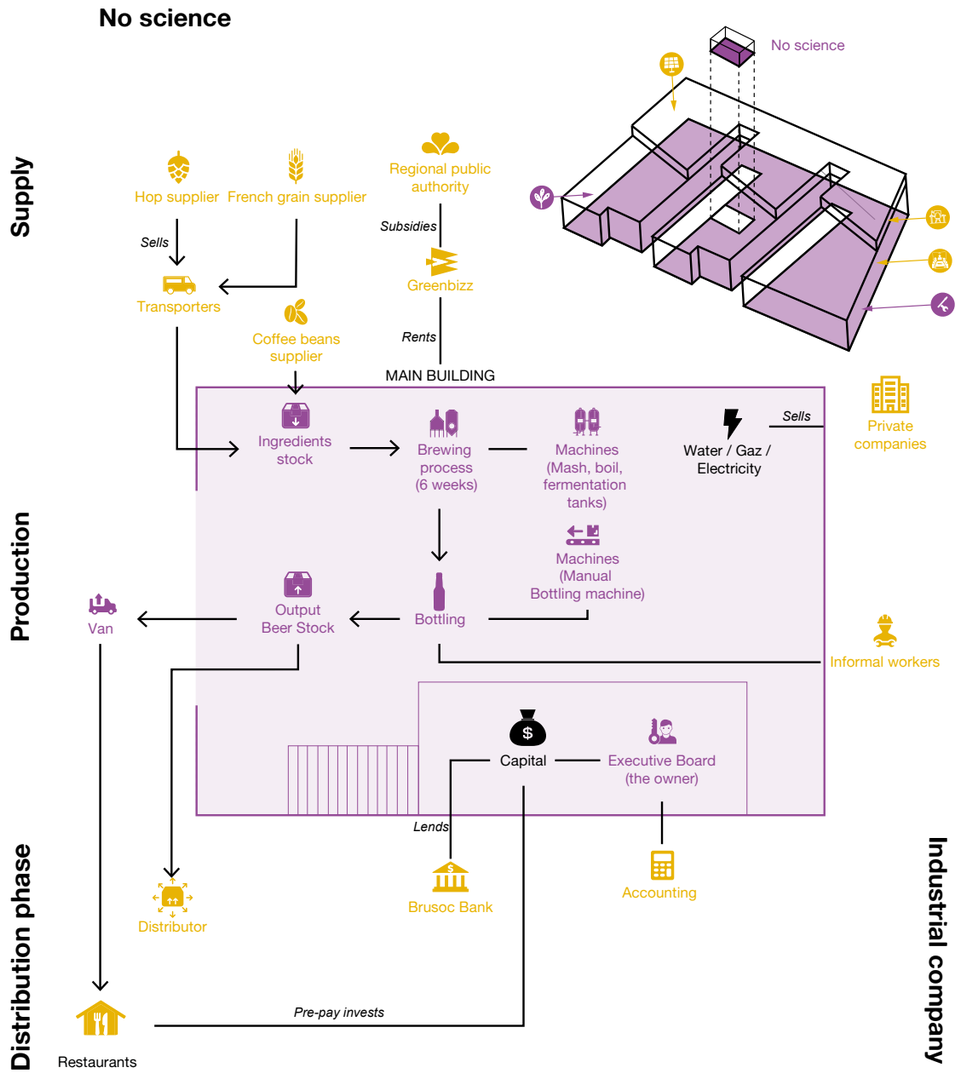
The Greenbizz incubator company created by Citydev* aims to create a favourable ecosystem where companies can share ideas, services and potentially collaborate, and to help new enterprises involved in sustainable development to implement various kinds of production in Brussels. The ground floor provides workshop areas for production. The first floor hosts meeting rooms while the second floor contains office spaces. However, according to various interviews collected on-site, there is no communication between the Greenbizz floors, making de facto collaboration between enterprises unpromising.

Although internal management is independent from Citydev*, a selection committee managed by the Region selects and provides spaces to sustainable-only enterprises. One of these is No Science, a new brewery. It is owned by Maxime Dumay who started this project with a strong moral commitment to quality craftsmanship, but without a formal marketing plan and no desire to expand. Dumay started the company thanks to public funds and could not have set up in Brussels without the existence of incubators such as Greenbizz which provide low rental warehouses compared to the private market. Dumay is the only worker in his brewery. Friends come by to help him bottle beers on weekends and sometimes he provides informal training in exchange for help. The only person he pays is the legal accountant. Raw materials, such as hops, are imported mostly from France and America. His clients, though, are very local, as the main network is in Brussels, Namur and Ghent.

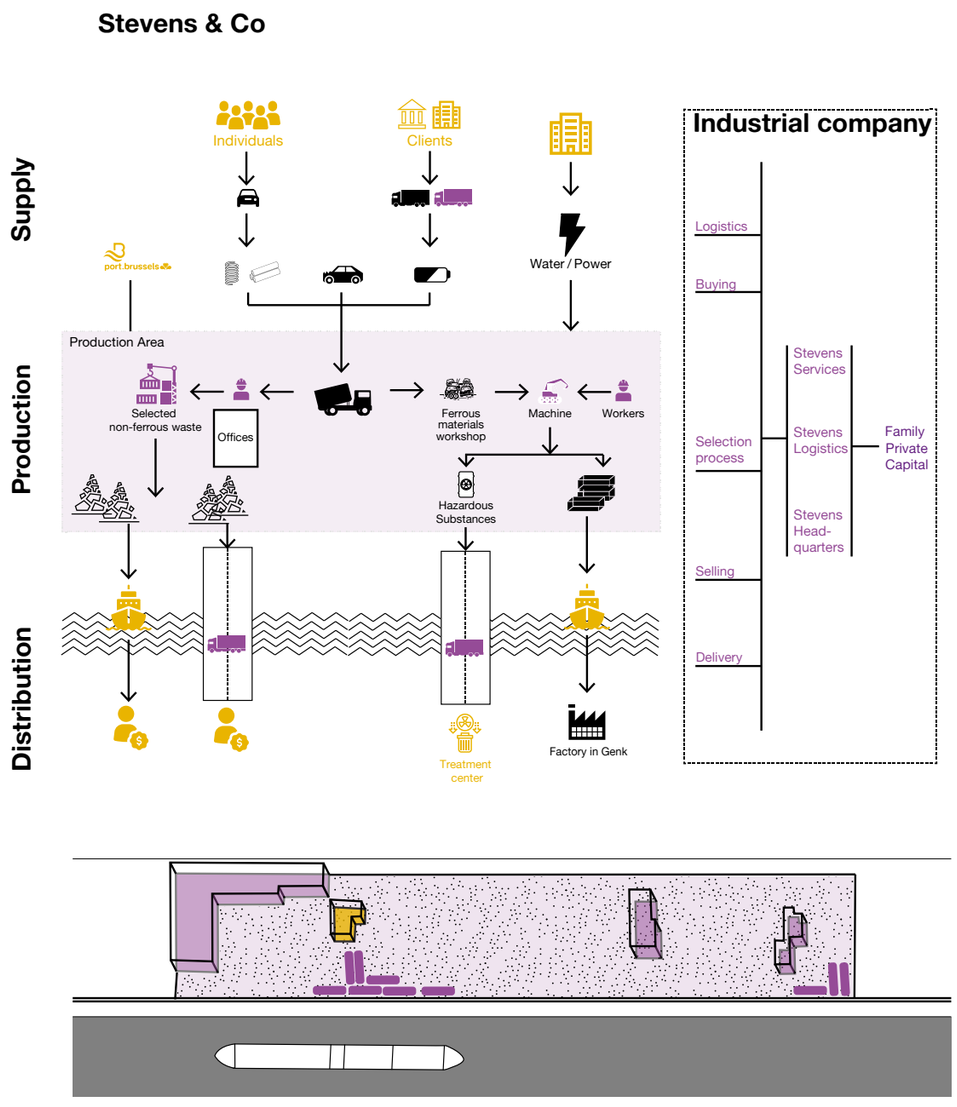
The other company that we explored is Stevens & Co (SA). It is presently owned by the third generation of the Stevens family owners. It currently employs approximately 70 workers in Brussels, Genk, Willebroek, Antwerp and Charleroi. The company collects, sorts and resells metal waste in the Bassin Vergote waterfront. This site employs 10 full-time low-qualified workers mainly from Brussels who work at the outdoor site. For specific easy sorting processes they sometimes employ disabled people. They also have 10 high-qualified workers for the selling and managing processes.

The company primarily treats metal by separating ferrous from non-ferrous materials. The company has also started recently to recycle cars and electronic waste. Suppliers vary, rom individuals, public and private companies. Although the company prefers to sell nearby because of transportation costs, the market in Belgium is not large enough to limit selling to the country.

Top: No Science Brewery in Greenbizz.
Bottom: Stevens & Co from the street.



No science integration in its surrounding

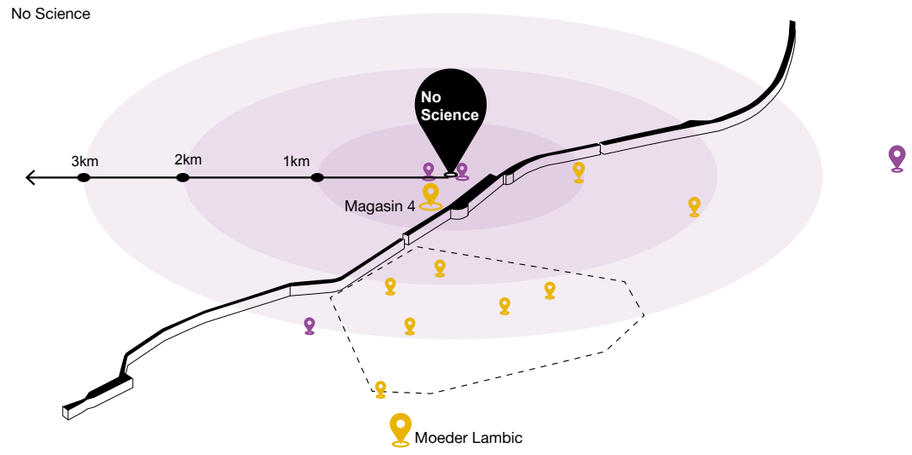


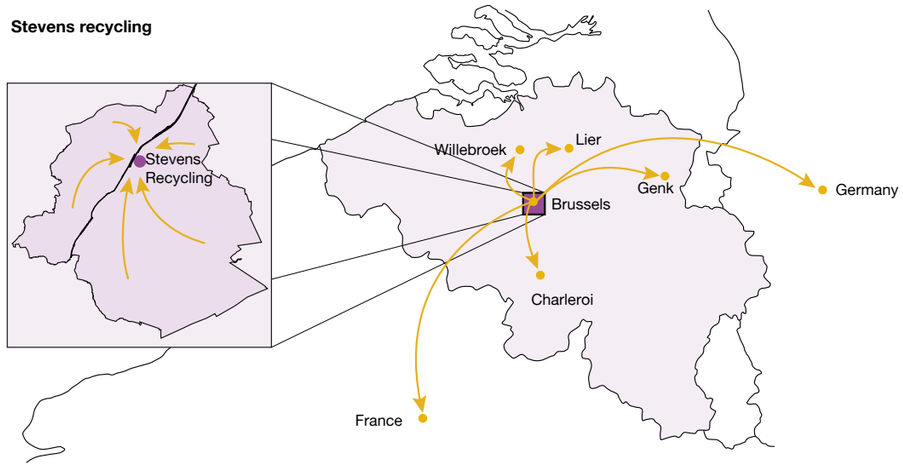
Stevens & Co urban integration in its surroundings

Patterns of integration into the urban environment

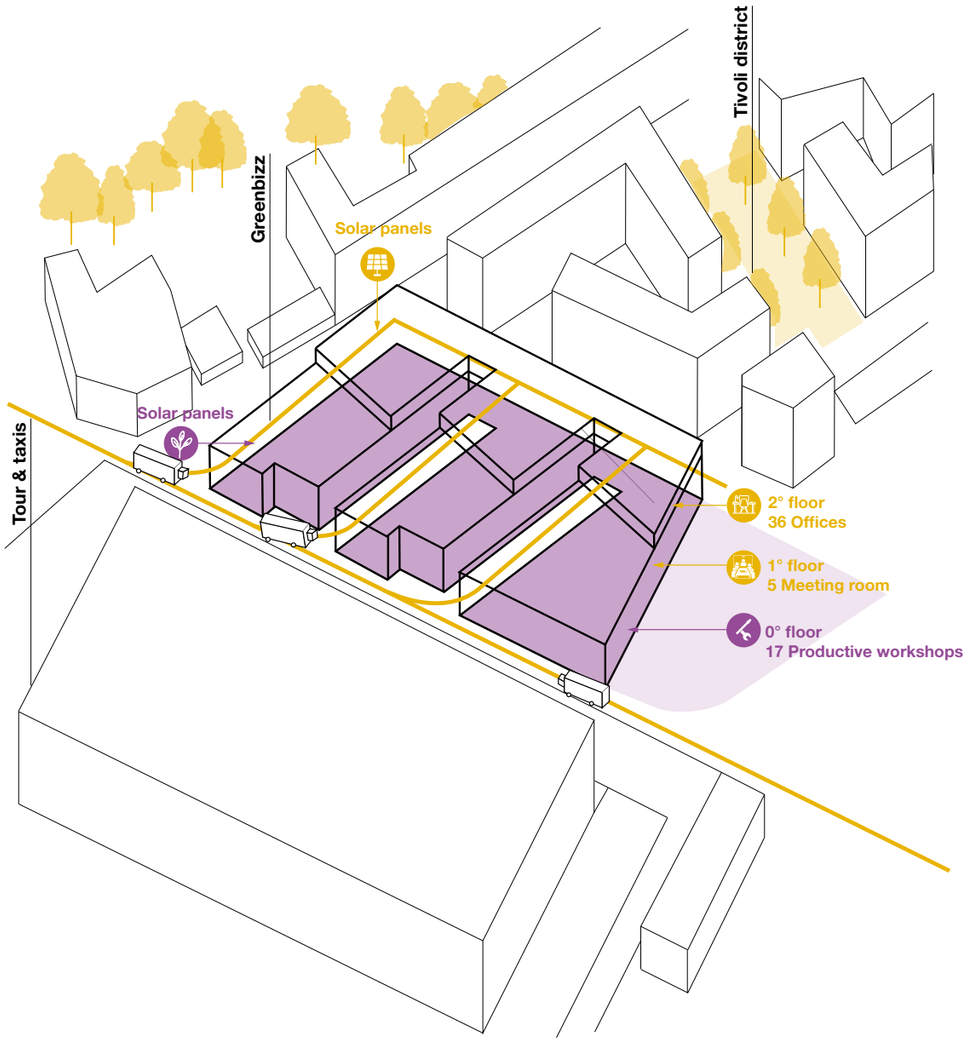
In order to understand the urban integration of different entities, we analysed several variables: visual barriers, externalities, connection to the public spaces and relations with other actors of the city. Since Greenbizz project is inserted in a larger plan that includes the Tivoli residential project, the visual-aesthetic aspect is harmonious with the surrounding buildings. It allows a smooth transition between the TIR (Transport International Routier) Logistics Centre and the housing, diminishing the negative externalities. For security reasons, the 'productive alleys' cannot be connected to the public spaces but the structure allows a visual perspective and, during the day, the alleys are accessible for city-dwellers. This is more a matter of cohabitation than mixed functions, despite the will for mixity in the project process. Furthermore, it is a perfect location in a dynamic area with a lot of new housing and business cluster projects (Byrrh, Tour&Taxis…), close to the canal and a national motorway. While No Science is a part of Greenbizz, it was interesting to see that no visual signs on the incubator's outside wall indicated the brewery's presence. You can walk by and never know what is going on in there. Nonetheless, No Science has strong relationships and connections throughout the city via the owner's personal contacts and multiple clients (mainly related to the night-time entertainment world) but also breweries and shops.

Stevens & Co is located at a strategic hub: next to the centre of the city to ease the collection of urban metal waste, but just next to the canal which offers a cheaper means of transport than lorries. The company is at the intersection of main canal and road axes, so a transhipment logic can be noted. The Stevens facilities are fully integrated their environment and generating flow, but more at a Brussels or Belgian scale than that of the neighbourhood. The outer boundary of the company is completely fenced off, preventing access to and visibility of the canal. This reinforces the sense of isolation of the canal as a productive space rather than as a public space. Just in front of the company there is a four-way road often congested. So even if Stevens & Co produce negative externalities (noise, unpleasant view) the road is even more inconvenient for the inhabitants. Today, the Stevens company feels like part of the city. There has been a historical change towards the ethic of how actors look at the company: if, for a period of time, it was seen as an alien to be ejected from the city, today, with concepts such as recycling or circular economy, and with the will to maintain productive activities in the city, the view by citizens and public authorities towards this company has genuinely changed.

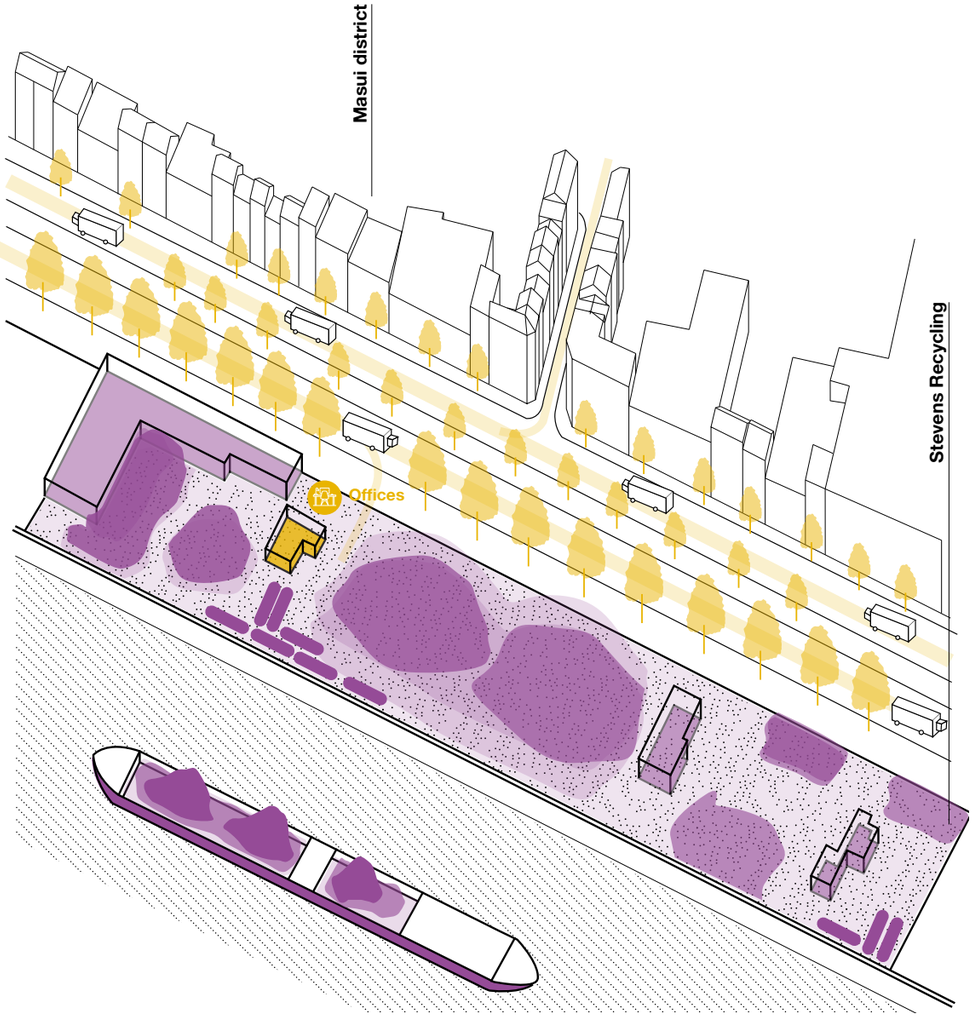




The first scheme rapresents the integration/relation of No Science within Brussels. The second one represents the integration/flux of Stevens in the country and Europe



The image shows the division of the company's building into floors and its environmental quality. In addition to the presence of solar panels, the company highlights the rooftop that collects rainwater, which is reused inside the building.



The Stevens & Co company's urban integration in its surroundings

Analyses

Public policies can be vital to enable business creation but also to allow businesses to stay in the city. They have regulatory power via planning documents such as the Regional Land-Use Plan – PRAS* but also provide opportunities via funding. In our cases the political authority approvals were a key point in their creation, conservation and/or extension. Since the Region owns 56% of the Port of Brussels*, it has decisional power on which companies occupy the concessions. Last year they approved the extension of Stevens & Co allowing them to add a recycling space for electric and electronic devices.

As stated above, No Science could not have been created in Brussels without Greenbizz and help from a public bank. From the interview we had with the different actors, we think that it is quite efficient, at least in allowing entrepreneurs to start their businesses. It is also intended to be an ecosystem where companies communicate and share ideas and processes, but, from what we see, this aspect is more mixed because the relations between the enterprises seem limited.

It is a real challenge to make a comparative analysis of these two companies because they differ in many ways: one is a small crafts firm that has sold beer since 2016; the other is a 70 year old company that sells tonnes of metal waste. No Science is owned by someone with strong convictions and the desire to convey them via his products. He believes in local and small production, fights against the big multinationals and promotes the slow-food process. He has strong anti-capitalist beliefs and applies them in the everyday brewery functioning. Stevens & Co is limited company with several shareholders, whose economic commitments and intentions are closer to today's capitalist system. We have not met the third-generation Stevens but they might have a historical attachment; they also seem to be concerned about recycling here in Belgium instead of sending away our waste and they have ecological preoccupations. For these reasons, both Stevens and No Science have integrated the city physically, economically and in its flows in different ways. Stevens & Co provides the possibility for the city to treat part of its wastes locally; it limits ecological and economic impacts by being nearby; it also employs low-skilled persons, in this respect meeting a re-gional socio-economic challenge. No Science is part of a large network of small local companies producing a local-heritage product (beer) and the only employee is the owner for now. Although both companies belong in the city for different reasons, there could be improvements for both of them in terms of urban integration.

	Greenbizz	No Science	Stevens & Co
Land		(-) Prices (-) Availability (+) Accessibility	
Supplies & commercialisation	(+) Proximity of clients/suppliers		
	/	(+) Network of others breweries: cooperation	(-) Competition with similar activities
Public policies	(+) Fundings from Europe (ERDF)	(+) Subsidised incubators and public bank (Brusoc)	(-) Political speeches for a better urban integration (+) Insertion in the new circular economy political program
Mixity of function at the neighbourhood scale	No real interactions with inhabitants or other activities in the surroundings		
	/	(+) Interaction with Magasin 4	(-) Appears as deleterious for the inhabitants (-) No interraction with the little workshops
Other variable	/	(+) Historical or emotional attach to the city of Brussels	

Comparative table of integration in the urban context

Area 2: Cureghem

Siloë Bayot
Zoran Caruso
Andrea Fantin
Eugénie Laharotte
Céline Liénart
Raquel Santos
Marco Ranzato (tutor)
Corentin Sanchez Trenado (tutor)

Companies & business centre: Diagnosis

Micro Factory and Océan Marée are two businesses both located in Cureghem, along the Brussels-Charleroi Canal. Their productive activities differ as much as their business profiles.

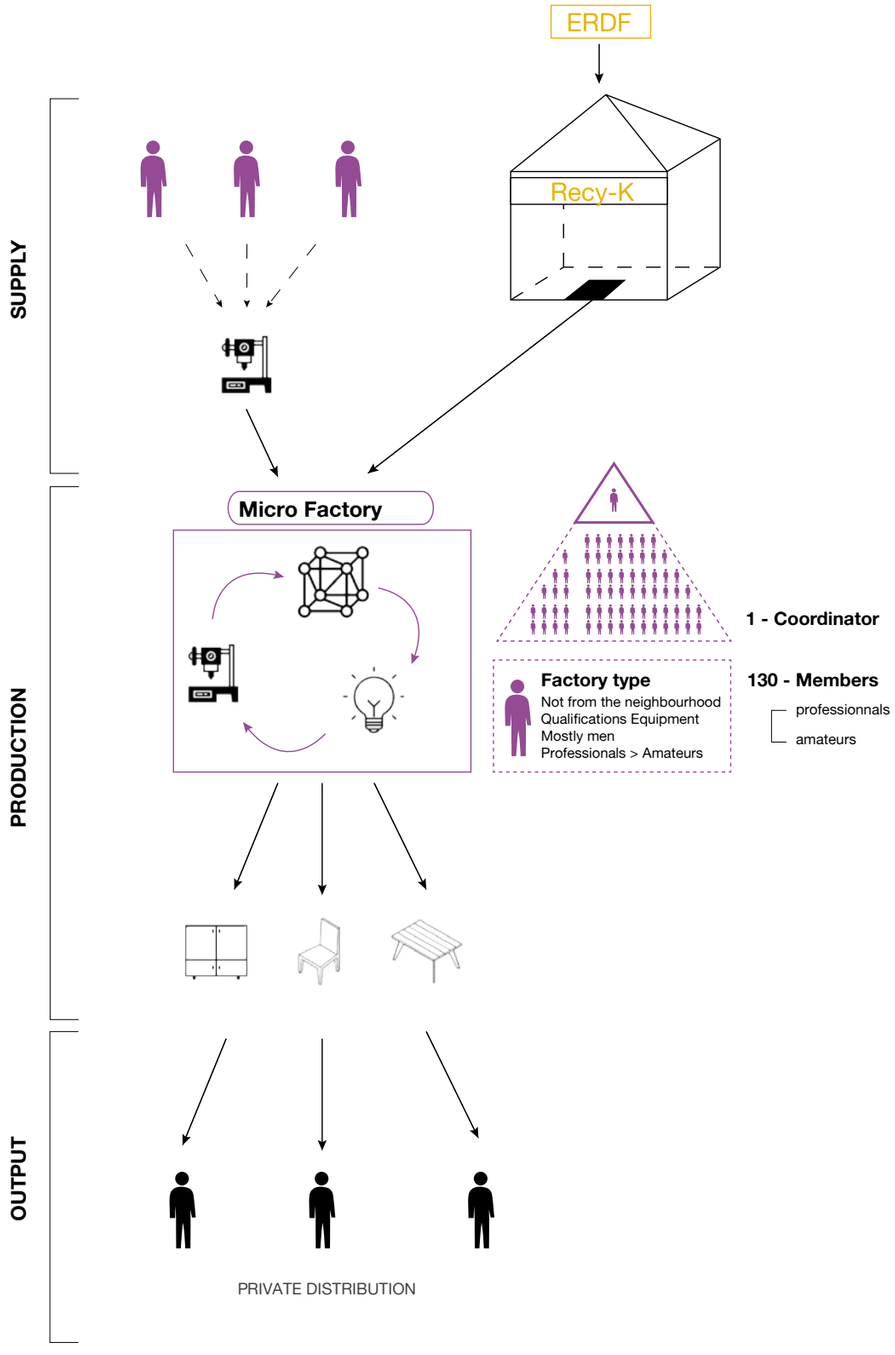
Micro Factory is presently a limited liability company but it could possibly become a foundation in virtue of its sharing of equipment and working with a cooperative involving a number of members. The concept of Micro Factory is that of ‘a shared manufacturing workshop, based on participation and mutualisation’ (Pinault, 2020). It was developed in order to meet the needs, in terms of space and material, of people using the same work tools. Indeed, the spirit of Micro Factory is based on the mutual use of space and equipment without having a hierarchy. It targets several types of manual production activities, including carpentry, screen printing, ironwork, but also graphics and electronics.

Following a succession of investments, Micro Factory has been able to grow in members and thus move to larger premises. It is now part of Recy-K, a workshop of approx. 1,000 m^2 financed under the Brussels ERDF* programme 2007-2013 and managed by Bruxelles-Propreté*, an administration of the Region in charge of organising the city’s waste collection and treatment. This facility functions as a business centre focused on promoting re-use and recycling practices. Micro Factory is the largest activity hosted in Recy-K, at least in terms of land occupation and people involved. Today, it has a total of 130 members, 40 of whom are considered ‘full-time’ professionals, and 90 ‘part-time’ pro-amateurs. Every member can rent lockers, storage space, desks, etc. at reasonable prices. Each product manufactured by a member is directly distributed by the member itself. Micro Factory therefore acts as a production space only, with no room for logistics or commercialisation.

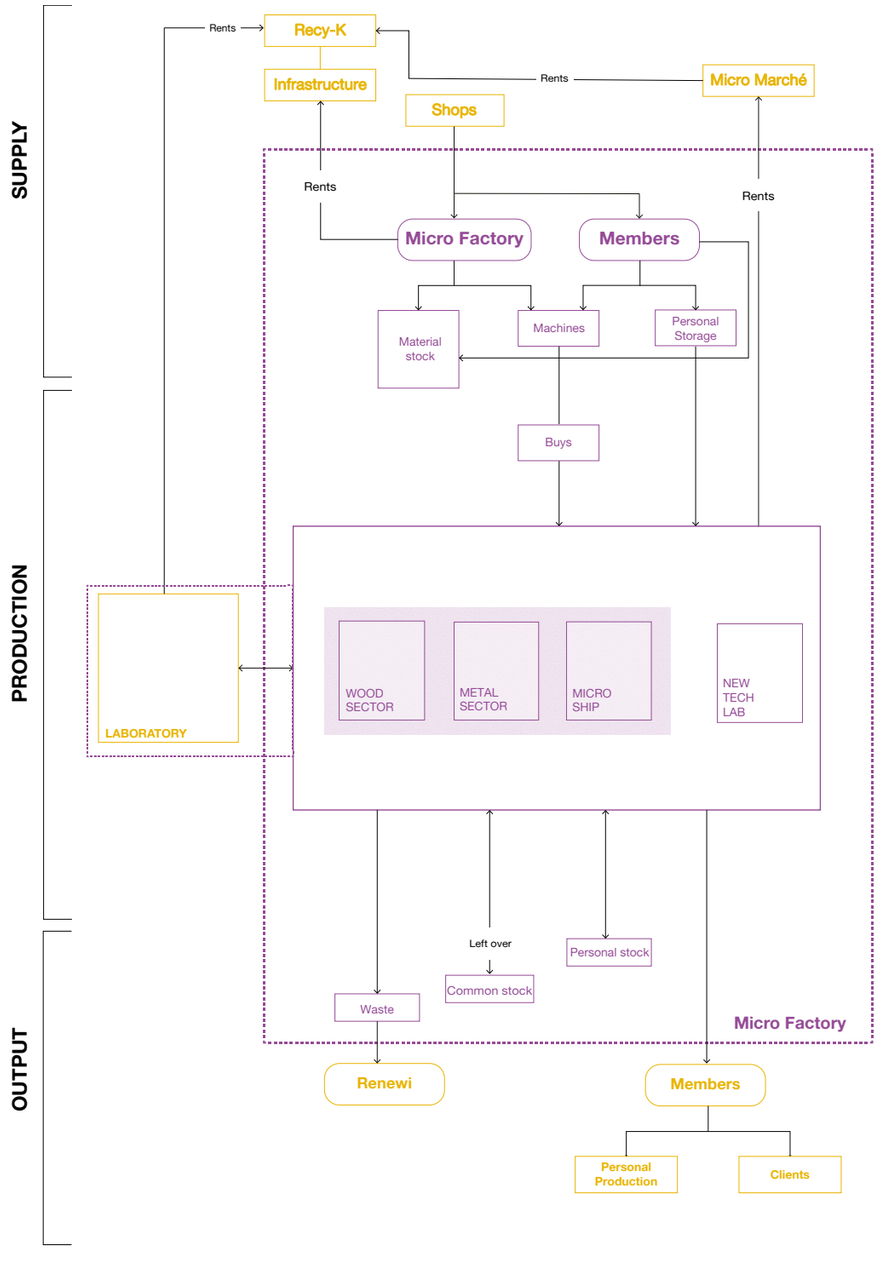
Océan Marée is a limited liability company in the fish processing and distribution business. In 1987, it was a small structure located in Walloon-Brabant. In 1994, it moved to bigger and more adapted premises along the Brussels-Charleroi Canal where it is still located. Océan Marée is an independent company that is not part of a business incubator. In 2014, it was purchased by the large Belgian food group ISPC and, in 2017, by the Dutch group Silgro. Today, Océan Marée employs a team of about 30 people in charge of processing and cleaning fish and about 10 people attached to its administration. Although some of the working tasks require experience and skills, the company is not looking for already qualified personnel but rather offers apprenticeship periods that enable low-skilled workers to get hired and learn.

Océan Marée has a ‘zero waste’ spirit: the incoming and distribution bins are collected by a company specialising in this particular cleaning operation and then reused. Moreover, non-consumable fish waste is used for cosmetic purposes.

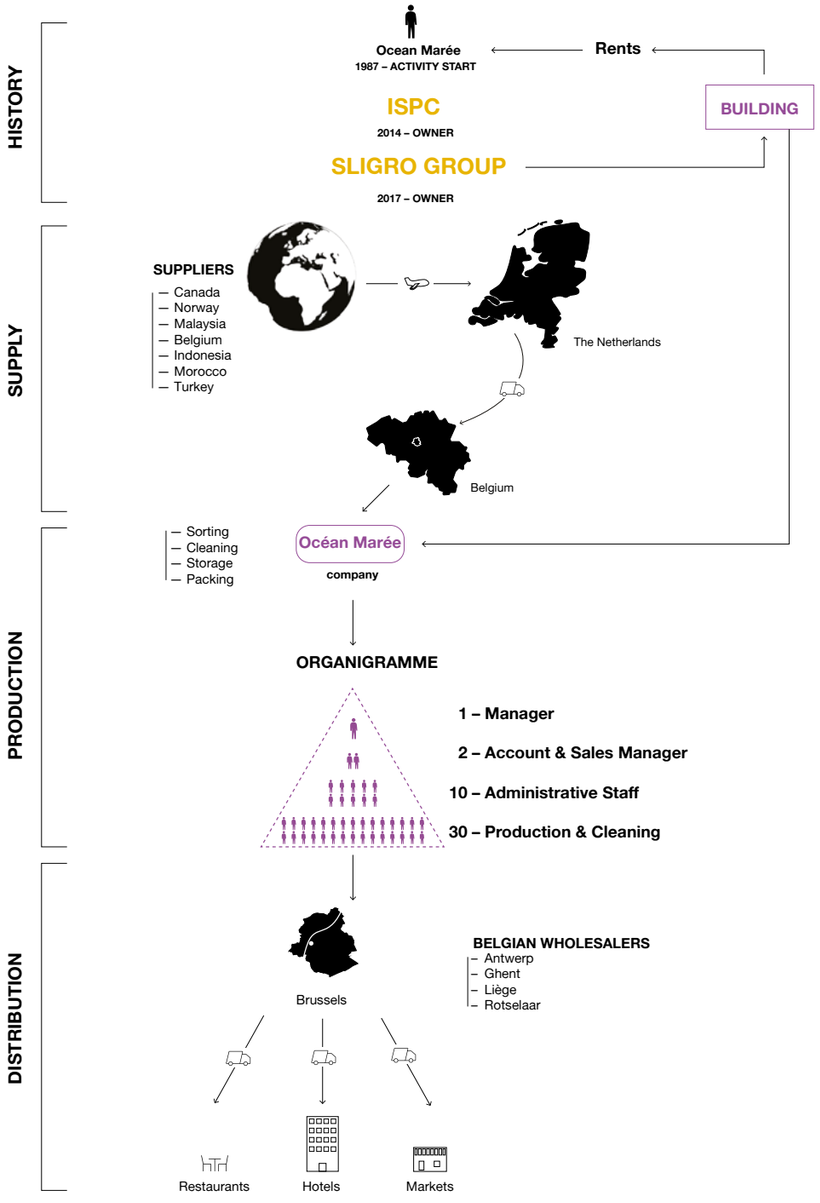
Top: Delacroix metro stop, next to Recy-K.
Bottom: MasterClass participants in front of the Océan Marée building.

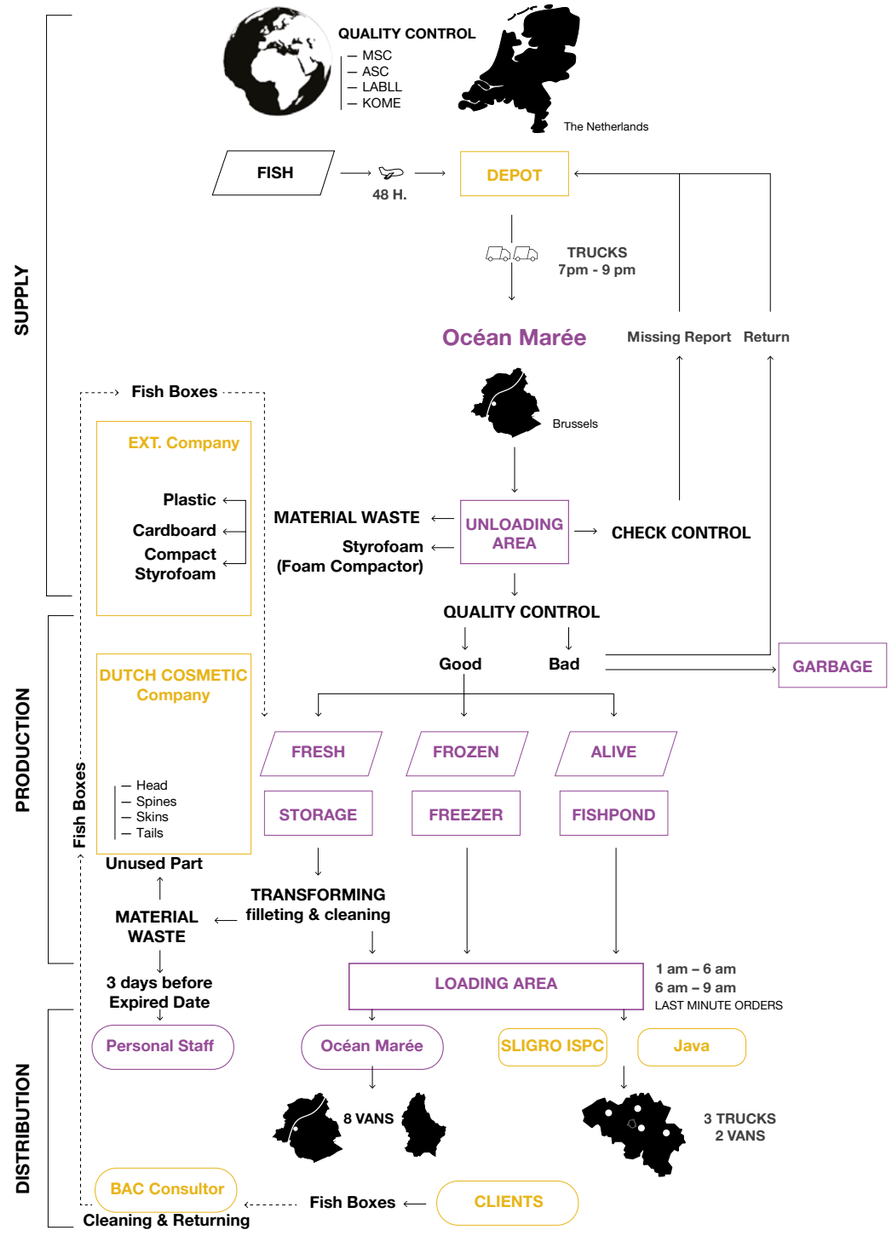


Business Structure of Micro Factory
— company structure
— distribution scale



Production line of Micro Factory
— Relation to the theme of Recy-K / Re-Use / Circular Economy





Business Structure of Océan Marée
— company structure (left)
— distribution scale (right)

Patterns of integration into the urban environment

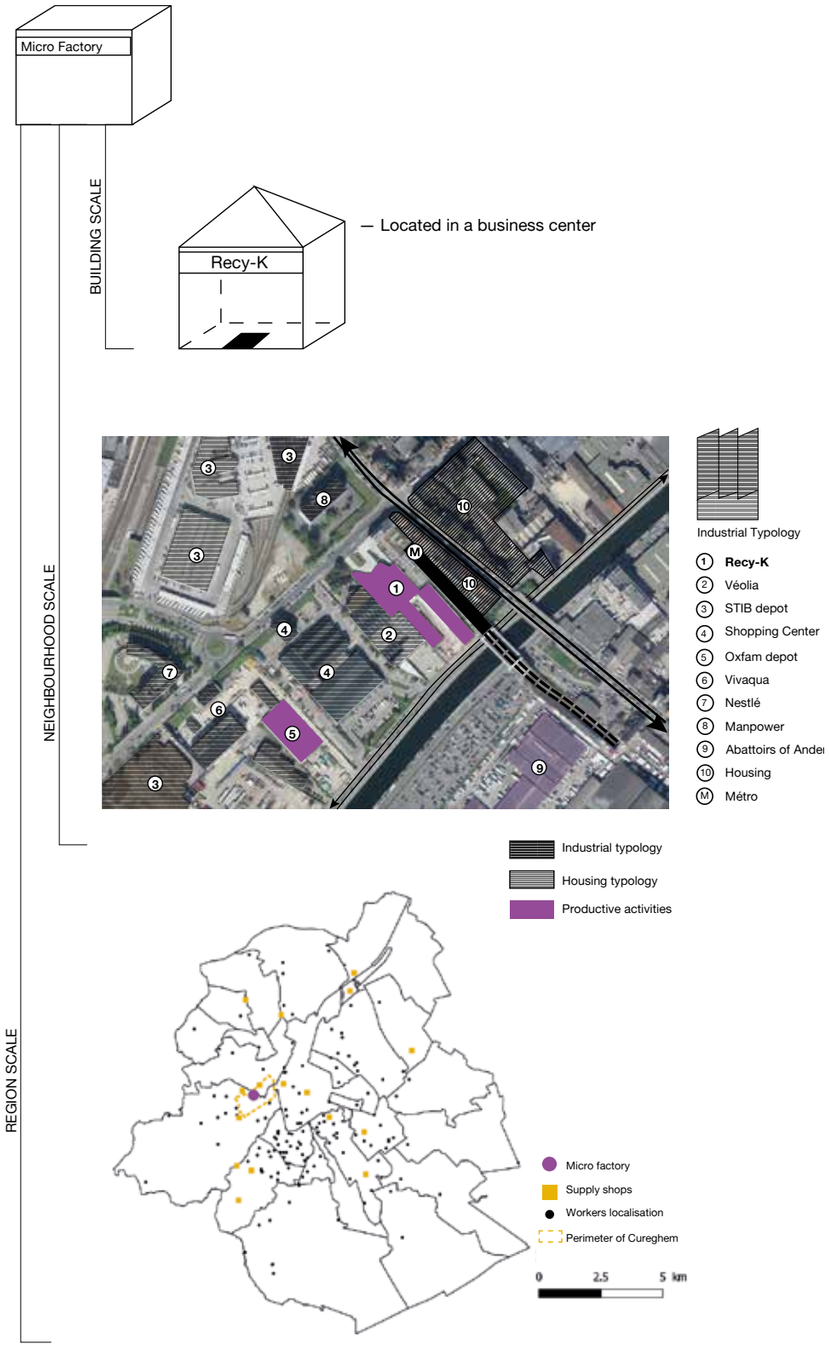
Historically, Cureghem has been an industrial district. Ever since the Abattoir d'Anderlecht was opened in 1890, meat processing and its sale chain has continued to develop in the area. The presence of branches of the river Senne – today buried – was a driving force for installing the textile industry. The concentration of productive activities has not been a deterrent to Urbanisation. The district has progressively urbanised, also because of its proximity to the South Station. In the 1980s, following changes in European legislation on meat processing, many wholesalers left the district and settled outside the Brussels-Capital region. The buildings they left behind were gradually occupied by the used car market (Scohier, 2018). In Cureghem, used cars are still being collected from all over Europe. They are transported by lorry to the port of Antwerp where they leave towards various African countries.

In terms of land planning policies, only a small part of the district is within an Enterprise Zones in an Urban Environment – ZEMU*, a category of land-use the Brussels-Capital Region created in 2013 to introduce housing into industrial zones. In addition to residential zones and mixed zones, a consistent part of Cureghem is labelled as "high-mix zone" (zone de forte mixité)*. Thise zone imposes a minimum of 50% of housing but can integrate other functions such as collective community or public service facilities as well as offices and productive activities. These two allocations promote a mix of functions, particularly housing with productive activities. However, these hybrid land-uses occasionally give rise to conflicts, and coexistence is not always a foregone conclusion.

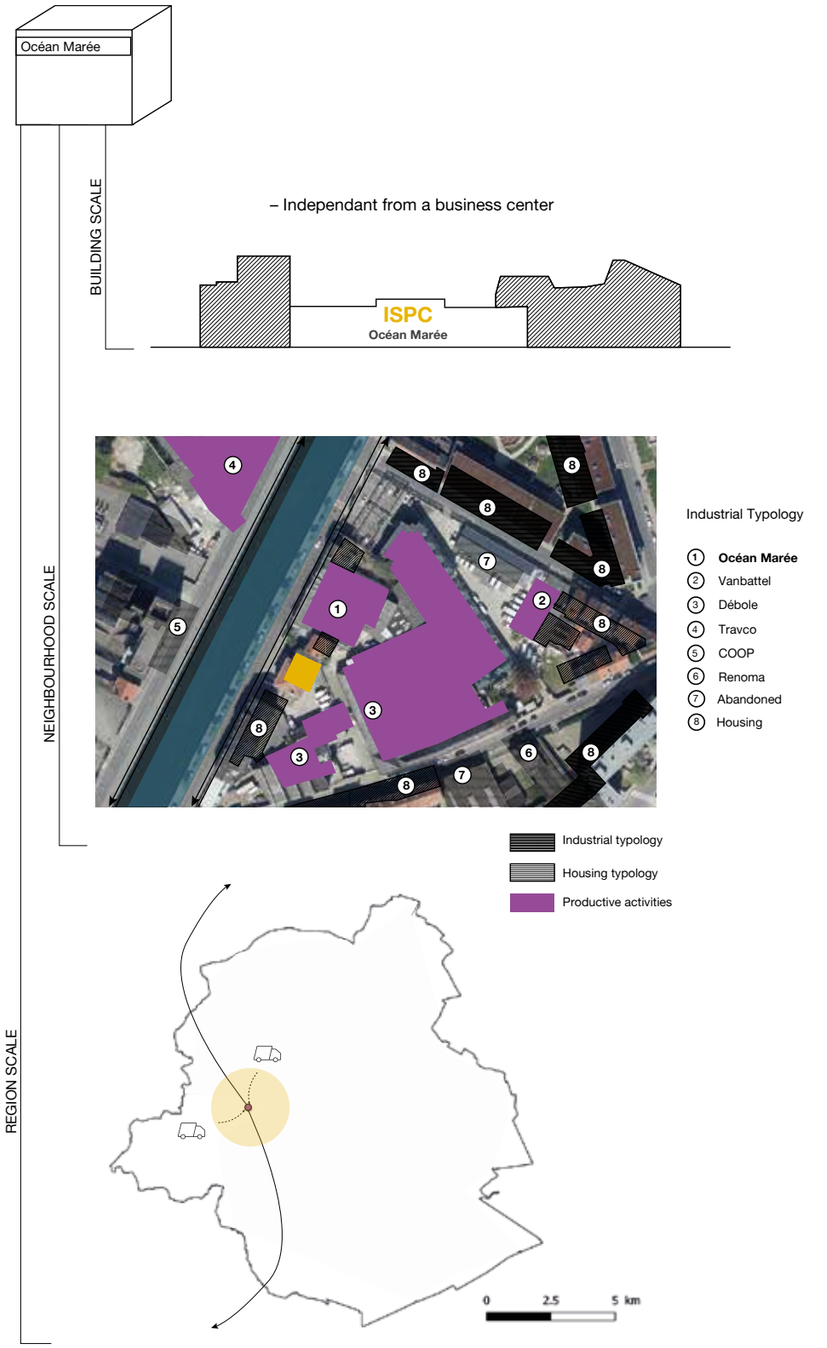
Located in a predominantly industrial environment just outside Cureghem, Micro Factory looks on to the Brussels-Charleroi Canal. Embedded in a former industrial area, Océan Marée also looks on to the Canal but on the other side, facing Cureghem. Both contexts are changing dramatically as they are objects of residential real estate transactions.

Both Micro Factory and Océan Marée have direct access to the Quai de l'Industrie along the Canal, which enables them to distribute their production more easily. Micro Factory does not have a well-defined distribution network, as distribution is carried out from time to time according to members' needs. In contrast, Océan Marée has a large distribution network both in the Brussels-Capital Region, in Belgium and the Netherlands and from there on to other countries. As early morning delivery operations are essential for restaurants, Océan Marée operates overnight, thus avoiding traffic congestion.

On a local scale, the architecture of Recy-K, where Micro Factory is hosted, resembles the commercial and storage typology that is found in its surroundings. Its compound is open to the general public. On the contrary, Océan Marée is entirely closed to the public and occupies industrial premises that have existed since the 1950s.



Recy-K in relation to its context



Océan Marée in relation to its context

Analyses

The affordable rent Micro Factory pays to Recy-K is a key condition for the activities of the ‘makers’ to exist. Additionally, Océan Marée does not own the premises in which it is located and pays rent to the owner.

Micro Factory is fairly independent with respect to its neighbourhood, given that the majority of its members come from the municipalities of Ixelles and Saint-Gilles. Its needs are therefore limited to efficient accessibility for the workers, a condition guaranteed by the adjacent metro stop. However, in the near future, the premises of Recy-K might be insufficient in terms of space, in meeting a potential further development of its activities and the increasing number of members. Moreover, there is a risk that the rent may increase in the near future, a trend that might occur should new housing find a place in the ZEMU* nearby. Land use in ZEMU* zones creates competition between the need for housing and the maintenance of private activities in the same space. This creates insecurity for productive activities that do not own the premises they occupy and that may run the risk of seeing their rent increase to the detriment of their development.

In contrast, Océan Marée has a strong link with the neighbourhood since the majority of its employees live in the surrounding area. However, as it is located in a ‘high-mix zone’ (Zone de forte mixité*) and housing projects have been already developed in the surroundings, in the near future conflict between residential functions and this kind of production activity could arise.

The two activities have very different impacts on Cureghem. Micro Factory brings a new public into the neighbourhood but, due to the limited contacts between this firm and its neighbourhood, it could be very easy to move its activities if it found a good price, enough space and a well-connected location. On the other hand, a possible relocation of Océan Marée would mean a reduction in the supply of low-skilled jobs, which is a particularly important benefit for Cureghem.

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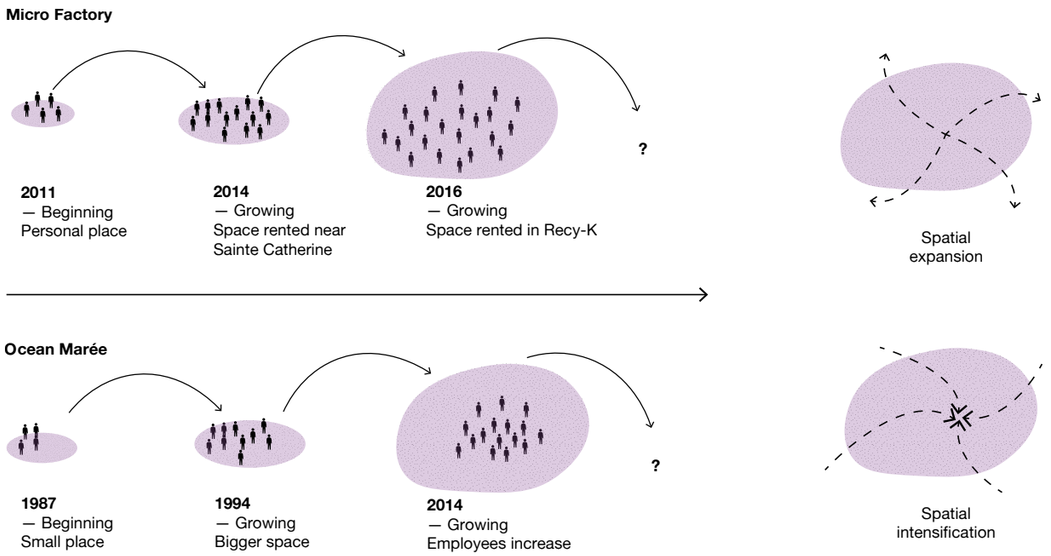
Scohier, C. (2018, 18 June). *Heyvaert: l’autre marché des bonnes affaires – Inter-Environnement Bruxelles*. https://www.ieb.be/Heyvaert-l-autre-marche-des-bonnes-affaires

	Micro factory	Océan Marée
Land	Low rent (4,5 € m²/month) to Recy-K (support from ERDF). Localisation in Brussels, accessibility for members (by any means of transport). Need more space.	Localisation in Brussels, distribution in Brussels and other cities. Historical infrastructure.
Supply and commercialisation	Machine/materials sharing. No organised logistic. Not enough storage spaces.	Monopoly in Brussels for niche market: Top level clients. Transport out of traffic rush hours. Perishable product, strict timing of delivery.
Values	Circular economy environment. Cooperation between workers.	A story of 30 years of high quality in seafood in Brussels. “Ecological attitude”.



Comparing the two companies chosen as case studies

Insights from a local stakeholder

Gilles Pinault – Micro Factory

Micro Factory is a shared production workshop that serves to put means of production in common. Our surface area is from 100 to 700 m², enabling us to host about 130 members. My work is to ensure the daily management of this space for our members.

Hosting the activities of a range of artisans reduces their need for investment compared to what they would need to set up a workshop independently. This enables artisans to start out, with an economy of scale, and even be able to move from crafting individual pieces to producing small series, and thus become a non-negligeable alternative to importing. Micro Factory's aim is first to meet the specific needs of the city. For products that are highly generic, it is harder to justify extremely local artisanal production.

Our interest in a production site in the centre of town is firstly to offer the artisans a workplace close to home. Micro Factory is well-served by public transport (especially the metro lines 2 and 6 connected to the West Station hub). One element that is both an advantage and a constraint is the question of suppliers. For those located outside the city and who find it hard to come to Brussels in a delivery lorry, it is a constraint. However, small merchandise (like tools) is easily available from local suppliers who can be reached by foot or bicycle. The rent we pay for the workshop area is more expensive than if we were outside the city, but it is portioned out in the fee split among all the members. Even if this enables us to have a large surface area, we are still lacking storage space.

As regards our ties with public administrations and authorities, to begin with Micro Factory is located in the Recy-K building, which is managed by a branch of Bruxelles Propreté*, with whom it has an occupancy agreement. This building was financed by the ERDF* funds, from which we derive indirect benefits because our rent is lower than market prices. In exchange, in order to rent premises, our project had to prove that it was closely aligned with the ERDF* project objectives. From a strictly financial point of view, Micro Factory has no day-to-day subsidy for our activities. However, I should also add that we did receive a small subside when we restructured and we also have support from SAW-B and CoopCity. Furthermore, we are in close contact with Bruxelles Propreté*, and we are trying to strengthen these relations beyond mere rental, in order to play a greater role in meeting the challenges of the circular economy. Micro Factory also answered a call for tender from Citydev* to manage the City Fab 3 space on the basis of a services agreement (i.e. one salary). In particular, that will give us a seat at the table in discussions with CityDev* and help us represent our point of view on the makers at work independently from Citydev*.

On the dynamics between public and private actors, there is a permanent tension between those who have received public funds and must prove that it has been useful, and those who are more autonomous and self-financing. In general the source of the financing has an influence on how a project is managed. If Micro Factory were substantially funded, it would have less a spirit of initiative, entrepreneurship and appropriation by its makers. The project would no longer be one that meets the needs of the community but one that reflects it financers' requirements. Furthermore, at Micro Factory, the question of 'who controls the means of production' is crucial. The issues at stake are different depending on whether the means of production belong to a private entity, the state or a group. We support this third path between privatisation and nationalisation, where the means of production are controlled and managed by a collectivity. The three levels need to co-exist intelligently. For example, our model would not yet be viable if we had to pay a rent at the market price, thus the local production is still struggling to be 100% self-supporting. Consequently, for some aspects, it is hard to get by without public support. From this point of view the public/private/associative partnership is an essential condition for the project's success all the more so that, paradoxically, being a beneficiary of public subsidies provides a form of recognition and facilitates certain forms of collaboration.

The collaboration with Metrolab is quite interesting. One the one hand, because it brings us some distance in the way we see our sector and helps us better understand the global impacts on the city. On the other hand, it enables us to meet and interact with people who are asking the same questions we are. What is more, the questions we hear from the students oblige us to formulate clear responses and go further in our thinking.

Gilles Pinault is an architect by profession.
He is the founder of Micro Factory and presently the company's only full-time employee.
He is responsible for daily management at Micro Factory.

Area 3: Biestebroeck

Jil Philippot
Foka Duvalier
Stefano Gariglio
Alessandra Marcon
Alexis Creten
Arianna Fabrizi De' Biani
Danielle Devoglio
Alvise Moretti
Marine Declève (tutor)
Christian Dessouroux (tutor)

Companies & business centre: Diagnosis

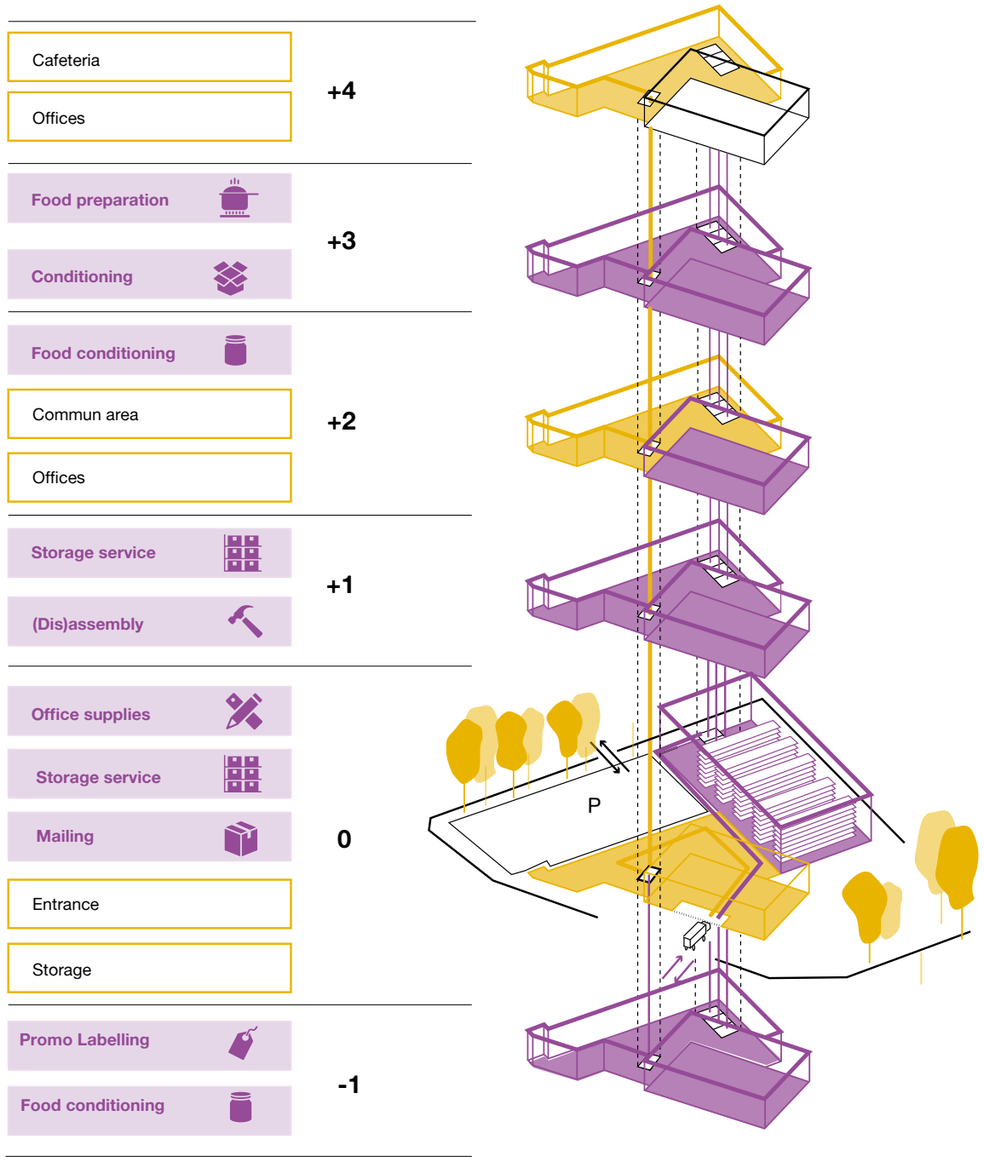
Located just a few hundred metres from each other in the area of Biestebroeck, the two companies examined here have very different profiles.

Created in 1980, Travie bought its current building of 21,000 m² in 1999 to concentrate its activities at the same location. Several investments were made successively in order to adapt the site and the production to an increase in the number of employees and an expansion of the services offered. At present, the main activities are packaging of goods and processing of food products supplied by client companies (approximately 30 ‘large’ and 170 ‘small’ ones). The main particularity of Travie is being a non-profit organisation (a Sheltered Workshop: ETA*) that aims to give jobs to mentally disabled people, with a current total of 335 workers managed by 60 staff members. For this reason, the company relies on in-house workers rather than subcontractors in all possible areas related to their work conditions (e.g. cleaning services). Travie has very recently started to provide workers (currently around 25-30) to other companies to carry out tasks on their own sites. The Region provides funding for each worker according to their level of disability to compensate for the loss of productivity and to enable Travie to be competitive in its sector.

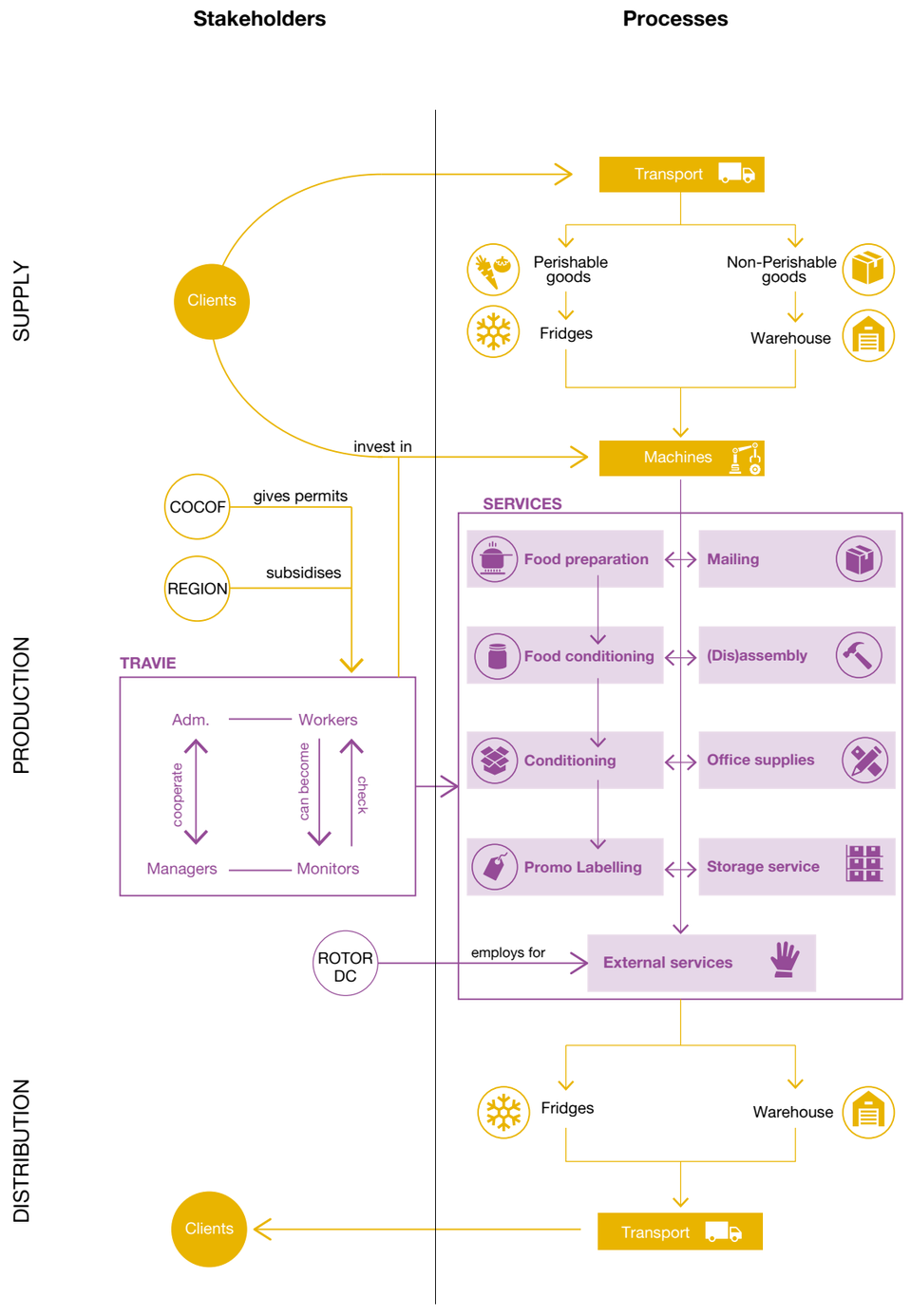
The second case study is Studio CityGate which brings together some 30 productive activities located in a 22,000 m² building owned by Citydev* and managed by Entrakt. The latter is a private company specialising in the management of temporary occupancies in vacant buildings. In the case of Studio CityGate, Citydev* provided the building free of charge in 2017 and Entrakt was charged with investing in slight renovation to allow its occupation until the start of the CityGate II project by the public authorities, estimated for 2022. In return, Entrakt collects rents from the occupants at a below market rate (around 5 €/m²).

The companies located in the building are new (around 2 years old) and in the start-up phase. For this reason, the low rent offered is very attractive, even if it comes with short-term presence and a minimum of infrastructural facilities. A wide range of productive activities take place here, from artist studios to blacksmith workshops; each unit employs an average of 1 to 3 high-skilled entrepreneurs for a space of 25 to 100 m² in general. The site also houses some activities not related to production, such as a climbing gym, café, skate park and an event venue.

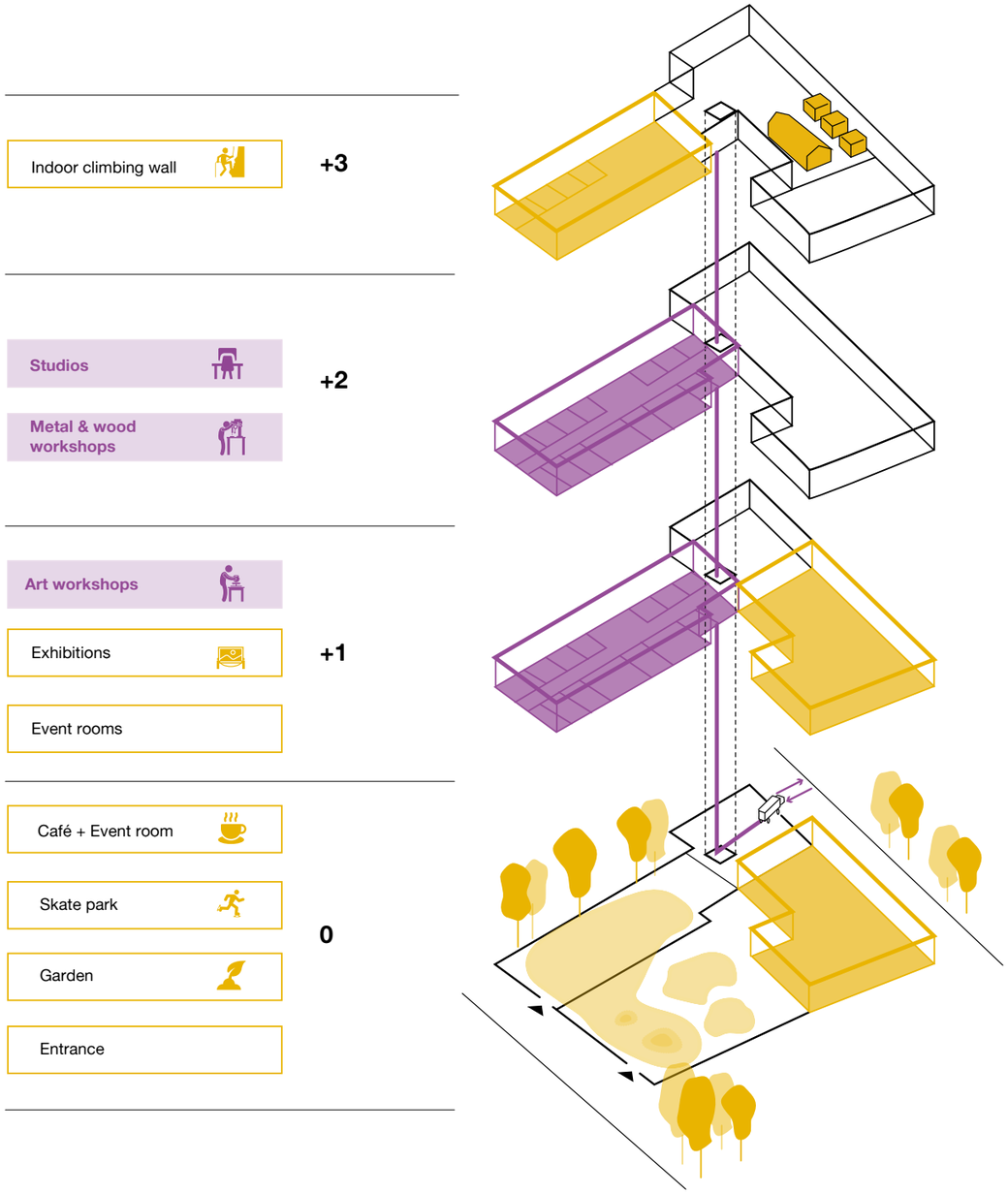
Left: Views from Travie.
Right: Views from Studio CityGate.



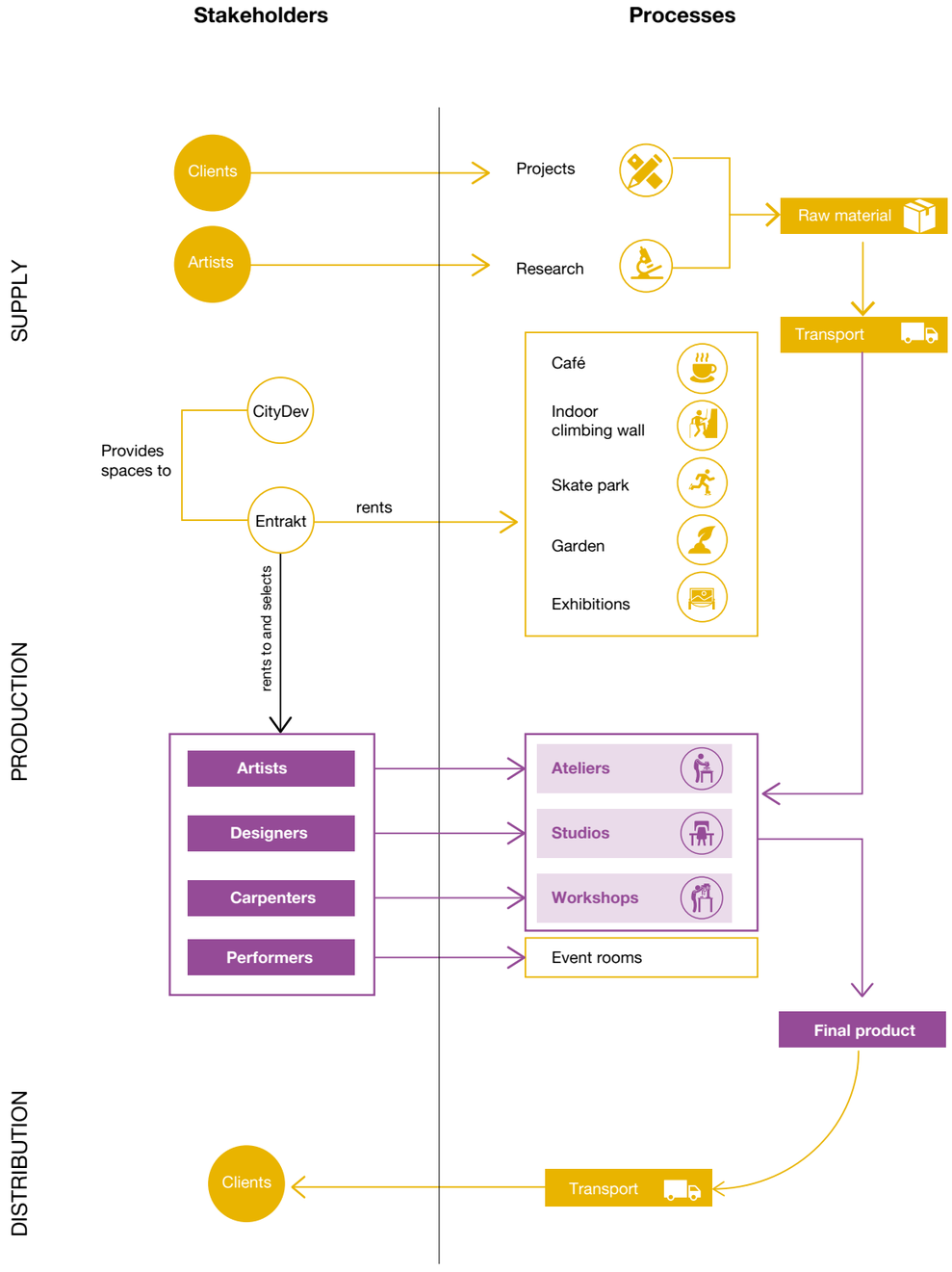
Spatial organisation Travie.



Business structure & Production line Travie



Spatial organisation
Studio CityGate



Business structure & Production unit
Studio CityGate

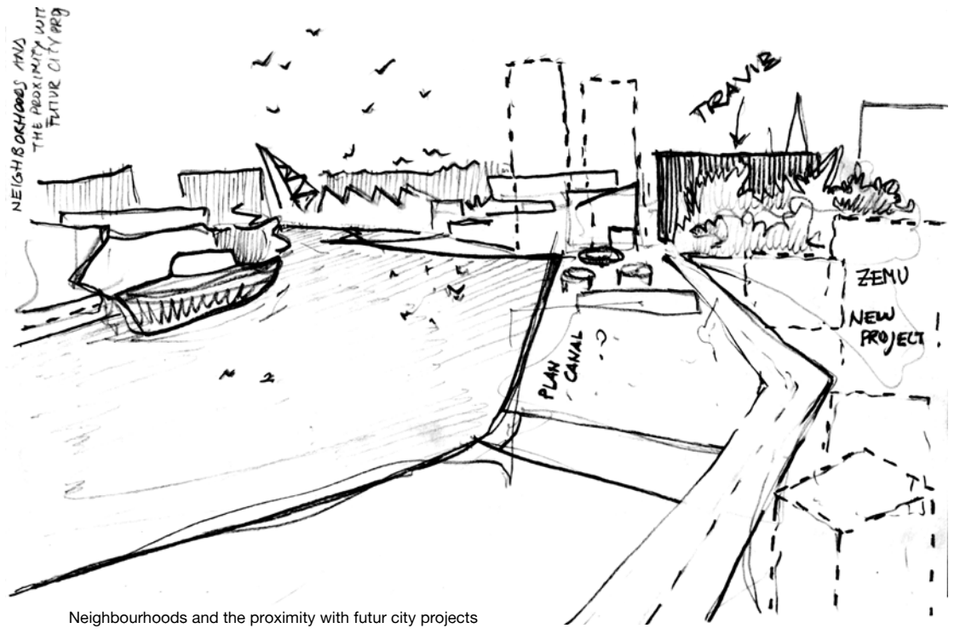
Patterns of integration into the urban environment

Biestebroeck was an area strictly dedicated to industry and logistics until 2013 when the zoning plan was shifted from urban industry zones – ZIU* to Enterprise Zones in an Urban Environment – ZEMU*. This change in land use has led to a rise in real estate prices in the area, and pressure on the current productive activities located there. As the owner of its production site, Travie is relatively protected against this phenomenon. Nevertheless, a project to redevelop the canal wharf threatens the company with expropriation of part of its site, which is essential for its logistics. If this happens, Travie will need an alternative logistics structure and an internal reorganisation of its production space, which already suffers from a division over several floors – or it will have to leave the site. Indeed, any site expansion and relocation in the area has become even more complicated with the ZEMU* and the real estate pressure.

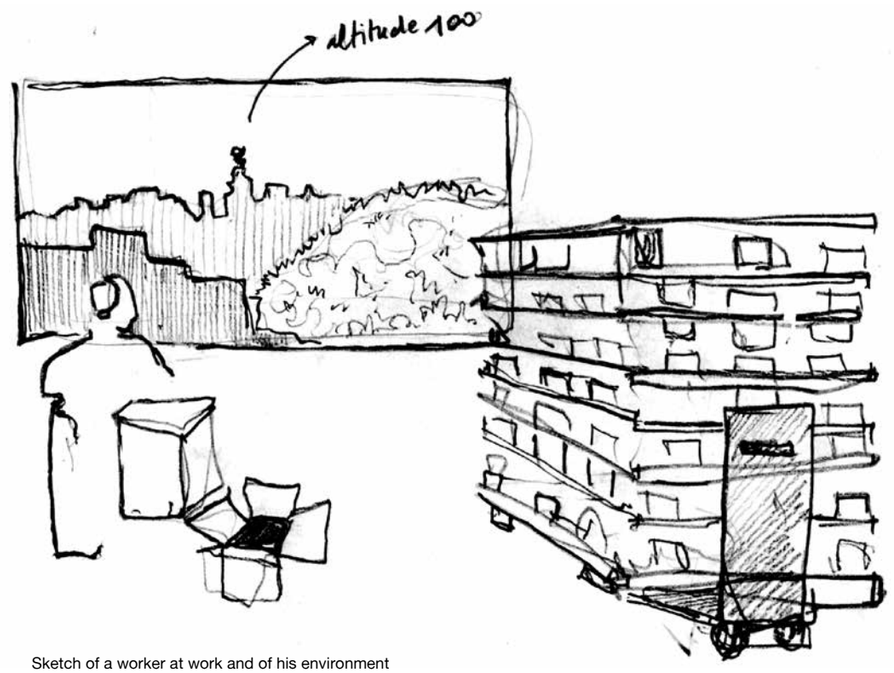
Travie's current location holds many advantages for the company. With respect to the mental handicaps of the workers, a reliable connection to public transport is essential to enable them to come both from Brussels (via the STIB*) and from outside (the Midi Station is 1500m away). On the other hand, easy access to the motorway via the Boulevard de l'Industrie is very important for supplies and deliveries, even if mobility congestion is a growing problem. Due to its large-scale production model, Travie is closed to the public but has recently started to build new interactions with its direct neighbourhood through some commercial partnerships (e.g. Rotor DC).

The situation of Studio CityGate is different: its mere existence is deeply linked to the changes taking place in the area. Indeed, the planned transformation allows the project to offer interim use of this vacant (and cheap) space. However, as soon as the public project developers start the transformation works, Studio CityGate will close and the companies will have to find another location that will not necessarily have the same advantages (cheap rent and proximity to the city centre and, less importantly, the motorway).

In addition, these companies are highly dependent on their local networks. As most of them do not have motor vehicles, proximity to suppliers and customers is a very valuable resource for their business. This integration into their environment also takes place at the building level. With common spaces and complementary skills, the companies have developed collaborations and partnerships among themselves, creating an internal community. In addition, the openness of the site to the outside through the services offered, the arrival of clients and organisation of events creates new links with the neighbourhood and the city, and at the same time adds a social dimension to the project.



Neighbourhoods and the proximity with futur city projects



Sketch of a worker at work and of his environment

Access time from Travie / Studio CityGate to

Ring 5 min
South Station 10 min

City centre 25 min
South Station 5 min

City centre 15 min
South Station 8 min

South Station 15 min
Public transport 5-15 min

Products Mobility

Mainly used by (Studio CityGate)

Mainly used by (Travie)

Also used by (Studio CityGate)

Analyses

In both cases, the city location is absolutely essential but under threat. Travie's workers need a good connection to public transport and the company depends on regional funding that would be lost if the company left the Brussels-Capital Region. However, there is a risk of expropriation, and growing mobility congestion is threatening its logistical, and therefore commercial, performance.
For the companies hosted in Studio CityGate, being within the city is a central element of their organisation and business model because of the way they operate and the local scale of their activity. However, due to the temporary nature of the project, their situation is bound to change and they will have to face the inevitable higher free market rents, which they may not be able to afford.

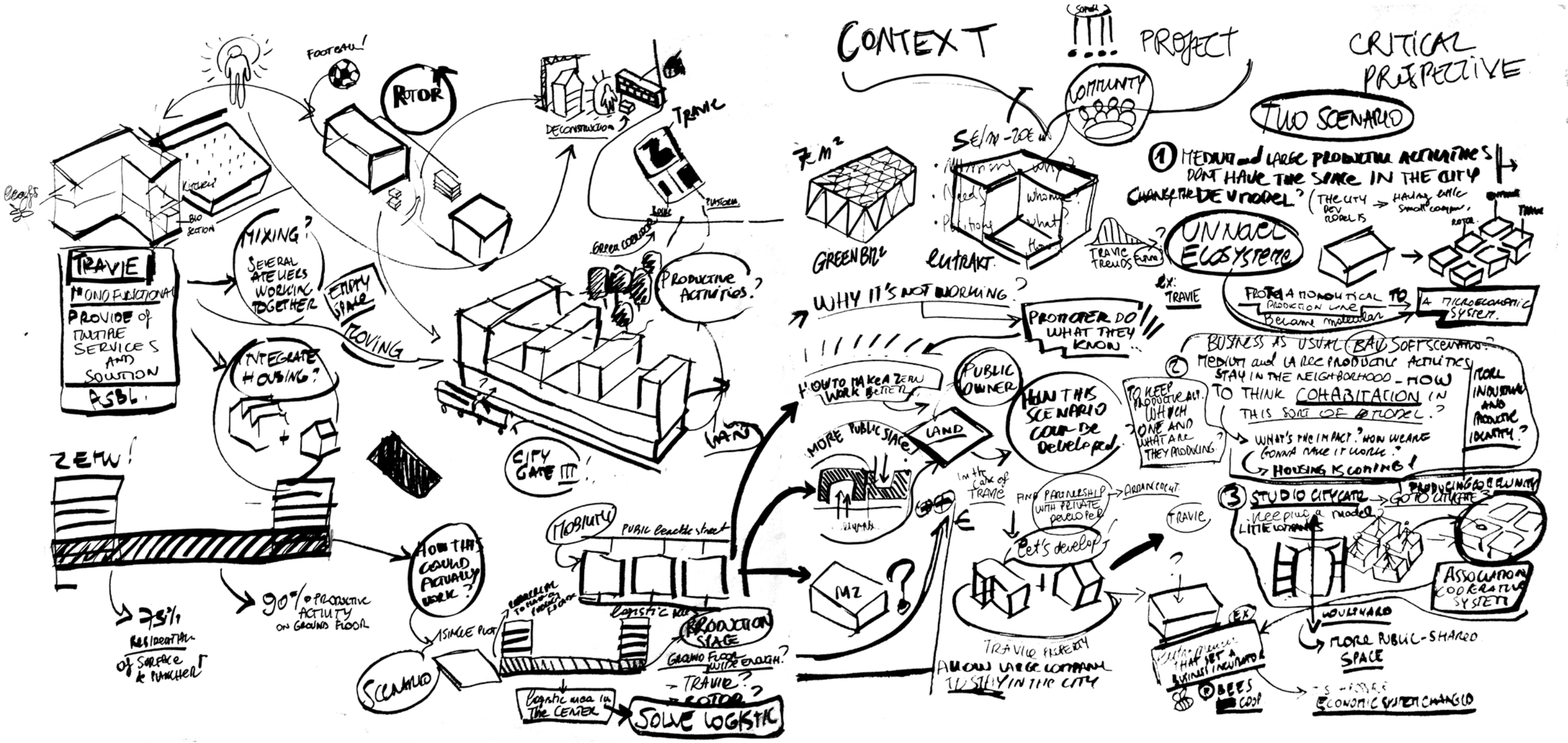
As regards the ZEMU*, the proposed changes in land use prescription are intended to reconcile two different problems. On the one hand, to respond to population growth and increasing demand for housing. Indeed, since 1996, the regional population has grown from 950,000 to 1,200,000 and all projections confirm this trend at a more or less significant rate. On the other hand, there is the question of responding to the demand of companies for space and thus ensuring jobs.
For this, the diversity of activities is essential to provide employment for each category of the population, from low-skilled jobs for people with mental disabilities to highly skilled jobs.

Here we are faced with a paradox: public authorities have a strong will to maintain productive activities in the Biestebroeck area but the current transformations fail to integrate the activities already present and even threaten them. This phenomenon is reinforced by the unclear definition of productive activity: in fact, in a broader interpretation, it can include immaterial production and commercial activities. On the basis of this definition, private real estate actors are not obliged to include productive activities such as those of Travie or Studio CityGate in their projects. Consequently, there is no guarantee to prevent them from disappearing.

The key challenge is thus to find a way to accommodate a diversity of functions (residential, commercial and productive) and a variety of company scales in a context of real estate pressure favouring the residential function. Indeed, economic logic tends to favour 'strong' functions and activities that can afford higher rents regardless of social and urban needs. By opening up the area to spatial competition with housing and commercial activities, the ZEMU* could lead to a complete elimination of industries instead of achieving a balanced mix. The public authorities must now take steps to achieve their two objectives: to create housing and to maintain production in the city.

	Travie	Studio CityGate
Land	(+) Availability of large industrial lots (-) Not always suitable spaces (-) Difficulty to expand horizontally	
	(+) Ownership of the land (protection against the real estate market and high rents) (-) Threat of space reduction (-) Policies promoting small, flexible production spaces	(+) Affordable / subsidised rents (+/-) Policies promoting small, flexible (temporary) production spaces
Supply and commercialisation	(+) Close to the motorway, the city centre	
	(+) Cooperation with other activities (-) Traffic congestion (-) Relative invisibility outside the sector (-) Land use planning to the disadvantage of heavy transport	(+) Stable supplier network (+) Niche market (local and "luxurious" products) (+) Cooperation between new activities (+) High visibility and marketing support from public and private stakeholders
Co-existence between functions in the neighbourhood	(-) Projects in favour of housing and the quality of public spaces	(+/-) Projects in favour of housing and the quality of public spaces (+) Facilities and services for the neighborhood

Comparative table of integration in the urban context



Sketching the spatial, functional and socio-economic interrelationships between the case studies and the challenges that arise from them.

Insights from a local stakeholder

3 Studio

The question of the atwill-lease is worrisome because it is becoming prevalent in Brussels. This way of producing the city transforms artisan-entrepreneurs into nomads who are supposed to be able to adapt to any urban condition. It's the caravan that moves from one place to another but never settles down.

Being forced to move every three to five years, we cannot establish a real economic path for our activities. These multiple occupancies perpetuate a system that installs us in precarity. The time it takes to settle in (organising the workshop, repainting, etc.), the time it takes to move out (removing the workshop, tools and machines), the time to revise our communication, inform our public and get used to a new place hampers the organisation of our professional activity: in the first location we had 60 m², in the next only 30m², in one place there was a ground floor, a lift or a loading dock, in the other nothing… Then we have to renew contact with the suppliers, our customers, the general public but also re-organise our mobility, how we travel to the workshop, etc. Each time this involves a budget and an enormous amount of work. We are never in the same place in the city and the public we gain in one place, we loose in the other.

When we started our economic activity, precarious occupancy was interesting because it can serve as an incubator or a test. At Studio CityGate, management is handled by the private firm Entrakt; over the past year they were largely absent as managers. The rent we pay covers both the space and rental charges, but for the past year we have had to manage on our own, keep the place open and communicate the events. All that has to be taken into account in the economic model tied to this precarity. The infrastructure does not help either: cold in the winter and the load-lift has been out of order for quite a while now.

It looks like the main concern for this occupancy is focused on renting it out and attracting the public there to make the space profitable during the period of the atwill-lease. But this does not ensure its occupants a lasting future for their young companies.

For example, the Studio CityGate occupants were not informed of the occupancy project at the Hangar du Kanaal. Yet many of us were looking for other places to move to in the neighbourhood. All the more so because the project aims to relocate the artisanal companies in a permanent site. You have to start from the idea that the wish to keep artisans in the city centre should not be based solely on economic interests but on a social and public interest. On this subject, the project for the artisans' neighbourhood in Pantin, near Paris, proposes something completely different that promotes settling of artisans in the city rather than keeping them in precarity.

In 2015, Anaïs, Kim Sa and Zaïneb co-founded 3 Studio, a workshop for artistic and crafts creation, specialised in contemporary bookbinding art, editorial graphics, leatherworking, boxes and paper design. They learned their trade at the ENSAV La Cambre in Brussels, in the workshops devoted to Graphic Communication and Typography and Book and Paper Design-bookbinding; their professional project gives new life to age-old bookbinding knowledge and techniques, under the prism of contemporary design. They set up their workshop two years ago at Studio CityGate where they have temporary occupancy of a space.

Transversal Insights

Transversal Insights

Siloé Bayot, Oriane Daugiera and Stefano Gariglio

In order to analyse the links between production in the city and the city's socio-spatial structure, we propose a transversal diagnostic based on the six companies presented earlier. This synthesis lays no claim to being either exhaustive or representative; it concerns only a small number of companies implanted in a limited area of Brussels' productive space. Furthermore, it is based on information that is partial and liable to be subjective as it is mainly based on the interviews conducted during and after visits to the six companies.

These businesses can be divided into two main categories: those that are isolated and those that are located in a business centre. We note that some of the case studies are part of what we could call subcategories of business centres. Studio CityGate, therefore, can be described as a cluster concentrating a close network of craft or creative businesses and art or cultural venues. On the other hand, Greenbizz is an incubator: its role is to accompany companies in their endeavours to accelerate their growth through resources and services such as physical space, coaching and network connections.

In the group of isolated companies, Stevens & Co and Océan Marée are profit-making companies that follow a classical economic model. Travie is an enterprise with social goals, meaning that is subsidised by public authorities (in this case COCOF*) for its mission to integrate disabled people into the job market. Other than this difference, the three companies share a historical (thus emotional) tie to their neighbourhood, which partially justifies their presence.

The other companies are located in business centres/incubators: No Science (at Greenbizz), Micro Factory (at Recy-K) and artisans/self-employed people in the crafts or artistic sector (at Studio CityGate). They share, as a common value, the importance of artisanal work and handmade production, in small series.

Figure 1 shows the main characteristics of the cases studied: legal status of the company in question, type of production, company size, number of workers, number of square meters occupied. Among these companies, whether they are isolated or located in a business centre, there is a wide divergency in terms of

Isolated

Stevens Recycling

Legal status: Private limited company
Production: Recycling
Workers: 20
Surface: 19,000 m²

950 m² / worker

Océan Marée

Legal status: Private limited company
Production: Fish
Workers: 43
Surface: 1.100 m²

25 m² / worker

Isolated with subsidies

TRAVIE – TRAVAIL ET VIE –

Legal status: Non-profit organisation
Production: Services
Workers: 405
Surface: 21,000 m²

50 m² / worker

Clusters with indirect subsidies

NO SCIENCE BRASSERIE

Legal status: Private limited company
Production: Beer
Workers: 1
Surface: 120 m²

120 m² / worker

micro factory

Legal status: Private limited company
Production: craftmanship
Workers: 60
Surface: 700 m²

22 m² / worker

STUDIO CITYGATE

Legal status: SMART
Production: craft / art
Workers: +/- 150
Surface: 22,000 m²

146 m² / worker

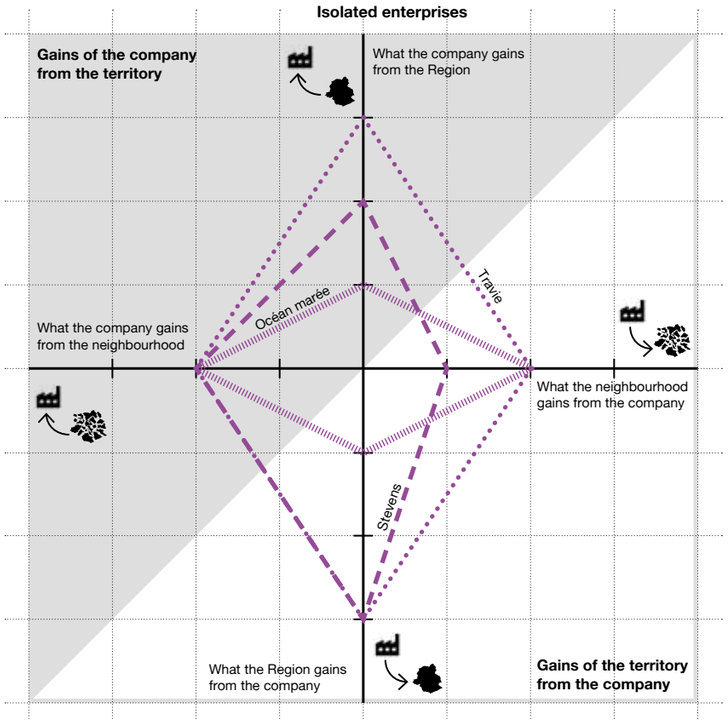
Figure 1: Case Studies

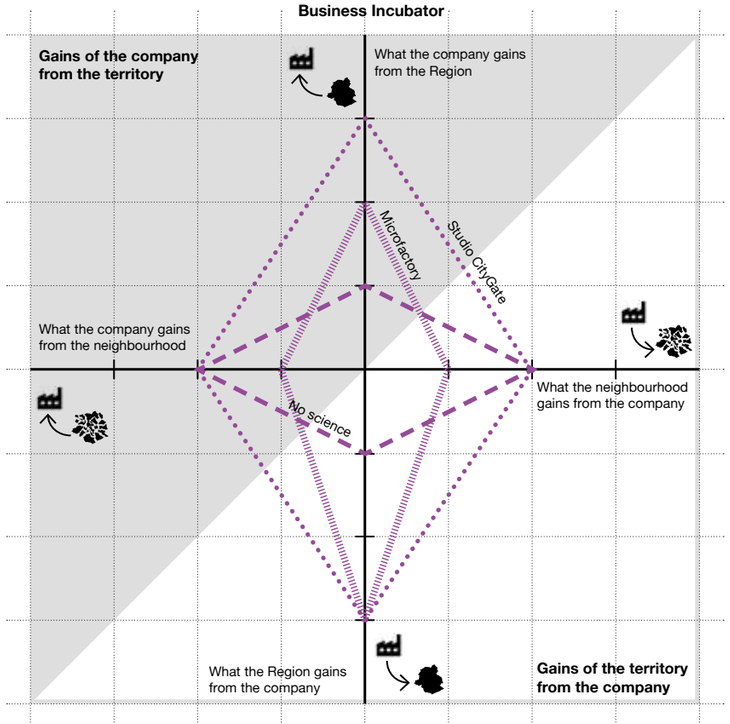
the surface occupied and the number of workers. Each company studied is virtually a case of its own: small surface with very few workers (No Science), large surface with a high number of workers (Travie), large surface with few workers (Stevens & Co), average-size surface with a relatively small number of workers (Micro Factory, Océan Marée) and lastly a large surface with a relatively small number of workers (Studio CityGate). This variety shows that there is not one sole business model based on their category (isolated vs. business centres) or geographical zone (Béco-Vergote, Cureghem, Biestebroeck). We should also note that the term 'workers' does not reflect the same reality: the people can be either 'typical' employees or else self-employed workers with various statuses (such as micro-entrepreneurs or artisans). Although not exhaustive, these case studies help us understand the general dynamics of production in Brussels.

Comparison of the various business centres

		Greenbizz	Recy-K	Studio CityGate
Access condition	Price (€/m²)	7	4,5	5
	Characteristic	Committee selection held by the region	Circular economy	/
Internal functioning	Owner	Citydev	Bruxelles-Propreté	Citydev
	Management	Public	Parapublic	Private
	Services provided by the centre	Meeting rooms and common room	Extra short-term renting space	Common spaces
	Spatial arrangement	Split between services and production units	Fragmented spaces	Open space
Cooperation / conflicts within the centre	Relation between companies	Cooperation between some companies	Complementarity between some companies	Cooperation and mutual support
	Relation between the case study and the centre	Limited	Discussion	Disagreements

Figure 2: Production in business centres





Figures 3 and 4: Links between the productive activities and the socio-spatial structure of the city

Figure 2 provides more details on the business centres. These entities propose rents lower than the market price, without any specific constraints to respect. They also share two similar features: they are privately managed and provide common spaces for the companies located on the site. In contrast, however, they differ in terms of the building layout, which leads to different degrees of cooperation among the companies in the centre. Lastly, from an organisational point of view, the relationship between the companies and the business centre are not as close or significant as expected. In the three cases studies, there is little relationship between the business centre and the company concerned.

Integration with the Brussels-Capital Region and the neighbourhood

Thanks to the information gathered during our different interviews, we were able to produce a summary diagram by combining the answers to two separate questions:

1. ‘What do the companies gain by being installed in the city in general, and more specifically in this neighbourhood?’
2. ‘What do the city, in general, and the specific territory gain by hosting these companies?’

The diagram was designed based on each company’s position along two orthogonal axes, each, in turn, divided into two. The vertical axis refers to the ‘city in general’, in our case the Brussels-Capital Region. The upper segment concerns possible gains for a company that installs itself in the Region, while the lower segment concerns possible gains for the Region that hosts the company on its territory. The horizontal axis refers to the neighbourhood where each company is located. The left segment concerns possible benefits for the company that locates in the neighbourhood, while its righthand segment concerns possible advantages for the neighbourhood hosting the company. Each segment of the axis is divided into three levels, making it possible to position each company or territory in terms of the importance of the gains (low, average, high) derived from the mutual relationship. For instance, Travie derives a high gain from its location in the Brussels-Capital Region, but average for its location in Biestebroeck, whereas the neighbourhood has an average gain from Travie’s presence, but for the Region there is a considerable advantage.

This diagram thus illustrates the relationship between the socio-spatial structure of the city and production in the city. As such the relationship with the Brussels-Capital Region (and its institutions) differs widely from one company to another. For No Science, the importance of being installed in the Region and the gain it brings to the Region is less than for the others. In contrast, Travie is highly integrated into the Region (the company could not exist without the regional subsidies), at the same time as it is important to the Region through its contribution to social integration objectives for disabled people. Likewise, without depending completely on regional subsidies like Travie, Studio CityGate and Micro Factory gain from their location in the Brussels-Capital Region, in virtue of rents that are below market price, as the owner in both cases is a regional administration. On the other side, Stevens brings more to the Region than what it gains itself. Indeed

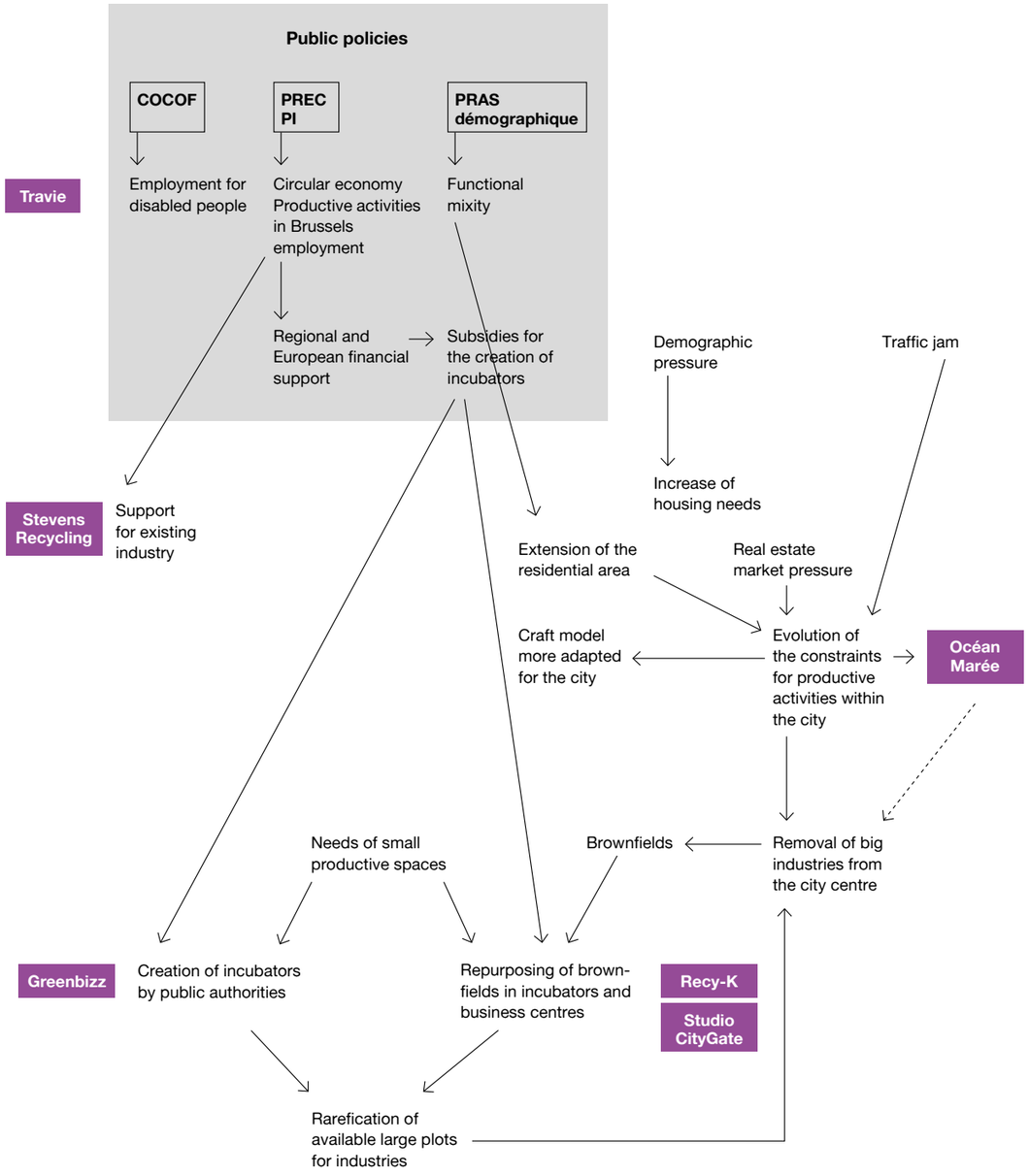


Figure 5: Links between public policies and the productive activities

the company provides a significant contribution to metal recycling in the Region, whilst deriving no benefit from being installed specifically in the region's territory. The graphic also shows that the integration of the isolated companies is stronger at the regional level than it is in their neighbourhoods. In fact, the companies' location choices are more linked to the need to be installed in the Brussels-Capital Region than more specifically to be in one of the three territories. This is nevertheless mitigated by the clear wish to be located along the Brussels-Charleroi Canal, either because of transport (Stevens) or to take advantage of a low-skilled workforce found nearby (Travie, Océan Marée). For the companies located in a centre, integration with the territory is even weaker. They nevertheless contribute to a new dynamic in the neighbourhoods concerned, by proposing new work areas (Micro Factory) or cultural space (Studio CityGate).

The objective of this final diagram (Fig. 5) is to summarise the processes that foster the presence of certain productive activities in the city and the way that public policies affect these processes. In the Brussels-Capital Region, the many public actors involved with productive activities do not all place priority on the same types of activity. This leads to the companies (whether isolated or in business centres) adopting different strategies. For example, although Stevens and the three companies established in the business centres are involved in the circular economy promoted by the Regional Programme in Circular Economy – PREC*, only the latter three receive subsidies and/or rent lower than market price.

The public authorities' preference for business centres has several origins. Until present, they have considered that the crafts model was best adapted to the urban context. Furthermore, evoking the demographic pressure experienced by Brussels, they authorised construction of new housing in areas that were hitherto reserved for industries, at the same time as they allowed business centres to occupy these buildings. The fact that the public authorities place priority on building small production spaces, especially along the centre model, is also linked to the city's reality. Indeed, apparently most companies are presently interested in spaces ranging from 100 to 500 m². In the face of these changes, the isolated companies adopt a range of adaptation strategies, for example as shown by Océan Marée's purchase by a Dutch company and its specialisation in the sale of seafood and fish to the Brussels high-end HORECA sector.

Production of the city

Presentation of the project sites

Geoffrey Grulois, Romina Cornejo Escudero and Pauline Varloteaux

The second week of the MasterClass was spent studying and developing projects that will be implemented in places destined to host productive activities[1]. This second week of work was built on the knowledge about productive activities gained during the first week.

Conversion of the former 'Ferme des Boues'

Located between the quai de Willebroeck and the quai des Péniches, just behind the future Kanal Museum, the former Ferme des Boues is a complex of buildings, built between the mid-19th and the mid-20th centuries to process waste; it is owned by the City of Brussels. The site is now used by the city's cleaning service to park its lorries. Given the site's strategic position along the Canal and the presence of a major transport artery, the MasterClass examined the question of opening the site up to other (productive) activities in a context of gentrification and real estate pressure (with luxury housing being built around the Béco basin of the Canal). It also looked into the area's post-industrial transition towards residential use and leisure.

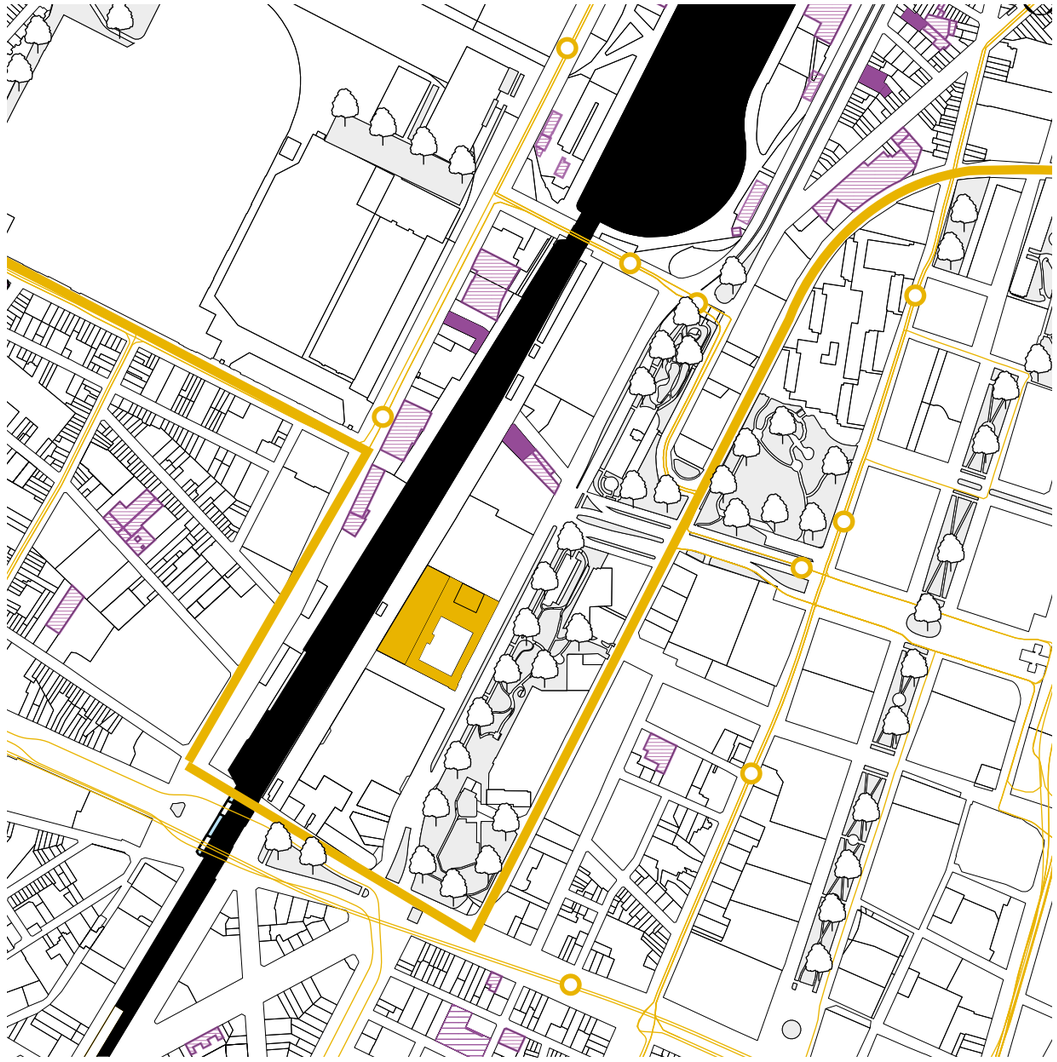
Conversion of the D'Ieteren lot on the chaussée de Mons

Since World War II, the automobile importer D'Ieteren has occupied a large lot covering the area between the chaussée de Mons and rue Heyvaert. Now that the D'Ieteren showroom and workshops are being relocated to a new building on boulevard Industriel, 25,000m² will be freed up for productive activities. In order to start the site's conversion operations, D'Ieteren Immo has launched the Circularium, a project that will make 10,000m² available to innovative businesses active in the circular economy. The MasterClass studied the conversion of the D'Ieteren site, including the back of the lot, through which the future Sennette park will run.

CityGate III rue Prévinaire, in Anderlecht

The site is currently occupied by businesses, but it will be demolished and rebuilt in 2021 in order to host new productive spaces along with facilities and housing. The project, called CityGate III, follows two other Citydev projects, CityGate I and II. Together, these three projects demonstrate that public authorities in Brussels are investing in this underprivileged former industrial neighbourhood. The MasterClass looked into the conversion of the CityGate III site, as well as the economic activities that Citydev has planned for it.

1. It should be noted that the MasterClass took place early 2020, and that the projects studied may have evolved since then, whether in their design or development phase. The data indicated in the texts and works of this section therefore date from this period and may have changed in the meantime.



Legend

- Productive activities
- Logistic & Wholesale
- Canal
- Green areas
- Ferme des Boues
- Public transport
- Perimeter

0 250 500 m

Source: Urbis, MobiGIS

Site 1: Ferme des Boues

Béco – Vergote area

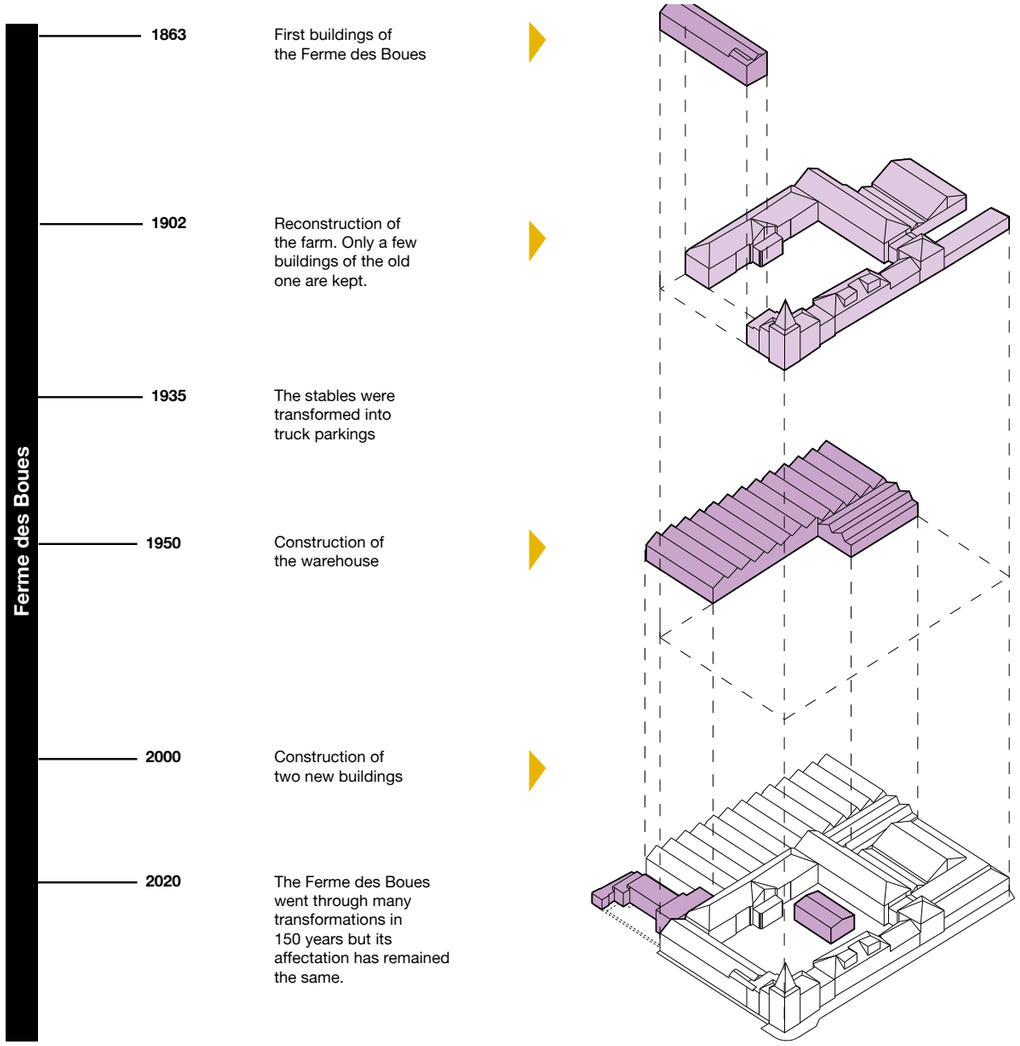
Alexandre Bossard
Cosimo Campani
Oriane Daugieras
Pauline Delperdange
Alexis Gilbart
Klarissa Pica
Joe Bou Sleiman
Louise Carlier (tutor)
Pauline Varloteaux (tutor)

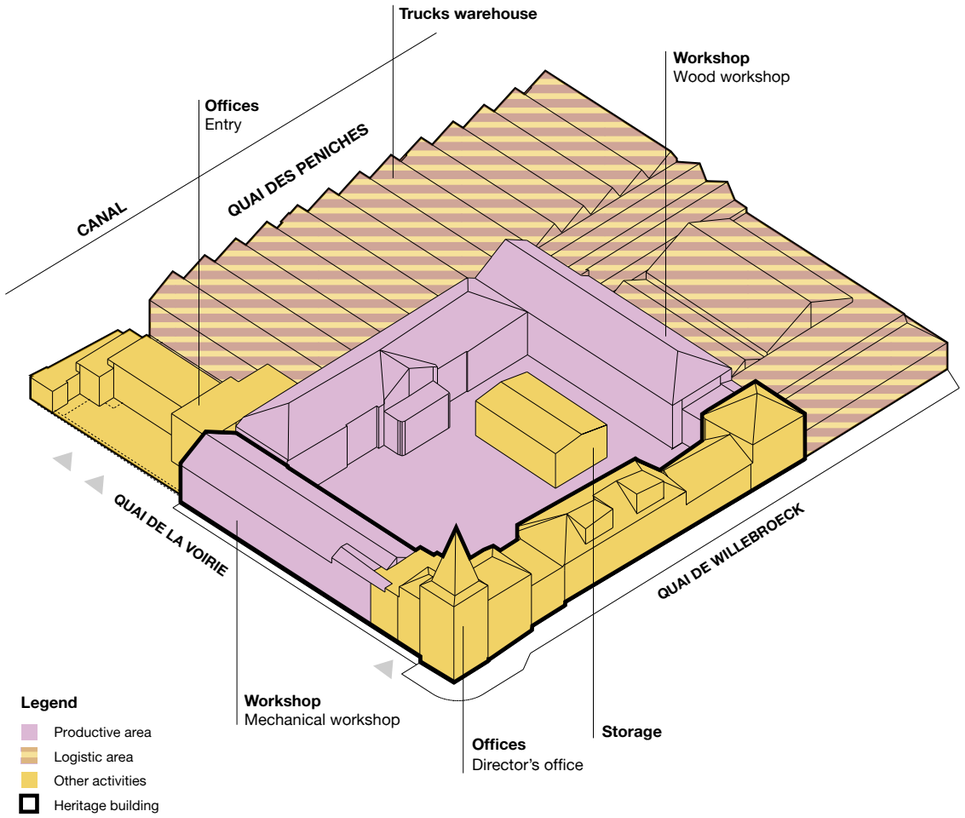
A heritage logistics site

The Ferme des Boues is currently a productive space owned by the city of Brussels. This site has significant historical value and is classified as part of the city's architectural heritage. It is composed of various buildings of different times, the first dating from 1864. Currently the whole space stands out clearly from the more recent surrounding buildings. The name, 'Ferme des Boues' comes from the function of the building. It was constructed for waste collection, mainly organic at the time, which was collected using horses before being transferred to this site for loading on boats. In French, the term 'éboueur' ('boue' = mud) is still used to define garbage collectors.

It is interesting to note that this site which, at the time of building, was located outside the city and served a function considered as undesirable, has a very elaborate architecture. The desire to make an undesirable and productive function acceptable by enclosing it in a building with high aesthetic qualities seems clear to us and can also be observed in current projects, such as the Greenbizz building. An astonishing fact about the Ferme is that its use has remained pretty much the same to this day. After 150 years it is still being used by the cleaning and technical services of the city of Brussels; around 400 mainly low-skilled workers are employed there. However, the work has changed considerably over time: the horses have been replaced by lorries, and waste is no longer transferred to boats. The fact that this activity has endured makes it one of the last production or logistical buildings in the area. Although the function has remained similar despite these changes, the neighbourhood, in turn, has changed significantly. Although it was marked by a strong presence of this type of activity at the beginning of the past century, up to now we have observed a clear reduction of the area devoted to production. Current users of the site, however, express their willingness to leave the Ferme due to several constraints. This one-hectare site is becoming too small for parking lorries and for the workshops located there. Plus that, the heritage protection of the site also prevents any modification of its structure. The objective is also to centralise all the technical services of the city of Brussels in order to rationalise the workshops (wood, metal, etc.) and avoid unnecessary travel. A move to the TACT site, ideally two hectares, is planned. Lastly, we see that the surrounding buildings are changing. A museum is being set up in the Citroën complex, high-end buildings are under construction north of the Ferme des Boues (Canal Wharf), and the Maximilian park is the subject of several projects (reopening of the Senne river for example). It is therefore essential to think about the future cohabitation between the site studied and the new functions of the neighbourhood, already in place or planned.

This photograph represents the Ferme des Boues, listed as a Brussels heritage, seen from the Quai de la Voirie. On the right is the Citroën building, built in 1934, and in the background we can see the social housing buildings.





Conceptual reading of:
The spatial distribution of social groups
The programmatic distribution
The gentrification process

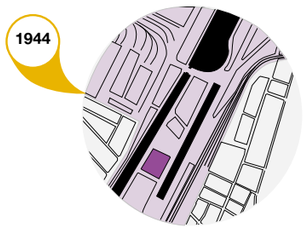
The building is currently used as a parking lot for the city's technical vehicles and also includes carpentry and metalworking workshops. Offices are also present in the "Maison du Directeur", the part of the building at the corner between the Quai de la Voirie and the Quai Willebroeck. Vehicles enter the warehouses from the Quai de la Voirie. North of the Ferme des Boues, a complex of buildings, called Canal Wharf and mainly dedicated to luxury accommodation, is under construction.

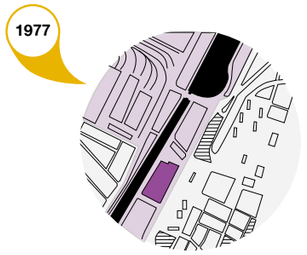
A fast changing and complex context

Our desire to imagine the future of the Ferme des Boues as a building fully integrated into its urban context encourages us to take a closer look at the site's surroundings. We see that, other than some productive activities further north along the canal, the functions present in the district are mainly housing, services and equipment. Given that the district has historically been marked by the presence of productive and logistical functions, it seems important to us to preserve this type of activity. However, we must also take into account the current reality of the neighbourhood and imagine a space that interacts with the neighbourhood's new functions. The transformation that the neighbourhood is undergoing includes the gentrification of certain spaces. It is particularly visible along the canal, in the form of a push coming from the south. Given its location at the edge of the canal, the Ferme des Boues appears as an 'enclave' in one of these areas where gentrification is especially visible. However, we can more likely speak of gentrification bubbles in a landscape still largely dominated by a precarious population and marked by many social issues linked to unemployment, to the occupation of the Maximilian park by transmigrants and to informal work. The last phenomena, for example can be seen in waste collection, often carried out by undeclared workers. Two different worlds coexist: one of a better-off population who arrived in the neighbourhood following the waves of gentrification and one of a population socially excluded and ignored by public policies. There is very little communication between these different groups, and this cohabitation is mainly a source of tension.

Regarding the future of this district, strategic, regulatory and operational planning tools are available. The main goals of these plans are sustainable development, including the principle of circular economy, social cohesion, diversity and economic development. The city's Urban Renovation Contracts – CRU*, for example, plans to develop the Maximilian park and network it with the other surrounding green spaces. On the Ferme des Boues site, the construction of a new building with 10,000 m² of housing as well as productive and commercial activities is planned through the Regional Plan for Sustainable Development – PRDD*. It would replace the warehouse sheds, which are not protected as heritage buildings. However, our analysis and the concepts put forward by the other planological tools, provide grounds to question this vision. By gathering all the keywords that emerged from our analysis, we see that a programming more in line with the issues of the neighbourhood, the currently visible dynamics, the immediate environment of the Ferme des Boues and the history of the site itself could be more relevant.

Context





Importance of logistics in the district (canals, train). Dominance of historical working class housing

1934
Construction of the Citroën industrial complex

1945-1950
Disappearance of the Willebroeck canal

1950-1960
Landscaping of the Maximilian park. Building of the warehouses on the Ferme des Boues site.

1970
Begining of the realisation of the Manhattan project. Demolition of a part of the historical housing and creation of office towers

1985 – 2000
Construction of new office towers in the South-East of the Quartier Nord.

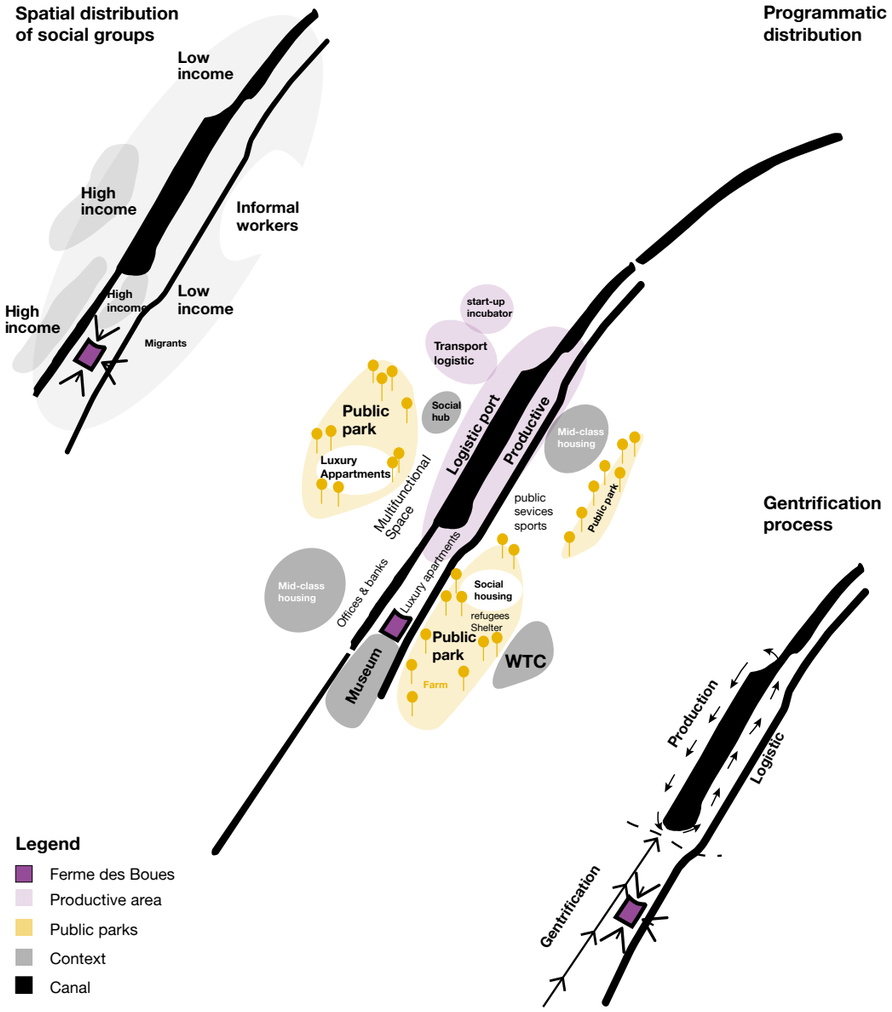
Working class housing
Willebroeck rail tracks
Willebroeck canal
Development of the business district
Manhattan project
Citroën complex

Legend

- Ferme des boues
- Productive area
- New green areas
- Canal

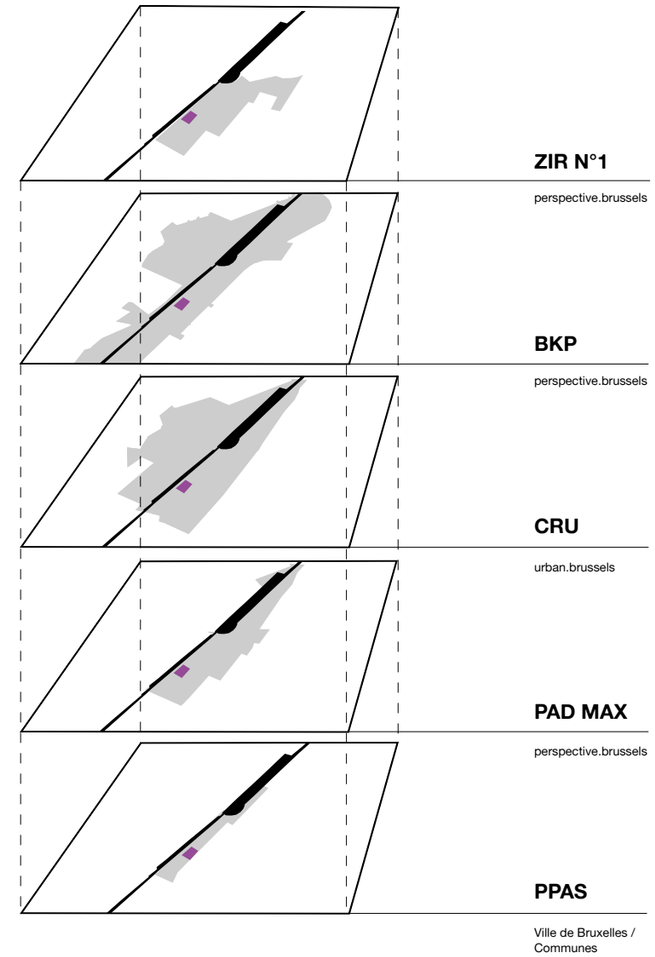
Source: Bruciel

The functions present in the district are mainly dedicated to housing, services and public facilities. The surroundings are marked by many social problems and a precarious population despite the presence of a few wealthier "bubbles". We see that this population is settling along the canal, who is a gentrification vector, as well as on the former brownfield site of Tour & Taxis.



Schematic representation showing the overlapping of the different regulatory and strategic planning and renovation tools in the area.

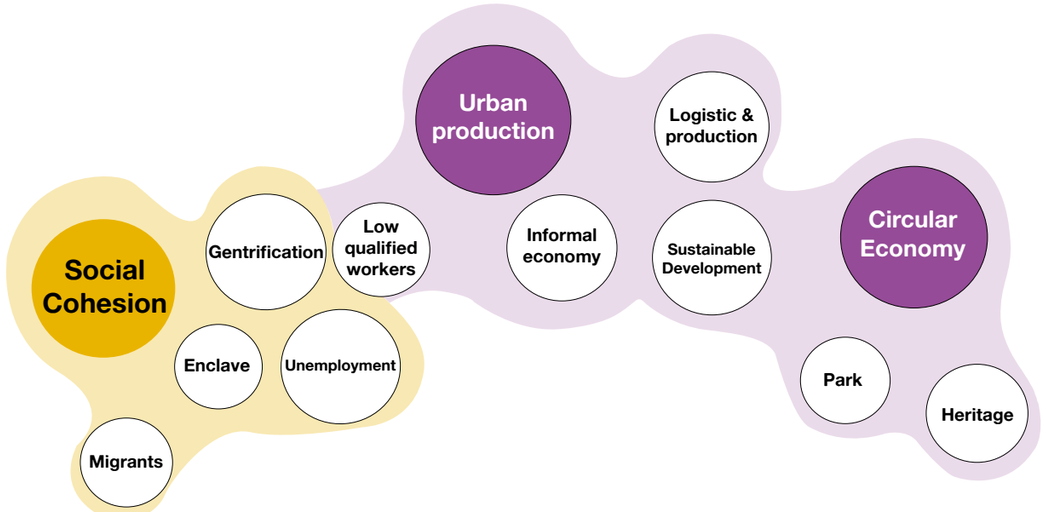
Planning & renovation tools



The modular productive space will be created next to the canal. The canal side will probably attract more and more people these next year and it could be an opportunity for interaction between productive activities and citizens.The interior courtyard is, by its morphology, a protective space, more intimate, and lends itself perfectly to a space that can house marginalised populations.

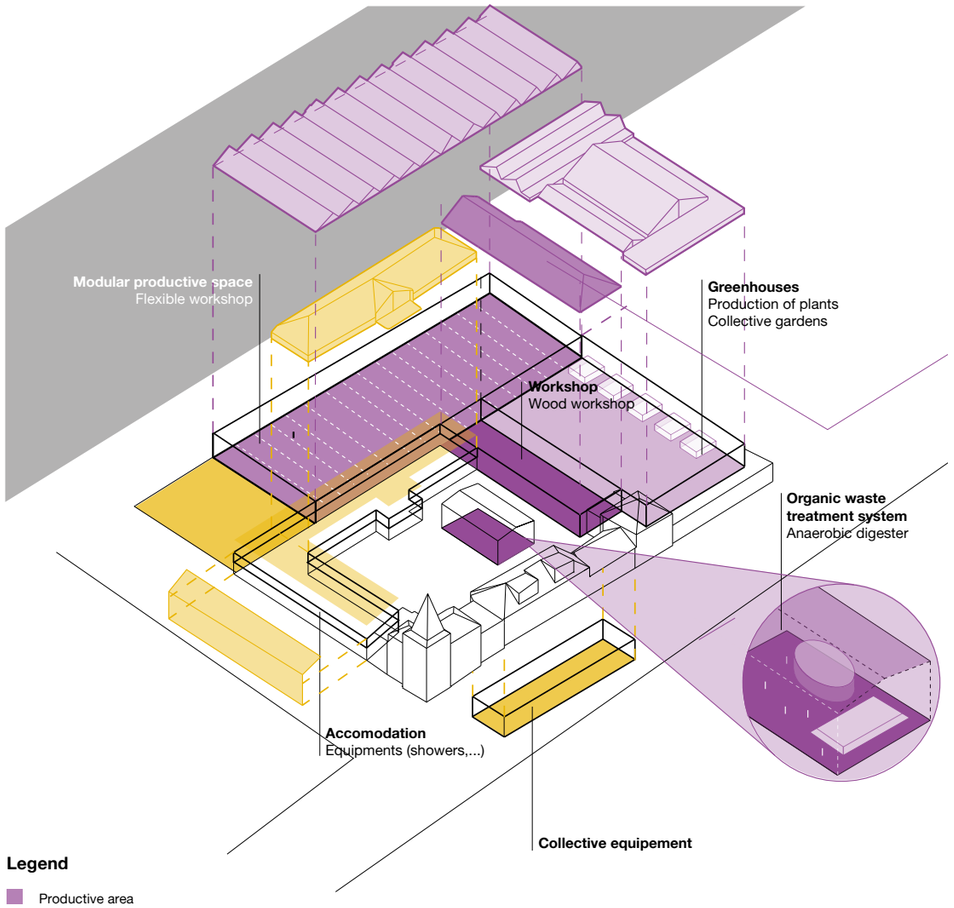
An integrated and integrative project

Following our analysis and given the historical importance of the Ferme des Boues, we have come to the conclusion that keeping the buildings as they are today is of great interest to the neighbourhood. In addition to the parts classified as heritage which are therefore of undeniable historical interest, the warehouse sheds are the last vestiges of the area's logistical and productive past. The social question is essential when one is interested in the context of the Ferme des Boues. It is therefore essential to integrate into our project collective equipment and emergency housing for local population excluded from previous projects and public policies (transmigrants, unemployed, etc.). This site is equipped with basic services, such as accommodation, showers, etc. The planned development of the Maximilian park and the surrounding green spaces encouraged us to integrate this question into our project. Park maintenance services will require spaces close to the park. In addition, the function of the Ferme des Boues that has remained unchanged for over 150 years must be kept in mind. For these reasons, we imagine the installation of an anaerobic digester and an organic waste treatment system. We also return to the roots of the Ferme des Boues while integrating it into the evolution of the neighbourhood. This project would also formalise the work of waste collection in the Masui district by providing declared and more stable jobs. With a view to circularity and reduced transport, we are also planning to establish a greenhouse that would use the compost produced and could serve to produce plants for the park and future collective gardens. This equipment must also be thought out in relation to social problems. It can play an educational role for the local population and for the current employees of green spaces, in providing a site to study the new forms of park management, circular and promoting biodiversity. Maintenance of the park furniture is also necessary. For this reason, we plan to keep the wood and metal workshops. Like the greenhouse and the composting system, these workshops should be open to the local population, with the idea of including them in the process and enabling them to develop skills. Lastly, the canal-side warehouse shed is planned as a very modular space that can accommodate containers serving as productive spaces. The idea is to lay the groundwork for the emergence of a space like Greenbizz but even more flexible. This system requires the addition of technical systems (electricity, water, etc.) dispersed in the warehouse shed and most allow future companies to assemble, divide and stack containers so as to create ideal workspaces for their activities. These spaces will be open to the whole population by a rent proportional to income, allowing both the better-off in gentrified areas and those less advantaged to launch an activity. Finally, to make this project realistic and to integrate the population as much as possible, we have identified a certain number of actors, often associative, already active in the themes that we propose.



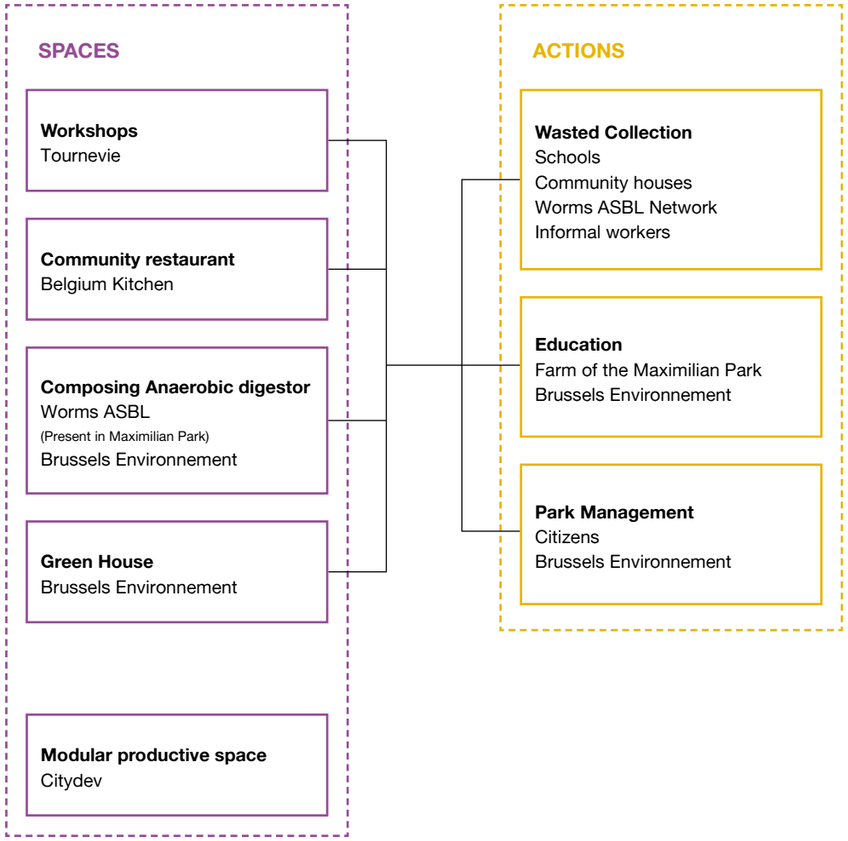
The integration and connection of the Ferme des Boues with its context is at the heart of our project. Our goal is to integrate the main problems of the neighbourhood and allow different populations to interact.
The circularity and complementarity between the different functions present in the building is also part of our project. For example, the workshops serve both to maintain the park, to educate the population and to support the productive activities.

Project proposal



Legend

Productive area



The modular productive space will be created next to the canal. The canal side will probably attract more and more people these next year and it could be an opportunity for interaction between productive activities and citizens.The interior courtyard is, by its morphology, a protective space, more intimate, and lends itself perfectly to a space that can house marginalised populations.

Many actors are already working on Brussels on the themes we have discussed. The interest of favoring organisations from civil society is to allow the opening of this space to the population and its appropriation. For example, we think that integrating the population into the park management process (bringing organic waste, buying plants produced in the greenhouse, etc.) will improve the quality and life of this green space.

Legend

- Productive activities
- Logistic & Wholesale
- Railway right-of-way
- Canal
- Green areas
- D'Ieteren
- Public transport
- Perimeter

0 250 500 m

Source: Urbis, MobiGIS

Site 2: Circularium

Cureghem area

Siloë Bayot
Zoran Caruso
Andrea Fantin
Eugénie Laharotte
Céline Liénart
Raquel Santos
Marco Ranzato (tutor)
Corentin Sanchez Trenado (tutor)

Project

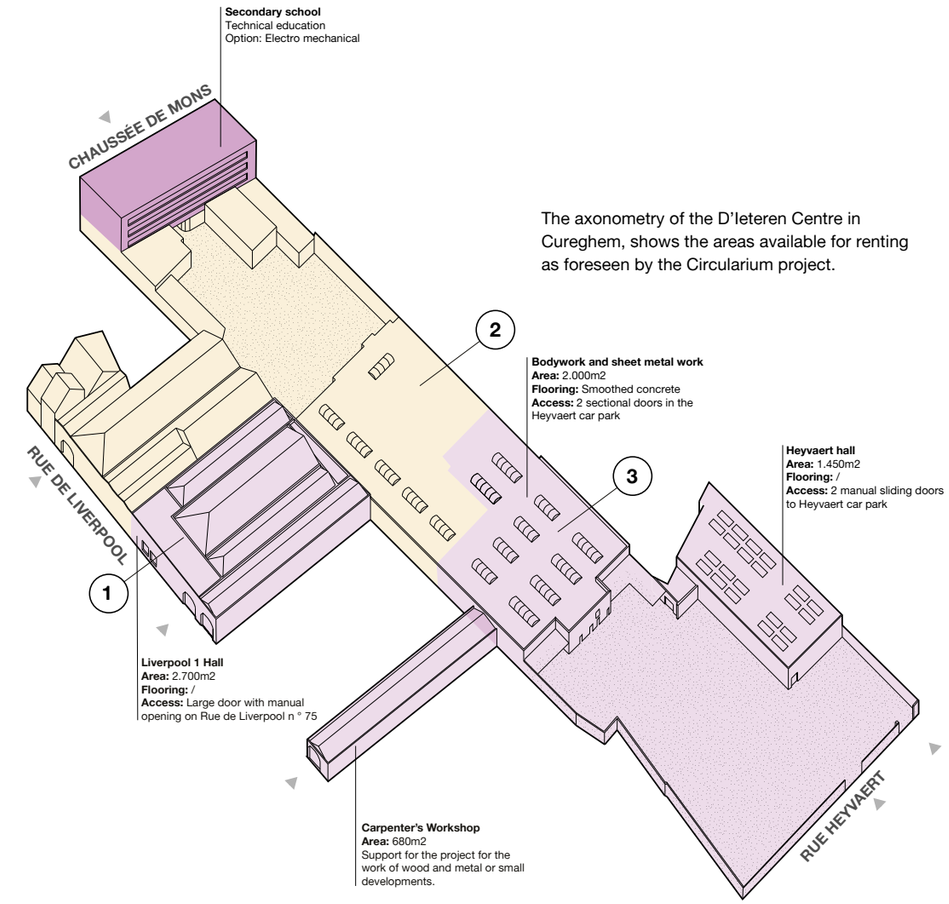
The D'Ieteren group is an automobile business located in Cureghem since 1805. D'Ieteren started out in the work of wheelwright and manufacturer of wheels (1800) and later moved on to car assembling (1900). For many years the business has imported and distributed motor vehicles across Belgium, along with spare parts and accessories. It also sells used vehicles and provides after sales services, maintenance and repair, and tyre replacement (D'Ieteren, 2020).

Following changes in the car sector, the group plans to relocate its business progressively. The complete relocation of the activity is planned by 2023.

In Cureghem, the group presently has maintained only the sales activities site while the automobile distribution is provided only in the new location. As a result, large spaces that were used for car storage are now empty. However, in order to maintain production on the site in Cureghem, D'Ieteren recently decided to test the implementation of new activities through a temporary 5-year occupation for external businesses. The new project of temporary occupation is called Circularium. The Circularium Project is a private initiative based on an incubator model such as the nearby Recy-K project managed by Bruxelles Propreté*.

Towards the end of 2019, the group launched a call to identify the operator. The steering committee in charge of finding a manager for the site is composed by 3 members of D'Ieteren, a communication officer and 51N4E, the architectural firm responsible for organising the space. The temporary occupation is foreseen to start in summer 2020.

According to the company's business plan, the future occupants will pay a monthly or annual rent to the steering committee and D'Ieteren, depending on the square meters required. Flexibility is one of the strengths of the project: periods of occupation can be a minimum of six months and, thanks to space availability, the renters can easily extend their space over time. Overall, five different spaces are available for rent. They range in size from 680 to 5,250 m^2. These spaces are still going through the application process while the upper storeys of the building facing the chaussée de Mons have already found new occupants: an electronic/mechanical secondary school.

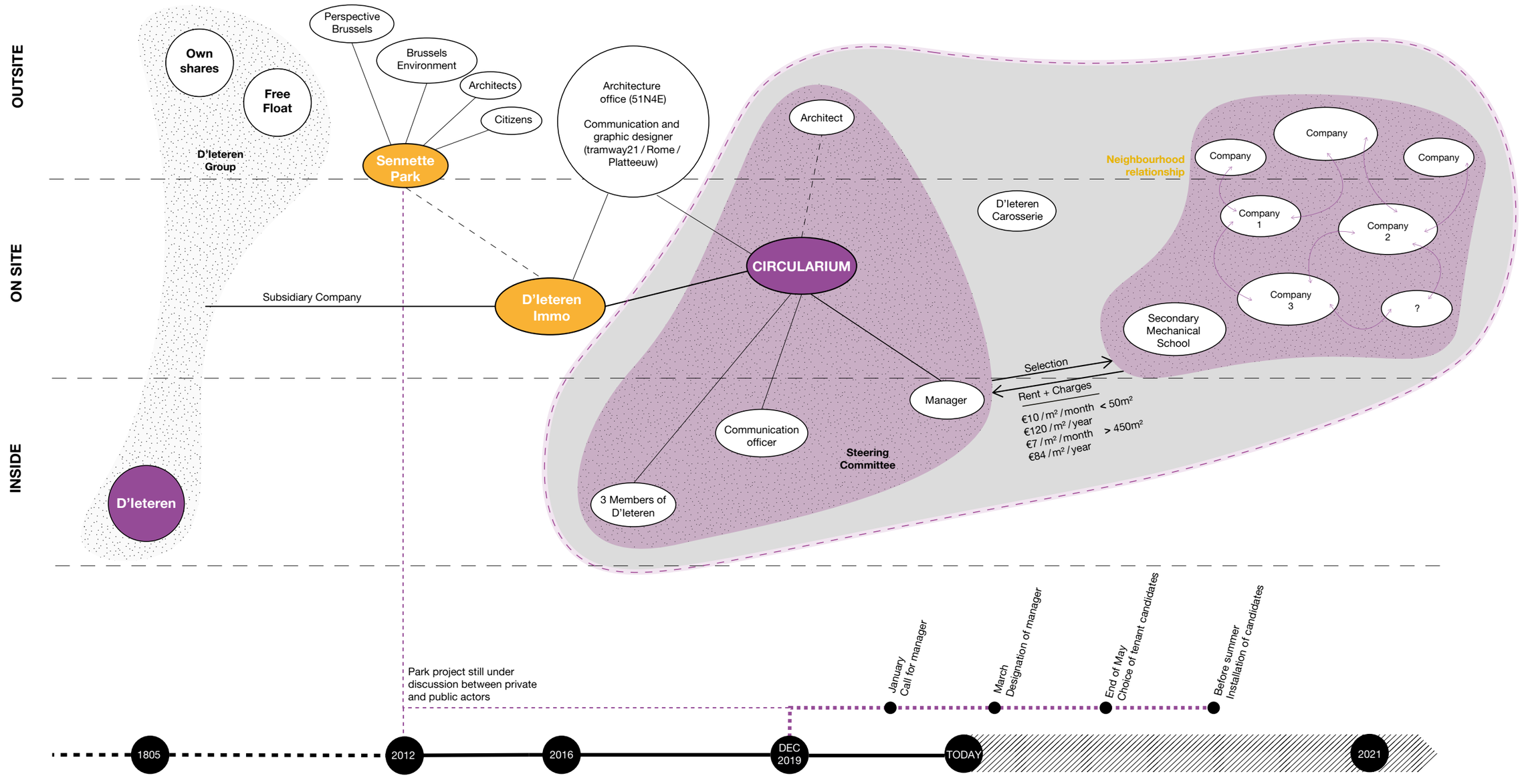


The axonometry of the D'Ieteren Centre in Cureghem, shows the areas available for renting as foreseen by the Circularium project.

1

2

3



Organisational chart of the Circularium and position of the project in relation to the promoter D'Ieteren, the transformation policies in Cureghem and the other main actors involved.

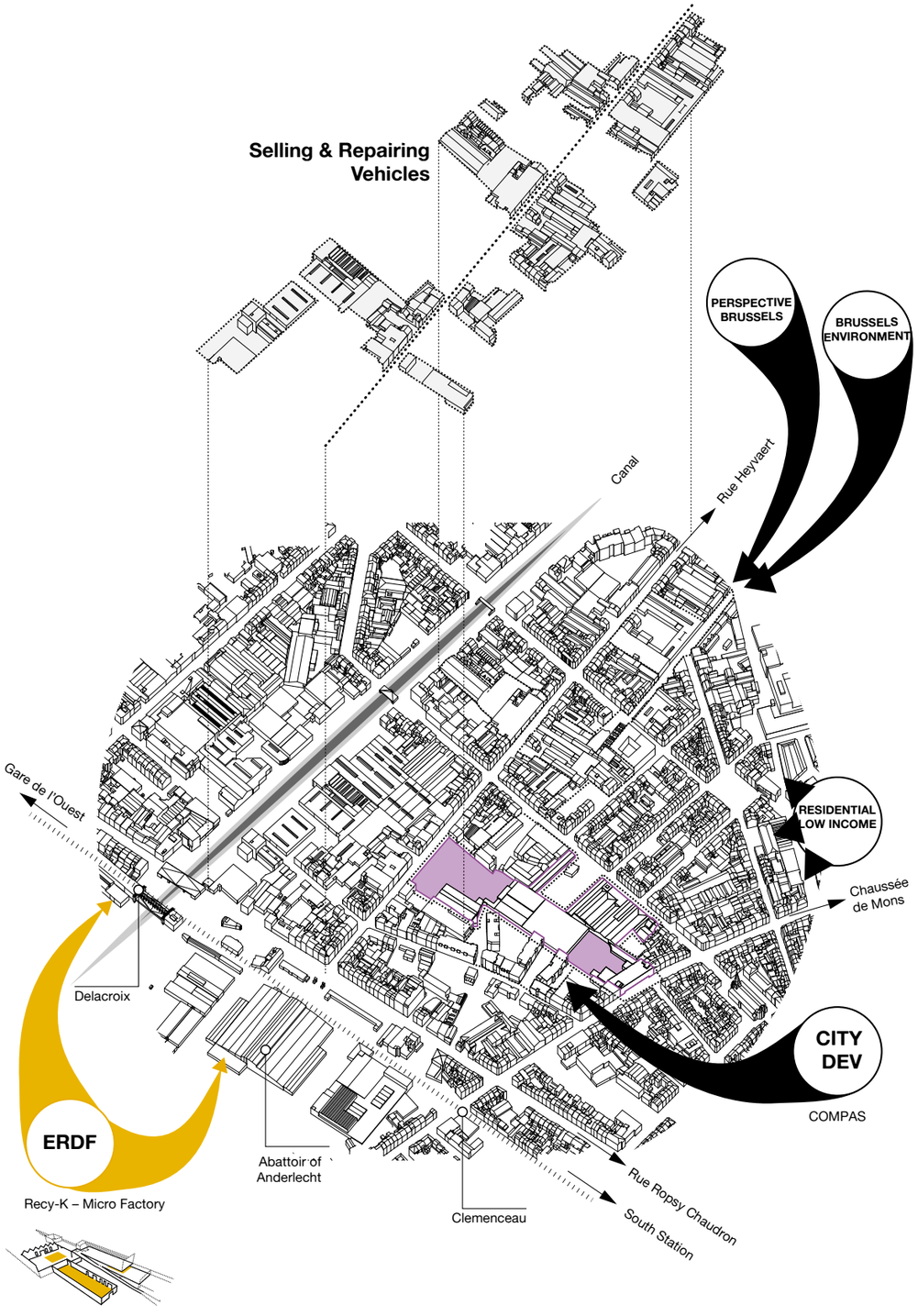
Context

Located in the Heyvaert neighbourhood, in Cureghem, between the West Station, the Midi Station and the Brussels-Charleroi Canal, the D'Ieteren site is very close to the city centre.

The business is strategically located at the heart of the two main Cureghem activities: the meat sector near the Abattoir site and the car sector (selling, repairing, shipping), concentrated along rue Heyvaert and rue de Liverpool. In its proximity, other lots are used for the second-hand car business. As known, the used car sector employs formal as well as informal workers with a low technical education level, largely present in the neighbourhood. However, both the meat and car sectors are in decline and regional urban policies themselves do not always seem to favour the two activities. This can also be deduced from the orientations that the different regional institutions have regarding this area. Perspective.brussels* focuses on the development of more public spaces, housing and productive activities altogether. In the area near D'Ieteren, Citydev* plans to develop housing and it does not invest much in implementing productive activities because it considers traffic congestion as a serious problem. Bruxelles Environnement* is working to implement circular economy strategies, especially green spaces, such as the linear Sennette park. The latter project in particular has a large number of implications as it provides for expropriation of land behind the garages, essential spaces for storage of used cars. As a result, the car traders are trying to get into the game and in a way become real estate developers of their own property, whose future destination would be mainly residential.

D'Ieteren moves in the opposite direction. D'Ieteren Immo, the firm of the D'Ieteren group that is the site landowner, wants to retain governance of the site and preserve the buildings with productive activities. D'Ieteren therefore has a more wait-and-see approach. It is instead looking at temporary occupation in order to respond to the needs of the 'producers' who are seeking low rents and easily accessible and flexible spaces.

From the situation described above, a number of frictions emerge between the different actors in terms of their needs and goals. They revolve around four main issues: preserving productive activities in the central neighbourhoods of Brussels, bringing new housing, enhancing mobility and, finally, expanding and valorising public land. For example, in the case of D'Ieteren, Citydev* is not in favour of preserving productive activities on the site and is pushing for new housing to be developed. On its side, D'Ieteren intends to maintain productive activities only. Manufacturing activities need good accessibility but traffic jams in the area is a sensitive and unresolved matter. Finally, regarding public land, D'Ieteren wants to maintain its private property, but this conflicts with the project for the linear park promoted by Bruxelles Environnement*.



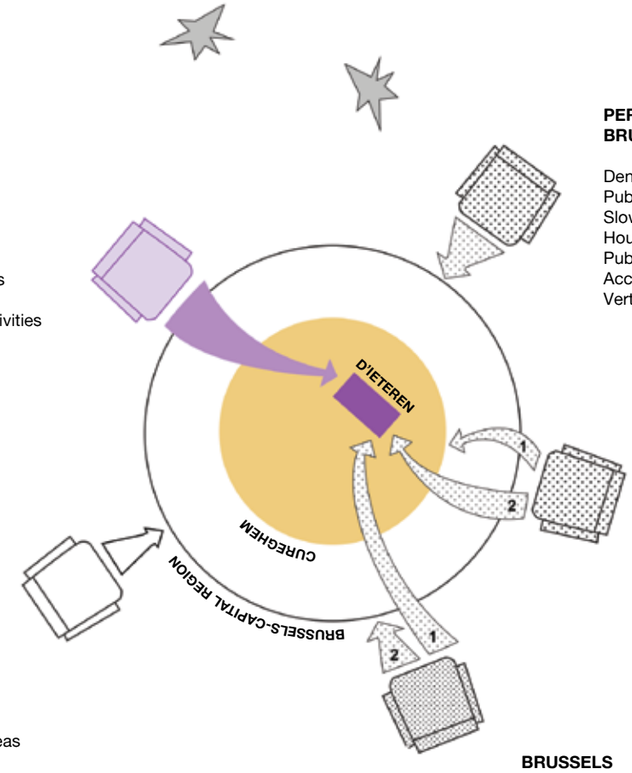
The D'Ieteren site in its urban context.

D'IETEREN

Standing landowner
Preserving the buildings
Profit oriented
Keeping productive activities

PERSPECTIVE BRUSSELS

Density
Public space
Slow mobility
Housing
Public facilities
Access to the canal
Vertical mixity



CITYDEV

1. Developing housing
2. No productive activitivies due to important traffic jam

MANUFACTURING COMPANIES

Low rent
Storage and logistic areas
Good accessibility

BRUSSELS ENVIRONMENT

1. Green spaces (Parc de la Sennette)
2. Circular economy

Owner

Public Authorities

Frictions

Differing needs of the owner, public authorities and private companies at three scale levels (the plot, the neighbourhood and the Region).

Critical perspective

A question arises from the analysis of the frictions. Is it really possible to have urban production in Cureghem?

Considering the existing conditions such as the presence of large plots, low-skilled jobs demand and offer and the proximity to the city centre, production activity should remain. Nevertheless, the changes foreseen for the neighbourhood require adaptations to urban production to find the common ground among the different actors.

A table has been drawn up that matches frictions at the social, spatial and economic levels in order to obtain different scenarios for the Circularium, each based on different governance structures (private, public/private, public).

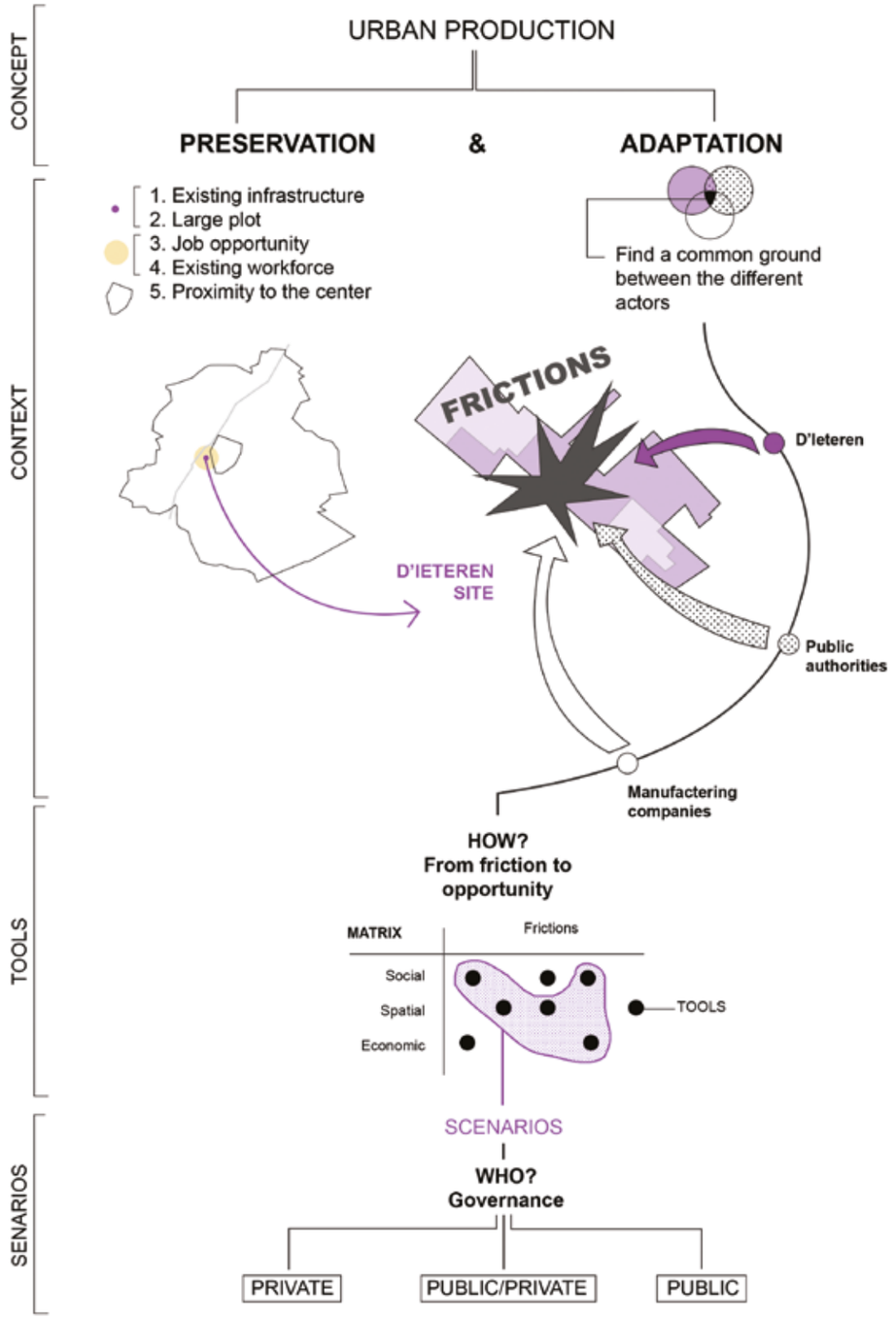
Here is an example of how the matrix works:
(Figure pp.194-195)

— In the city centre, because Cureghem has residents with low technical education level. A technical hub providing training courses at different levels could be implemented in order to share space and knowledge.

— Housing + Economic: In order to have productive activities and housing, a local production system should be introduced where production as far as possible is circular and connected to the local residents.

— Mobility + Economic: In order to have productive activities and mobility, slow mobility should be developed in order to reduce the use of cars in the neighbourhood and, therefore, allow a more fluid traffic for industries.

— Public Land + Spatial: In order to have productive activities and public land, negotiation should occur between private and public stakeholders.



The move from potential frictions only to a common ground requires a balance between maintenance of urban production and its adaptation to the changes forthcoming

Issues of productive activities

Levels

City center neighborhoods | Housing | Mobility | Public land

Social

Shared Knowledge
Shared Space
Technical Training Hub

Workers
Diversity in qualification
Housing
Social Housing
Workers
Social & Cultural Diversity

Public Health
OUT
Sustainable Transport
Polution Decrease

Vertical Diversity

Spatial

Preserve Productive Buildings

Housing
↑ Levels
Industrial Level 0
Functional Diversity

Housing
Neighborhood Proximity to Local Production

Negotiate
Private
Public
Negotiation with Private Stakeholders for Public Use

Economic

Sector 1 New
Sector 2 Existing
Sector 3 New
Diversity in Industrial Sectors

Housing
Buy
IN
Material
Sell
OUT
Produce
Local Production System

IN
OUT
€
Development of Slow Mobility

€
Private
Public
Investment on Private Land for Public Use

Possible Scenario

Legend

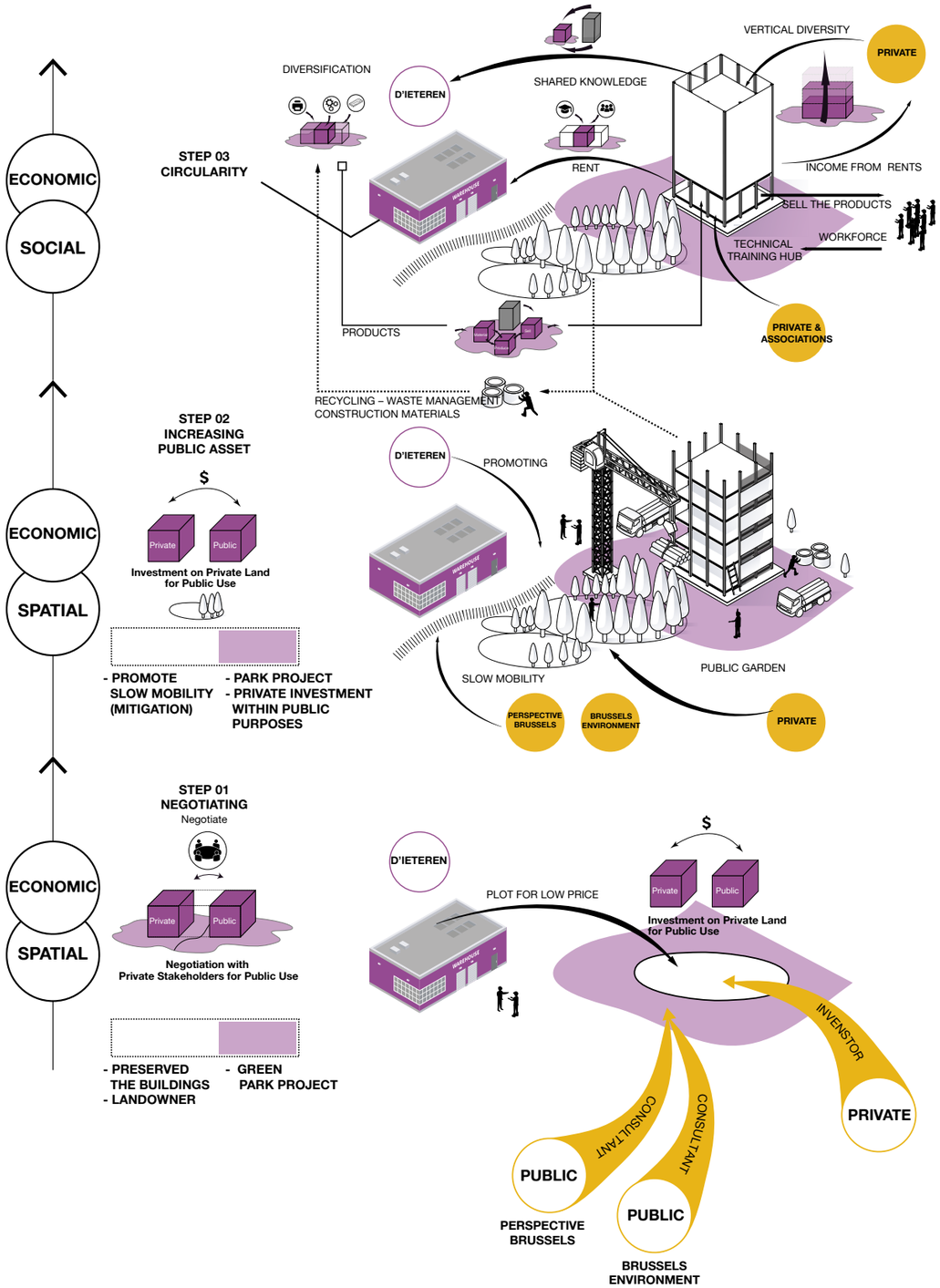
Productive Activity Building
Housing
Productive Activity Land

Private Space

Public Private Space

Public Space

The matrix and a possible trajectory for development.



Scenario Public-Private Partnership
(D'Ieteren remains completely private).

Scenario 'Private Governance'

The Private Governance Scenario (see Private Public Partnership, Figure page 196) foresees developing a strong relationship between public and private actors. The mutual collaboration is a strategy that supports the stakeholders' different needs: preserving ownership on one side and enhancing the public space on the other side. Accordingly, the steps are as follows:

— Step 1: Negotiation
D'Ieteren welcomes new investments inside its property, selling part of its plot at a low price to new private and local stakeholders supported by public authorities. The mutual collaboration between public and private spheres cuts public costs and supports new economic / productive development for less money. Furthermore, D'Ieteren preserves the ownership of the site.

— Step 2: Increasing Public Assets
The mutual collaboration is based on the following procedure: private developers purchase part of the plot from D'Ieteren and, in exchange, they undertake to promote public facilities at the ground floors and build the green public spaces demanded by the public authorities, Perspectives.brussels* and Bruxelles Environnement*. Meanwhile, public authorities initiate a series of actions to implement slow mobility.

— Step 3: Circularity
Synergies in terms of circularity take place. Productive diversity enables all materials to be recycled by differentiating production and other activities (City Centre Neighbourhoods + Economic). Functional diversity at the various building floors is encouraged, with the Circularium at the ground level and housing on the rest of the floors (Housing + Social). The technical training hub is implemented to promote shared knowledge (City Centre Neighbourhoods + Social). Production is integrated in the local community by live exchange of products and waste that becomes productive again (Housing + Economic). Vertical diversity is developed with workers living close to the production sites (Public Land + Social).

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D'Ieteren (2020). The D'Ieteren Group.
https://www.ieterengroup.com/

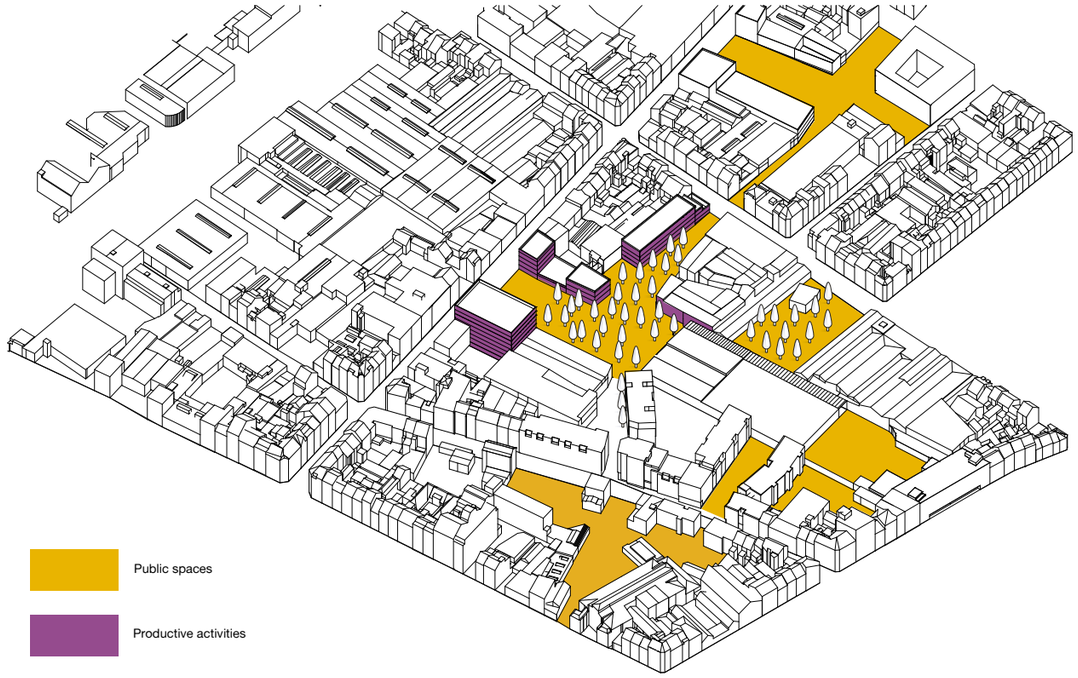


Figure 8. The D'Ieteren site as it might look under the Public-Private Partnership scenario.

Insights from a local stakeholder

Greet Mertens and Caroline Wautier — D'Ieteren Immo

We maintain quite a few activities in the city, whether they involve sales or productive activities. Looking towards the future, our hypothesis is that productive activities will move outside the city, due to lack of space, lack of permits, but also because it is hard for deliveries to enter the city (especially for the lorries).

Companies thus find it hard to be profitable in the city. On the other hand, having activities in the city helps us remain close to the demand (the city is a major consumer). Further, people come to us because they are looking for this proximity to the consumers.

The authorities, especially with respect to land-use planning, have long-term objectives and they organise things that occasionally no longer make sense in some neighbourhoods. On the other hand, we also have the support of some public authorities, such as the Hub agency, which help us keep jobs in the city. The city plays a regulating role which, in the long-term, takes shape in land-use planning and in the short-term through assistance to help us remain in the city.

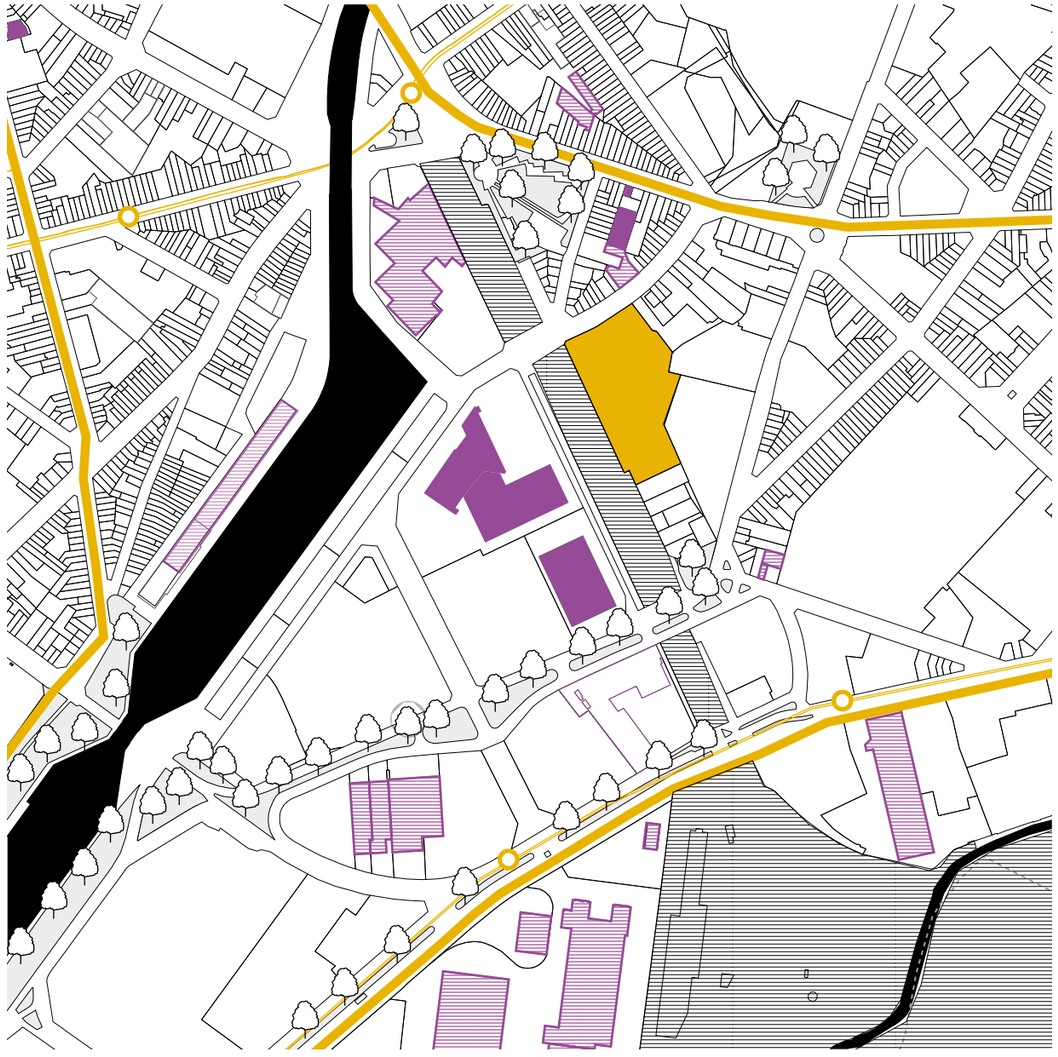
In the short term, the Circularium project aims to maintain productive activity on our Brussels site, but also develop circularity and flexibility in order to integrate it in the neighbourhood, taking into account all the site's constraints. We think that this type of large site can be interesting for actors in production – whether they are looking for large or small spaces – because there really is a market demand. Therefore we launched this call for projects, first to managers, then to applicants. The enthusiasm we encountered reassures us in the idea that we are on the right track, that there still is a future for production in the city and, more particularly, on this site.

Basically, the bodywork and sheet metal activity was first located in the city and then moved just outside Brussels. Automobile sales and the shop have remained at the D'Ieteren site in Brussels. The place freed by the bodywork activities was used to install the Circularium project and test the site's potentials. This also spared the need to demolish and rebuild the whole site.

A city only works well when the population can live, work and consume there. If it manages to build micro-neighbourhoods where people can get all this done, then the city will be successful. These days, people are being encouraged to move back to the city, at the same time as the job are moving out. We will thus have this permanent back and forth between the city and the periphery for work. So there is an interest in being involved in the city.

The collaboration with Metrolab enables us to have new visions, new ways to approach things; it helps us view the site with sufficient distance. The questions raised make it possible to envisage the issues at stake from new angles. As owners of the site, it is interesting to be in contact with other actors involved in the site (authorities for example). This helps resituate each one's point of view.

Caroline Wautier and Greet Martens have degrees in architecture. At D'Ieteren Immo, they are respectively project manager and head architect. D'Ieteren Immo is a real estate company, a branch of the D'Ieteren Group, set up in 2016 in the aim to diversify the group's activities both in and outside Brussels.



Legend

- Productive activities
- Logistic & Wholesale
- Canal
- Public green areas
- Case study: CityGate III
- Public transport
- Study area perimeter

0 250 500 m

Source: Brussels UrbIS®© – Distribution
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Site 3: CityGate III

Biestebroeck area

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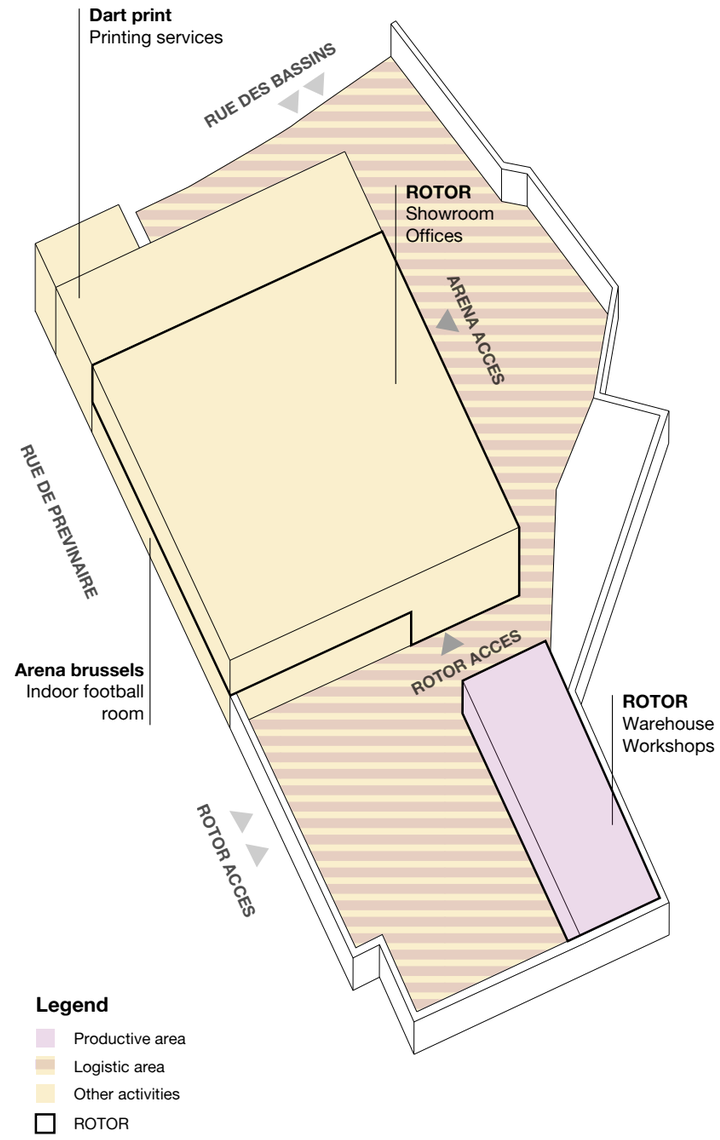
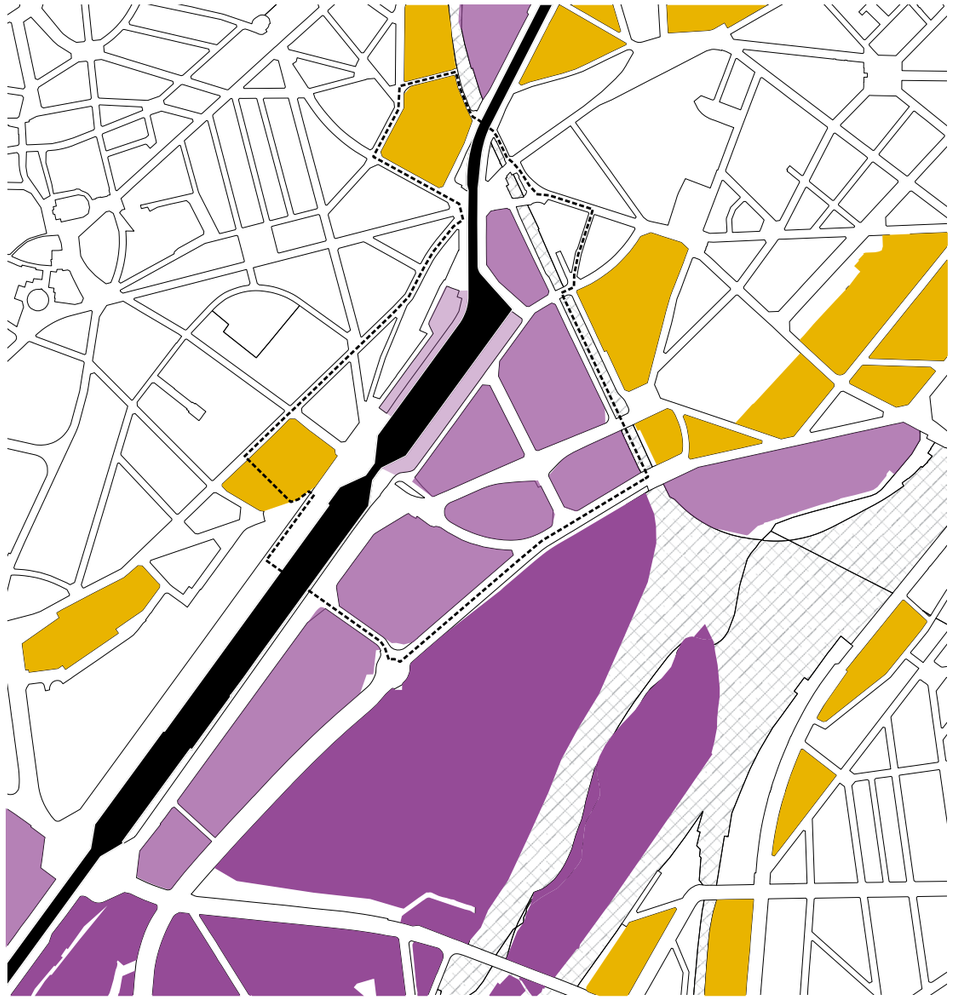
Project: CityGate III

Located in a former Leonidas factory, acquired by Citydev in 2016, CityGate III is part of a larger regeneration project for the Biestebroeck area developed by Citydev, the regional public developer, and a number of public and private partners. The other two project units, called CityGate I and II, are located in the immediate vicinity. The overall programme for CityGate III is not fully defined at this stage, but the plan foresees the occupation of 4,000 m² of ground floor space dedicated to economic activities, including productive activities, retail spaces and amenities. Housing will occupy 16,000 m² spread over several floors and a 2,500 m² park will be created to improve the quality of public spaces and allow the establishment of a new green corridor linking the project to the Crickx and Goujons parks and the canal. The height of the buildings should not exceed seven storeys and housing units are projected along the façade overlooking rue des Bassins, giving continuity to the existing residential fabric of the street.

The site is located on a ‘high-mix zone’ (zone de forte mixité – ZFM*), a land-use zone dedicated to housing, with a strong potential for combination with other functions such as collective or public service facilities, offices and productive activities. Unlike the Enterprise Zones in an Urban Environment – ZEMU*, created by the Region in 2013 to introduce housing in former industrial zones in response to demographic pressure in Brussels, the ZFM* offer more flexibility and does not require the presence of productive activities although it imposes a minimum of 50% of housing.

As in the case of CityGate II, which is currently the subject of a temporary occupancy programme (Studio CityGate), the 5,000 m² building currently accommodates around ten companies in a temporary occupation until its demolition. One of them is Rotor DC, a building materials recycling company and on-site store that serves the local community and the Brussels-Capital Region, making an important contribution to the circular economy. It has also established strong links with the neighbourhood, including working partnerships with nearby companies such as Travie. It shares with Studio CityGate the same objective of providing space for small and medium-sized companies, while offering amenities to the neighbourhood. However, unlike Studio CityGate, the occupation is directly managed by Citydev* without passing through an intermediary company.





Perimeter of PPAS* Biestebroeck

2013
PRAS* démographique =
reinforce residential function

ZFM
ZEMU

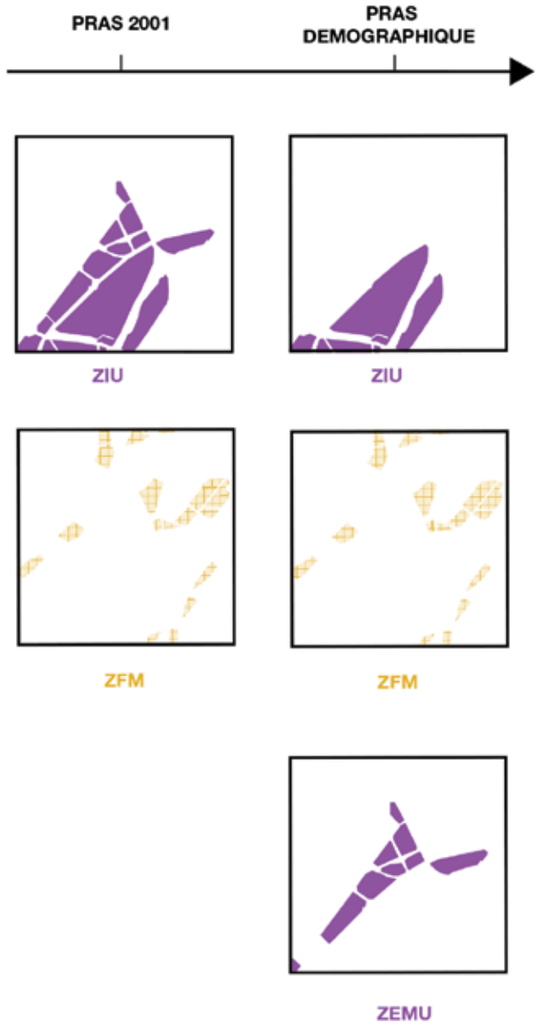
ZEMU* Enterprise Zones in an Urban Environment

ZFM* High-mix zone

ZAPT Port activity and transport zone

ZIU* Urban industrial zone

Change in the regulatory regime concerning the allocation zones in the Biestebroeck area, allowing the development of mixed projects with a dominant residential character



Urban industrial zone

Highly mixed zone

These zones are assigned to housing, public interest or public service facilities, offices and productive activities.

On wasteland or abandoned buildings: the project must provide a minimum of 50% of floor area for housing.

Urban enterprise zone

The first floors of the buildings are used for productive activities, integrated business services, retail and wholesale.

These zones may also be used for housing, commercial, wholesale and public interest or public service facilities.

Specific prescriptions for certain land-use zones:

— **Urban industrial zones (ZIU*)**
These areas are mainly used for production and logistics activities. Only in very limited circumstances will they allow housing (concierge, security personnel).

— **High-mix zone (ZFM*)**
These areas are allocated to housing, public interest or public service facilities, offices and productive activities. The realisation of an overall project can be authorised provided that a minimum of 50% of the total floor area is dedicated to housing.

— **Enterprise Zones in an Urban Environment (ZEMU*)**
These areas are used for productive activities and integrated business services, but can also be used for housing, shops, wholesale trade and public interest or public service facilities. As a general rule, the ground floors of buildings are used for non-residentiel activities.

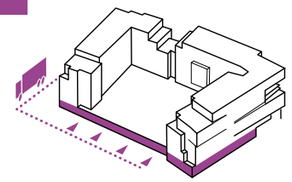
Completed or planned recent real estate projects.

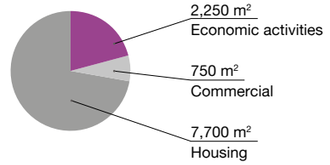
Perimeters of the projetcs

Green spaces

Real estate projects

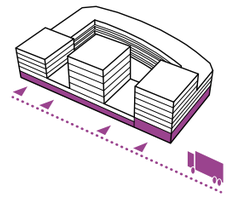
A. City Dox

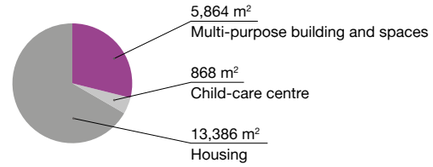




Land use prescription: ZEMU
Ground floor: Production, retail
Undifferentiated, not equipped space
Suitable for small and medium companies
Undefined occupant

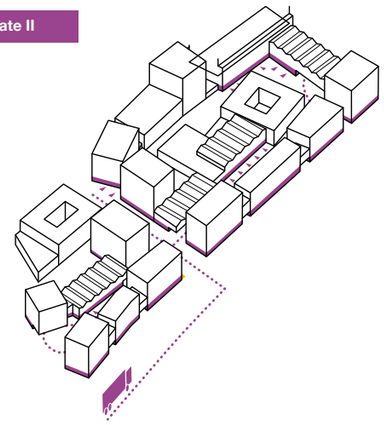
B. CityGate I

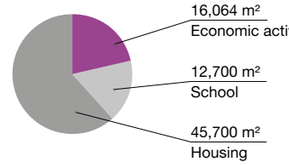




Land use prescription: Strong mixity
Ground floor: Production and retail (max 400 m²)
Suitable for small companies
Undefined occupant

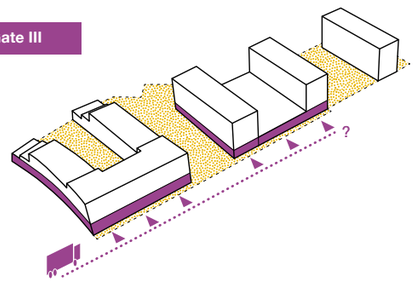
C. CityGate II

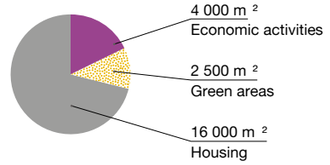




Land use prescription: ZEMU
Ground floor: Production and small retail (max 400 m²)
Planned for hosting a wide range of activities
Suitable for small companies
Undefined occupant

D. CityGate III





Land use prescription: Strong mixity
Ground floor: Production, retail and amenities
Suitable for small companies
Undefined occupant

Context

Despite being located within different land use zones, an analysis of the different development units that Citydev is carrying out for the Biestebroeck area does not show any significant difference in terms of programme, especially regarding the type and size of productive activities that could be hosted.

A broader examination of the projects and plans for the Biestebroeck area shows several contradictions or paradoxes between ambitions, needs and plans regarding productive activities.

First of all in terms of mobility issues: looking at the Regional Plan for Sustainable Development – PRDD* and the Regional Mobility Plan (‘Good Move’), the Region aims to reduce the use of motorised vehicles in favour of sustainable mobilities. This reduction would also benefit companies in the area, which today are facing a growing threat to their economic performance due to road congestion. However, the strategic and regulatory plans (Municipal Development Plan – PCD, Local Land-use Plan – PPAS* Biestebroeck) developed for the entire area do not sufficiently address this issue. For example, the possibility of efficiently separating logistics from other flows in order to promote both the coexistence of housing and productive activities and the potential for using the canal and rail system as freight routes is not adequately taken into account. Such strategies, if undervalued, could jeopardise the proper functioning of companies and their willingness to stay in the area.

Secondly, there is a gap between ambitions for a more circular and sustainable city and the process by which the development of the area is planned. In addition to the mobility aspect, Citydev’s objectives include promoting synergies between companies, encouraging circular economy and reducing distances between goods manufacturing and consumers. The diagnosis highlighted the existence of an “integrated ecosystem” which has already been built between local companies that are producing in and for the city. Examples include the collaboration between Travie and Rotor DC, known for its role in strengthening the circular economy in Brussels or those between the production workshops of Studio CityGate, which share means, tools and raw materials. However, in the face of current urban transformations, the relocation of these activities could break these “circular” and spontaneous links and could lengthen the distances between the needs of the city and the places of manufacture.

The third paradox concerns the issue of land tenure and the way in which spaces for productive activities are defined. The different CityGate projects envisage the creation of spaces dedicated to economic activities with the objective of preserving production and related jobs in the city, while at the same time creating housing in the area. However, as the diagnosis shows, the companies currently located in Biestebroeck are threatened by the change in land use. This fragility is exacerbated by other issues. The new productive spaces that are being built follow two mains models: the first are large, non-specific areas with no adequate predispositions for industrial production equipment; the second are extremely specific spaces, well provided from the technical service point of view (in particular relating to the food sector), but suitable only for small companies (around 200 m^2 per unit).

Moreover, the unclear definition of what is a productive activity generates possible competition for these new productive areas built with functions that may be very different from production itself (such as immaterial production and retail services, for example). Faced with this situation, the needs of existing local companies, and in particular larger ones, do not seem to be taken into account, which may obviously reinforce the threat of their possible future relocation. In other words, the productive activities that are currently active in the area end up being undesirable and outside the real estate market.

Critical perspective

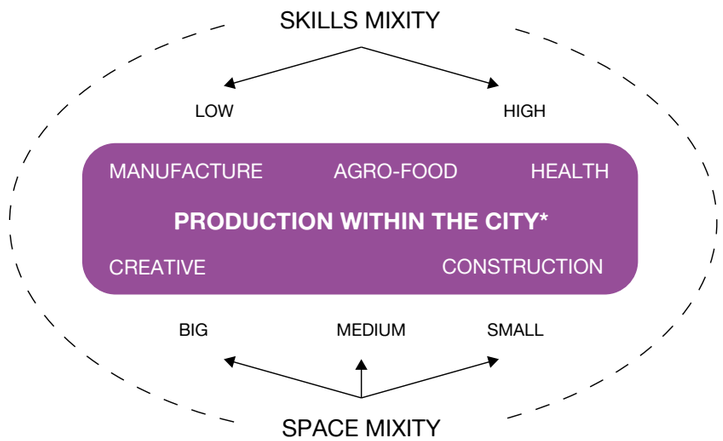
To resolve these paradoxes, changes in the decision-making process should be implemented to improve the possibility of integrating local companies into urban developments and to valorise their actual contribution to the urban economy. If the development of the Biestebroeck area presently shows major contradictions (Scohier, 2018), we believe that it could also represent an opportunity to test and experiment new ways of thinking and designing the city, taking the Citydev* operation as exemplifying opportunity. The starting point for each new project development that includes spaces dedicated to production should be the creation of a strong partnership between the private or public real estate developer, on the one hand, and representatives of productive activities willing to settle in the area, on the other hand, all under the control and facilitation of the public authorities. Given the idea that, from a local economy point of view, it is preferable to build on existing bases or networks instead of imagining economic developments ex nihilo (Kampelmann, 2018), this partnership could be the cornerstone of the planning process and a tool to reinforce a section of the urban economy of Brussels. Moreover, this partnership could be implemented through the involvement of other kinds of actors at different scales. Starting from local neighbourhood associations to regional stakeholders, this could help build a multi-level collaboration taking into account not only spatial and economic but also social opportunities; it could also build awareness of the importance of local economies for people, neighbourhoods and the city itself (Jacobs, 1969).

From an urban, economic and social point of view, while the partnership could help build a more solid basis for agreement between the actors, one could also imagine support for companies and their connection to urban economies and realities through certain specific policies and structures. Firstly, they could link local employment needs with opportunities offered by existing and future companies, in order to increase social inclusion and reduce inequalities, which are increasingly growing in today's urban metropolitan areas. Secondly, links between companies should be encouraged by accompanying the transition towards more open and circular production models that can also share needs and skills through innovation (from sharing the means of production to cooperation and the reintroduction of waste materials in the production system). Lastly, the realities of micro-companies composed mainly of individuals could be supported in the construction of cooperative production systems in order to reduce their fragility.

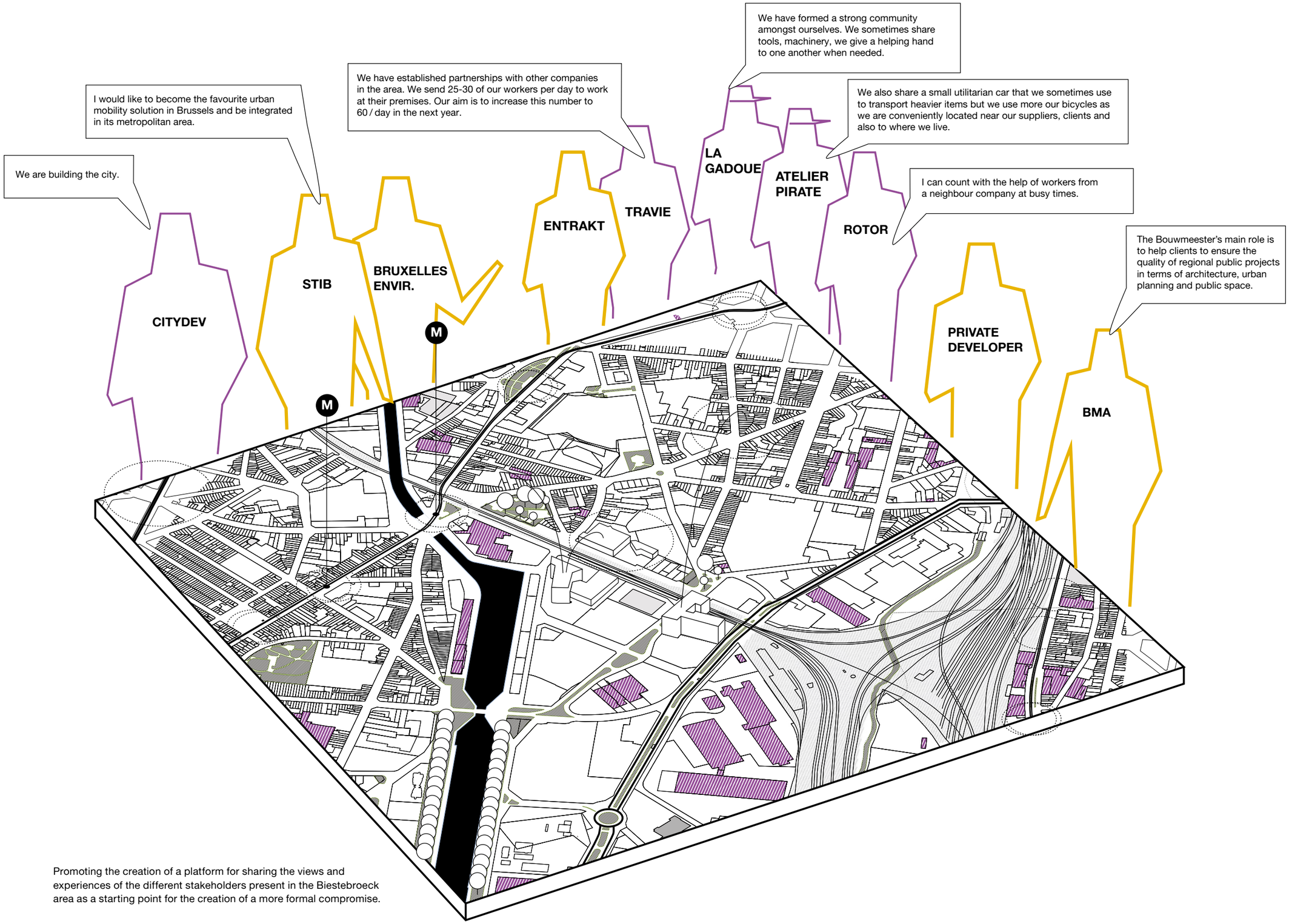
Finally and equally important, more in-depth reflection is also needed with regard to the binding standards governing the dimensioning of the currently planned productive spaces. These should also be able to meet technical needs other than those of small companies. The partnership between real estate developers and productive activities can be the trigger for developing adequate space solutions to accommodate medium- (and large-)sized companies in the city as well. This will increase the knowledge and the capacity of developers to provide more adequate productive spaces with the services and equipment necessary for production and logistics.

It is also possible to imagine the development of alternative models of space occupation and planning regulation, which can be inspired by the equalisation mechanism and long-term leases, in order to prevent any processes of urban land speculation. These models could also enable existing companies to reach agreements and plan business restructurings that do not force them to relocate outside the city and instead allow their successful development in the same area.

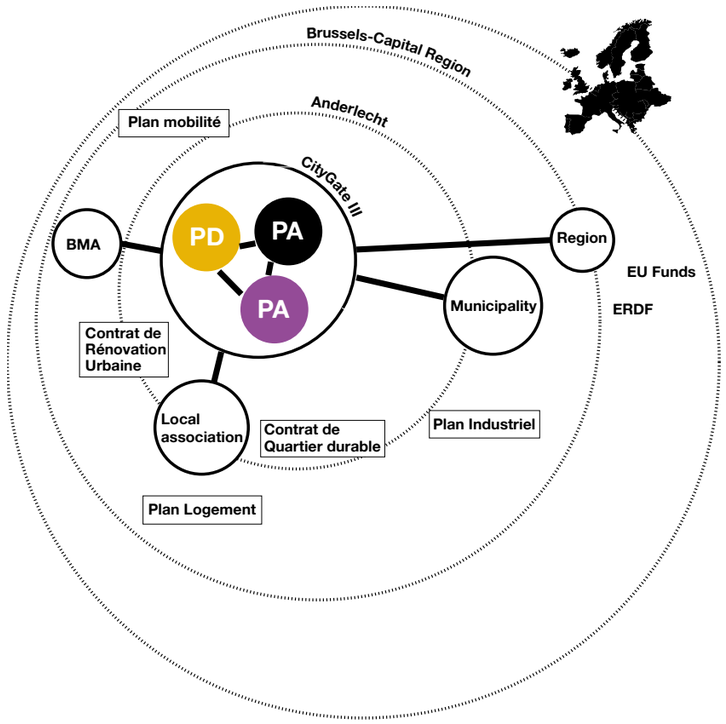
It is clear that the vague definition of productive activity and the economic logic of the real estate market put profit before social and urban needs. In order to challenge the disappearance of productive activities from the city and their replacement by immaterial production, commercial activities and housing, it is necessary to understand much better the functioning of existing local productive systems in order to learn from them and harness what is already well integrated in the city.



* 5 sectors to be favored according to the "plan industriel" (Source: RBC, 2019)



Promoting the creation of a platform for sharing the views and experiences of the different stakeholders present in the Biestebroeck area as a starting point for the creation of a more formal compromise.



SOCIAL

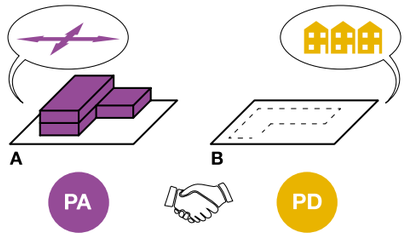
PA **Public authority**

PD **Private / Public Developer**

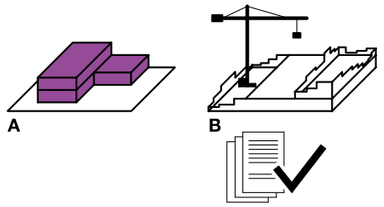
PA **Productive Activity**

Stakeholders involved around the CityGate III project

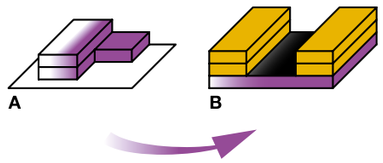
Proposed process for the development of mixed-used areas in the urban fabric.



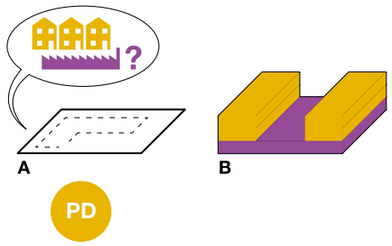
1.
The real estate developer and the local productive activity discuss their plans and ambitions.
The outcome is a project layout that combines housing and productive activity on the same site.



2.
Once the agreement is signed the public authority authorises the project. The project in fact meets the main public interest objectives: densifying the urban fabric, and maintain the productive activities in the city in order to preserve a wide range of job opportunities.



3.
At the project completion the company in site A moves to site B.



4.
Site A is now empty and ready to be redeveloped. The real estate developer taking care of the new project will now look for another productive activity (preferably locally) to develop a new partnership and repeat the same process again.

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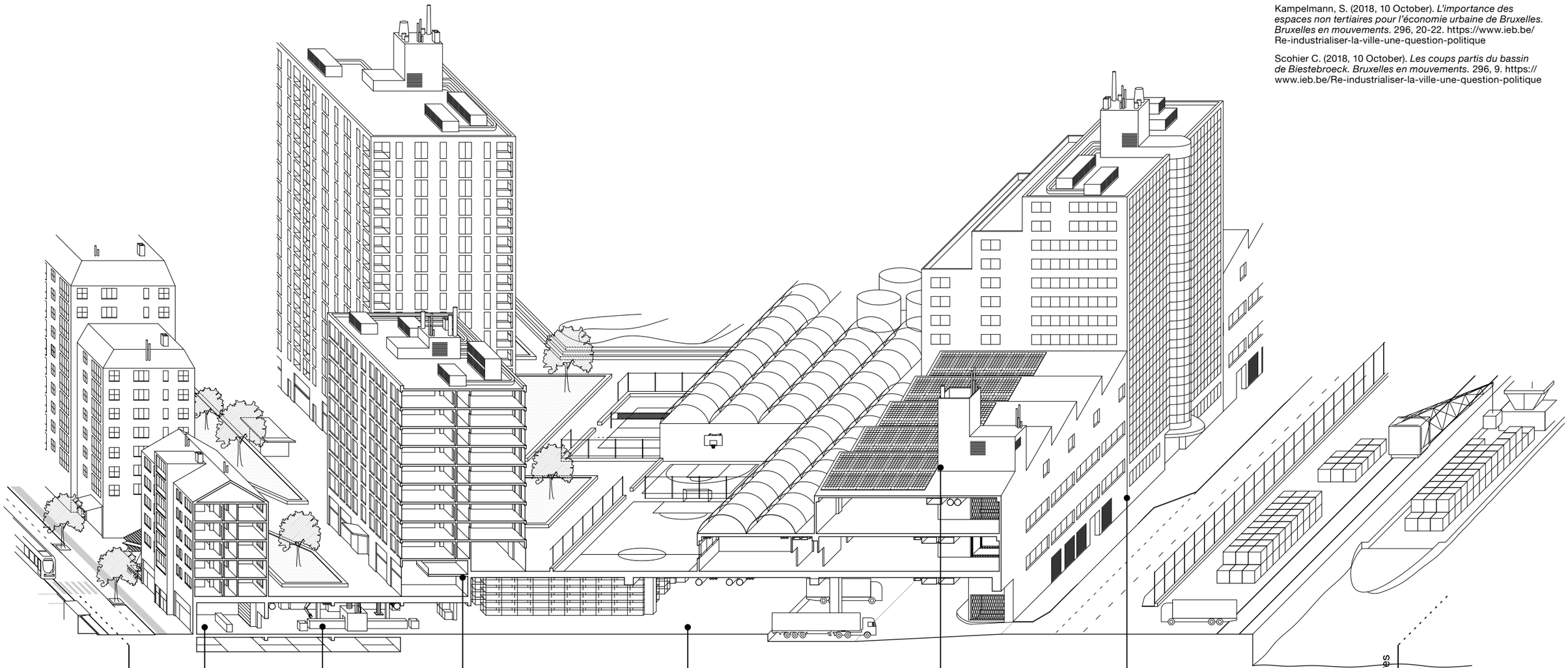

Urban front

— Separation between urban and logistic flows

Short supply chain

— Retail shops: From producer to consumer

Flexible space

— Possibility to reorganize space according to the temporary needs of each company productions

Vertical separation

— Extensive productive space on the ground
— Social, sport, leisure, retail activities on the deck
— Living space on the upper levels

Shared logisstics

— Optimization and rationalization of the space

— Optimization of the roof-top surface for productions such: solar energy, greenhouse, aquaponic...
— shafts and chimneys connect the productive spaces with machines on roof-tops for air treatment and heat recovery

Roof-top opportunities

— Multi storey productive facilities
— Mixed office and residential buildings

Horizontal separation

— Separation between urban and logistic flows
— Harness existing logistic routes and infrastructures

Logistic front

Discussion

Between the old and new productive city: a socio-spatial divide

Alexandre Orban and Corentin Sanchez Trenado

Productive spaces are presently undergoing major reconfigurations. While many industrial companies are exiting urban areas, leaving large vacant spaces to be reconverted to other functions (housing, retailing, offices), some new types of productive activities oriented towards the circular economy, craft economy and new technologies are now trying to settle inside the city. In this context, one goal of this MasterClass was to evaluate the factors contributing to the departure, preservation or installation of these different types of productive activities, as well as to assess their socio-economic impacts on the city. The results of the participants are in line with those of Cities of Making[1] and Metrolab.brussels[2]. Indeed, despite several common concerns, the analysis of the selected case studies reveals several aspects of a dichotomy between the old and new productive activities.

Firstly, there is the issue of suitable and affordable space. Even if land ownership can provide a form of security (e.g. Travie), the multiplication of projects in favour of housing and public spaces represents a threat for productive activities (e.g. Travie, Océan Marée, Stevens). Numerous companies are forced to occupy productive spaces that aren't always suited to their needs (e.g. Travie) or to rely on publicly owned land (e.g. Stevens). Compared to the older activities, access to subsidised rent is particularly common among the new publicly supported companies (e.g. Micro Factory, No Science, Studio CityGate). Furthermore, as the new companies generate less nuisance than the older ones (e.g. Stevens), it is easier for them to integrate in real estate projects and they are sometimes developed alongside housing (e.g. Greenbizz, Ferme des Boues, CityGate III). They can even help promote this housing in virtue of the legitimization and increased real estate attractiveness they provide (e.g. Greenbizz, Studio CityGate), for example, through job creation or temporary occupation. Often socially

1 Learning from experiences in London, Rotterdam and Brussels, the Cities of Making research project aimed to explore the role of urban-based manufacturing in European cities in the 21st century. Within this framework, numerous interviews were carried out with CEOs and managers of various companies located in these three cities.

2 An article on productive activities in Cureghem, written by Alexandre Orban, Corentin Sanchez Trenado and Fabio Vanin, is planned for publication in the scientific journal 'Brussels Studies'. The original French title was 'A qui profitent les activités productives? Analyse du cas de Cureghem'.

Figure 1 Studio CityGate

isolated from their surroundings, the new productive activities can also encourage gentrification processes by attracting a new population to the neighbourhood (e.g. Micro Factory, Greenbizz, Studio CityGate, CityGate III). In the long run and at a larger scale, residential development could nevertheless hinder the growth of these new productive activities by further restricting the space needed for production inside the city (e.g. Micro Factory). Therefore, projects and policies encouraging the creation of small productive spaces, sometimes temporarily (e.g. D'Ieteren), might foster the creation of small companies. However, in the years following their startup, these companies may be forced to move, either due to temporary occupation, insufficient space or other reasons. (Fig. 1)

Secondly, all these firms also must deal with the issues of competition, supply and commercialisation. Although they all follow the same strategies: securing supply and distribution networks, specialising and searching for niche markets, cooperating with other activities, demonstrating technical expertise or innovation, the players involved are different. Supply networks usually range from national to international scale companies (e.g. No Science), while customers are often, but not solely (e.g. Travie), locally based (e.g. Océan Marée). Therefore, supporting the local economy is not an exclusivity of new productive activities engaged in circular economy. Likewise, although new productive activities often find shelter in business incubators, this does not necessarily create collaborations between the companies sharing the space (e.g. Greenbizz). Older activities, on their side, sometimes also develop partnerships with other local businesses (e.g. Travie) and can contribute to the local social life. The distinction between old and new productive activities tends to be more noticeable when it comes to the final goods or services produced. Indeed, while new activities mainly target the middle-class population (e.g. Micro Factory, Studio CityGate, No Science), the older ones address the needs of a wider population (e.g. Travie and Stevens), although Océan Marée is a separate case as it

Figure 2 Travie

mainly targets an upper-class population. In terms of logistics, most of productive activities must cope with the problem of traffic congestion. Some activities, however, can mitigate this problem because of their specific work schedule (e.g. Océan Marée). The companies often mention the proximity to large logistic axes and easy access both to the ring road and to the city centre as a key factor for both supply and deliveries. Consequently, reconfiguration of public space by public authorities sometimes hinders the logistic capacity of these productive activities (e.g. Travie). Traffic and road projects mostly affect older activities that usually rely on larger lorries compared to the newer ones. (Fig. 2)

Thirdly, in terms of employment, companies often consider the proximity and easy access to a large available workforce as being an advantage. However, although the required educational level is usually low, training inside the company is often needed for new workers (e.g. Océan Marée, Stevens, Travie), which might by challenging in the case of smaller companies. Therefore, besides sheltered workshops like Travie, a few new productive activities also benefit from public subsidies in the form of training contracts, but still occasionally struggle to secure stable jobs. On the other hand, older productive activities often provide long-term employment opportunities for low-educated local workers — mostly men for manual work and women for administrative work— (e.g. Océan Marée, Stevens) without necessarily benefiting from public subsidies. This division is also visible with regards to the managerial staff. Entrepreneurship that was originally family-based is being integrated in larger groups (e.g. Océan Marée) or is facing company takeover. On the other hand, the new entrepreneurs, often high skilled young professionals or artists — although not exclusively (e.g. No Science), aim to promote alternative models of economic development, such as circular economy, shared workshops, local and small scale production (e.g. Micro Factory, No Science, Studio CityGate). Whereas these publicly supported models have yet to

confront the reality of the capitalist market, the contribution of existing productive activities in these areas, for example in terms of circular economy, should not be overlooked (e.g. Stevens).

In conclusion, these different productive activities, which are unevenly influenced by urban transformation and unevenly supported by the public authorities, reflect highly different social and economic models. In addition to the influence of planning policies, such as mobility issues, new productive activities often benefit from support in terms of subsidies and visibility (e.g. Studio CityGate, Recy-K, Greenbizz). The older ones do not receive as much assistance. Some remain relatively invisible (e.g. Océan Marée) while others have experienced pressure in the past to relocate their activities (e.g. Stevens). In addition, these activities may also be compelled to integrate themselves, visually or functionally, in surrounding developments (e.g. Stevens, Travie). As a consequence, urban policies, through their choices in terms of productive activities, tend to prioritise the expectations and needs of the middle classes and real estate sector. With regard to the social and economic context of the city, this choice should, at least, be questioned.

A dilemma in the making: maintaining mixed-use neighbourhoods that ‘make’

Adrian Vickery Hill

Cities depend on vibrant and dynamic mixed-use areas for a multitude of reasons. However, these areas are more than ever under threat of gentrification from both public and private developers. Some cities like Brussels, are encouraging new forms of mixed-use development which combine production and other activities. While mixed-use projects appear sensible on paper, in practice they attract a number of problems and dilemmas. The following pages will cover pressure facing existing and future mixed-use areas and then consider what is required to ensure that new spaces are used for productive activities.

Cities need mixed-use areas

There are many reasons why cities should protect mixed-use neighbourhoods (Hill, 2020). They are places where retail weaves in with production, making it easy to develop customised products. They are often vibrant, exciting and messy places, where a diversity of activities can be found jumbled together. They produce or repair goods for other parts of the city, vital to urban metabolism and the circular economy. They offer an alternative to sanitised retail zones and orderly business districts while creating a transition zone between residential areas and industrial zones. They attract activities that function at all hours of the day, providing alternative venues for fringe cultures to emerge. These areas often provide spaces for accessible work, located near affordable housing. Mixed-use areas are incubators for new businesses and provide habitat for established niche enterprises. They have long allowed people with ideas to informally meet people with technical skills, turning concepts into new products or services. Small businesses and fabrication spaces in mixed-use areas can quickly adapt their production processes to address local demand. The Covid-19 pandemic highlighted how mixed-use neighbourhoods from Birmingham in Brussels, Hackney in London, Brooklyn in New York or Sewoon in Seoul were the first to respond to calls to produce protective equipment.

Brussels, like many former industrial cities, still contains pockets of mixed-use areas such as Biestebroeck, Cureghem, Masui and the Béco-Vergote port area and lower Molenbeek. These neighbourhoods are densely populated, home to very low-income inhabitants and are poorly serviced with the likes

Beer tasting (En Stoemelings brewery) in the Greenbizz alley — © Adrian Vickery Hill

of quality open space. They are arrival places for immigrants who can afford accommodation while having a choice of accessible jobs. This combination of proximity to the city centre but poor-quality public infrastructure, for the time being, has staved off serious gentrification and has led to a rich diversity of businesses covering activities such as printing, carpentry (recently at Micro Factory), construction material supply (such as the Vergote basin), vehicle repair (Rue de Heyvaert), food production (Greenbizz and the Abattoir), medical equipment production and many activities that are hidden from site. More importantly, they are the testing ground for new businesses that offer the city great opportunities, such as new forms of food production (particularly at the Abattoir), repair and waste management (Recy-K), digitally assisted services for the construction sector (Greenbizz and Recy-K). They are the home to new forms of production built around the social economy.

The erosion of mixed-use areas

Most European cities were built around mixed-use areas and accommodated production at the heart of their core. This often came about informally and out of need, with housing built above workshops or ateliers built next to shops. Since the 1970s, globalised markets matured and large numbers of manufacturers moved to other countries to cut costs. In Brussels during the early 1970s, around one in every two jobs was directly connected to production. Four decades later only 3% of the city's workforce works in 'industry', with a further 7% working in construction, logistics and related activities (Actiris, 2019). The shift to service-oriented jobs changed the demand for space and the value of land.

Many municipalities that had hosted industrial activities in the early 20th century were left with vast swathes of abandoned or unsightly industrial areas,

while also going bankrupt due to the lost tax base. Inner-city housing markets picked up in many cities towards the end of the 20th century through the development of land into a 'higher value' real estate activity, such as housing, offices and retail. In this way, public authorities could generate a source of income through taxes or developer contributions. Furthermore, public space could be paid for, community infrastructure and services could be provided, and higher income residents could be attracted to further improve public revenue streams. This formula is referred to as 'property-led development'.

Property-led development has resulted in quick gains for municipalities and public officials looking to show their constituents signs of progress. In principle this shifts costs to the private sector; the weakest local inhabitants end up bearing the cost as land values increase and work conditions change. In many cities, this is the only instrument available to municipalities to generate independent sources of revenue needed to improve schools or public space. In 1993, after a spate of social unrest, Brussels launched an urban renovation tool called the 'sustainable neighbourhood contracts' (Contrat de Quartier Durable*) to help improve living conditions in deprived neighbourhoods that could not generate investment capital. This tool has provided municipalities with regional finances to improve public space, increase pedestrian and cycling space, improve schools, crèches, sporting infrastructure and public services for the most underprivileged neighbourhoods. The focus covers much of the most dynamic areas of the city. Strictly speaking, although the Brussels neighbourhood contracts are not property-led development, research has shown that 'production' based businesses have been impacted while real estate values have increased, making its land less affordable.

Consider a simple chain of events. Firstly, what starts as investment in public space and public facilities, raises land values. By increasing land values, workshops, small logistics spaces and wholesale shops are put under pressure to raise prices or lose profits. Housing prices also increase, as a wealthier population accepts higher rates. New residents may not have experience with the noise and inconvenience of manufacturers and logistics activities, and consequently complain to the authorities. Public authorities generally protect the position of the inhabitants, considered as the weaker party, so they pressure businesses (even well-established ones) into adapting their facilities to reduce nuisances. This cost increase may be enough to close a business. Furthermore, 'improvement' of public space (such as extended footpaths or larger corner blisters) impacts accessibility by large vehicles. Piece by piece, established businesses become eroded. Manufacturers lose their networks and suppliers, material suppliers lose their customers, environmental permits and red tape increases administration and costs, good quality staff are harder to find and education quality declines as student enrolments dwindle. This process can take years but once started it can be hard to stop.

Despite the value of mixed-use areas for cities, they are under threat from land use change, gentrification and public neglect. New York boasts its world-renowned Brooklyn Navy Yard innovation hub (Tajdar, 2019), while mixed-use industrial land in larger Brooklyn is readily rezoned. London's famed cultural industry (theatre, musicals and the likes) are notably running out of inner-urban

space and are now pitted against manufacturers (Froy, 2017 & Kostourou, 2020). In Brussels, the very institution of the Abattoir is in question as there is little guarantee for its long-term survival (DH, 2019). Furthermore, there is much speculation regarding mixed-use in Heyvaert, the neighbourhood surrounding it, due to fragmented planning and the planning authorities' poor understanding of the local socio-economic networks (IEB, 2019). Brussels is no exception, as few cities have found a way to accommodate change that improves public amenities and development opportunities while retaining the vital DNA of mixed-use activities.

Between the years 2000 and 2018, 18% of the industrial land in the Brussels-Capital Region was de-zoned, reduced from 6.02% of the surface area to 4.22%, in other words, from 791 hectares to 685 (De Boeck, 2020). Cities undergoing growth customarily target their industrial land to address a range of urban problems ranging from the need for public space, the development of housing, provision of public infrastructure (like schools or fire brigades), creation of impervious ground and so on. Industrial space has been the least-worst option for public authorities to target as the surfaces are large, employment levels are low and the general public notices little when a production-based activity is lost.

Industrial intensification: a development frenzy

Some cities have acknowledged the quandary of losing industrial land, particularly cities like London where industrial space is required to support their world renown cultural and fashion sectors. Vienna has taken this a step further to increase its gross stock of 'productive space' by 100 hectares in the coming years (Brauman, 2017). However, all of these cities are under pressure to increase their population while also addressing chronic issues like affordable housing. Planning from London to New York, is forcing urban industrial areas to densify. London enacted policy to have no 'net loss' of Strategic Industrial Land, which has encouraged planning towards 'industrial intensification'. This means either stacking industrial activities or 'co-locating' housing above industrial space.

In Brussels, regulation referred to as Enterprise Zones in an Urban Environment (ZEMU*) was enacted in 2013 to allow mixed-use areas on former industrial land, with Biestebroeck representing the most visible example at the time of this publication. Regardless of the location, such legislation has been poorly tested and there are many variables that need to be explored. Developers building mixed-use projects have little experience with it and are not inclined to plan for both the needs of quiet residential space and noisy manufacturing activities. New building owners may also not be prepared to offer space to productive activities that fetch 25-50% of the going rate for retail space.

View inside the Robinetterie Van Bastelaere, now known as RBV (Anderlecht)
© Adrian Vickery Hill

A dilemma in the making: new competencies for mixed-use areas

If left to the market, mixed-use areas are inclined to transition to activities that pay the highest price. This is likely to be retail or office space but not productive activities. One of the greatest dilemmas for productive activities and mixed-use neighbourhoods is that planning instruments have limited value in stimulating the local economy. There is a need for a suppler approach to manage and carefully regulate productive activities to ensure that they continue producing relevant goods, competitively, and for the benefit of the city. Diversity and flexibility are the strength of mixed-use areas, but when faced with gentrification and property-led development, they are also the greatest weaknesses.

To address this dilemma, the following three competencies should be considered:

1. **Analysis of production systems**
   Much of the focus in planning has concentrated on industrial spaces without understanding the business environment. Little knowledge is available regarding how businesses work, the networks they operate in, their needs and the real value they offer the city. As productive activities are generally in a weaker position than housing or commercial activities (due to price of space and potential conflicts with neighbours), this leaves productive activities exposed to the whims of the market. Furthermore, there are very few planning instruments to manage mixed-use activities to ensure that designated spaces for production are actually being used for that purpose, instead of being occupied by offices or storage space. Insight is required to estimate a business's contribution to the city, or its own dependence on the urban context. As shown in the MasterClass, this means understanding the place of

production in the city (the networks) and better understanding how the activity works on the site.

2. **Leadership**
To ensure that businesses fit their context, a mediator is critical to help broker and verify the use of space. For new mixed-use projects, such an organisation could help link supply and demand of space to ensure that neighbourhoods remain dynamic. A public agency could verify the use of established mixed-use buildings, to ensure that activities remain productive in nature. Such an organisation may come in the form of an area manager, a community interest company or a business development agency (see Vienna Business Districts).

3. **Investment**
Change can impact some businesses, while also creating opportunities for new ones. Public and private investment should support this process to ensure that activities reflect the needs of the city. Since 2015, Brussels has seen a flourishing of start-ups in food (such BIGH, Champignon de Bruxelles or Micro Things), beverages (with some 20 new breweries), fabrication spaces (Micro Factory, iMal and City Fab), waste management (CF2D and Stevens) and so forth. Most of these businesses have received public financing or are located in publicly subsidised sites (such as Recy-K and Greenbizz which were financed under European ERDF funding), which is very useful to launch new ideas. Established businesses, however, particularly those that provide high value to the city, are often overlooked and also need assistance to support transitions to 21st century conditions.

Well accessible, affordable and dynamic mixed-use areas are critical for healthy cities. Urban areas are going through unprecedented times, showing stresses in global supply chains and a need to generate resilient local production capacities that are innovative and adaptable. The market, by nature, is pushing production out of cities which can have dramatic long-term effects. To retain mixed-use areas, new competencies should be embraced to improve knowledge, leadership and investment.

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Bigness and Blank Walls : a programmatic necessity for maintaining urban industry in Brussels

Jan Zaman

Why are we fascinated by big, long walls? Every year millions of people admire the historic walls of Ávila, China's Great Wall, the Berlin Wall, Hadrian's Wall,… In fact, many of the most visited historic sites (Wikipedia, 2020) do have an impressive wall around them. What makes them all stand out is their size. People are attracted by 'Big Things'. From Christo's 'running fence' to the infinity project of Carsten Nicolai, large and dividing objects continue to enthral us. As Koolhaas put it: 'The best reason to broach Bigness is the one given by climbers of Mount Everest : "because it is there."' (Koolhaas and Mau, 1995).

However, a big building is often referred to as a 'Monster'. While discussing the future of the 1.1km long former Renault Building, both the owner, the architect and the municipality referred to it as 'too long, too big,… an ugly monster'. Whenever a large company ceases its activities, urbanists and architects start calling for more accessibility, permeability, or even 'human scale'. 'It seems incredible that the *size* of a building alone embodies an ideological program, independent of the will of its architects' (Koolhaas and Mau, 1995). Therefore, we need to disassemble, destroy and subdivide these large industrial sites. The main exception to this is the development of shopping malls. When an investor wants to transform an industrial site into a shopping mall, the bigness gets accepted, as we witnessed in Brussels for Docks, the Royal Depot, project for the Renault building, Uplace, Neo. Why is it hard to embrace the size and the impenetrability of an industrial site, and fill it with new, enchanting big things?

When is a site too big anyway? In the Brussels-Capital Region half of the building blocks are larger than 1 ha., with the top 10% over 4 ha. When an enclosed, impenetrable site is more than 14 ha., it is considered an exception, a statistical outlier. Compared with contiguous parcels with economic activities from the mapping of 265 km² in and around Brussels (Dep Omgeving et al., 2020), 90% of the groups of economic activities are smaller than 1 hectare and only 90 out of over 10,000 groups are larger than 10 hectares. Big economic clusters exist, but they are much smaller than the building blocks. We just have to learn to appreciate them, embrace them and probably do a better job designing them.

Bigness is essential to urban life. Airports, distribution centres, city ports, railway sidings, tram depots, industrial estates, office parks, etc. are all big, and necessary to our daily urban routines. From the 19th century onwards,

when the optimum size of a business became bigger than the available sites in the city centre, the businesses moved to the suburbs. Both the operational optimum, linked to power production and the size of machines, and the search for an economy of scale pushed companies to grow. Port infrastructure, airfields, car assembly, chemical companies, stove manufacturers, all moved out to the surrounding villages and countryside. As the city grew, these dispersed sites were gobbled up by the metropolis. In many cases these 1920s factories continued to produce until the end of the 1970s, when international competition, economies of scale and, later in the 1990s, the global organisation of production chains shifted production to other countries. However, these global trends did not end all the production activities in our countries. In 2017, 20% of Belgium's population worked in the production sector (Statistics Belgium, 2018). This text will show that new, large productive sites are needed for a thriving urban economy.

For the cheap supply of land for development, the Belgian government followed a modernist regional economic logic from 1945. Industrial land supply was meant to promote the even distribution of wealth in the country (Ryckewaert, 2007). This implied the development of an infrastructure network, coupled with new cheap industrial estates. The Keynesian logic focused on building a motorway network, extending seaports and modernising inland waterways, combined with the development of economic zones. The overarching idea was to use the Marshall fund and government budget to steer investments away from the traditional industrial areas (mainly in Wallonia). Key motorway infrastructure was concentrated in Flanders and the Northern part of Wallonia, where the Brussels orbital motorway was never completed and reached its current state only in 1978. Large new greenfield sites were abundantly available at a low cost for new investments but were mainly located far outside the Brussels Metropolitan Area.

By the end of the 1970s, the completion of the motorway network, the focus on industrial sites not accessible by train or boat, the disinvestment in rail infrastructure and the emergence of efficient lorries lead to the demise of small scale rail freight for individual companies. The shift to over land freight transport by lorry was thus complete. Road access-based site location choice distributed the bigger industrial sites over the northern part of Belgium, no longer uniquely linked to urban areas. Recent research (Vanoutrive & Verhetsel, 2014) shows that logistics companies value an accessible, central position, but are not prepared to pay more to be accessible by rail; they are only willing to pay more for a location close to inland waterways in exceptional cases.

Offshoring, outsourcing and motorway investment had a dramatic impact on industrial economy in the denser urban fabric. Until the 2010s, suburbanisation of lorry-dependent industries (except for retail and leisure) was generally seen as a positive evolution. The former industrial sites that became vacant were excellent inner city locations to welcome upper middle class families back to the centre. Increasing real estate value was also perceived as the only way to convince private parties to invest in 'difficult' working class areas. Gentrification might work out well for real estate investors, but for the social and economic network of the neighbourhoods, it is disrupting. The resulting inequality between the old and new inhabitants, along with the growing dependence of lorry traffic and warehousing and industries outside the city's administrative boundaries came as a late wake up call.

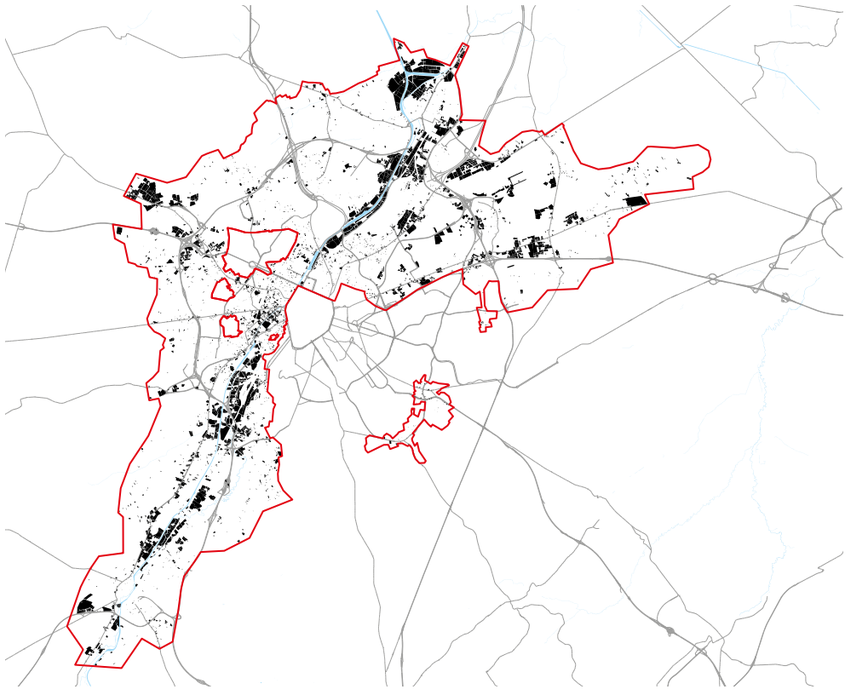

Figure 1
Mapping of manufacturing, industrial services, construction, vehicle-related, wholesale and transport companies (Departement Omgeving, 2015-2020)

The Productive Metropolis needs big economic sites

Ever since 'Re:Work' and the establishment of the Enterprise Zones in an Urban Environment (ZEMU*) in 2012, keeping productive economic activities in the city has been a key policy in the Brussels-Capital Region. In the current Brussels context of moderate demographic growth and need to keep industry in the city, bigness is a programming requisite. When the policy goal for Brussels is indeed considered to be keeping industrial companies in the city to provide work for low-skilled people, then we must make sure that the activities we provide space for can actually deliver. In the context of re-industrializing the metropolis (BEM, 2018; Architecture Workroom, 2016), the absence of a debate on big productive sites is striking.

Unlike the argument made by Van Hamme and Lennert (2018) on 'captive industries' (in other words, companies that can only produce in the city and are forced to adapt), most production companies have outsourced storage, security, supply management, transport and logistics, where a lot of 'service' jobs are needed. In our view, we should consider all companies providing parts of a globalized production chain as 'industrial'.

When, as shown in Fig. 1, the detailed inventory of economic activities is analysed for a significant part of the Brussels Agglomeration (Departement

Omgeving et al. 2015-2020), we find 5,929 parcels, or 22,7% of the mapped parcels, with economic activities in the Brussels Metropolitan area that are part of a global production chain or local foundational economy. In total surface these activities account for 41.5% of the land use for economic activities. In this sense, the Brussels Metropolitan Area remains a very industrial city, with several vast productive sites. Many of the largest economic sites are in fact manufacturing companies, as shown in table 1.

Table 1
Largest manufacturing companies in the mapped area

Company	Parcel size (hectare)	Activity
Audi	39 ha.	car assembly
Solvay	21 ha.	chemicals innovation campus
PB Leiner	19 ha.	gelatine (pharmaceutical)
Allnex	17.5 ha.	resin
Sabca	9.7 ha.	aeronautics
Asco	8.6 ha.	aeronautics
Pacapime	4.5 ha.	corrugated cardboard

What the economic mapping reveals, is the prevalence of demand for good size industrial-type spaces. Figure 1 shows a galaxy of small dispersed industrial sites, combined with constellations of medium size and large companies. When planning to keep industrial activities in the city, we must accommodate for the variety of sizes. If we assume that we are planning for roughly the same plot sizes as shown in the mapping, half of the sites are smaller than 800 m², which is easy to mix in existing and new developments. However, 10% of existing companies have accommodation that ranges from 1 ha. to over 30 ha. This can only be provided for if the Brussels Metropolitan Area installs a reservation policy, aimed at keeping selected large sites free from development until they are needed. Industrial chain activities are not shrinking. They are actually growing and looking for new large sites. However, as the acceptance of new industrial zones in the outskirts has dropped to near zero, and the prevalence of lorries for freight transport is under question, a return of industrial investment in the inner parts of the metropolitan area has become a desirable solution.

The enclosed garden always has an outer wall.
(Aben and De Wit, 2001)

Looking at industrial companies in the three areas studied in this book, there is a clear presence of sites around 1 hectare. The samples included in table 2 give an overview of type of activities and size of the larger companies. As the studied areas are in full redevelopment, it is important to understand the activities, the size and the outside presence of the existing companies. All nine selected companies have close ties to life in the city. They provide materials and goods, distribute food, make space for start-ups or train people. Their proximity to the city is a clear advantage, both for the low skilled (or low paid) workers as for minimizing goods transport. All nine provide low-skilled jobs and are being pushed out by a real estate price war, fuelled by demographic growth.

Blank walls are a consequence of their activities. Refrigerated storage, wholesale of construction material, a depot, even a machine operator training centre are activities that do not need a direct visual link with the public domain. As in refrigerated storage, limiting the number of doors, windows and entrances means diminishing exploitation costs, and improving (food) security. Even if the functional façade of the former Leonidas factory (now Rotor DC) and the municipal depot have a certain aesthetic appeal, one has to admit that there still is an architectural challenge to design better buildings. Recent buildings e.g. M-Pro (Village des Matériaux) and Greenbizz illustrate that this is possible with public money. The efforts of the bMa (2018) will soon result in the first fully privately funded new large industrial buildings in Brussels.

Table 2
Size of some activities in the areas studied

Company	Parcel size (hectare)	Activity
Travie	1.9 ha.	food packaging
M Pro	1.6 ha.	building materials wholesale
Stevens & Co	1.2 ha.	metal recycling
Jean Wauters Aciers	1.3 ha.	steel wholesale
Ferme des Boues	1.1 ha.	municipal depot
Rotor DC	1 ha.	building materials re-use
Fri-agra	0.8 ha.	refrigerated storage
Greenbizz	0.8 ha.	business centre
Iris TL	0.5 ha.	logistics reference centre

Rotor DC, former Leonidas Chocolate Factory,
Rue Prévinaire, Anderlecht.
©Jan Zaman, July 2020

Ferme des Boues, Municipal Depot,
Quai des Péniches, Brussels
©Jan Zaman, July 2020

Fri-Agra, refrigerated storage,
Quai de Mariemont, Molenbeek.
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Conclusion

Over the last decades, several big industrial sites came available, e.g. Tour&Taxis, Josaphat-Marchandises, Orchestra, Kodak, Reyers, Ex-NATO, Marly, Forges de Clabecq Vilvoorde, Renault, CAT, Franki. Of these opportunities, only Marly was reused for a large industrial occupant (although with a low density). All other sites were split into smaller parts or transformed into retail space, housing or parks. One key driver to splitting into smaller units or transforming into housing is of course the real estate value. Relatively speaking, small companies can pay more per square meter than the very large. When we want to reserve areas for large industrial companies, we have to make sure that it is affordable.

There can be a future in Brussels for globally integrated manufacturing businesses, if the required large space is available at a reasonable price. Brussels needs to embrace the bigness that a thriving industrial economy requires. Recent developments, such as the tram and metro depots in Uccle and Haren, the 'village des matériaux' (M Pro), Novacity, Greenbizz,… are carefully designed, even if they have long blind walls. It is clear that any outside wall can be appealing and have a certain 'likeability'. Brussels has shown that improving architectural and urbanistic quality can embrace Bigness and Blank Walls. We are now waiting for ambitious new industrial large accommodation in and around the city centre.

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By whom, how and where is Brussels beer produced: a sociological perspective

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Microbreweries, an emblematic case of redeployment of neo-artisanal activities in today's world, have experienced an extraordinary surge in many Western countries. Although this comeback has occurred more gradually in Belgium, general trends can be traced, especially in the cities. This article aims to describe this redeployment of brewery activities through the question: by whom, how and where is Brussels beer produced? From a spatial point of view we identify the dynamics of the implantation of this activity, both in the past and at present. Then, based on the analysis of interviews conducted with a dozen new microbrewers, we explore the diversity of business logics, the way these new actors attempt to reconcile their system of values with the pursuit of an economic project and the consequences this can have on the location of productive activities.

Similar to many large cities, we can observe a resurgence of brewery activities in Belgium and Brussels. The embodiment of this phenomenon is the micro- or craft brewery, a small-scale, self-owned brewery that combines production in small batches, quality in the production process and new aesthetics of taste. The popularity of craft breweries is a global trend that symbolises the return of artisanal forms of production in sectors that have undergone an intense period of industrialisation, rationalisation and globalisation since the 1970s-1980s.

The urban setting of this neo-craft has been the subject of several studies, in particular showing how the search for authenticity plays a role in renewing the cultural repertories of work and consumer modes, along with transformations of public space. Ocejo (2017) shows how small-scale makers in New York City act as both a mirror and catalyser of the urban transformation process,contributing to give new meaning to spaces and installing lifestyles of a new urban economy (Zukin, 2009). Other authors, more specifically interested in the development of microbreweries in urban space, have analysed how their

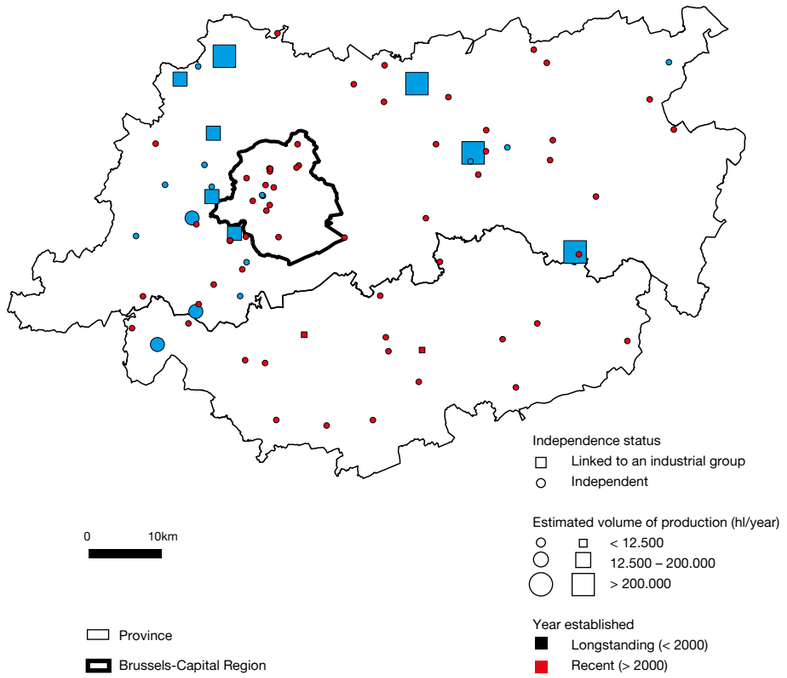
narrative is tied in with re-interpretations of the industrial heritage (Mathews and Picton, 2014), in contrast with tendencies to concentrate city functions on housing and service economy activities.

The social economy of this new craftsmanship is also interesting to study. Microbreweries indeed seem to affirm the redeployment of a market segment that is defined by certain aspects typical of a certain world of production (Salais and Storper, 1995) that articulates reduced and quality-centred production, intensive labour, creativity, proximity to the consumer and peer-to-peer exchange systems. This is just the opposite of the industrial production world that oversaw the sector's evolution since the late 1940s, characterised by the predominance of mass technologies, products intended for widespread markets and anonymous consumers. This opposition, proclaimed by many microbrewers, is open to tensions and contradictions. It is nevertheless the foundation for a social world of production that seems to be relatively united in distancing itself from the practices and references of the macro-brewers, yet segmented when we look into the heterogenous action logics of the producers.

This chapter aims to describe, in a first analysis (our materials date from 2018-2019), the general outlines of the social economy underlying the resurgence of microbreweries in Brussels by asking the question '*Who produces which beer; where and how?'* We will first try to pinpoint geographically where the new microbrewers have settled. We shall then describe the underlying business logics and the arguments they entail. Lastly, to conclude we will explore the results of this urban production and its sustainability.

A spatially localised resurgence

Figures on the rise in the number of brewing establishments confirm the phenomenon of a global-scale resurgence. In the USA, the number of sites producing beer grew from slightly over 1,800 in 2010 to over 8,000 in 2019 (Brewers Association, 2020). In Europe, Brewers of Europe (2018) reports over 6,500 more breweries from 2008 to 2018, growing from 3,500 to 10,284 sites. Countries throughout Europe have seen an expansion in the number of active breweries, even though there are significant national differences. In France, Italy, Netherlands, Spain, Sweden and the United Kingdom the tendency has soared. Belgium's growth has been both late coming and less spectacular, even if the number of establishment rose from 123 in 2011 to 304 in 2019 (Zythos, 2020). This number nevertheless greatly trails the 3,000 establishments at work in the early 1900s, the Golden Age of Belgian brewing, long before the tendency to concentrate and rationalise slashed the number of companies (roughly a hundred since the 1980s). The multiple causes leading to this consolidation have been well documented as the result of various factors: technological progress at all stages of brewing, fermentation, packaging and spatial distribution, production techniques requiring heavier fixed investments, the economic shock of the two World Wars, as well as business advertising practices (Poelmans and Swinnen, 2018). Nonetheless, although this evolution was similar in many countries, what is particular in Belgium is its ability to maintain a highly diverse range of beer styles and to have greatly increased exports since the 1990s.



Map 1: Breweries located in Brabant in 2020, by type.[1]
Source: Zythos vzw [2006-2020]; own calculations.

Brewery production in Brussels has followed the same general trajectory. The consolidation movement cut the number of breweries (from around a hundred before World War I to about 30 in 1960 and only two in 1990); it also led to a transfer from the city's old town to the area along the Brussels-Charleroi canal in the municipalities of Anderlecht, Molenbeek and Forest. The Brabant provinces, however, hosted a concentration of large low-fermentation breweries. In 1970, one third of the country's breweries were located in this area, which attracted small specialist breweries and industrial breweries alike. This was the case of Pajottenland (located in Flemish Brabant, to the southwest of Brussels) a centre for brewers of spontaneous fermentation beers and the eastern section of Flemish Brabant, near the city of Leuven (see Map 1). The area was also fertile ground for microbreweries to settle and diversify. In the Brussels-Capital Region, with the exception of the Cantillon Brewery, founded in 1900, all the present breweries were established after 2015. Spatially concentrated near the Canal, they report production volumes in the realm of 1,000 to 2,000 hectolitres per year. About 15 breweries are now located there.

1 The breweries' annual production volume was estimated on the basis of interviews with a majority of the Brussels actors as well as on secondary sources. This number concerns solely production undertaken in the brewery's facilities. The categories are based on the escalation categories of Belgian excise duties.

Regimes of authenticity and business logics

What socio-economic logics govern the return of brewery production in Brussels's urban environment? Despite the limited number of new breweries in the city, we can nevertheless note a broad range of business and production logics, suggesting that brewers hail from various different social worlds. Although the microbrewery segment was largely forged on its opposition to large-scale industrial production, the motives for this critique are expressed in business logics founded on different registers of justification. Thurnell-Read (2019) recently explored the variety of discourses held by craft beer producers in the UK regarding their activities. These discourses highlight the central argument of authenticity, in contrast with the artificiality and standardization of industrial products. This authenticity serves as a production requirement as much as it acts as a mobilising discourse. Thurnell-Read lays out six motives for authenticity that form the narrative grammar of the craft producers: *procedural authenticity* – relating to production methods, *material authenticity*, which refers to natural processes and ingredients and the final products, *geographical authenticity*, which tie the activity to the locality and its past, *temporal authenticity*, which stresses the revitalisation of age-old traditions, *oppositional authenticity*, based on a critique of industrial production's lack of authenticity and, lastly, *biographical authenticity* centred on the producer's own story. These distinctions are useful, but beyond the narrative plurality, these justifications for the craft activity convey and legitimate several distinct business logics.

In Brussels, a first group of microbrewers is inspired by authenticity in the raw materials and production processes. This view is held by brewers who lay claim to scientific competence, often after university studies – enabling them to understand and master the biological and chemical processes at work in fermentation. Some of them started out working in the brewing industry before establishing their own brewery. They do not so much denounce the expertise to be found in the industry as much as the mobilisation of this knowledge for the sole aims of rationalisation – especially by accelerating the process of fermentation and selecting the 'tamest' raw materials for this process. They also critique the henceforth global marketing – which implies preservation and stability criteria as well as simplified taste (sweeter, less alcohol, pleasing to the mass of consumers and new markets to conquer). In contrast, the 'microbrewery world' is dedicated to the search for a productive authenticity, based on the quality and diversity of raw materials and mastery of complex fermentation processes, all of which calls for long learning curves and specific expertise. On this subject, another object of critique is the amateur brewer who is impatient to market their low quality beers. This logic accommodates a search to extend the activity, because the – growing – demand for products is a sign that demanding customers appreciate their quality. This growth, however, is reasoned and progressive, demonstrated through a generally limited range of products that are finely worked and stabilised. Furthermore, in terms of location, the infrastructures are generally not found nearby the places of consumption. One reason is that the main vector of identification is the product, not the production site (or spirit of the place). Another reason is that the infrastructure must be able to keep up with increases in volume and deal with a range of distribution modes (kegs, bottles, cans, etc.), which calls for modular logistics areas.

In contrast with this first business logic, many other new microbreweries identify with a place where both production and consumption take place. On the model of American brewpubs and taprooms, the beers produced on the site are available on-tap. The production tools are on display and integrated into the consumer area. The effect desired is the most immediate proximity possible between the brewing and tasting, thus playing on an ethic of transparency and fluid continuity between the vat and the glass. In the same way, the drinking area is intended for consumers who fully identify with the microbrewery; it thus becomes a place for community socialisation based on a shared culture of taste. This logic turns customers into partners, asking for their feedback about choices (such as voting on several proposals for future brews), valuing their opinion and getting them involved in the business project. Unlike the business logic described above, a variety of tastes and experimentation tends to be the normal practice. This logic is embodied in production organised around a limited number of permanent flagship beers and a larger number of (temporary) brews produced in smaller batches. As these breweries are based in smaller infrastructures – especially because of the limited space available in urban locations – the goal is to multiply small productions that enable different forms of taste innovations. Beer brewing thus comes to reflect a 'work in progress' culture that is willingly divorced from established traditions and dedicated to an ethic of novelty, discovery and stretching the boundaries. This second business logic is thus based on another notion of authenticity, whereby the beer becomes a pretext to experience a community conviviality, based on a certain rejection of the temporal authenticity of traditions which, in this case, are willingly abandoned. Beer becomes a cultural product, intimately tied to the context of its consumption which intends to offer an experience that is as much social as it is sensorial.

Lastly, a third logic, a small minority but nevertheless noticeable, completes this panorama. This logic is based on an oppositional authenticity that sees microbreweries as a vehicle for a critique of industrial capitalism. Especially inspired by the American Homebrew Clubs where amateur producers, on a shared site, discuss and pool recipes, know-how and tips, these breweries lay claim to the need to re-appropriate the brewing practice by making a complete break with its industrial evolution. Industrialisation, through its extreme rationalisation of the production process, turned beer into a chemically transformed product, relegating it to just another product for mass consumption serving the interest of multinational corporations. The lack of an obligation – unlike other foodstuffs – to list the exact ingredients of the most commercial beers is perceived as a sign of artificial and opaque agri-food practices. On the other hand, the principles expressed by proponents of this third logic include: transparency of products and procedures, accessibility of brewing practices and observing a clear line between amateur and professional brewers. Other principles are anchoring in a broader reflexion in praise of do it yourself and forms of cooperation among peers, promoted for example, in the world of open source software along with a will to reappropriate local food production. In several ways, this logic implies organising

the production area for its main function, possibly enhanced by a simple space for discussion and pooling practices among people sharing the same passion. It is no surprise to find this type of brewery in alternative sites, sometimes outside the typical brewery zones, as the search for profits is also relative and ill-suited to high rentals. On the other hand, alliances are sought with other alternative distribution vectors: cultural centres, sales outlets for local products, cafes that are not tied to contracts with specific breweries, etc.

Conclusion

This first analysis of the resurgence of brewery production in Brussels – based on data collected before the pandemic crisis – shows the historical continuities and breaches in the way brewing activities settle into metropolitan Brussels. This resurgence is at the same time both significant and as yet fragile, compared to more rapid evolutions in other metropolises. Nevertheless, in this field of observation it is possible to observe a double movement: constitution of a moral segment of the microbrewery in opposition to the dominating industrial segment, alongside an internal differentiation that expresses a variety of compositions based on a general grammar of authenticity.

Seen from the stance of the brewer businesses, locating one's activities in Brussels responds to a range of reasonings. The first business logic tends to search for a decentralised location offering a potential for production that can accommodate a certain growth, the second logic aims to find re-convertible manufacturing space (garages, warehouses, wholesale depots, etc.) in the urban space, and the third logic settles for smaller areas, outside the centre, that offer a potential to express an alternative identity.

The question of locating productive activities in urban space, however, cannot be reduced solely to business strategies. This is partly because these strategies are more interrelated than our analysis showed: an increase in production – by a brewpub, for example – can quickly require relocation or sub-contracting. What is more, the economic survival of all these business logics is not certain, because the articulation between moral values and economic value may be fragile. More basically, however, as it is a question of production and consumption of alcoholic products, the social significance of a resurgence of microbreweries in central urban spaces, definitely does indeed relate to broader issues. The microbrewery's relationship with various forms of authenticity also has a public impact that transcends the mere denunciation of heartless industrial rationalisation. The relocation, embedding, of a brewing production in the city does participate, through the tastes and lifestyles it promotes, in a certain concept of the city and human relations. A more deep-seated cross between economic sociology and urban sociology should shed more light on these issues at play.

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Conclusion

Beyond the productive city

Geoffrey Grulois, Jean-Michel Decroly, Louise Carlier

1. The vulnerability of productive activities in the urban fabric

In Europe's metropolises, most industrial activities, confronted with a variety of structural obstacles, become weak functions. Several factors have led to this fragility of urban productive functions, which is also apparent in the Brussels-Capital Region (BCR).

The first obstacle regards real estate. The weakness of productivity, or margin per m2, compared not only to other activities but also to real estate values, incites companies to move their activities elsewhere and abandon their production sites in the city. For instance, this is the case of Delhaize, with plans in 2021 to move its support services from its city location in Molenbeek to a suburban zone in Zellik. Another example is the decision by Léonidas in 2018 to leave Brussels, or even, to cite some of the cases studied in the MasterClass, the reconversion of six Brussels sites announced by D'Ieteren in 2019, and the offshoring of Océan Marée to the Netherlands in 2020. This situation is even more problematic when the activity site is large. This is why Zaman, in his text underlines the importance of 'big productive spaces' in urban environments and the difficulty of maintaining them in the city.[1]

Faced with competition from other functions, housing for a start, the zones reserved for these activities, whether vacant lots or still in use, are often seen by the companies themselves or public authorities, as real estate reserves. In the case of companies that own their production site, diversifying activities and the possibility to create subsidiaries focused on residential or office properties provide opportunities to capitalise the land they own (for example D'Ieteren Immo). In general, reconversion of former industrial spaces into residential and service zones or mixed zones, such as those defined in Brussels as Enterprise Zones in an Urban Environment (ZEMU*), plays a de facto role in reducing the productive

1 Considering productive activities that tend to be more classic, he argues for an urban integration model that separates spaces, both spatially and visually, thus preserving the single-function nature of production places.

surface area available in the city and reinforcing the pressure on the existing productive fabric (for example, Travie's site in Biestebroeck is located in a ZEMU*).

Temporary occupation by creative and circular economy activities places these spaces on-hold awaiting later real estate development projects that integrate a mixture of functions. This mechanism is also instrumental in enhancing the value of former productive properties, and may also serve speculative logics. One example is the former pharmaceutical factory Vesdre Continental in Biestebroeck, a site planned for the CityGate II mixed project. It is presently under temporary occupation by the Studio CityGate project, dedicated to creative activities. We can also mention temporary occupation of the D'Ieteren site, on the chaussée de Mons, by the Circularium project, which helps preserve a plot of land and a building pending a possible rise in its real estate value following the public authorities' implementation of policies to renovate the neighbourhood, which may enhance its attractiveness (parc de la Sennette). While the objective of an alliance between real estate promotion and other public and associative actors is to prepare the productive use of these spaces, it also makes use of the unoccupied space pending their final destination.

Other than the high value of real estate, another factor that hampers industry installation in the city concerns the environmental nuisances generated by productive activities, such as noise, dust particles and also risks of boiler explosions or fires.[2] These instances lead to the factories' closing, relocation or modernisation and are tinder for many controversies linked to proximity of residential and industrial functions. To the north of the the canal, construction of the prestigious UpSite apartment tower near the site of InterBéton, for instance, generated tension between the company and the new residents. While the cement factory's proximity led the residents to demand refitting to reduce the dust and noise, the arrival of inhabitants and administrative offices at Tour&Taxis forced the company to imagine a solution to limit nuisances. Consequently, in 2017 a project drafted by the BC architect firm proposed a canopy for InterBéton. The project has since been abandoned. To the south, in Biestebroeck, under the new ZEMU* status the Argos firm was obliged to remove hydrocarbons (6,000 m^3 of diesel and fuel oil) it had stocked on the Cotanco lot (SEVESO*[3] site). After the neighbourhood was opened to residential activities the firm could no longer ensure the security and environmental standards imposed, namely, a minimal distance of 100 m between housing and activities linked to handling, manufacturing, use or storage of dangerous substances. More broadly, the productive actors are faced with environmental constraints that impact both the location and the process of production in urban areas (Torre & Zimmerman, 2015)[4].

2 For example the 2017 fire at the Milcamps factory in Brussels, or the explosions at the Lubrizol plant in Rouen in 2019, and the August 2020 explosion of the ammonium nitrate storage Beirut, which are extreme illustrations.

3 The risks linked to SEVESO* sites are primarily those of explosions and toxic emissions. The BCR presently has three located in industrial zones, on port land along the canal (Comfort in Anderlecht, Lukoil Belgium and Total Belgium in Neder-Over-Hembeek).

4 See also the article by Marine Declève in this publication.

Lastly, there is the problem of logistics for productive activities in the city, transport of raw materials and finished or semi-finished products both to and from the production site. Indeed, only a small fraction of merchandise travels on water or by rail, the large portion is road transport (in lorries or delivery lorries). This situation causes traffic congestion along the major routes as well as serious air pollution (CO_2, fine and extra-fine particles) and noise, all nuisances for the inhabitants. It is also well worth mentioning that the productive activities themselves must cope with traffic jams, which jeopardises their deliveries, occasionally inciting them to leave the urban location and move to sites just outside the city which offer better accessibility. Furthermore, renovation of public spaces under urban renewal policies may also accentuate these problems and generate conflicts of use among different means of transport. In fact, these renewal projects, catering more to soft mobility, are often better adapted for the residential function, sometimes to the detriment of the productive function (narrowing roads, which makes manoeuvring more tricky, bicycle paths that run through loading and unloading spaces, limitations to heavy goods vehicles, etc.). We should also note that as logistics is an intrinsic part of a city's economic activity, reorganising production on the outskirts does not cut the number of trips by lorries/delivery lorries into the city, but merely makes trips to deliver goods take even longer (Strale et al., 2015). According to the actors of D'Ieteren Immo, 'we are working on the hypothesis that productive activities will leave the city, due to lack of space, lack of permits, but also because it is hard to bring deliveries into the city (especially for lorries). It is thus hard for companies to make a profit in town. On the other hand, locating one's activities in the city brings the company close to the needs (the city is a heavy consumer). As a result, people come to us because they are looking for this vicinity with the consumer'.

In Brussels, this difficulty in maintaining productive activities in the city is accentuated in the Urban Revitalisation Zone (ZRU*), particularly in the central area of the canal, studied in this MasterClass. These are former industrial neighbourhoods which are now seeing a concentration of public investments and instruments for regional urban renewal (such as the Regional Sustainable Development Plan* (PRDD*) or the Urban Renewal Contracts* (CRU*) in view of improving the living environment of the residents.

It is nevertheless important to underline that the difficulties described extend beyond the context of Brussels and reflect more structural tendencies linked to the process of de-industrialisation of urban space.

2. The ambivalent response of public authorities

While productive activities are thus now seen as weak functions, many actors involved in urban production (land use planning, public authorities, researchers, associations, etc.) at the European, national or local level call for maintaining or redeploying productive activities in the urban fabric.

The actors involved in reflexions and discussions on production in the city, Brussels and elsewhere, are motivated by different reasons – a mixture of environmental concerns, strategic questions and issues regarding social inclusion – when they encourage maintaining and/or developing productive activities. At the global level, reshoring production to cities is generally presented as an alternative to global supply chains that deny human and social rights and also lead to a rise in CO_2 emissions. These social and environmental arguments also dovetail with strategic arguments to defend greater independence from external sources for the supply of essential products, for example the lessons learned during the Covid-19 crisis. In particular, the movement favouring an economy of recycling and re-use (circular economy) strongly encourages a process to relocate productive activity back to the urban environment. This later strategy would also allow for economic redevelopment at the local level. In Brussels, these ideas are also at the heart of the Brussels-Capital Regional Programme for a Circular Economy (PREC*) adopted in 2016 with the objective of transforming environmental goals into economic opportunities. Lastly, redeploying productive activities in the city would also help provide jobs for people with lower qualifications bring resources to the inhabitants of working class neighbourhoods. It can also ensure proximity between the workers and the places of production. This is an argument shared by perspective.brussels* and Citydev*, which states that ‘Maintaining economic activity in the city also favours proximity to the workplace and simplifies the workers’ daily commute’[5].

While the public authorities, as seen in the context of Brussels, call for maintaining productive activities in the city, citing a range of justifications, we can nevertheless see that paradoxically, through their actions, they tend to exacerbate some of the problems, described above, that companies located in the city are up against.

Since 2009, the Brussels institutions have implemented a series of strategic and regulatory plans in order to formalise the place for productive activities in the city (all the while meeting sustainability objectives set at the European level): the PRDD*, the Canal Plan*, the Brussels Mobility ‘Goods’ Roadmap (Plan Marchandises*), the Small Business Act (Plan PME*), the Industrial Plan*, and so on.[6] These plans all aim to address the various difficulties encountered by the firms at the same time as they place constraints on both the economic actors and on operational urban renewal programmes. For example, the the Brussels Mobility ‘Goods’ Roadmap addresses the companies’ logistics issues

5 Interview with Marc Renson, Citydev.

6 On this subject, see the article by Marine Declève in this publication.

whilst aiming to attenuate conflicts with other uses of urban space (rationalising parking space for heavy lorries, increasing use of bicycle transport, optimising deliveries by grouping flows, etc.). The PREC* aims to integrate environmental concerns in the region’s companies, especially via a call for projects system. This later, however, mainly regards small firms and the eligibility requirements may be dissuasive for the economic actors.

The ambivalent action of public authorities can be observed especially in relation to the basic obstacle that the companies encounter, namely, real estate pressure in the city and the way this undermines spaces set aside for economic activities, in virtue of the need for and interest in new residential zones. The ZEMU* is a good illustration. This status was created when the PRAS* was revised in 2013; the primary aim was to meet housing needs for the predicted ‘population boom’. Certain industrial zones were redefined in order to encourage a functional mix between habitat and production. The geography of industrial zones formerly labelled as ZIU* (Urban Industry Zones) and ZAPT (Economic Activities, Port and Transport Zone) was thus partly altered. From the other angle, some High-Mix Zones (ZFM*) were redefined as ZEMU* in order to reinforce their productive functions. Nonetheless, prospects are not reassuring for maintaining and developing these functions in mixed zones – all the more so in ZEMU*, despite the initial intentions of the public actors. The vagueness in the ZEMU* definition of what a productive activity is often plays in its disfavour: interpreted broadly, this notion can also include intellectual production and commerce (like supermarkets). The ZEMU* were primarily developed in Brussels by private promoters who found it more interesting to opt for functions with a more lucrative price per square metre. This tends to skew the initial ZEMU* ambition to maintain productive activities in the city. Therefore the ZEMU* status is insufficient to meet the need to preserve zones with affordable property (such as single-function industry zones) so that productive activities can remain in the city. The traditional industries, in fact, tend to be pushed to mixed function zones to make way for housing and commercial areas. With this respect, the work by the MasterClass participants involved with the Biestebroeck site showed how the transformations to this historically industrial zone and opening it to housing made it hard for the productive activities located there to stay on.

Given the dual nature of its mission – to ensure both affordable housing and production spaces – Citydev* is the regional public actor grappling most directly with this tension between functions. Indeed, it develops its projects mainly in zones that the regulatory tools define as having a mixed function (ZFM* and ZEMU*). Furthermore, these projects often include a mix of residential and economic functions (whether vertical, at the scale of a building, like CityGate III, or horizontal, like Greenbizz). We can nevertheless see that it is particularly hard to find productive activities that are compatible with a residential function, that respect sound pollution limits and other parameters to limit nuisances and potential conflicts among functions. In addition, it is not at all certain that

economic activities present in the area where the project is developed will return to the new spaces that are not always designed in function of the companies' real needs.[7]

In addition to projects integrating mixed functions, Citydev's* mission is also to development infrastructures having a purely economic purpose. Some of the infrastructures created in this context – thus with public financing – are of a particular nature: business centres or incubators. We should note that this system (more largely reflecting the 'cluster' model), which aims to place local businesses in synergy, has been gaining ground, even beyond the context of Brussels and already from the 1990s, in efforts to restore the ties between economic development and its local territory; it is especially favoured by public authorities (Torre & Zimmerman, 2015). In Brussels, business centres refer to a mode of urban integration for productive activities that is a special priority in the ZRU* – urban revitalisation areas. Companies are concentrated in a series of innovation clusters located in territories that are themselves under development, in projects that integrate a mixed function (as illustrated by the case of Greenbizz, used for a case study by the group working on the Beco Vergote basin). Through this mechanism, a particularly favourite type of activity is small business, primarily in the crafts economic or circular micro-economy. Outside the ZRU*, Citydev* continues to develop infrastructures on the model of the industrial park, single-functional and isolated, intended to host either SMEs as seen in the Newton project (16 units of 250 m² to 200 m², partly financed by the ERDF*) or by small crafts companies as found in the TPE Newton II project (16 modular workshops from 141 m² to 175 m²).[8] In both cases, the model involves small storage facilities on the ground floor with another floor holding office space, built off the public thoroughfare and surrounded by vehicle access and parking lots. The surfaces available per business are similar to those offered by the business centres and incubators. In contrast, the scale of these infrastructures diverges from that of the vast industrial lots (several thousand square metres) that Citydev* has made available on the edge of the Region or by the Port of Brussels* in the northern section of the canal starting from the Vergote basin.

We should stress that the same small businesses assembled in the centres and incubators are the ones that tend to benefit from public subsidies, facilitated installation and/or backing from hub.brussels*. Most of these business can claim to be innovative, focusing their activities on creativity or sustainability, and they are more appropriate for location in the city because their size and/or type

7 On this subject, the group working on Biestebroeck and the CityGate III site proposes to identify upstream from the site transformation a partnership between the real estate developer (private or public) and one or several companies that wish to move into the zone. This partnership would be facilitated by public authorities and would make it possible to increase the developers' knowledge and ability to provide productive spaces more adequate for the services and equipment needed for production and logistics.

8 Note that according to Brussels Economy and Employment, a micro-enterprise (or very small enterprise) has fewer than 10 full-time employees on the payroll, a small enterprise has fewer than 50 full-time employees and a medium enterprise has fewer than 250 full-time employees.

of activity enables them to coexist with other functions.[9] We can nevertheless question the number of jobs created by these activities – producing goods that cater to a small public – which often seem to be limited to and held by people of middle-class origin.

As such, the tools set up by regional policies to regulate the place of productive activities on the Brussels territory aim to help these activities remain there while at the same time submitting them to various constraints, including logistical, environmental, type of business model or innovation criteria. All this tends to give precedence, especially in the ZRU*, to a specific model of urban production: small innovative businesses inserted in the urban fabric rather than more classic single-function industries requiring large surface areas.

3. Controversial development modes

The modes by which regional public authorities support the preservation and development of productive activities in the city are open to critique, debate and controversy. Different forms of tension can thus be observed regarding the type of productive activity to be supported and the modes adopted to design and arrange for their urban integration.

A major contention concerns the privilege granted to new types of productive activity, like the smart economy or crafts or the circular economy, which seems to be gradually replacing productive activities anchored in the urban fabric for decades. Until the 1970s-1980s, large industrial firms were seen as driving economic development, including in regional territories. However, the economic crisis and globalisation led to several upheavals, accompanied by de-industrialisation of city spaces and more astute attention by public authorities for smaller more local forms of production (Torre & Zimmerman, 2015). Criticism thus focused on spatial consequences of this shift including in terms of potential social-economic integration. Orban and Sanchez Trenado[10] consider that the classic activities helped maintain access to spaces and employment for the least advantaged social classes, while the new productive activities revolve around a process of gentrification of city neighbourhoods and are said to provide resources primarily for the middle class.

This relation between the craft economy and gentrification is analysed, notably, by Ocejo (2017) who observed and studied the return of a neo-artisan economy in North American environments, based on the ethnic origin of certain professions (bartenders, barbers, butchers). Originally considered to be 'dirty jobs' these

9 Based on the segments of gastronomy, clothing or entertainment, the network of businesses subsidised is oriented towards meeting the needs of current city life, and designed along recognised models for environmental sustainability, such as Kilometre Zero or reuse of wastes.

10 See their contribution in the 'Discussion' section of this publication.

productive activities have now taken on a new importance bring new value to these jobs. As the author shows, they are based on professional skills that are not just manual, but also communicational – the productive activity becomes a public performance. The craft economy, arising more generally from the post-industrial economy, is linked to new practices and consumption modes adopted by a 'cultural elite' or privileged publics. The craft economy goes hand in hand with gentrification processes taking place in urban spaces – by refashioning and requalifying these space they become the very motor. It is part of an urbanity that is hardly inclusive towards the populations who lived in these areas before they became valorised and reinvested with worth.

In Brussels, we can also observe a renewed craft economy, in various sectors, which seems to integrate easily in the central urban spaces of the ZRU*. The article by Delperdange and Zune looks into the question of micro-breweries, considered as emblematic of the redeployment of neo-artisanal activities in city spaces. The two authors show that the activities in question mobilise a diverse, segmented, professional world, where different business and production logics mirror the brewers' moral commitments – which all nonetheless express opposition to large-scale industrial production. Locations differ from one logic to the next: the plurality of commitment corresponds to diverse forms of integration in the urban environment. This thus opens the question, hitherto the object of few studies, regarding the spatial consequences of re-deploying these productive activities in urban spaces, liable to assume different forms.

While Orban and Sanchez Trenado worry about the logics of socio-spatial exclusion linked to the development of these new productive activities, Hill[11] considers the processes of social inclusion that their development may favour in working class neighbourhoods. His chapter discusses the importance of mixed urban spaces, where economic activities occur alongside other urban functions, especially residential. Based on the example of the Masui and Cureghem neighbourhoods as well as a few in Molenbeek, he shows the potential for social integration of the most vulnerable populations in these mixed environments and their capacity to host the development of small-scale productive activities (workshops, garages, businesses, etc.) which are part of both the classic economy and the craft economy, taken in a more global sense of the term (manual and artisanal activities in small workshops that have nothing to do with 'elitist' cultural and consumption practices, and which employ working class people – in contrast with the type of entrepreneurs and activities described by Ocejo).

These tensions among activities providing resources to the middle class or to the working class are at the heart of a debate on the methods for maintaining and developing productive activities in the city. They help reveal an essential issue to address in the perspective of a public policy for production in the city: the potential for social inclusion through productive and economic activities.

11 See his contribution in the 'Discussion' section of this publication.

Seen from this angle, different works presented in this publication propose a craft economy, integrated in the central urban environments, that addresses the socio-economic issues raised and consequently do not cause exclusion towards those who have been living there. One example is the Ferme des Boues project: this building, located in a space that initially was just outside town, was meant to host undesirable activities, which could have caused nuisances if located close to other functions (especially residential). A zone that was hospitable for undesirable activities – the canal area has long been open to industries – it was also hospitable for populations perceived the same way (such as newcomers, into a neighbourhood historically a site for first settlement, or the low income classes). Urban sociology, from its origin, has shown the correspondence between the site of undesirable activities in the city and the place given to populations also considered as undesirable – the army of workers employed in the industrial economy living in slums, dilapidated urban spaces close to factories and production sites (Engels, 1845; Park & Burgess 1921). The 'gentrification' often observed at present in the urban environments that welcome the 'makers' is a term that illustrates the fate of these populations – their gradual exclusion – when spaces hitherto considered undesirable take on new value, whether the value is monetary or symbolic. In the territory studied during the MasterClass, these productive, undesirable, activities were gradually pushed from the Beco basin to the Vergote basin, at the same time as real estate projects were being developed (residential or commercial areas) for a privileged public. The rise in real estate value of the Beco basin thus points to gentrification, an urban transformation dynamic that raises the question of the place still left for the lower income publics living there who, historically have been at home in this area. The MasterClass participants discussed the productive activities linked to crafts and the circular economy to be developed in this area which is presently the heart of various urban policies. They questioned the possibility for these projects to stem the gentrification underway and offer resources to the more disadvantaged populations living in the environment of the site under study.

More broadly, the projects proposed by the MasterClass participants mainly integrate productive activities linked to crafts or the circular economy and aim to keep them in the territories studied, without their development encouraging or supporting the gentrification and exclusion processes that were observed or feared. The projects thus look into ways that the development of these activities could dovetail with the pressing challenges of socio-economic inclusion in Brussels in the neighbourhoods under study.

4. Taking into account social inclusion and emancipation through work

Actors involved in urban question consider maintaining and developing productive activities in the city to be a key issue at stake, although their stances vary. The question raises controversy and tensions focalising on the type of productive activities to promote, the type of productive space to maintain or equip, modes of urban integration to favour. However, it must be said that little has been done to identify or debate the moral and political reasons that justify maintaining and developing urban production. The debate thus tends to elude a question that is nonetheless fundamental: what are the reasons for maintaining productive activity in the city and sustaining it through public funding?

Yet, this is a high stake policy question. Considering the means of action and the somewhat limited margin for manoeuvre in this area, which necessarily calls for choices and negotiations, the challenge is to express more clearly the goal pursued when public means are committed to support productive activities in the city.

As we reach the end of this collective research effort on the question of urban production, it is our conviction that, from the outset, to be discarded are purely economic or financial arguments in favour of maintaining or redeploying productive activities in the city. Indeed, in Europe, city centres and adjacent areas still suffer a disadvantage in relation to the dominant modes for organising industrial production. Firms involved in sectors where supply chains have become and remain global, for example textiles (clothing) or modular technological products (computers, smartphones), locate each step of production where it is the most profitable for them, considering factors such as salary levels, tax regimes, social protection of labour and also insertion in global logistics chains. In all these aspects, a metropolis such as Brussels has little to offer. The same can be said for sectors that are less conducive to global supply chains, such as automotives, chemicals and metallurgy, where operational units, often quite large, are located preferentially in vast industrial parks, on the outskirts of areas offering a supply of specialised workers and high accessibility, places such as the industrial zones at the port of Antwerp. Lastly, only certain companies still see an economic interest in settling in the city, those whose very existence is directly linked to its urban location, in virtue either of imperatives to be close to their market (maintenance, servicing, building materials that must be used quickly), have easy access to their inputs (recycling sector) or be close to a targeted clientele.

Rather than relying on the economic competitiveness argument, we feel it is much more pertinent to consider the issues of inclusion and urban ecology.[12]

On this subject, admittedly, like all the actors at the heart of debates on urban production and its public policies, during our work we were more focused on the weakened productive activities than on the precarity of the workers themselves. In

12 We should note that these two topics were at the heart of our earlier cycles at the Metrolab, and that both were the subject of a publication (Berger, Moritz, Carlier and Ranzato, 2018; Declève, Grulois, de Lestrange, Bortolotti and Sanchez Trenado, 2020).

other words, the issues of spatial implementation were discussed more than social issues – at the risk of turning the question into an aesthetic one (reducing it to questions of design or landscaping), as can be observed among certain Brussels actors. The difficulty in taking into account these different issues (spatial and social) at the same time echoes the dissociation observed in Brussels between the world of actors promoting urban integration of productive activities and that of actors involved in questions of local development and social inclusion, as Moritz shows in his contribution[13].

Emancipation and inclusion through work should nevertheless be an essential objective of a public policy for the productive city. While the ties between the city and work, emancipation and inclusion, are historic building blocks, it seems as if these dimensions are lost on a large part of actors involved in production in the city (land use planning practitioners, public authorities, researchers, associations, etc.) and we include ourselves in this group.

Since the development of the market economy, the social sciences have always presented the city as the heart and hub for economic exchanges and the circulation of both goods and people. As the city was a place of agglomeration by a diversity of individuals from all horizons, it was also a place marked by plurality. In the city, old anchors receded and individuals gained new liberty; this was in conjunction with an increasing division of labour, underpinning dual processes of individuation and interdependency by calling on new forms of solidarity (Durkheim, 1893; Simmel, 1903).

These new processes of individuation and interdependency, sustained by the division of labour, emerged against the backdrop of the industrial city – even if not all scholars at that time referred to it explicitly. We should remember that the Chicago School, although it says little about industrialisation processes, used as its laboratory what was then the largest industrial agglomeration in the United States, based on the exploitation and transformation of natural resources linked to the country's westward expansion (Cronon, 1991). We should also remember that Durkheim's works on the phenomenon of individuation and solidarity (mechanical vs. organic) were explicitly against the backdrop of the nascent industrial society.

The (industrial) city presented itself as a place where, according to contemporary thinkers, the promises of modernity – and the growth it generated – could be deployed: it presented itself as the place for modern liberty and emancipation as well as for social integration, in a context of abundant material resources. To begin with, the city as the site for a sharp division of labour (industrial, administrative and commercial) and a major social differentiation was the guarantee of individual accomplishment (Simmel, 1903). This discourse of individual self-fulfilment was also an essential component of the 'spirit of capitalism' (Boltanski and Chiapello, 1999/2005). Secondly, the city as the heart of industrialisation and the market

13 See interview of Moritz in this publication.

economy was also marked by immigration and an affluence of new arrivals, who gradually found their place in the urban community. While they often started off at the bottom of the social scale, the city acted as a ‘machine for integration’, presenting opportunities for a social mobility which, according to Burgess’s classical diagram, went hand in hand with spatial mobility (1925). The metropolis as the centre for economic and material exchanges thus underpinned two major processes for the thinkers of the early 20th century: emancipation and integration (through work).

Even though writers in the social sciences at the time had not been attentive to this phenomenon, it must be recognised that this articulation between economic development and modern emancipation was made possible through the industrial societies’ wide-scale exploitation of natural resources, as highlighted by Charbonnier (2020). As shown in the environmental history of Chicago sketched by Cronon (1991), urban industry laid the foundation for transformation of natural resources. While Charbonnier does not dwell on the question of the city, the relation we see with the works of Cronon shows that the emancipation of modern urban societies depended on industrial activity based on the exploitation and transformation of raw matter that nature provided. This interdependence between emancipation of urban societies, industrial transformation of matter and extractivism also largely characterises the history of the canal zone studied by the MasterClass.

While several sociologists at the time hailed the modern city’s promises of emancipation and integration, ethnographic descriptions and studies on the living conditions of the ‘labouring classes’ (Engels, 1845) or ‘hobos’ (Anderson, 1923) – considered as industrial capitalism’s reserve army of labour to which it occasionally provided its manpower in conditions of extreme precarity – painted a less glorified scene and showed the dark side of this economy in full expansion. Development of the industrial city revealed its processes of oppression and exclusion, which were concretised in spatial forms. The slums thus represented the ecological nature of social marginality, of economic and political exclusion. It is nonetheless true that the concentration of economic activities in the cities, particularly industrial activities, was approached from the view of democratic ideals – emancipation and integration – that were also the groundwork for a social and political critique of the processes of oppression, exploitation or exclusion engendered by the capitalist system, which shaped the living conditions of the labouring classes (Engels, 1845).

Today, this economic interpretation of the city has been thoroughly shaken. To such a point that it seems naïve to imagine the ideals of social integration and individual and collective emancipation being achieved via the urban economy, which has been undermined through job uncertainty, globalisation of supply chains and the dwindling of natural resources.

Rising precarity in the world of employment – for example the spread of casual labour, along with controls and moral pressure on workers and shrinking social protections – makes it hard to envisage work as the vector of an emancipation process (Castel, 2007): injunctions for flexibility, adaptability, polyvalence and autonomy show the extent to which this ideal of emancipation – long time the grounds for social critique of capitalism – has been recovered by this very system (Boltanski and Chiapello, 1999/2005), to the point that it has become an injunction of the working world itself. This growing precarity goes hand in hand with weakening of the trade unions’ role and dismantling of workers’ collectives. These were instruments that enabled influence on the economic organisation and considered collective empowerment in the professional sphere as a vector for individual emancipation.

On the other hand, recent transformations in economics have called into question the role of urban productive and industrial activities in processes of social integration. For example, restructuring of productive activities or the phenomenon of deindustrialisation in the city, corollary of the economy’s globalisation and the priority given to services, have ravaged some sectors and pushed into poverty groups of citizens who used to find work in their immediate vicinity along with the material resources necessary to get by. The post-industrial city and more specifically its economic organisation no longer offers possibilities for social-professional integration, abandoning to ‘non employment’ (Castel, 2007) part of the population, now defined by the notion of exclusion – which ‘refers in the main to various forms of expulsion from the sphere of work relations’ (Boltanski & Chiapello, 1999/2005, p.346). Excluded people are those left on the margin of society and the working world, who reduced to being assisted. We should note that this is the context in which the notion of inclusion seems to take precedence over that of integration, in both academic and policy making.

These new forms of poverty, such as those that preceded them, can be seen particularly in city spaces – which leads some authors to observe an urbanisation of the social question (Donzelot, 1999). They are signs of the crisis in a model of the city that placed industry at the heart of economic development, which ensured forms of social protection and held promises of social mobility, but which also depended on the outside for its supply in raw matter. The project for social emancipation thus implicitly assumed this context of material abundance, based on industries that transformed raw materials. Since the 1970s, the post-industrial city has been structured around a centre for consumption and services, relegating productive and industrial functions to its outskirts, thus limiting job possibilities for those living (trying to survive) in the inner city. The economic transition now envisaged, with the increasing emphasis on sustainability, the circular economy and short supply-chain, aims to reconstruct and territorialise this link between social emancipation and the material transformation industry by freeing the latter from the question of exploiting natural resources. This said, the innovation niches for the circular economy and crafts studied in the MasterClass (Greenbizz, Studio CityGate) show that this link is particularly complicated to forge.

Regarding the processes of precarity and exclusion – which in Brussels particularly affect the populations residing in the ZRU* – the policies for economic transition studied in this MasterClass struggle to address this problem and often do so in an ill-adjusted manner. While the policies, in the aim of infusing new dynamics, emphasise the implantation of productive infrastructures in these neighbourhoods, categorised as disadvantaged, these new infrastructures are neither designed nor developed with the publics concerned in mind. The employment sectors to promote in the name of inclusion and ecology have not been identified; little consideration is given to the needs of local productive actors in these sectors; measures to sustain collective emancipation in businesses have not been drawn up. Furthermore, more strikingly, there seems to be an overall lack of coordination with the sectors of training and actors working in socio-economic inclusion.[14]

Although the regional actors are not in charge of all the levers required to deal with objectives of emancipation – a question far beyond the metropolitan scale – we nevertheless think it is now essential that public authorities consider their role and potential contribution in this area, that they take a hard look at the economic organisation of the city and explore the place of productive activities from the angle of these processes of inclusion/exclusion, as well as the ecological issues at stake.

5. From the productive city to the inclusive city through manual work

These challenges of emancipation and inclusion are now particularly timely and various paths have been suggested to guide better adjusted public responses. For example the Democratizing Work Manifesto (2021) calls for work to be ‘decommodified and democratized’, something that is crucial in restoring dignity to workers[15]. Ferreras states that work is not a commodity, it is a life experience (2021, p. 43). In this approach, the productive city could be considered as a milieu where any individual should be able to find the material resources needs for their social inclusion and emancipation at work, in other words recognition of their ‘right to work’. This means providing all who so wish with access to work, enabling them to live in dignity and contribute to community life (Ferreras, Battilana, and Méda, 2021, p.21).

The ideas also resonate with ecological challenges we now face, giving a new political scope to aspirations for a ‘green city’ – which in our democratic societies cannot limit itself to mere environmental, or economic, considerations. For the authors of the Democratizing Work Manifesto, decommodifying, democraticizing and remediating the environment go hand in hand. Political ecology is developed by considering this basic relation between the ideals of emancipation and issues of the environment. For Gorz, ‘Political ecology thus uses ecologically necessary changes to the mode of production and consumption as a lever for normatively

14 See interview of Moritz in this publication

15 See also https://democratizingwork.org

desirable changes in the mode of life and in social relations. Defence of the *living environment* in the ecological sense, and the reconstitution of a *life-world,* condition and support one another’ (Gorz, 1992/1993, p.65-66). In this view, the sustainable city and economic transition should not merely enable moving beyond a logic of exploiting natural resources, it should also enable citizens to reappropriate the capacity to act responsibly and be engaged in their urban material environment. It should lead to redefining the basic link between social emancipation and material production, by uncoupling them from the exploitation of natural resources.

Various proposals can be put forward so that policies on urban production – and the public means earmarked for them – can address these ideals of inclusion and emancipation as well as the ecological issues at stake.

Turn the city back into a place for inclusion through work, whilst ensuring that the population has better access to basic resources

Like most of Europe’s major cities, the Brussels-Capital Region has, in the past three decades, undergone a paradoxical evolution in the socio-economic realm. Although its economic growth has been higher than in the rest of the country, social polarisation has also become more acute (Van Hamme, Wertz, and Biot, 2011). Indeed, metropolisation, or the (re)-concentration of certain activities in urban agglomerations, especially those of decision-making and management, has led to greater demand for a qualified labour force to feed the high level sectors but, at the same time, has entailed the erosion of low-qualified jobs in both industry and services. Far from countering these tendencies, urban development policies, inspired by the often decried notion of the trickle-down effect, encouraged this movement, for example by defending logics of attractiveness and support for economic decision-making activities.

To move beyond this long period of growth without social progress, it is necessary to re-orient urban economic policies. In this view, one possible response lies in implementation of the principles of the *foundational economy* (Bentham et al. 2013). Driven by a group of primarily European economists, this school of thought suggests that to counter the harmful effects of territorial development policies, strategies must be designed and implemented that target local production of goods and services that meet basic needs of the people living in the territory. This concept, inspired by the consumption base theory (Markussen, 2007) as well as the concept of presential/residential consumption (Davezies, 2009), seeks out activities that enable a city to operate day by day, by ensuring access for all citizens, regardless of their income, to the resources essential for their existence (De Boeck, Degraeve and Vandyck, 2020). At the time of writing these pages, when European societies are struggling to recover from the health crisis caused by the Covid-19 pandemic, this question is especially pertinent. The crisis itself and the measures taken to limit the spread of the virus revealed head-on the vital importance for the collectivity of certain service sector jobs – often badly paid,

low-esteem and held largely by women. It also revealed the equal importance of jobs in other fields, such as of healthcare (nurse's aids, cleaning staff, carers, homehelpers, nurses, etc.), distribution (shopkeepers, check-out counter staff, delivery people) and public services (trash collectors). These professions, providing 'essential' services, are major public resources that must be protected from the law of the market.

What is needed for certain services, with or without a public health crisis, is also relevant for certain productive activities. As De Boeck (2020) showed in the dissertation she presented on applying the foundational economy in the Brussels-Capital Region, the territory also holds production/material transformation activities that are essential to running the city and the daily life of its occupants. This is especially the case of several firms in the building sector (almost 4,000 firms and over 20,000 independents). Even though they create local jobs, even though they directly meet certain essential needs through their contributions to new construction, renovation and maintenance of built-up space, these firms are under extreme land pressure that jeopardizes their location in the city (De Boeck, Degraeve and Vandyck, 2020). Instead of letting this land pressure happen, or even encouraging it through measures such as the ZEMU*, the regional authorities could take care to preserve production spaces in the building sector. More broadly, they could also direct their support to other productive sectors, such as recycling and repairs, or the agri-food sector, making it possible for certain strategic and collective needs [to] simply be made immune [to commoditization] Ferreras, Battilana and Méda, 2021, p. 32). In this way, they would not only improve response to the inhabitants' material needs, but also support access to low- and medium-qualified jobs for citizens who are now barred from the working world – those who can only count on their own capital, their own network and their own investments.

In parallel, we also consider it essential for a subsidised economy to meet social and ethical goals, placing priority on humans rather than on strictly economic goals.

Give new purposes to manual work

The surveys and studies undertaken during this MasterClass showed that the focus, in the new business centres, given to the craft economy and circular economy do not respond to the needs for social inclusion through work and environmental responsibility. In the long term, replacing industrial activities along the canal and in the low-income area with high-tech business incubators (digital, green and circular technology) and high creative value (crafts) runs the risk of heightening a social, technological and digital fracture. This substitution is liable to transform the objectives of sustainable development into a new green technocracy divorced from social reality, or even reinforce the processes of dualization already at work in these territories.

On the other hand, the emerging social or collaborative economy models reintegrate the ideals of emancipation and integration in new collective forms, where priority is placed on reinforcing the capacities of individuals, on values that are social rather than economic or financial. The fablabs and other spaces used by *makers* could be seen first under this same perspective, as sites of democratic experimentation, cooperation, knowledge sharing and development of individual capacities for publics suffering from exclusion processes, rather than sites for technological innovation following the entrepreneurial logic and tending to place the competitiveness of cities in an international market. The examples of Blackhorse Workshop located in a London suburb, or Gilbard, located in the rue Cuylits Community Land Trust Brussels (CLTB) demonstrate the interest in thinking of new manufacturing spaces open to all citizens.[16] Both cases are manual labour workshops (design, manufacture, repair and reuse of objects), accessible to everyone, which function as places for exchange, apprenticeship and collaboration, pursuing social inclusion objectives.

This reorientation of the productive city towards objectives for emancipation and inclusion, dovetails with the notion of conviviality developed by Ivan Illich in the 1970s. For Illich, conviviality was the opposite of industrial and economic productivity. Turning from productivity meant replacing technical value with ethical value. More broadly, Ivan Illich stated that: 'Such a society, in which modern technologies service politically interrelated individuals rather than managers, I will call "convivial".' (Illich, 1975, XXIV). These words resonate with those of Crawford on the subject of manual work. After showing that, over the 20th century, Taylorism (dividing tasks along the assembly line, separating tasks of planning from those of execution) led to a separation between *doing* and *thinking* in productive activities, the philosopher-car mechanic underlines the psychic benefits of artisanal work, and thus its emancipating, rather than alienating, dimension. In addition to reconciling the *doing* and *thinking* in production of objects, manual work offers the additional advantage of providing the worker with tangible proof of their efficiency and skills. When they have completed their work, when they flip the switch that commands the electrical circuit they have just built, or when a motor has been repaired, the worker can experience fully the satisfaction of a job 'well done'.

To make productive work convivial, emancipating and democratic it must be decommodified. Along the lines of the Democratizing Work Manifesto, we make a plea for access to work to no longer be governed by market mechanisms. In this realm, the guaranteed job for all (see Tcherneva, 2020) offers promising perspectives, especially when it is managed by local collectivities that also endeavour to ensure access to basic resources for the population – starting with housing, healthcare and food. More in its initial intentions than in its implementation, the system Zero Long-Term Unemployed Territory (TZCLD), launched in France in 2017, shares this approach.[17]

16 See https://www.blackhorseworkshop.co.uk and http://gilbard.be

17 See www.tzcld.fr

From a spatial point of view, such a project could also take shape in developing productive infrastructures that are convivial and democratic. Considered as an alternative or supplement to business incubators, these infrastructures would be places to produce /transform/ repair material goods the local inhabitants need. In these places, freed of market constraints, the workers could pool the means of production. This would enable them to once again become actors of transformation of the material world. To meet the challenges of emancipation at work and democratization of economic activities, these sites for productive experimentation should be managed by platforms of producers that include citizens and workers. In the end, it is thus a question of reconciling *doing* and *thinking* in the act of production, which would enable workers to find a hold in the materiality of the urban world.

Seen from the angle of convivial productive infrastructure, the business centres are no longer considered as high-tech innovation niches, cut off from their social and material environment, but rather as places for inclusion through *making*. It is a question of developing what André Gorz calls 'open technologies' that foster autonomy, interaction and cooperation among individuals instead of opaque technologies impossible to appropriate by the citizens (Gorz, 2008, p.16).

The experience of Microfactory partially fits the notion defended here. As the founder, Gilles Pinault, underlines, the platform aims 'first and foremost to be able to meet specific needs of the city'. He also indicates that 'pooling has a direct impact on product costs: this enables artisans to start out, with an economy of scale, and even be able to move from crafting individual pieces to producing small series, and thus become a non-negligeable alternative to importing'. He adds that he is in favour of a 'third path between privatisation and nationalisation, where the means of production are controlled and managed by a collectivity'. As such, this raises the question of how can this type of producers platform find its place in the city.

6. A concrete proposal for Brussels

How can these different prospects take shape in Brussels? What levers can be found to give a practical extension to these proposals and anchor these questions in the Region's territory?

The first step is to identify the population's essential and material needs which are now furnished from the outside and need to be relocated back to the regional level. If the essential nature of some activities is obvious, the notion of 'essential needs' nevertheless needs to be clarified upstream, as illustrated in recent debates on defining and categorising 'essential needs' during the Covid-19 crisis. This clarification of the notion can draw inspiration both from discussions in France towards identifying the presential economy as well as those that accompanied the definition of the Foundational Economy at the

European level.[18] This reflexion must come about in the perspective of social inclusion through work and political ecology.

Once this reflexion has been carried out, the next step will be refining knowledge of the fabric of Brussels businesses in order to understand how they can meet these essential needs and principles of inclusion through work. A fine-tuned knowledge of this economic fabric means understanding the interdependency between companies and material resources in order to encourage exchanges and areas of complementarity. A close collaboration among regional agencies (hub.brussels*, perspective.brussels*, Citydev*) and the scientific realm will help refine the instruments for knowledge, support and regulation of the economic activities.

These reflexions, clarifications and analyses could lay the foundation for a revision of planning tools, based on the principle of preserving activities that meet basic needs and promote social inclusion through work along with ecological transition. In this context, the categories used by the Regional Land-Use Plan (PRAS*) could be revisited. Instead of basing them on the traditional division of economic sectors: primary (agriculture), secondary (industry) and tertiary (administration), they should serve to distinguish between economic activities that meet the criteria described above and other activities. The objective, therefore would be to use the PRAS* as a means to protect the former set of activities.

While these first steps require governance at the regional level, the next phase must spring from the territories of this public action, often corresponding to a more refined scale and mobilising the municipalities. This phase involves considering how the regional needs identified can find local responses. This requires identifying and providing support in these territories to productive actors and essential sectors that meet or could meet these needs, bearing in mind their own needs and interdependency. To do so, one possibility may be a methodology close to the one implemented under the Sustainable Neighbourhood Contracts-CQD*, which are based on local participation. This would make it possible to coordinate the various actors involved in developing productive activities and in essential needs in the different local areas (local businesses, workers, administrations in charge of urban integration of productive activities). Under this approach, local mediators could be in charge of project coordination and participation, which are needed to acquire the means to produce and take action responsibly in urban environments. Planning convivial productive infrastructure in the framework of these Local Economy Contracts would mean that the business incubators would no longer have to be seen in a top-down logic but as one of emancipation of local economic actors. Investment by the CPAS* of the City of Brussels under the Be-Here project demonstrates the willingness of social actors to become involved in projects for inclusion through work that mobilises *making* and local resources.

18 See work by the National Institute of Statistics and Economic Studies (INSEE) on the presential economy as well as the academic network on the foundational economy: https://foundationaleconomy.com

Sustaining local productive actors in a position to meet regional productive challenges means, first and foremost, taking into account their basic needs in space and infrastructure to enable them to develop within the urban fabric. As we have seen so often in this publication, one of the main hurdles faced by actors in urban production is access to land. Accordingly, sustaining businesses addressing inclusion and sustainability goals also, if not firstly, implies giving them a place in the city, preserving spaces where these businesses and related productive activities can install and develop. We have seen, in fact, that certain activities only manage to find a place in the city and develop once they are safe from land pressure and benefit from privileged access to certain spaces thanks to support from public authorities. These are often activities linked to reuse, the circular economy or crafts. We should note that temporary occupation which, in Brussels, concerns abandoned industrial sites, seems to be somewhat paradoxical. One the one hand they provide an opportunity to experiment with new *making* platforms ('convivial productive infrastructures'), in accessible ways. Nonetheless, the principle of temporary occupation also keeps these platforms from truly settling in, as their activities are condemned to move. Certain sites, on the contrary, could be set aside for experimenting new productive activities that meet needs for inclusion and sustainability, where they would be granted the time needed for their activities gradually to adjust to and integrate into their environment, doing so by meeting identified needs in products and services as well as employment offer. In Italy, the former *Filangieri* asylum, which the city of Naples made available to the inhabitants of a city neighbourhood, is a good example. This building in the centre of Naples had been abandoned and subject to speculation for over 20 years; it was turned into a common property in 2015. At this site the local residents and economic actors are able to experiment with new forms of sociability and production.[19]

Lastly, and above all, while the challenge is to meet both regional and local needs, the challenge is also one of meeting needs for training and inclusion through work. This is where the concept of convivial productive infrastructure becomes truly meaningful; it could be developed in the territories of public action and in direct articulation with local realities and problems. These infrastructures would be designed and developed by and for the local actors, along with actors involved in training, in the sectors that respond to essential needs in the region. They will also align with the objectives of ecology and inclusion, especially with respect to the publics in precarity who live in these areas. This calls for a second level of coordination, this time implying, in addition to the actors already identified, actors involved in training and socio-professional integration, an area where coordination with actors in urban policies is still insufficient.

19 See http://www.exasilofilangieri.it

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Annexes

Glossary on plans and actors

Actiris
Actiris is mandated to implement the Regional employment policy and offers a range of services to facilitate job search.

Maître Architecte / Brussels Bouwmeester – BMA
The BMA and its team, grouped within perspective.brussels, have as their mission to monitor the architectural and urban planning quality of public and private urban projects in the Brussels-Capital Region, by providing assistance and advice to the project owners.

Bruxelles Environnement
Bruxelles Environnement is the Regional administration in charge of the environment and energy management in the Brussels-Capital Region. Their fields of activity cover the environment in the broadest sense, among others: air quality, energy, soil, noise pollution, electromagnetic waves, waste management, production, construction and maintenance, sustainable consumption, nature and biodiversity, animal welfare, green spaces and natural areas management, runoff water management and the fight against climate change.

Bruxelles Mobilité
Brussels Mobilité is the administration of the Brussels-Capital Region in charge of equipment, infrastructure and transportation. Its main objective is to combine economic development – and growing mobility needs – with improved quality of life and sustainable development. Brussels Mobility manages the setting of mobility strategies, the development, renewal and maintenance of public spaces and roads, as well as public transport infrastructure, road safety and taxis.

Bruxelles Propreté
Bruxelles Propreté is a parapublic organisation that is responsible for public cleanliness and waste management in the Brussels-Capital Region. It ensures that the streets are kept clean and handles the collection of household and, partly, professional waste. Bruxelles Propreté also organises prevention and awareness campaigns on waste, recycling and public cleanliness.

Citydev (formerly Société de Développement pour la Région de Bruxelles Capitale – SDRB)
citydev.brussels is a public institution contributing to the Region's economic and urbanistic development. Its main objective is to attract and maintain high-added-value companies and middle-income households in the Brussels-Capital Region by offering them infrastructures (land or buildings) at attractive conditions and prices thanks to public subsidies. In doing so, citydev.brussels also aims to promote functional mixity inside the city.

CoBAT, Code Bruxellois de l'Aménagement du Territoire
The Brussels-Capital Regional Planning Law is the legal basis for urban planning in Brussels. The CoBAT establishes a number of urban planning tools to regulate and supervise urban and Regional planning: strategic plans (PRDD*, PCD*), land use plans (PRAS*, PPAS*) and urbanistic regulations (Règlement Régional d'Urbanisme – RRU and Règlements communaux d'urbanisme – RCU)

COCOF, Commission communautaire française
The COCOF is the public institution in charge of culture, education and healthcare for the French-speaking community within the Brussels-Capital Region.

COCOM, Commission communautaire commune de Bruxelles-Capitale
The COCOM is the common public institution that regulates and manages 'personnalisable' matters, i.e. Health and Assistance to Citizens, in the bilingual territory of the Brussels-Capital Region. The COCOM is also the bridge between the two other Regional Commissions that are responsible for 'community' competences: the COCOF* and the VGC*.

CPAS, Centre Public d'Action Sociale / Public Centre for Social Action
The CPAS are public bodies (there is one in every Belgian municipality) whose primary mission is to provide social assistance to certain people, mainly those excluded from social security rights. Specific measures of accompaniment and support, of a psychological, social, financial, medical or administrative nature, are granted to enable them to reintegrate into an active social life.

CQD, Contrat de Quartier Durable / Sustainable Neighbourhood Contracts
As part of an action plan supported by the Brussels-Capital Region, the Sustainable Neighbourhood Contracts (until 2010 entitled Neighbourhood Contracts) cover a specific area within one of the Region's municipalities, inside the ZRU*. The CQDs are limited in both space and time and focus on construction/ renovation of social housing, improvement of public spaces, provision of cultural and sports facilities for young people, creation of green spaces, support for social and economic integration… Each QCD includes a participatory process with local residents.

CRU, Contrats de Rénovation Urbaine / Urban Renovation Contracts
The Urban Renewal Contracts are part of an action plan supported by the Region and focus on a specific area within the ZRU*. CRUs are limited in space and time, and aim to improve areas located at the crossroads of different municipalities and neighbourhoods. Like the Sustainable Neighbourhood Contracts (CQD*), the Urban Renovation Contracts (CRU*) work at several levels: housing, economy, public spaces, environment, etc.

Entreprise de travail adapté (ETA) / Sheltered Workshop
In French-speaking Belgium, the ETAs (formerly called: Ateliers protégés) are social economy companies whose specificity is to offer temporary or permanent employment mainly to disabled workers, allowing them to carry out a professional activity in conditions adapted to their capacities. The ETAs are active in various fields ranging from the production of goods to the service sector. They are working in all types of activities, from agriculture or crafts to handling, assembly, cleaning and catering.

Europe 2020 Strategy
The Europe 2020 strategy is the EU's agenda for growth and jobs for the 2010-2020 decade. It emphasised smart, sustainable and inclusive growth in order to improve Europe's competitiveness and productivity and underpin a sustainable social market economy. The EU adopted targets to be reached by 2020 in five areas: employment, research & development, climate change & energy, education, poverty and social exclusion

FEDER, Fonds Européen de Développement Régional / ERDF, European Regional Development Fund
The ERDF aims to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions. The ERDF focuses its investments on several key priority areas: innovation and research, digital agenda, support for small and medium-sized enterprises (SMEs), low-carbon economy. The ERDF also gives particular attention to specific territorial characteristics. ERDF action is designed to reduce economic, environmental and social problems in urban areas, with a special focus on sustainable urban development.

FSE, Fonds Social Européen / ESF, European Social Fund
The ESF invests in improving employment and education opportunities across the European Union. It also aims to improve the situation of the most vulnerable people at risk of poverty. For the 2014-2020 period, the ESF focused on four of the cohesion policy's thematic objectives: promoting employment and supporting labour mobility; promoting social inclusion and combating poverty; investing in education, skills and lifelong learning; enhancing institutional capacity and an efficient public administration.

Fonds de Cohésion / Cohesion Fund
The Cohesion Fund is intended for Member States whose per capita gross national income (GNI) is less than 90% of the EU average. It aims to reduce economic and social disparities and to promote sustainable development.

hub.brussels – Agence bruxelloise pour l'Accompagnement de l'Entreprise
hub.brussels is a public institution that aims to promote the economic growth and attractiveness of Brussels. Its mission is to advise and support new economic projects in Brussels, to attract and create economic, technological and commercial opportunities and to assist public authorities in the development and implementation of a proactive economic policy ensuring a stimulating entrepreneurial ecosystem. The agency is also committed to the creation and development of businesses by providing a wide range of free advice, services and tools.

Liseré productif / productive strips
Productive strips, as a regulatory tool in the framework of the Regional land use plan (PRAS*), are still in the design phase. They follow the same approach as commercial strips, where the ground floors of buildings give priority to retail spaces. In the case of productive strips, the street-level spaces are dedicated to productive activities. This tool is designed to enable a balanced coexistence between these activities and other functions of the city.

PAD, Plan d'Aménagement Directeur / Master Development Plan
A Master Development Plan is a new urban planning tool that focuses on one of several strategic areas identified in the PRDD*. Both a strategic plan and a planning tool, it sets general guidelines for urban development but also specifies which functions are allowed in the area. This tool defines land uses, building typologies, mobility patterns and the general framework of public spaces. Development and implementation of PADs is carried out by perspective.brussels.

PC, Plan Canal / Canal Plan
The Canal Plan focuses on the area of the Brussels-Capital Region through which the Brussels–Charleroi and Brussels-Willebroek canals runs. This area, historically the Region's main industrial area, is now undergoing a major transformation process. The Canal Plan identifies various strategic actions and specific projects intended to improve public spaces, housing and economic development in this specific area.

PCD, Plan Communal de Développement / Municipal Development Plan
The Municipal Development Plan is the document that outlines the development strategy of each municipality on the basis of the guidelines defined by the PRDD*. It indicates the specific objectives of each municipality and their development priorities as well as the means to be implemented within this framework.

perspective.brussels – Bureau bruxellois de la planification
perspective.brussels is a public institution that conducts analyses on many aspects related to Brussels' territory: demography, economy, urban planning, housing, mobility, etc. perspective.brussels brings together several development actors of the Brussels territory and is in charge of the overall supervision of Urban Renewal Contracts (CRU*) with the help of BUP*. They also participate in the elaboration of several development plans and strategies (e.g. PAD*).

PIC, Programme d'Initiative Communautaire
Action programmes undertaken by the European Community between 1994 and 2006. Financed by the European structural funds, they were intended to solve problems linked to the implementation of Community policies at the regional level or to solve those common to certain categories of regions.

Plan industriel / Industrial Plan
The industrial plan (approved by the Brussels Government in January 2019) aims to develop a vision and a strategy for productive activities

in the Brussels-Capital Region. Within the framework of this plan, under the auspices of Didier Gosuin, Minister of Economy during the 2014-2019 legislative period, the following five sectors were identified as ‘to be strengthened and developed in an eco-systemic approach’: construction, manufacturing and innovative materials, agri-food, health, and creative and cultural industries. The plan is in line with the Region’s efforts to support the development of productive activities in Brussels.

PG, Plan-Guide
The Guide-Plan defines new regional strategies for urban renovation: strengthening urban centralities by focusing on urban boundaries within the ZRU* – margins, fringes – in order to improve connectivity between neighbourhoods. The overall plan is implemented using various tools (such as the CQD* or CRU*).

Plan Marchandises
Strategic plan developed by Brussels Mobility in relation to the goods transport policy.
The plan aims to guarantee supply for the city, limit nuisance, ensure integration with the development of logistics activities in the Region and to take into account the Region’s aims for sustainable development.
It establishes a number of measures aimed at reducing the pressure of logistics on the urban environment, thus also linked to production activities: rationalisation of parking spaces for heavy goods vehicles, adjustment of stops for loading and unloading, increased use of bicycle transport to counter the increase in the number of vans, optimisation of deliveries through the grouping of flows, etc.

Port de Bruxelles / Port of Brussels
The Port of Brussels is the public operator in charge of the port area located along the Antwerp-Brussels-Charleroi canal which hosts about 200 companies. The Port also manages the waterway in Brussels and is therefore responsible for maintenance and proper functioning of the city’s canal, mobile bridges and locks.

Plan PME / Small Business Act SBA
The SME Plan is an action plan coordinated by Brussels Economy and Employment in the aim to support SMEs and entrepreneurship in Brussels. It proposes 77 concrete measures to support SMEs and the self-employed by 2025 and follows five development axes of a pro-SME Region: creating an environment that is favourable to entrepreneurship, improving access to financing and supporting the diversity of entrepreneurs and businesses (a real strength of Brussels), improving relations between SMEs and the Region, and supporting businesses throughout their phases of change and opportunity (innovation, internationalisation, digital, circular economy).

PPAS, Plan Particulier d’Affectation du Sol / Local Land-use Plan
The Local Land Use Plan is a local urban planning tool that defines and prescribes the functions allowed in different zones and parcels within a limited municipal area.

PRAS, Plan Régional d’Affectation du Sol / Regional Land-Use Plan
The Regional Land Use Plan is a Regional tool of urban planning that defines and prescribes the functions allowed in the various zones of the Region’s territory.
It is the reference plan for urban planning.
The plan is binding and takes precedence over the other regulatory plans.

PRDD, Plan régional de développement durable / Regional Plan for Sustainable Development
The Regional Plan for Sustainable Development aims to tackle some of the Brussels-Capital Region’s major challenges. As a strategic tool for development of the city, it defines the main guidelines of the urban project at various levels – social, economic and environmental.

PREC, Programme Régional en Économie Circulaire / Brussels-Capital Regional Programme for a Circular Economy
The Regional Programme for Circular Economy, implemented by Bruxelles Environnement*, aims to replace the current linear economic model – based on resource consumption and waste production – by a circular one. Its objective is to transform environmental objectives into economic opportunities (creation of new activities and jobs), in particular by helping to increase the sorting and recirculation of waste through reuse and recycling. By adapting existing regional business support tools, the PREC also addresses ‘traditional businesses’ that want to integrate circular logics into their model.

SAU – Société d’Aménagement Urbain
The SAU is a public operator responsible for implementing development plans in strategic areas identified by the Government of the Brussels-Capital Region. The urban development agency acts as project manager or mediator between the various actors involved in these projects. The SAU works in close collaboration with perspective.brussels.

SEVESO
EU directive 96/82/EC, also known as the Seveso directive, requires Member States to identify industrial sites that pose risks of major accidents. The first version of the directive was adopted on 1 June 1982; it was named after the Seveso disaster in Italy (1976), which prompted EU states to implement a common policy for the prevention of major industrial risks.

Stratégie 2025
In order to face the challenges of the Region’s economy, the Brussels-Capital Regional Government, the Wallonia-Brussels Federation, the French and Dutch-speaking Community Commissions, and the social partners have decided to join forces in the framework of a common policy: the 2025 Strategy, initiated in June 2015 and coordinated by Bruxelles Economie Emploi. The 2025 strategy is based on three major axes: education, innovation, mobility & work. All the competences are thus brought together to boost the Brussels economy and curb unemployment among Brussels residents in the long term.

urban.brussels – Bruxelles Urbanisme et Patrimoine (BUP)
Urban.brussels is an administration of the Brussels-Capital Region. Its main objective is to support the territorial development of the Region in a sustainable way, by implementing the regional policy on urban planning, cultural heritage and urban regeneration (e.g. through the CQD* and CRU*). urban.brussels also provides administrative services relating to subsidies for renovation and embellishment of facades as well as legal advice.

VGC, Vlaamse Gemeenschaps-commissie / Dutch-speaking Community Commission
The VGC is the public institution in charge of culture, education and health care for the Dutch-speaking community within the Brussels-Capital Region.

Zone de forte mixité / High-mix zone
These zones of the Regional Land Use Plan (PRAS*) are dedicated to housing, but are rather open to the establishment of facilities of general interest or public service, offices and productive activities.

ZEMU, Zone d’Entreprise en Milieu Urbain / Enterprise Zones in an Urban Environment
The ZEMU is a new zoning category of the PRAS*, the Regional Land Use Plan, introduced by the 2012-2013 reform. It is intended for productive activities and integrated business services, but also for housing, trade, wholesale trade and public interest or public service facilities. The ZEMU is therefore an area in which businesses and housing can coexist.

ZIR, Zone d’Intérêt Régional / Area of Regional Interest
An Area of Regional Interest is defined to allow for the re-urbanisation of large disused urban areas, development of new urban areas or rehabilitation of buildings with heritage protection. These areas are defined in the PRAS*. Some of them have been the subject of a master plan or a PPAS*.

ZIU, Zone d’industries urbaines / Urban industrial zone
Urban industrial zones are intended for productive activities, logistic activities and activities related to improving the environment, e.g. water treatment and waste disposal, processing, recycling and collection. ZIUs are entirely devoted to the development of economic activities.

ZRU, Zone de Revitalisation Urbaine / Urban Revitalisation Area
The Urban Revitalisation Area defines the territory of the Brussels-Capital Region where the actions of public policies are reinforced. This perimeter is defined on the basis of 3 criteria: unemployment rate, median income and density.

Profiles

Metrolab

Mathieu Berger is a researcher and professor of sociology at the Université Catholique de Louvain (UCLouvain). He teaches urban sociology, theories of power, and qualitative research methods, among other subjects. His research focuses both on theories of democratic public spaces and political participation, and on social aspects of city planning and urban policies in Europe and the US.

Andrea Bortolotti is an architect and urbanist, currently a PhD candidate at the Université Libre de Bruxelles (ULB) Faculty of Architecture. He is conducting research on the politics of waste management and recycling through the lens of urban metabolism, within the framework of Metrolab and various studies sponsored by Brussels Environment.

Louise Carlier is a researcher at the Université Catholique de Louvain (UCLouvain). Her PhD in Social and Political Sciences (2015) focused on cosmopolitanism, and more specifically on the relationship between its urban and political dimensions. Her research interests are the relations of cohabitation and co-presence in urban public spaces from the perspective of human ecology.

Sara Cesari is a professional project manager specialised in the cultural and social fields. Before joining Metrolab, she worked as a project manager in various institutions and NGOs in Morocco, Italy, and Belgium. Her professional background combines experience in the public management of culture and strategic know-how in the field of human rights. Sara holds a master's degree in Cultural Anthropology from the Università di Bologna (UNIBO) and a postgraduate master in peace studies from the Università Roma Tre (UNIROMA3).

Romina Cornejo Escudero earned a master's degree in Architecture from the Université Libre de Bruxelles (ULB) in 2017 and a specialized master degree in Urbanism from the ULB in 2018. Before joining the Metrolab team, she collaborated in architecture, urban design, and research offices such as Latitude platform, and previously she worked at the Brussels planning agency (perspective.brussels) in the territorial knowledge department. Her interest in projects and research involves urban economy, productive activities and governance.

Bernard Declève is an architectural engineer and urban designer. He is a full professor at the Université Catholique de Louvain (UCLouvain). His area of research is the evolution of the living conditions in large cities and its influence on the urban and territorial project as a spatial concept and as a collaborative scope of action. He has an extensive international experience in Europe, Africa, and Latin America, with expertise in the collaborative urban research processes that involve public operators, economic actors, NGOs, and researchers.

Marine Declève, an urban planner (KULeuven-IUAV EMU 2015) and art historian (UCLouvain 2009), is a PhD candidate at the École Polytechnique Fédérale de Lausanne (EPFL) in the context of Metrolab.Brussels (UCL-LOCI). Her research focuses on the spatial issue of crafts activities, which have built the city and contributed to defining its image at various times in its history. Her studies on the places dedicated to crafts incorporate both cartographic and social investigation on the difficult relationship between working and living inside the city.

Jean-Michel Decroly is a professor of human geography and tourism at the Université Libre de Bruxelles (ULB), where he leads the research unit 'Applied geography and geo-marketing' (GAG). While pursuing research on the spatial variations of demographic behaviour in Belgium and Europe, he also focuses on the contemporary transformations of urban spaces, the modes of insertion and influence of particular groups (elites, artists, expats) in the Brussels area and the way tourism shapes territories.

Christian Dessouroux is a researcher in urban geography at the Institute for Environmental Management and Land-use Planning (IGEAT). Interested in cartographic analysis as well as urban history and economy, he has contributed to several publications on urban policies, transportation and the history of Brussels. His recent work focuses on the geography of urban real estate and land markets, urban reconversion processes and the challenges of participatory planning (JPI Urban Erope – Syncity).

Geoffrey Grulois holds a master's degree in Engineering and Architecture (Université de Mons – Umons FPMs and Tokyo University – UTokyo) and a PhD in urbanism (Université Libre de Bruxelles – ULB). He has taught at La Cambre school of Architecture since 2004, and at the ULB Faculty of Architecture since 2011. Since 2012 he has been the coordinator of LOUISE – research Laboratory on Urbanism, Infrastructure and Ecologies.

Roselyne de Lestrange is an architect and landscape designer. She has worked as a project leader in public administrations and private offices in France, Belgium, and Argentina. Her PhD in Urbanism focused on landscape as a driver of reterritorialisation from a mesological perspective. She collaborates with the Université Catholique de Louvain (UCLouvain) both as a teacher and a researcher. Her research interests are bioregional dynamics, transition landscapes, and metropolitan agro-ecological networks.

Benoit Moritz graduated in architecture (ISACF-La Cambre) and urban planning (Universitat Politècnica de Catalunya – UPC in Barcelona). In 2001, he co-founded the MSA office in Brussels with Jean-Marc Simon. He has also developed a teaching and prospective research activity at the Faculty of Architecture (ULB), where he is one of the coordinators at the Laboratory on Urbanism, Infrastructures and Ecologies (LoUIsE). His research focuses on urban projects currently developed in Belgian cities and the players involved. Benoit Moritz is also the author of many articles on the topic of urbanism.

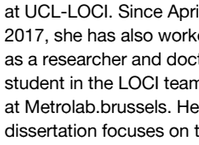
Louise Prouteau graduated in Political Sciences, with a major in European Policies, after studying in France and Germany. Before joining Metrolab, she gained experience collaborating with European cultural NGOs as well as European networks in France, the Netherlands, and Belgium. In addition to project management, she has worked on communication and on the strategic monitoring of European policies.

Marco Ranzato is an architect and urbanist and holds a PhD in Environmental Engineering. He has worked and collaborated with various academic institutions such as the Delft University of Technology (TUDelft), Tongji University (China) and the Université Libre de Bruxelles (ULB). Marco is co-founder and co-director of the Latitude Platform for Urban Research and Design. His research interests are ecology in urban design, co-design processes and the co-production of services.

Mathilde Retout holds a master's degree in Geography from the Université Libre de Bruxelles (ULB). She has worked as a researcher at Institute for Environmental Management and Land-use Planning (IGEAT) since 2018. Her research focuses on the field of urban, social and economic geography. Before joining Metrolab Brussels, she worked on the spatiality of economic elites in Belgium and the evolution of tourist accommodation.

Corentin Sanchez Trenado started a PhD at the Institute for Environmental Management and Land-use Planning (IGEAT) in 2017, after earning a master's degree in Geography at the Université Libre de Bruxelles (ULB). His interests and research focus on urban and social transformations of city centres, in particular on gentrification and urban renewal processes.

Anna Ternon graduated in architecture at Université Catholique de Louvain (UCL-LOCI) in 2015, and in urban planning at UCL-LOCI in 2016. Since September 2016, she has been a teaching assistant for the Master's in Urban and Regional Planning at UCL-LOCI. Since April 2017, she has also worked as a researcher and doctoral student in the LOCI team at Metrolab.brussels. Her dissertation focuses on the spatial impact of the evolution of the relationship between players involved in territorial transformation processes.



Pauline Varloteaux is an architect. She graduated in 2012 from the Ecole Nationale Supérieure d'Architecture et de Paysage (ENSAP) in Bordeaux, where she was an assistant professor in 2011. She has participated in several international workshops in Belgium and Japan and collaborated with such high-profile practices as Bureau Bas Smets in 2010, Studio Secchi-Vigano in 2012-14, and 51N4E in 2014-15. Since 2016, she has been a PhD candidate in the Laboratory on Urbanism, Infrastructures and Ecologies (LoUIsE). Her research focuses on urban projects currently developed in Belgian cities and the players involved.

Participants

Siloé Bayot was born in 1996 in Brussels and started a bachelor's degree in Geography at the Université Libre de Bruxelles (ULB) after high school. Interested in the environment and urbanism, she has undertaken two separate masters in these subjects. In parallel with her two masters degrees in environmental sciences and territorial development, she is following a teacher training course to become a high school teacher.

Bossard Alexandre studied geography at the Université de Genève (UNIGE), including a year at the Universidade de Lisboa (ULisboa) as an Erasmus student. His initial studies focussed particularly on urban questions and the related social and environmental issues. He therefore continued his education with a master's degree in Urban Studies at the Université de Lausanne (UNIL), with a social science approach, before starting a Specialised Master in urban planning at the Université Libre de Bruxelles (ULB).

Joe Bou Sleiman is currently studying for a master's degree in Transition and Urban Planning at the Université Libre de Bruxelles (ULB), following his degree in Architecture. He has been exposed to different experiences in architectural design, building site and management and has developed skills in planning, design and project coordination.

Cosimo Campani is an Italian architecture practitioner and researcher. He is pursuing a PhD in Architecture and Urban Studies between Università Roma Tre (UNIROMA3) and the Architectural Association of London. His research focuses on the interaction between labour and urbanism, particularly on cities and futurability (through a post-capitalist lens). He has taken part in research projects in London (Autonomy Uk), Russia (Derailed Lab), Pearl River Delta and California-Arizona-Nevada (Department of Ontological Theatre).

Zoran Caruso was born in 1996 in Charleroi. He is currently completing his complementary master's in Urban Planning at the Faculty of Architecture of the Université Libre de Bruxelles (ULB) where he previously studied architecture. His education included a one-year Erasmus in Seoul, South Korea at Sungkyunkwan University (SKKU). His thesis at the end of his studies dealt with the theme of the urban metamorphoses that the post-industrial city of Charleroi is currently undergoing.

Alexis Creten is a researcher in sociology at Université Catholique de Louvain (UCLouvain). He developed his interest in urban issues during his master's degree at the Université Libre de Bruxelles (ULB) and later as a researcher at Université Saint-Louis – Bruxelles. Specifically, he has worked on issues related to Brussels' pedestrian area in the city centre ('le piétonnier'), walkability and disabilities in commercial streets and the development of biking in Brussels.

Oriane Daugieras was born in 1996; she is currently studying territorial development in Brussels. She is from France but fell in love with Belgium. She is studying geography is because she believes that it can really have a positive impact on people's life. Her dream is for people to get back to a simpler life, one that values living without technological entertainment: getting closer to nature and animals.

Pauline Delperdange studied sociology at the Université Libre de Bruxelles (ULB) and the Université Catholique de Louvain (UCLouvain). In 2019 she started a PhD in sociology at UCLouvain. She is also a teaching assistant at the same university. She is conducting a research on the development of microbreweries in Belgium, and especially in urban contexts. Her interests focus on the (re)emergence of craft activities in recent years and the question of authenticity in economic activities.

Danielle Devoglio is currently working as a junior consultant at a French office specialising in the urban development of emerging countries. She has previously worked with urban studies in the Ile-de-France at a Parisian studio after completing a master's degree in Urban Planning with international expertise at the École d'Urbanisme de Paris (EUP) in 2019. After graduating with a BA(Hons) degree in Architecture at the School of Art, Architecture and Design, London, she lived/worked in Brazil, England, Italy and Czech Republic before settling in France in 2018.

Isaac Duvalier Tagne Foka was born in 1986 in Cameroon where he obtained a Bachelor's degree in Geography at the country's Université de Dschang (UDs), followed by a master's degree in Geography at the Université de Yaoundé I (UY1). He later benefited from a scholarship that enabled him to obtain a master's degree with distinction in Transport and Logistics at the Université Libre de Bruxelles Ecole Polytechnique de Bruxelles. He is now following the master's degree programme in Urban Planning at the ULB Faculty of Architecture.

Arianna Fabrizi De' Biani is a young Italian architect. She graduated in Environmental Architecture from the Politecnico di Milano (POLIMI) and pursued her master's degrees in Brussels at the ULB Faculty of Architecture. Urban development, public spaces and sustainable architecture have been her main interests. Over the past years, she has experienced these approaches in Belgium, but also in Benin, where she led various projects in both urban and rural contexts.

Andrea Fantin is co-author of the 'Atlas of Metropolitan Regions' and the essay 'The Marzenego River and the Diffuse city: Regeneration Scenarios'. He is member of the Urbicide Task Force, and is currently a PhD Student at Università Iuav di Venezia. His main research interests concern urban metabolism, ecological transition, circular economy and their relationship with the space. Since 2018 he has been working with the TSPA, an urban firm based in Berlin, as an architect supporting the spatial analytic and design branch through the lens of GIS and flow analysis.

Stefano Gariglio graduated in 2017 in architecture at the Swiss Accademia di Architettura di Mendrisio, where he was research assistant in the field of urban studies, with Prof. Antonio Calafati. Currently attending the master's programme in Urban Studies at the Université libre de Bruxelles (ULB) and Vrije Universiteit Brussel (VUB), he is working for the Studio Paola Viganò. His interests try to bridge the gap between research about the city and design of urban environment.

Alexis Gilbart, born in 1995 is presently a PhD student in Architecture and Urbanism at the Université de Mons (Umons). He started his research after earning a master's degree at the Umons. He is now working on the spatiality of productive activities and their integration within medium-sized city their periphery. This research is part of a prospective approach in search of a city that consumes less space.

Eugénie Laharotte obtained a master's degree in Architecture at La Cambre – Horta ULB (2019) following a year of study in Rome at La Sapienza (UNIROMA1). She trained as a student architect at the Studio Centurani (Rome) and as an architect and urban planner at Perspective.Brussels. She is currently working on a specialized master in Sustainable Urban Design and Regional Planning, at the Université Libre de Bruxelles (ULB). Her master's thesis is devoted to the analysis of food governance in the Brussels-Capital Region, in particular through the prism of agricultural production and land use.

Céline Liénart has followed a diversified educational experience since primary school, first in dance and later in art and design. She is now pursuing her path through architectural studies in search of a new way of looking at our environment and at the transformations it is undergoing. Recently graduating in architecture at the Faculty of Architecture and Urban Planning at the Université de Mons (Umons), in 2019, she is currently working towards a post-master's degree in Transition Urbanism at the Université Libre de Bruxelles (ULB).

Alessandra Marcon is an architect and urban designer and currently a PhD student at the Università Iuav di Venezia and the Université Paris-Est (UPEC). She has worked as an urban designer in a private office in France (Obras) and is a member of Latitude Platform for Urban Research and Design since 2011. Her interests and research questions are focused on landscapes, ecology and urban design. Her research explores the contemporary transformations of productive territories in France.

Alvise Moretti obtained his master's degree in Architecture, at Università Iuav di Venezia, in 2018, with a thesis on the territorial metabolism of the Venice's hinterland. During his studies, he attended a semester at the Manchester School of Architecture as part of the Erasmus program. He has also worked in architecture and urban design offices in Italy and abroad and is currently working in an urban planning office based in Amsterdam.

Jil Philippot was born in 1995 in Brussels, Belgium. She recently graduated from Université Libre de Bruxelles (ULB) Faculty of Architecture as an architect and has started a complementary master's in Transitional Urbanism at the same university. Interested in international exchange, she spent one year in Canada after high school, then one year in Seoul during her studies, and she is now going to Paris for an internship.

Klarissa Pica completed a Master degree in City and Environment: Planning and Policies at Università Iuav di Venezia, with a thesis on climate-proof waterfront redevelopment. She is currently a PhD student in Urbanism and teaching assistant at Università Iuav di Venezia. Her research topic is about coast transition. In addition, thanks to experience at the Universitat Autònoma de Barcelona (UAB) and an internship in London, she founded a local association aimed at social innovation projects.

Raquel Teixeira dos Santos graduated in 2018 with a master's degree in Architecture at the Universidade de Lisboa's Instituto Superior Técnico (IST) with an academic year at École Polytechnique Fédérale de Lausanne (EPFL). Her constant interest in areas related to urbanism led to her dissertation 'Public Space in the Regeneration of the City'. For half a year, she was an intern at GEOTPU.LAB as a book editor, collaborator and a researcher in areas of architecture, construction, and urbanism. She recently worked as an Urban Designer and Project Leader on an urban furniture project in Lisbon called Estaciona-te!.

Guest lecturers and contributors

Adrian Hill is a researcher, designer and planner. He works on projects that are built around governance, strategic communications and local economics. Over the last five years, he has focused on issues concerning production, manufacturing and resource management. Adrian was born in Canada, raised in Australia and Latin America and now call Brussels home.

Alexandre Orban is a researcher in human geography and urban sociology. His PhD is exploring the link between the production of space and labour conflicts, with the case study of Brussels' productive spaces from the 1980s to the 2020s. Alexandre has also contributed to the project Cities of Making, concerning the integration of manufacturing activities in European cities. Recently, he worked with Corentin Sanchez Trenado (Université Libre de Bruxelles – ULB) on the case study of Cureghem, in Brussels, to study the different social impacts of old and new productive companies, in the neighbourhood and the city.

Mathieu Strale is a researcher at the Institut de Gestion de l'Environnement et d'Aménagement du territoire (DGES-IGEAT) at Université Libre de Bruxelles (ULB). His research focuses on the location of activities and the problems of metropolitan mobility in Brussels and Europe. He recently published 'Logistics sprawl in the Brussels metropolitan area: Toward a socio-geographic typology' in the Journal of Transport Geography.

Benjamin Wayens, a geographer, coordinates the interdisciplinary network of studies on Brussels (EBxl) at Université libre de Bruxelles (ULB). He is also deputy editor-in-chief of the journal Brussels Studies. Although his research on Brussels is very eclectic, he has nonetheless developed in-depth expertise in quantitative urban observation and analysis of the logic that guides the location of activities. He teaches Applied Geography and Geomarketing and has been conducting research in this field for 20 years.

Jan Zaman is trained as an urbanist and spatial planner and works for the Flemish government administration. He specialises in economic aspects of spatial planning, and cross-border cooperation between Flanders and the Brussels capital region. Within the research programme 'Spatial-economic networks', he works in a team that strives to have the right company in the right place: in mixed environments where possible, in business parks where necessary, so that no net land take is needed to provide space for economic activities.

Marc Zune earned a PhD in Sociology from the Université de Liège (ULiege) in 2003 (FNRS 1998-2002). He has been a professor of sociology at the Université Catholique de Louvain (UCLouvain) since 2007. As a member of the Institut Iacchos, he continues his research at the GIRSEF – Groupe Interdisciplinaire de Recherche sur la Socialisation, l'Education et la Formation – centre where he has been vice-director since September 2017.

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