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A COMPARATIVE ANALYSIS OF STRATEGIC URBAN PLANNING  
IN BRUSSELS AND VIENNA

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# REINTEGRATING PRODUCTIVE ACTIVITIES IN URBAN SPACES: A COMPARATIVE ANALYSIS OF STRATEGIC URBAN PLANNING IN BRUSSELS AND VIENNA

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## ABSTRACT

Since the 2007 financial crisis, the strategic role of industrial manufacturing in urban economies has been increasingly recognized in the United States and Europe. The concept of the productive city represent a new vision for urban development that integrates living and production spaces.. The integration of productive activities into urban areas poses a significant challenges, but also offers opportunities to foster more resilient and sustainable urban models. This paper examines the urban and economic policies implemented in two European cities, Brussels and Vienna, by conducting a comparative analysis as a research method , with a focus on the types of activities defined by urban production and the spatial perspective. The findings of our analysis enabled us to develop recommendations for public authorities concerning the implementation of the productive city. Our results further illustrate that the productive city is not solely determined by the spatial distribution or classification of activities; rather, it represents a strategic approach aimed at establishing a development framework responsive to the specific economic dynamics of each context. Achieving this requires a clear articulation of objectives, the deployment of suitable regulatory instruments, and the adoption of participatory governance mechanisms.

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## KEYWORDS

Productive City, Mixed-Use, Comparative Analysis, Urban Planning, Productive Activities

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## INTRODUCTION.

The 2007 global financial crisis and the COVID-19 pandemic exposed the vulnerabilities of service-dominated urban economies, highlighting the need to diversify and reinforce local production systems. These crises revealed structural weaknesses, such as over-reliance on global supply chains and the erosion of local manufacturing capacities, amplifying the urgency for economic diversification (Christopherson et al., 2014; Grodach & Gibson, 2018). Decades of deindustrialization had relegated manufacturing to peripheral or newly industrialized countries, but these crises, coupled with the environmental emergency, have prompted a rethinking of urban production systems.

At the same time, the Fourth Industrial Revolution has opened new opportunities for innovative, localized, and sustainable production models, offering pathways toward economic, social, and environmental resilience (Klaus, 2017). The concept of the "productive city" addresses these challenges by integrating manufacturing and productive activities into the urban fabric, fostering mixed-use neighborhoods and reducing ecological footprints.

This study aims to:

1. Identify mechanisms promoting the reintegration of productive activities in European urban planning policies.
2. Compare the strategies of Brussels and Vienna, two cities adopting distinct yet complementary approaches to urban productivity.

This research aims to contribute to the advancement of current knowledge on the emerging concept of the productive city. It offers practical recommendations for policymakers to facilitate the integration of productive activities into the urban fabric.

### **The Emergence of The Productive City Concept.**

The concept of the "productive city" emerged as a response to the structural weaknesses of economic models overly reliant on services. Stephen Cohen and Zysman underscored the risks of such imbalanced strategies, advocating for an economic structure that better integrates industrial production. Advances in technology and the Fourth Industrial Revolution have profoundly transformed how we live, work, and produce, creating opportunities for more innovative and sustainable production systems (Klaus, 2017).

This concept calls for a redefinition of urban development, emphasizing the integration of new forms of work and production systems compatible with urban environments. It aligns with the European Union's strategic objectives, such as the Euro 2020 strategy, which advocates increasing the share of industry in GDP while fostering greater proximity between production and urban life (Euronews, 2012). The new Leipzig 2020 Charter addresses this topic recently, affirming that the productive dimension of the city is important for its sustainability and resilience, and describes the productive city as "...new opportunities for urban development through mixed use for living, working and leisure, where industry, retail and services sit alongside housing, hotels and leisure" (Leipzig 2020 Charter).

The COVID-19 pandemic further underscored the critical role of local production capacities in urban resilience. Cities unable to produce essential goods, such as medical equipment, faced severe disruptions, highlighting the risks of excessive dependence on global supply chains (Crague & Levratto, 2022). These events reinforced the urgency of reintegrating production into urban areas as part of sustainable urban strategies.

### **Multidisciplinary Perspectives on The Productive City.**

The concept of the productive city encompasses spans several disciplines, each bringing specific perspectives to its field:

- Economists and geographers examine employment dynamics and the coexistence of production with residential areas (Tanya Tsui et al., 2020). However, there remains limited consensus on what constitutes urban manufacturing activities. In its strictest sense, urban production refers specifically to the manufacturing and transformation of material goods within urban spaces (Brixy et al., 2021; Brandt et al., 2017, p. 4; Hill, 2020). Yet, a broader interpretation extends to include production-related services, categorizing these activities by their value-added nature, whether classified as "low-tech" or "high-tech" (TEIS WINTH, 2014-2015; Grodach et al., 2019).

- Engineers focus on manufacturing systems within emerging ecosystems (Hoda ElMaraghy, 2021; Max Juraschek, 2022 and resource-efficient value chains (Félix Kreuz, 2020; Walid Ijassi, 2022).

- Urban planners and architects emphasize reintegrating production into cities through mixed-use development (Ferm, 2016 ; Hassan, 2020; Meyer, 2024; Britta Hüttenhain, 2021; Bonello, 2022; Ryckewaert, 2021; Boeck, 2020). and typologies like "fab cities" and "maker cities" (Ferm et al., 2021; Bonello, 2022). although the typology of industrial buildings and the resulting urban forms remain underexplored.

Despite increasing scholarly interest, the concept of the productive city remains a nascent field, characterized by limited theoretical consolidation and practical implementation frameworks. (Bathen et al., 2019).

### **Case Study Selection: Brussels and Vienna.**

This research examines Brussels and Vienna, two cities with distinct approaches to productive urban planning, offering comparative insights. Brussels-Capital Region, as the EU's administrative hub, transitioned toward a service-based economy after deindustrialization. However, recent policies aim to reintegrate production into its urban fabric, focusing on mixed-use neighborhoods.

Vienna pursued a different trajectory, modernizing its industrial infrastructure rather than outsourcing production, aligning with environmental and economic goals. Through a comparative analysis of these two

cities, this study aims to elucidate how urban strategies address the integration of productive activities within the urban fabric.

### METHODOLOGY COMPARATIVE STUDY: BRUSSELS AND VIENNA.

The first step is to look into the availability of literature and data: conduct a search of all plans, studies, planning instruments, scientific articles, research projects, and other references on the relevant government authorities' web databases and websites. Brussels and Vienna are cited as references in urban development plans in German, French and London. Following document collection, targeted keyword searches were conducted for the terms "productive city," "production," "industry," and "urban manufacturing" in each document. Urban production is studied from various disciplines and perspectives and thus goes by many different names. There is little agreement on what types of production can be classified as urban manufacturing (Tanya Tsui et al., 2020).

The research was conducted in two cities with different cultures and languages, primarily German and French, making it challenging to reach a consensus on translating terms. The plans examined in Brussels were in French, while those in Vienna were in German with some English. Therefore, the term "ville productive," which refers to the integration of production and living spaces in the urban environment, is reflected in the following terminological variations: "productieve stad," "productive city," and "die produktive Stadt." In Belgian documents, the terms "activité industrielle," "industrie urbaine," and "activités productives" have occasionally been used interchangeably, whereas in Vienna, the terms "produktive tätigkeiten" and "städtische Produktion" have been used.

The second step was to select pertinent documents from the literature. Following a thorough examination of each document, only those strategic and regulatory urban and economic planning instruments that deal with the issue in-depth and do not limit themselves to mentioning the keywords "productive city", "urban production", "urban manufacturing", "productive activities", but which provide a vision or orientation on the development of the productive city or influence on the implementation of production in the city, were retained. To gain a global understanding of the adopted strategy, a puzzle of various governmental documents is identified: urban development plans, economic development plans, land use plans, and industrial policies. We examined at 12 plans, six for Brussels and six for Vienna, as shown in Table 1. The analysis was conducted at two scales, region and district, taking into account the differences between the two cases: city, region, and federal state.

In the third step, we applied comparative analysis to our empirical data corpus to explore and develop knowledge. It is a qualitative research method that sits somewhere between case studies and larger studies. It has the advantage of being intensive, descriptive, and fully comprehending the phenomena in their context. It would ignore neither the particular nor the general (Pelassy cited in Gazibo, 2002; Paquin, 2011; Gagnon, 2012). The methodology systematically investigates contextual variability (Schultheis 2003). The documents' content was analyzed, classified, and compared to three similar categories: productive city conceptualization, productive activities, and spatial approach. Our research goes beyond a simple comparison between the two case studies. It contributes to the debate on the concept of the productive city and helps to better understand the conceptualization of European urban and economic trends in terms of the types of productive activities and their spatialization.

*Table 1.*  
*List of plans referenced for research.*

City	Studied plans
<b>Brussels-Capital Region</b>	PRDD- Plan Régional De Développement Durable [Regional Plan for Sustainable Development] PRAS -Plan Régional D'affectation Au Sol [Regional Land-Use Plan] PI -Plan industriel [Industrial Plan] PREC -Programme régional de l'économie circulaire 2016– 2020 Go4Brussels strategy
<b>Vienne</b>	STEP 2025 - Urban Development Plan WWI 2030 Strategie WIEN 2030 Wirtschaft & Innovation [Strategy Economy And Innovation Strategy 2030] FPS - Fachkonzept Produktive Stadt 2017 [Technical concept Productive City] SCW- Perspektiven einer smarten Stadtentwicklung - Smart City Wien F-B - Flächenwidmungs- und Bebauungsplan [Land use planning] Aspern – The seestadt of Vienna

## RESULTS.

### General Description.

To gain a better understanding of the local context surrounding the implementation of the productive city concept in the two cities, we created a general description of the industrial sector's role in the two cities, as well as the development goals. The two case study cities have different proportions of industrial employment and added values. The share of employment in Vienna is twice that of the Brussels-Capital Region, and the added value produced by this sector in Vienna is four times that of the Brussels-Capital Region. As a result, production is regarded as a strong activity in Vienna, even “*an essential pillar of sustainable urban development*” (Stadt Wien online), while it is a “*...weak function in Brussels compared to housing and other facilities*” (IP, p. 7).

Table 2.  
Description of case studies cities

	Vienna	Brussels-Capital Region
Status	Federal State + capital city	Federal State + capital city
Area	414 km <sup>2</sup>	162.4 km <sup>2</sup>
Number of communes	24	19
population	1 931 593	1 222 637
People employed by the industry	61 000	21 000
Share of the industry in the employment	6%	3%
The added value of the industry	14.7	3%

Note: Data were taken from the Statistical Yearbook of the City of Vienna 2021 and the Brussels Institute for Statistics and Analysis 2020.

Regardless of the status of the industrial sector, both cities' urban and economic policies recognize the importance of integrating production for sustainable urban development. This question was raised in Vienna in 2006 with the signing of the settlement agreement “Vienna: City of the Future - City of Industry” by the city of Vienna and the Federation of Industry (it was renewed in 2008, 2010, and 2014), which was followed by the STEP 2025 in 2015 and the “Technical Concept of Productive City” in 2017, and finally the “Smart City Framework Strategy” and “Strategy Innovative Vienna 2020” in 2019. While in Brussels, the issue has only been raised since 2010, thanks to the initiatives of academic institutions and research centers, and has since been supported by politicians with the establishment of the Observatory of Productive Activities in 2012, the Brussels Mobility Goods Plan in 2013, the Regional Program in Circular Economy in 2016, the PRDD in 2018, and finally in 2019 with the Industrial Plan and the Strategy 04 GoBrussels 2030. All of these documents describe the role of the industrial sector in each city and the goals that must be met.

### - Conceptualization of the productive city

Vienna and Brussels share the common ambition of reintegrating production into their urban fabrics. They work for the integration of production in the city through the implementation of strategic tools, namely the productive city concept in Vienna and the Industrial Plan in Brussels, by incorporating the approach in the economic (circular economy, urban metabolism) and ecological transition of societies, as well as the change of production modes (niche, small scale, decentralized).

### Vienna: A Comprehensive and Spatially Defined Strategy:

In its thematic concept of the Productive City, realized in collaboration between the urban planning department and the Vienna Chamber of Commerce and Industry Federation. it's conceived as a strategic tool

for reintegrating productive activities into the urban environment, the productive sector is seen not only as an economic driver, but also as *“an essential basis of life for the Viennese population, which must be protected in the long term”* (Productive City Technical Concept, p. 16).

Vienna’s economic and innovation strategy focuses on strengthening the city as a hub for modern, high-value production. The city seeks to extend its reputation for an excellent quality of life to include optimal conditions for economic activity. *“Thanks to the comprehensive supply of highly qualified labor and the excellent infrastructure of the location, production in the economic and innovation region of Vienna is perfectly suited.”* Local stakeholders emphasize that *“Vienna is, and will remain, a great productive city”* (WWI 2030).

Vienna’s approach prioritizes specific industrial clusters, such as green technologies and creative production, fostering synergies between industry, research, and the urban fabric. This strategy emphasizes integrating production into the city through spatial planning. The Vienna Chamber of Commerce and the city’s urban planning department work together to define clear spatial strategies, establish criteria for managing production spaces. This represents a paradigm shift in urban planning, moving from a sectoral view of industry to a holistic and cross-sectoral approach embodied in the “concept of productive city.” (Productive City, p. 16).

#### **Brussels: A focus on employment and preservation:**

Thematic concepts do not exist in the Brussels-Capital Region context. The Industrial Plan defines the strategic vision for productive activities, implemented by the Ministry of Economy and Employment, recognizes that *“the productive function has weakened”*. To this end, *“productive activities must be better integrated into the balance between urban functions”*. The development of these activities *“is an essential factor in growth and innovation”* and aims to *“make productive activity one of Brussels’ strong functions, giving it priority in defined areas”*. The industrial plan identifies priority sectors to be developed in the city (developed in the following section).

The Brussels Productive City approach aims to facilitate the region’s economic development, create jobs for the people of Brussels and make life easier for businesses. It develops concrete proposals and measures that the government and its partners can implement to create favorable conditions and prerequisites for supporting and developing industrial activity in Brussels. However, unlike Vienna, Brussels does not have a spatial strategy explicitly integrated into urban planning, as the regional sustainable development plan was approved before the industrial plan was drawn up. This limits the coherence between industrial development and urban policy.

#### **-Types of productive activities:**

##### **Vienna: A clear framework for material and related productive activities:**

In Vienna, the concept of productive activities encompasses not only manufacturing but also related services such as logistics and transport. According to the Technical Concept of the Productive City, the productive sector includes material goods production, construction, logistics (supply, warehousing, transport, postal services, wholesale trade, energy distribution, and recycling), as well as service-industrial activities like cleaning, motor vehicle repair, and maintenance services see Figure 1. Additionally, specific municipal services, such as wastewater treatment, energy sectors, mobility, waste incineration, undertakers, and cemeteries, are considered unique components of Vienna’s productive sector.

Vienna’s focus on sustainable and innovative production dates back to the 1980s, with a notable emphasis on smart energy production and environmental protection. A flagship example is the Freudenu Danube hydroelectric power plant, the world’s first large hydroelectric plant situated within a city. This facility has become an international model for urban renewable energy production (European Investment Bank, 2019).

While Vienna’s smart city strategy aims to position it as “the European Digital Capital,” its approach extends beyond digital and technological innovation to embrace resource-efficient practices aligned with the circular economy. For instance, the establishment of a repair and service center underscores the city’s commitment to sustainability. This initiative not only promotes waste reduction and sustainable consumption but also contributes to economic growth and job creation. Furthermore, Vienna actively subsidizes repair costs to encourage broader participation in the repair economy. This dual focus on digital innovation and circular economic practices highlights Vienna’s integrated approach to urban productivity, combining technological advancement with ecological and economic sustainability.

### Brussels: Ambiguities in the Definition of Productive Activities:

In the Brussels-Capital Region, the definition of productive activities is more ambiguous due to the wide range of economic activities it encompasses. The *Regional Land Use Plan (PRAS, 2018)*, a legally binding instrument, defines these activities as “craft activities, high-tech activities, industrial activities, activities for the production of material services and intangible goods.” It further includes “management or administrative work, warehousing, and trade accessory to productive activities” (*PRAS, p. 67*). See Figure 2. This broad definition reflects the sectoral complexity noted in economic geography, where the boundaries between industry and services increasingly blur (*Bryson & Daniels, 2010; Carroué, 2013; Bost, 2018*). The Brussels *Industrial Plan* prioritizes five key sectors aligned with job-seekers’ needs: construction, manufacturing and innovative materials, agro-food, health (e-Health), and creative and cultural industries.

However, this semantic ambiguity in defining productive activities—spanning both material and immaterial domains—can lead to favoring certain activities over others, depending on the priorities of political and economic actors. This issue becomes particularly pronounced in mixed-use zones where diverse urban functions coexist. The Brussels-Capital Region’s Master Architect classifies productive activities to be revitalized into three categories: established enterprises, emerging activities like fab labs and craft breweries, and traditional crafts such as plumbing and locksmithing (*De Boeck et al., 2017*).

Furthermore, the *Industrial Plan* emphasizes the ICT sector not as a standalone industry but as a transversal enabler of productive activities (*IP, p. 17; NextTech*). This approach positions digitalization at the heart of urban economic development, with a focus on creating an environment conducive to the growth of ICT-related enterprises (*NextTech*).

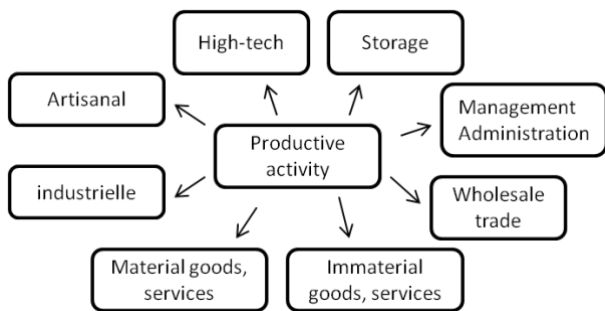


Fig. 2. Productive activities in Brussels.  
Source: Authors (2023) based on PRAS.

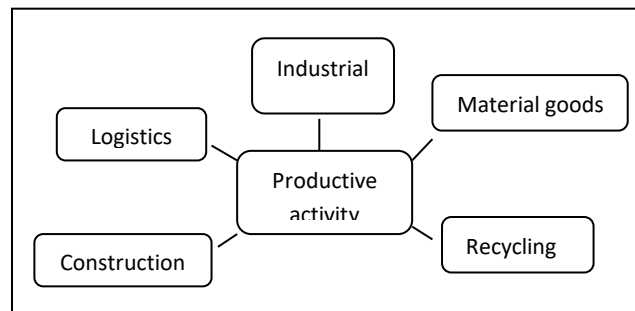


Fig. 1. Productive activities in Vienna.  
Source: Authors (2023) based on the Vienna Productive City Concept

### - Spatial approach

In Vienna's concept of the productive city, the focus is on halting the loss of productive land by securing 5% of the total urban area, or 300 hectares, for production and commercial activity. It identifies specific measures and operational conditions, along with map of potential future production sites across the city. The Regional Land-Use Plan (PRAS) of Brussels, through measures 3.1.1 and 3.1.2, defines the city's productive activity areas and specifies the maximum allowable floor area per building for productive activities within each zoning category. However, it lacks an assessment of companies' quantitative and qualitative space needs and fails to provide clear guidelines on how mixed zones should be managed."

The result of the analysis of the spatial approach in both cities is summarized in Table 3 (located in Appendix A), where each land-use category is defined according to the following criteria: development objective, type of activity/production, location, exploitation criteria, and prohibited actions.

According to the table, in Vienna, productive activity is permitted in three zones (industrial-commercial, mixed commercial, and integrated individual sites), while in Brussels, productive activity is allowed in six zones, i.e., in all possible land-use categories, but with varying degrees of importance: as the main activity in (zones UEZ<sup>1</sup>) and urban industrial, port, and transport areas), or authorized in mixed zones, (high-mix zones, and predominantly residential zones), with allowable floor areas varying according to the nature of each land-

<sup>1</sup> The 2013 demographic land use plan established a new legal and regulatory status for land use: Urban Enterprise Zones (UEZs). Faced with rising housing demand, relocating 30 ha of surface area from monofunctional industrial zones to mixed-use zones allows for establishing residential and commercial activities while retaining economic activities considered compatible with the latter function. (PC, PRDD, PRAS, OAP, 2012, 2018).

use zone. The difference in the number of categories can be explained by the strategic choice of each city's economic orientation. In Brussels, the economic restructuring following deindustrialization led to high demand for housing and tertiary activities, prompting local actors to allow housing in all land-use categories, except industrial zones. As a result, zoning is done at the block level. In contrast, the land-use planning in Vienna is done by zone, not by block, as its manufacturing industry has continued to exist in the city, adapting to contemporary requirements. This has allowed for the preservation and specialization of productive zones. This dynamic is also reflected in the political and socio-economic priorities of each city. Vienna prioritizes the preservation of industrial activities and, as such, limits the volume of residential activity in mixed-use zones. Conversely, Brussels promotes greater residential integration within mixed-use zones, imposing maximum surface limits on productive activities.

The regulatory strategy for the spatialization of the productive city in both contexts consists of incorporating status mixed-use zones into land use plans to introduce housing in some industrial UEZ zones in Brussels and commercial mixed-use zones in Vienna areas rather than opening up residential areas to productive activities to create places of life and work.

#### **A brief analysis of the application of these strategies at an operational level shows that:**

- In Bruxelles, a study conducted by the Observatory of Productive Activities on all authorized urban planning permits in 2018 and 2019 reveals a decline in the area allocated to productive activities in nearly every zone where such activities are permitted (Brussels Perspective, December 2020). The study shows that, while UEZ aimed to reinforce productive activities, the total area for these activities decreased by 11,000 m<sup>2</sup>, whereas new housing units increased by 76,000 m<sup>2</sup>. High mixed-use zones accounted for the largest share of this decline (37%), followed by mixed-use zones and residential zones, which saw decreases of 24% and 21%, respectively. Although UEZ is promoted by public actors as a spatial strategy to operationalize the productive city, particularly in the canal area, it was largely developed as a response to growing residential demand.

- In Vienna, the urban intensification of commercial areas within mixed-use zones allows property developers to construct up to three stories of commercial space and five stories of residential space, aiming to 'add operational value' to projects, according to the city's director of urban planning. However, the introduction of the 'subsidized housing' category in 2018 has significantly slowed residential development. This regulation stipulates that land rezoning or the conversion of a commercial building into a mixed-use commercial zone is only permitted if two-thirds of the housing is subsidized, resulting in only two projects being initiated. This situation highlights a conflict between regulatory and strategic measures, requiring thoughtful reconsideration.

Table 4 (located in Appendix B), showing examples of projects linked to the productive city in each land-use zone in the two cities. It enables us to illustrate the concretization of these strategies and anchor our research in empirical realities.

- **Brussels**, faced with high land pressure and limited availability of space, prioritizes the conversion of existing industrial areas into mixed-use zones. Initiatives such as Mediapark, the revitalization of the abattoirs, and NorthCity exemplify this strategy, where local micro-production and creative industries are emphasized, while maintaining certain large factories, such as Audi, which are modernizing under a sustainability framework (e.g., CO<sub>2</sub>-neutral factory certification). However, the significant reduction in productive areas, particularly in mixed-use zones, highlights the limitations of this approach in meeting the increasing need for housing.

- **Vienna**, on the other hand, benefits from more available land and relies on a strong manufacturing tradition. The city focuses on specialized planning, encouraging technological innovation and sustainability. Projects like the Breitensee Business Park and the Josef Manner & Comp AG factory exemplify this ambition to integrate modern industries into a dense urban environment. However, certain regulations, such as the requirement for subsidized housing in mixed-use projects, sometimes hinder residential developments, highlighting the tensions between urban planning and market demands.

#### **DISCUSSION.**

Our comparative study between Brussels and Vienna aims to understand how the renewal of productive activities is integrated into their respective urban planning policies. The results highlight important similarities between the two cities, as well as notable differences, and are summarized in Table 5.



*Table 5.*  
*Comparative analysis of productive city policies in Brussels and Vienna.*  
*Sources: Authors (2024)*

Criteria	Similarities between the two policies	Differences between the two policies
Approach and concept	<ul style="list-style-type: none"> <li>- Integrating production into urban environments.</li> <li>- Development of strategic tools to integrate production into the city.</li> </ul>	<ul style="list-style-type: none"> <li>- In Brussels, the focus is on converting and revitalizing existing industrial areas into mixed-use zones.</li> <li>- In Vienna, the focus is on the specialization and modernization of productive areas within the city</li> </ul>
Spatial Approach	<ul style="list-style-type: none"> <li>- A mixed-use functional approach combining residential and productive activities.</li> <li>- Transformation of certain industrial zones into mixed-use areas with residential spaces in both cities.</li> </ul>	<ul style="list-style-type: none"> <li>- In Vienna, the residential space is limited within mixed-use zones.</li> <li>- In Brussels, the floor area dedicated to productive activities is limited in favor of residential space.</li> </ul>
Types of productive activities	<ul style="list-style-type: none"> <li>- Extending the definition of productive activities beyond the 2008 Nomenclature des Activités Économiques (NACE).</li> <li>- Inclusion de services connexes comme la logistique et le transport.</li> </ul>	<ul style="list-style-type: none"> <li>In Vienna, the definition focused on manufacturing activities, with large-scale industrial parks in urban centers. includes production a large and small scale</li> <li>- In Brussels, the definition is broader, including intangible production and favoring small-scale production.</li> </ul>
Economic and ecological transition strategy	<ul style="list-style-type: none"> <li>- Integration of the productive city concept in the transition to a circular economy and urban metabolism.</li> <li>- Adaptation to new modes of production (niche, small-scale, decentralized).</li> </ul>	<ul style="list-style-type: none"> <li>In Brussels, there is fragmentation between urban strategy and economic strategy.</li> <li>- In Vienna, there is a more collaborative approach between the urban planning department and economic actors.</li> </ul>

### Similarities in the Approaches of Brussels and Vienna

Both cities share a commitment to integrating production into urban environments through strategic tools, such as Vienna's concept of the productive city and Brussels' Industrial Plan. These initiatives are part of an economic and ecological transition, adopting localized, small-scale production models that align with the circular economy and urban metabolism.

In terms of spatial planning, both contexts aim to transform industrial zones into mixed-use areas (in Vienna, referred to as mixed commercial zones and in Brussels as Urban Enterprise Zones), integrating both productive and residential activities. However, the implementation of these strategies differs in the following ways:

- In Vienna, the volume of residential activity is limited in redevelopment projects within mixed-use zones.
- In Brussels, the floor area dedicated to productive activities is limited per building.

### Divergences and Prospects for Improvement

- **Strategic Vision and Coordination:** In Brussels, the productive policy primarily focuses on preserving existing activities, with no clearly integrated strategy between the Industrial Plan and the Regional Sustainable Development Plan. This results in fragmented priorities and a lack of a clear operational strategy to manage mixed-use zones. In contrast, Vienna adopts a more collaborative approach between the urban planning department and economic actors. This synergy allows for a precise definition of spatial and functional needs for productive sectors.

- This divergence highlights the importance of integrated planning and increased consultation with local stakeholders to ensure the effectiveness of urban policies.

- **Type and Nature of Productive Activities:** Vienna adopts a more targeted definition, including related services such as logistics and transport alongside manufacturing activities, which helps preserve traditional industrial sectors. Brussels, on the other hand, broadens the concept by incorporating craft activities, high-tech activities, and the production of intangible material goods, which creates some ambiguity. This inclusive approach fosters a diversity of uses but leads to semantic confusion about priorities, making certain sectors less competitive in the face of economic and political pressures.

- A more precise definition of productive activities helps preserve traditional industrial sectors while incorporating related activities, such as logistics and transport.

- **Spatial Approach:** The Viennese strategy is based on a balance between urban densification and the preservation of economic activities, supported by clear operating criteria in mixed-use projects. In Brussels, the lack of clear criteria for small industrial plots expose them to gentrification, jeopardizing their productive function.

- **Observed Results:** In Vienna, the regulation of mixed-use zones has helped stabilize productive spaces while incorporating new urban functions. In Brussels, despite the ambition to preserve productive activities, the results show a decrease in productive spaces in favor of residential areas in all mixed-use zones.

- This prioritization of residential spaces over productive activity in mixed-use areas illustrates a contradiction between the stated strategy and the observed outcomes.

#### **Strategic recommendations for public stakeholders:**

The insights gained from this analysis lead to several strategic recommendations for public authorities to enhance the integration of productive activities into the urban fabric, while ensuring sustainability, inclusivity, and functionality.

#### **Strengthen strategic coordination between urban and economic policies:**

Clear alignment between economic and spatial priorities is essential for ensuring consistency between economic development, land management, and social goals.

This can be achieved by establishing a dedicated institutional framework to promote productive activities in urban areas, supported by a concrete action plan. An inclusive approach is crucial, involving stakeholders from the early stages of planning. This collaborative process should bring together urban planners, chambers of commerce, professional associations, and real estate developers to identify the needs of productive sectors and co-develop strategies, while adapting both strategic and regulatory instruments.

#### **Collaborative Planning Process**

- **Develop a precise typology of productive sectors:** Adopt a precise definition of productive activities tailored to local needs and ecological transition goals. This will ensure the preservation of traditional industrial sectors while preventing the dilution of objectives that can arise from an overly broad classification.

- **Protecting and enhancing spaces dedicated to productive activities** To effectively integrate productive activities into urban areas, it is essential to legally protect strategic industrial spaces by listing them in public inventories to prevent their conversion.

Maintaining, or even increasing, urban industrial zones is important since they provide the only spaces suitable for activities that may not be compatible with other urban functions.

It is also important to implement targeted measures to preserve small industrial plots, limiting their conversion to residential or tertiary uses, which often lead to land speculation. In Brussels, the lack of protection for small plots is a key weakness that needs addressing.

Finally, a detailed spatial mapping of needs is required, including a thorough analysis of companies' needs in terms of location, surface area, and building typologies, in order to offer targeted and sustainable solutions.

- **Regulating mixed-use zones to ensure functional balance:** It is crucial to rebalance the ratios between productive activities and housing in mixed-use zones to ensure the effective coexistence of these uses. One potential solution is to develop planning criteria that focus on establishing minimum requirements for productive spaces, rather than maximum limits. Additionally, experimenting with innovative projects that combine hybrid typologies could provide valuable insights.

#### **CONCLUSIONS.**

Integrating productive activities into urban environments presents a significant challenge, but also offers an opportunity to promote more resilient and sustainable urban models.

The comparative analysis of urban policies in Brussels and Vienna sheds light on the strategies developed by each city.

The results reveal similarities in both cities' ambitions to reaffirm the role of productive activities within their urban dynamics, while adapting to their respective economic contexts. While Vienna focuses on planning

centered around the preservation and development of specialized productive zones, Brussels emphasizes functional diversity to revitalize marginalized spaces.

The practices identified demonstrate that the integration of productive activities in urban areas is based on a clear vision, appropriate regulatory tools, and participatory governance, as well as the regulation of mixed-use zones to balance different functions. However, this analysis is confined to regulatory and strategic frameworks, without providing an in-depth evaluation of their long-term impact in real-world settings.

Future research could focus on qualitative studies, including the experiences of local actors, or a deeper evaluation of the outcomes of the policies implemented. This work paves the way for complementary research on how cities can align their goals of economic growth with ecological and social imperatives.

### Declaration of Interest.

The authors declare that they have no competing financial interests.

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**Appendix A**

*Table 3. Comparative Analysis of Production Spaces in Vienna and the Brussels-Capital Region" based on the technical concept of the productive city of Vienna. and The Regional Land-Use Plan of Brusseks  
Source: Authors (2024)*

	VIENNA			BRUSSELS				
Variable	Industrial-Commercial	Mixed commercial	Integrated Individual Sites	Mixed zone	Area of high diversity	Urban Enterprise Zone (ZUE)	Predominantly residential areas	Port and transport industrial zones
Development objective	- Secure spaces in the long term - Ensure supply - Fight against land speculation.	- Develop new forms of housing: workspace with integrated housing - Densification of existing central commercial areas.	- Securing individual sites - Preserving the mix and diversity of a structure - Means of urban revitalization.	Promote housing with more flexibility for retail, offices and small businesses	Preserve diversity and promote economic development. by integrating local services.	Maintain productive activities and create a mix of housing, shops and facilities.	Preserve residential functions while enabling local services.	Maintain a functional urban framework with adaptation to new logistical requirements.
Type of activity	- Manufacturing of resource-intensive goods - Logistics - Waste management - Services related to production (e.g. maintenance, logistics support).	- Crafts - Creative industries - Urban manufacturing. Authorized activities:- R&D- Sale of local products	- Small production companies. Authorized activities:- Urban logistics- Fine distribution services.	Main activities- Housing - Offices - Light productive activities. Authorized activities:Equipment of collective interest.	Main activities- Productive activities - Integrated services (hotels, offices). Authorized activities: Local shops.	Main activities:- Housing- Productive activities. Authorized activities:- Integrated services.	Main activities:- Accommodation. Authorized activities:- Small service areas (cafes, restaurants).	Main activities:- Accommodation. Authorized activities:- Logistics activities with environmental improvement
Operational criteria	- 24/7 operation - Adapted infrastructure equipment - Flexible spatial structures - Visibility on the recycling market.	- Residential tolerated up to 50% of the total volume - Essential compatibility for mixed use Full functionality guaranteed in the production sector.	- Non-declaratory procedure - ONLY if it is demonstrated that it is no longer usable for operational purposes: conversion and compensation.	Floor area for limited production 500m <sup>2</sup>	Floor area of authorized activities limited to 1500m <sup>2</sup> with 1000>Offices	Maximum floor area on the ground floor limited to 2000 m <sup>2</sup> by (possible increase) to 90% of the land area is the floor of the project	DRC limited to a maximum surface area of 150 m <sup>2</sup> for all authorized activities	A surface area of <300 m <sup>2</sup> for services per building



<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Actions to exclude</p>	<ul style="list-style-type: none"> <li>- Rezoning to other uses - Residential activity - Retail trade (except local supply).</li> </ul>	<ul style="list-style-type: none"> <li>- Any damage to the operation of the commercial structure</li> <li>- New commercial areas, with the exception of local supplies essential to the territory itself</li> <li>- Separation of residential and commercial areas</li> </ul>	<ul style="list-style-type: none"> <li>- Rezoning to other uses without demonstration of non-operational use.- Change of use without implementation of specific measures.</li> </ul>					
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Note: \*Particular Plan of Land Use (PPLU) zones


## Appendix B


Table 4: Examples of Projects Illustrating the Productive City in Various Land-Use Zones of Vienna and Brussels



*"Source: Authors (2024)*


City	Land use category	PROJECT	Development objective	Type of activity	Operational criteria
VIENNE	Industrial-Commercial	<p>Breitensee business park</p> <p>Restructuring of an old urban industrial building, located in the urban heart 5km from the city center of Vienna</p>  <p>Source: presse.wien.gv.at</p>	<p>This involves the reconversion of a historic site dedicated to production by raising the height and densifying the heart of the block into a mixed activity zone that can accommodate companies in the manufacturing of products, the provision of services and in the media.</p>	<p>Production Workshop Offices Business activity event spaces</p>	<p>The total area : 25,000 m<sup>2</sup>, including 1,200 m<sup>2</sup> of storage space. Flexible floor plans : 5,000 m<sup>2</sup> Offices and commercial premises, studios, event spaces, 08 workshops, and nearby residential units</p>
	Mixed-use commercial	<p>HOERBIGER</p>  <p>source : <a href="#">Google Street View</a></p>	<p>The new innovation centre brings together all services spread across Vienna and employs 500 people.</p>	<p>Research, Sales Production Administration.</p>	<p>Produces high-performance components for compressors, industrial engines and turbines, automotive engines and a wide range of applications in machine and plant construction but also research, sales, and administration.</p>



	<p>Integrated Individual Sites</p>	<p>JOSEF MANNER &amp; COMP AG CONFECTIONERY FACTORY based in Vienna since 1890</p>  <p>Source : Google Street View</p>	<p>Modernization and adaptation of the old factory to a vertical, centralized production mode. The project ensures compatibility between work and private life, and low commuting distances for 400 employees.</p>	<p>Head office Industrial activities And an outlet</p>	<p>Vertical urban production: Each floor has its own function: - Top floor: cream processing. - Lower floors: ovens, packaging, and logistics. - Retail space dedicated to product sales.</p>
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City	Land use category	PROJECT	Development objective	Types of activity	Operational criteria
<p>Brussels-Capital Region</p>	<p>Mixed zone</p>	<p>Mediapark Project Approved in 2024, located in a mixed zone (to the east) and in a zone of collective interest and public service (to the west)</p>  <p>Sources: © 2024 perspective.brussels</p>	<p>Land acquired by the Brussels Region, it aims to develop a new creative district on the Reyers site to host an innovative media ecosystem.</p>	<p>Residential  Creative industry activities with 60 creative industry companies already present on the site  Leisure: public space</p>	<p>- 1,400 new homes • -30,000 m<sup>2</sup> planned for new media sector activities • - 11 hectares of new varied public spaces, including almost 10 hectares of green spaces • - A new 99,000 m<sup>2</sup> headquarters for radio national</p>

Brussels-Capital Region	High mixed zone	<p>The redevelopment of the Abattoirs perimeter site is located in an area of high diversity with a collective or public interest.</p>  <p>status: in progress source : <a href="#">Google Street View</a></p>	<p>Transforming the site while maintaining economic activities and enhancing residential functions and public amenities.</p> <p>Public land management: collaboration between the municipality of Anderlecht and the economic operator Abattoir.</p>	<p>Multifunctional</p> <ul style="list-style-type: none"> <li>- economic (productive and commercial activities)</li> </ul> <p>Housing</p> <ul style="list-style-type: none"> <li>- Public-interest facilities</li> <li>- Leisure</li> </ul>	<ul style="list-style-type: none"> <li>- 200 housing units</li> <li>- public swimming pool with outdoor pool</li> <li>- development of public spaces and green spaces</li> <li>- Foodmet 12000m<sup>2</sup>, the largest covered market for fruit, vegetables and fresh produce in Brussels</li> <li>- 4000m<sup>2</sup> urban farm (vegetables and fish)</li> <li>- Manufacturing, 6,000m<sup>2</sup> currently under construction, which will house the meat cutting + food industry production and processing companies</li> </ul>
	Urban Enterprise Zone (ZUE)	<p><b>NorthCity</b></p> <p>Project resulting from a public-private collaboration between the private operator Futurn, citydev.brussels the Development Company for the Brussels-Capital Region and Inclusio. social real estate agencies (AIS) as partners</p>  <p>Status: Project completed Source : © una a Urban Nation Architects &amp; Associates</p>	<p>First private-sector SME park project in Brussels</p> <p>Redevelopment of the former Orchestra site into a residential and industrial zone.</p>	<ul style="list-style-type: none"> <li>- SME Park</li> <li>- Residential</li> </ul>	<ul style="list-style-type: none"> <li>- 7,575 m<sup>2</sup> SME park: park with a surface area of 2 (module-by-module sales managed by Futurn)</li> <li>- SME park with a surface area of 7,575 m<sup>2</sup> (rental managed by citydev.brussels) will consist of 17 workshop modules on two levels, more than 1,000 m<sup>2</sup> of offices, a covered car park</li> <li>- a housing area of 9,800m<sup>2</sup> with 123 residential units (rental managed by Inclusio)</li> </ul>

	<p>Areas with a predominance of residential identity</p>	<p>Micro brewery Beerstorming</p>  <p>Source : Google Street View</p>	<p>Combining beer production and housing within a vertically mixed-use structure.</p>	<p>Beer production Housing</p>	<p>Vertical mix: Ground floor: collaborative microbrewery and laboratory. - Upper floors: housing across three levels.</p>
	<p>Port and transport industrial zones</p>	<p>Audi factory Status: factory in production</p>  <p>Source : audibrussels.be</p>	<p>Established in the region since the 1940s, it currently specializes in the production of electric cars with the CO2 neutral factory label.</p>	<p>Industrial activity only</p>	<ul style="list-style-type: none"> <li>- 314,000 m<sup>2</sup> factory area</li> <li>- 53,555 vehicles produced in 2023</li> <li>- 300 batteries assembled daily</li> <li>- 24/7 logistics operation involving 13 wagons and 260 trucks.</li> </ul>