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The Workspace [R]Evolution

The comeback of incubator and its role in new urban economy

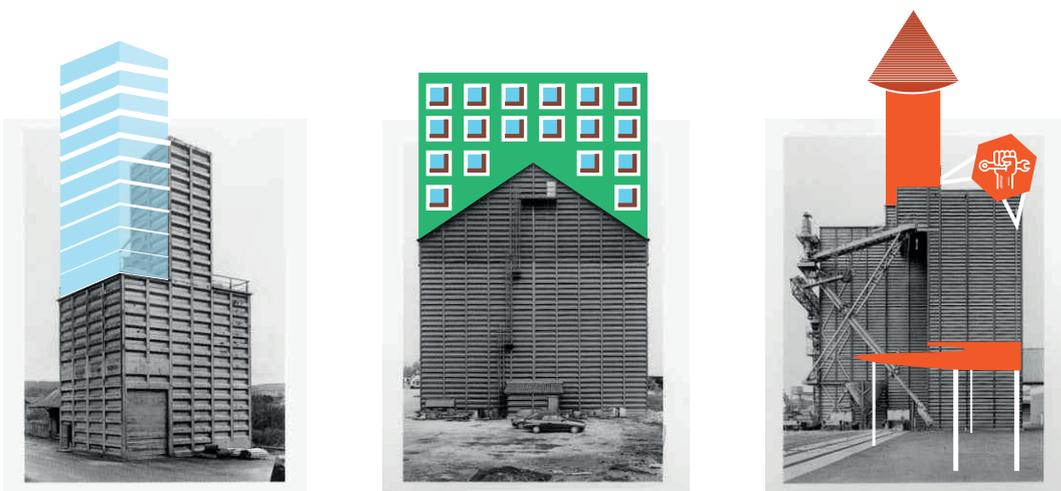
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Introduction

As new and important debate on the future of manufacturing has emerged, local and transnational governments are turning back their attention to the dynamics subsisting between global production systems and the urban context. Industrial activity, increasingly spread through global value chains (Bruegel, 2013), has undergone relevant structural changes, demanding a new set of values inside its organisational and spatial form.

Manufacturing material goods is changing, overtaking the clear division with the service sector, supported by a growing knowledge intensity in production processes and a reorganisation of businesses in response to rapid market fluctuations (Sassen, 2009). Industrial firms increasingly outsource activities to services companies and buy services from independent providers as an intermediate input, or perform themselves service activities (Helo et al., 2017; Illeris, 1996). The advance of digital technologies induced a horizontal reorganisation of companies in small and semi-independent units, taking the place of vertical bureaucratic structures not agile in dealing with fast-changing markets, technologies and labour structures (Windén et al., 2013).

In the same way, a pipeline of new technologies, under the concept of Industry 4.0, supports a tendency to modularisation, where final products are assembled from modules produced by the network of suppliers and subcontractors which therefore provide the most significant part of the value-added of the production (Berger, 2005). These include additive manufacturing, rapid prototyping, nanotechnology, robotics, smart communication systems, improving efficiencies in industrial processes (Drath & Horch, 2014). New technological innovations enable just-in-time and small batch production while reducing the entry barrier of new firms in the global market.

In the last decades, the transformation of the industry occurred in parallel with a drastic decline in the share of manufacturing activities in developed countries

(Winden et al., 2011). Delocalisation led to the closure of industrial plants, supported by the rise of environmental awareness and spatial constraints caused by an increasing cost of land and by the conversion to more profitable uses of the industrial fabric by real estate development. This shift as particularly affected routinised activities, more easily standardised and transferable to lower-cost locations. On the contrary, complex manufacturing production or small firms which base their actions on in-depth knowledge and a constant R&D, are more difficult to be delocalized, connected to a cultural and spatial legacy which they tend to enhance in a virtuous exchange of competences (Sassen, 2009).

Studies on the relationship between industry and urban space undermined their common mismatch, arguing that manufacturing should not be de-linked from typically urban knowledge-based activities, due to their importance in promoting and improving high-level service and R&D (Hatuka & Ben-Joseph, 2017; Architectural workroom Brussels, 2016; G. Leigh & Hoelzel, 2012). In a global competition to attract talent, resources and capital, cities need to maintain a solid manufacturing base for producing small batches of innovation and products, test concepts in practice, shaping a local “making knowledge”, and creating jobs. Research and production are two sides of the same process and need to remain in contact. Spatial proximity enables the creation of networks of learning and knowledge spillover, facilitates strategic interaction for fast time to market as trust and reputation mechanisms (Winden et al., 2013).

Space becomes a critical factor. Scholars argue that the network rather than the firm is the appropriate unit of analysis to study value creation (Castells, 2009). The physical space of the network is the enabling key for the creation of proximity relation patterns between activities, suppliers, customers and partners. A strategic issue to be critically examined from the scale of urban planning and city policies, which define zoning permission and strategic development plans, up to the fine grain of architectural studies to design and shape the next urban factory.

In relation to a revision of the dynamics between production and urban space, the thesis examines the incubator as a strategic tool for the reuse of vacant industrial buildings as space for urban manufacturing (Sassen, 2006) and creative industries (Howkins, 2001). The complex nature of the incubator has led scholars to develop different definitions, particularly emphasizing its administrative or business development services over geographical and physical characters. The research reclaims the importance of the incubator as a physical place, defining it as a multi-tenant building promoting affordable, flexible space and providing a variety of office and support services which shared the common purpose of sustaining the foundation and growth of new businesses.

The incubator was first developed between the 1960s and 1970s, formalized and institutionalized in the following decade (Campbell & Allen, 1987). The incubator pays significant attention to the role played by small enterprises, addressing the problem of new firm undercapitalization with the provision of affordable working space, business assistance and shared services. At the same time, physical relations

and co-location favour the emergence of a supportive environment with the realization of a collaborative network between tenants, establishing profitable trading and relationships.

The research, through the analysis of four case studies of industrial incubators in Europe explores incubator common spatial and managerial characteristics, decoding their development path and their role in the urban ecosystem. At the same time, the high density and mix of light manufacturing, services and design activities promoted by the incubator ecosystem, permit an in-depth analysis of spatial and managerial needs of urban manufacturing and creative industries.

Collectively, incubator buildings are not definable as a singular architectural type due to the unique spatial solutions necessary for production purposes, resulting in a wide variety of geometries and functions. They are located in the dense city, eliminating the insurmountable division with other urban functions promoted by zoning regulations, integrating working, domestic and service functions with high spatial flexibility.

Flexibility, in terms of space and management, is a fundamental aspect for the success of an incubator. Buildings are designed to allow firms to move within them as they expand, while short term leases and deferred rental payments allow companies to cope with market changes efficiently.

Architectural strategies, implemented in the adaptive reuse of the urban industrial buildings selected, highlights the characteristics and spatial requirements of urban manufacturing and the potential to integrate light manufacturing activities with other functions. Furthermore, the active involvement of tenants in space organization created a sense of belonging to the place, a shared vision for its future, creating strong social bonds and reconnecting an abandoned area to city life.

The results of the study highlight the importance the incubator in urban dynamics. The incubator has been identified as a “*physical middle-ground*”, a catalyst for local innovation connecting the upper ground, composed by formal institutions, and the underground level, composed by creative individuals (Cohendet et al., 2010).

The value possessed by the incubator relates in its physicality, in being a “*hard infrastructure*”, which determines its fundamental role in the relationship between the city and production. Spatial dynamics shown by pre-modern distributed urban production or industrial neighbourhoods, resemble current firms interactions that the incubator allows. In a renewed relationship between city and production, the incubator acts as a catalyst, where a change of scale and requirements of new forms of production (Rappaport, 2014) makes possible the elaboration of network dynamics that characterize today as the past culture of urban making. In the description of the anatomy of the city (Cohendet et al., 2010), the incubator assumed the role of a connective space, an interchange node of a more extensive system, the urban one.

The analysis of the incubator model is a critical factor in understanding the phenomenon of urban manufacturing today and at the same time, a fundamental

tool for its development. The complexity and stratification observed in case studies are closely linked to the dynamics of urban space, a physical network, where the incubator, as a strategic hub, is a vital part.

The research is limited to the analysis of four case studies of industrial incubators, developed to host light manufacturing activities and creative industries within the European territory. The selected buildings are part of a broader panorama that the research has not been able to address in its broad spectrum. The study investigated the historical development of the incubator through an architectural and urban approach, laying the foundations for future research of this phenomenon in the field of architecture.

At the same time, the analysis implemented an experimental method for data collection and analysis. The goal has been to collect valuable data on the phenomenon of urban manufacturing and build a critical tool for its analysis. The results are limited to a partial view, due to the impossibility of collecting a sufficient number of data. On the contrary, results can provide valid support for the development of urban policies and more conscious development of urban productive activities.

Research design and methodology

The research identified in the European territory, characterized by the strong presence of small and micro enterprises (European Commission, 2018), the context for a case studies survey and analysis of industrial incubators. Case studies were identified in industrial neighbourhoods facing a transformation of the spatial and social apparatus, located in traditionally industrial metropolises in transition or small industrial cities. Moreover, the selected case studies relates to the recovery and re-use of industrial buildings for new production purposes linked to the definitions of urban manufacturing and creative economy. The attention paid to the strategies of re-use of the industrial apparatus highlights the spatial characteristics possessed by the incubator model and its flexibility in hosting light industrial activities as well as other public function.

In order to identify the spatial properties of urban manufacturing, the research distinguished three elements of analysis: space, processes and users. The first chapter focuses on the analysis of technological, economic and social processes affecting spatial production requirements and workers profile in the urban context. The first part of the chapter concentrates on how digitisation, servitization and technologies involved in Industry 4.0 are transforming the contemporary factory and how its relationship with the urban context is changing. The second part analyses the characteristics of the creative economy and the creative city, the development of multi-local working dynamics, the rise of co-working and co-making spaces and the renewed relationship between education and craft culture.

The second chapter deals with the theme of space. The chapter highlights the evolution of spatial forms of production, starting from the characteristics of the

artisan society, an urban production model based on the workshop environment or the domestic space. From proto-industry to the modern factory, the chapter focuses on the different spatial models assumed by urban production describing their characteristics and relation to the city. The chapter concludes with an analysis of the incubator, describing its main features, its historical evolution, first projects that led to its institutionalisation and the critical issues in the study of this model.

The third chapter outline the methodology applied in fieldwork. The research started from the assumption that the factory represents a socio-technical object constituted by three main elements: process, user and space. These three elements are recognised as fundamental subject to be evaluated in order to decode the complex realities of the incubator analysed. The research has individuated in the use of interviews and questionnaires, instruments capable of supporting the graphics apparatus in the analysis of case studies. Particular attention has been paid to the transformation of the place both at a spatial and managerial level, identifying critical and success factors as common patterns of development of industrial incubators.

The fourth chapter concerns the description and analysis of the case studies starting from the results of the spatial analysis and interviews carried out during the fieldwork. Each case was analysed taking into account the history of the building and the strategies adopted in its reuse as an incubator, the managerial system and internal social relations. Particular attention has been paid to the transformation of the place both at a spatial and managerial level, identifying critical and success factors as common patterns of development, recognizable as structural of the industrial incubators model. Drawings, photos, archive documents and maps, are reported in the appendix of the fourth chapter.

The fifth chapter reports the analysis of the data collected through the questionnaires. This tool made it possible to describe the object of analysis from a different point of view highlighting the characteristics of the companies located within the case studies and describing general characters of urban manufacturing.



The view from the factory. KANAL/Centre Pompidou. Former Citroën Factory. Bruxelles 2018

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