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Vriesema, M.; Kloosterman, R.C.; van Kempen, S.; Pareja-Eastaway, M.; Vidaechea, J.; Miguel, M.P.

DOI

[10.5281/zenodo.6884621](https://doi.org/10.5281/zenodo.6884621)

Publication date

2023

Document Version

Final published version

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[Link to publication](#)

Citation for published version (APA):

Vriesema, M., Kloosterman, R. C., van Kempen, S., Pareja-Eastaway, M., Vidaechea, J., & Miguel, M. P. (2023). *Production networks in the cultural and creative sector: case studies from architectural design*. (CICERONE report; No. D2.1). CICERONE. <https://doi.org/10.5281/zenodo.6884621>

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Production networks in the cultural and creative sector: case studies from architectural design

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10 March 2023



This project has received funding from the European Union's Horizon 2020 research and innovation programme.

This report is part of the CICERONE project, which has received funding from the European Commission's Horizon 2020 Research and Innovation Program under grant agreement no. 822778.

The project is conducted by



UNIVERSITY OF AMSTERDAM



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This report is to be cited as

Vriesema, M., Kloosterman, R.C., Van Kempen, S., Pareja-Eastaway, M., Vidaechea, J., Pradel, M. (2023) Production networks in the cultural and creative sector: case studies from architectural design (CICERONE report D2.1) <https://doi.org/10.5281/zenodo.6884621>

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Production networks in the cultural and creative sector: case studies from architectural design

Project name	Creative Industries Cultural Economy Production Network
Project acronym	CICERONE
Grant agreement ID	822778
Deliverable number	D2.1
Responsible partner	University of Amsterdam
Work package	<p>The CICERONE project consists of seven work packages (WPs). This report is part of WP2, which constitutes the empirical backbone of the project. WP2 contains case study research that focuses on networked production in eight cultural and creative industries: 1) architecture, 2) archives (including libraries and cultural heritage), 3) artistic crafts, 4) audio-visual media (film, TV, videogames, multimedia) and radio, 5) design, 6) festivals, as well as performing and visual arts, 7) music and, 8) publishing. The purpose of the case study research is to understand key linkages and mechanisms within real-life production networks in the cultural and creative sector (CCS) and the relationships of these networks to context-dependent variables.</p> <p>Drawing on the case study research, the CICERONE project explores a policy framework that may contribute to enhancing policy support for the cultural and creative sectors. Furthermore, the case study research facilitates the identification of gaps in extant sources of quantitative data, suggesting approaches on how these gaps can be plugged. For this reason, WP2 is not just the empirical backbone of CICERONE, it also provides critical inputs for the work in other WPs (most notably WP4 and WP6).</p> <p>This deliverable (D2.1) reports on the case studies in the architectural design industry. Together with the reports D2.2 to D2.8, it provides strategic snapshots of the rich and variegated tapestry of European production networks in the CCS.</p> <p>All deliverables of the CICERONE project are publicly disclosed on the project's website www.cicerone-project.eu and through its Zenodo community on https://zenodo.org/communities/cicerone-h2020.</p>

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Introduction

If there is one cultural and creative sector (CCS) whose products are hard if not impossible to escape, it is architecture. The field comprises, among many other things, houses, schools, libraries, theatres, bridges, streets, and urban outlays – in short, much of the built environment that people experience on a daily basis. The review of the literature on architectural design demonstrated that there is not just a huge diversity in terms of output, but also large variations in terms of type, cost, and technological and organisational complexity. The demand for architectural designs can come from households (mainly private housing), firms (e.g. offices, shops), or the public sector (e.g. infrastructure, schools, and hospitals). While some clients may prioritise low costs, others may opt for reliability or socio-cultural or aesthetic values. Related to the variation in products and customers, the architectural practices themselves also display great divergence in size, strategies, values, and goals. However, it becomes clear that there are more or less coherent clusters of characteristics of products, market niches, and capabilities and strategies of architectural practices. Thus, the types of projects and types of architectural practices are closely intertwined.

Earlier studies have already indicated the diversity in size, projects, and competitive strategies among architectural practices (Blau, 1987; Kloosterman, 2008, 2010; Samuel, 2018). Below, we build on the typology of Coxe et al. (1987; 2005), which departs from the dominant strategies of the architectural practices. These strategies are not just related to the market niches that they target, but also intrinsically linked to the practices' capabilities, core values, branding, and, as we argue, position in the production network. Whereas in some typologies (such as Coxe et al.), the architectural practices themselves constitute the unit of analysis, we look at *projects*. Although there is a strong correlation between types of projects and types of architectural practices, starting from the projects instead of the practices can be seen as a useful refinement – individual projects are typically easier to map and characterise than the much broader and more complex networks of the whole portfolio of projects of an architectural practice.

Architecture is one of the most regulated sectors in Creative Industries, and it becomes compulsory to be part of the “guild” of architects to be able to participate in the market. However, these regulations are clearly embedded in the local tradition and path dependency of the sector. The theoretical corpus related to ‘project ecologies’ (Grabher, 2004), referred to in the introduction, works extremely well in this architecture. Trust and reputation are essential factors to be included in partnerships that compete in international contests. Furthermore, prizes and awards are pivotal in acquiring recognition. In the Barcelona context, the two studios considered are solidly related to the municipality of Barcelona and the regional government – to the point that Vicente Guallart became the head of the Urban Planning Office in the 2010s.

Within the field of architectural design, two poles can be observed. On the one hand, there is the large number of small and one-person practices – the latter constitutes 74% of the 565,000 architects in Europe (Samuel, 2018: 45) – catering to local markets and embedded in relatively simple, short production networks. On the other hand, there are the large international practices that are globally active and capable of dealing with very large, complex projects and embedded in extensive networks which often cross borders. These two poles must be considered to grasp how global production networks (GPNs) function within the field of architecture. This also involves considering patterns of relationships between these two types and their dynamics.

The CICERONE approach to production networks

The point of departure for the analysis of the CCS is the Global Production Network (GPN) approach, which was developed by Neil Coe and Henry Yeung on the basis of the Global Value Chain (GVC) approach (Coe & Yeung, 2015; Kloosterman, Pratt, D’Ovidio, Greco & Borén, 2019). The GPN approach is increasingly used to unravel production networks that involve a complex cross-border spatial division of labour. Such production networks have proliferated across many sectors as a consequence of technological advances in communication and transport as well as due to the liberalisation and deregulation of trade (Kano et al. 2020). These processes have also affected (many) CCSs. However, the GPN approach has rarely been applied to them (Coe, 2015 is an exception). By opting for this innovative approach to the CCS, the CICERONE project generated new insights on its functioning.

In a sense, we have used the GPN method to spatialise. Sociological approaches were already proposed by Howard Becker (Becker, 1982), with his concept of the *art world*, and by Pierre Bourdieu (Bourdieu, 1996), who developed the concept of *field*. Both approaches, the differences between them notwithstanding (Buttero & Crossley, 2011), aim at embedding the process of creation into a broader societal setting and at going beyond the identification of individual genius. When we use the GPN approach, we cannot simply position the CCS in that broad context – we must also highlight its spatial footprint. We thus employ the GPN approach as a tool for analysing a wide variety of production networks in the CCS. In other words, the approach is a heuristic tool that explains how the products of the CCS progress from inception to sale and whether and how they may be preserved for future generations.

On the pages that follow, we first briefly summarise the key elements of the GPN approach that guided our fieldwork. Thereafter, we focus on the process by which we selected the units of analysis for our case studies. This section is followed by an explanation of the manner in which our sample of case studies lays the foundation for a concise typology of the CCS which can be used by policymakers to devise more targeted combinations of interventions to foster economic growth and employment as well as social and cultural diversity.

Key elements of the GPN approach

Phases and the spatial footprint

Evidently, the most obvious feature of the GPN approach is the carving up of the value chain into distinct value-adding stages which can unfold in different locations and which may involve different sets of actors (including other firms). We have inserted the archiving phase into the value-adding stages because many (if not all) of those who participate in cultural and creative endeavours draw on the works of their predecessors in one way or another (Pratt, 1997). Therefore, in the CICERONE project, we, in principle, distinguish between the following stages:

- 1) Creation (the initial conception of an idea or a set of ideas that define aesthetic quality),
- 2) Production (the realisation of those ideas through an actual good or service),
- 3) Distribution (the sale of the good or the presentation of the service in front of an audience),
- 4) Exchange (the wider setting which enables distribution), and
- 5) Archiving (the formal preservation of the cultural product).

Creation

It is in this part of the cycle that new ideas, processes or approaches are devised. The notion of “creation”, in the sense in which the term is used here, is a social one – what is new is also relational, situated and conditional. Therefore, a “creative process”, that is, a method, is involved (“design” is an example). Reference is also made to history and to previous instances of creation (the preceding stage). Sometimes, this is referred to as “ideation”, that is, having ideas.

Production

An idea or a creative new thing remains provisional, potential and conditional until it can be stabilised or made. The intervening period is often called the prototype stage. Usually, the product is also developed during the multiple (or mass) production phase. Technology and labour costs, production decisions, and technological and regulatory standards affect costs and potential access to the products. Marketing and advertising are also relevant, but we allocate them to the exchange phase here.

Distribution or circulation

Products, even if they are new and unusual, are unformed and inaccessible unless they can be moved or migrated to markets or audiences. Physical distribution is clearly a key issue for access and reach. The same is true of digital approaches, which may overcome some barriers. Generally, distribution systems (or platforms) are expensive to develop and susceptible to monopoly control.

Exchange

Exchange is the stage at which the product of service engages the audience or customers. It is a critical moment of information exchange, and one in which (e)valuation occurs. That (e)valuation may take forms as varied as market transaction, participation or critique. Values are made and

stabilised at this stage. Therefore, marketing and expectation setting provide a link to distribution. In the experience economy, and particularly in the cultural one, the negotiation of value is a critical element of the transaction, and institutions have been developed that normalise it and reduce risks. The engagement of the audience or consumer is also shaped directly by advertising and marketing – to refer to the previous stages once more, the exchange process can determine which products are available for production and distribution.

Archiving

Since cultural value is relational, history and cultural diversity always interact with the present. Moreover, the process of reflection and learning (or that of rejection) is part of the critical appreciation of culture. The archiving of culture creates both normative structures that enable cultural production systems and the disruptive elements that facilitate new approaches. This stage also includes education (of audiences or consumers as well as of creative practitioners), institutions such as universities and media systems, and repositories such as libraries, museums and galleries. It is at this point that heritage is identified and later mobilised via the production system. More generally, archiving constitutes the resource from which new ideas are developed, which refers back to creation.

Source: D'Ovidio et al., 2019

We treat this model of the phases as a *point of departure*, not as a given, and we employ the case studies to explore the extent to which these distinctions may explain production in the CCS. As Throsby (Throsby, 2010, p. 25) observed, in some production processes in the CCS, there is no simple and neat sequence, and “[t]he apparent linearity of the value chain may be replaced, for some cultural products, by something more akin to a value network, where multiple inputs, feedback loops, and a pervasive ‘value-creating ecology’ replaces a simple stage-wise process”. Although he was rightly critical of the slavish application of a value chain approach to the CCS, he also observed that “[f]rom a policy point of view, depicting the cultural production process as a value chain allows an analysis of the effects of policy intervention at various points in the chain. For example, in assessing the impacts of existing policy measures, or in determining the optimal point at which to apply prospective measures, the policy analyst can use the value-chain concept to clarify where the effects of intervention have been or will be felt, and who are the affected stakeholders upstream or downstream from the point of intervention”.

It therefore stands to reason that one should start with the conceptual framework of these stages and then determine which phases can be identified as distinct, which boundaries are blurred and which phases overlap or are deeply intertwined. Subsequently, we locate phases or combinations of phases – the spatial footprint – and we identify the parties that are involved. In this manner, we extend our focus beyond creation to include other parts of the input-output structure of the CCS.

Governance

The second element that we derive from the GPN approach and which we use to open the black box of the production network is the concept of governance. The complex global value chains and production networks which have been studied (mostly in manufacturing) typically exhibit asymmetrical power structures, with one lead firm engaging in explicit coordination (Gereffi, 2005). This lead firm may be involved in the production phase (producer-driven chain) or in the distribution phase (buyer-driven chain). If power dynamics are asymmetric and a lead firm takes charge of coordinating the network, it may be inferred that it is capable of forcing the other actors to act in a certain way but also that it can capture much of the value that is created in the network. Similarly to our approach to the stages, we do not take the existence of a lead firm in the CCS for granted. Instead, we attempt to identify a more explicit hierarchical power distribution or a more dispersed horizontal one. Furthermore, we do not assume that the presence of a lead firm or actor necessarily results in an asymmetrical distribution of (economic) value, and we examine this issue as a research question.

Embeddedness

The third element that we use to understand the production networks of the CCS is that of embeddedness. In his seminal work on the transformation of the British economy in the 19th century, Karl Polanyi (Polanyi, 1957) emphasised the importance of the institutional context in which all economic actions are embedded. In this context, differences in embeddedness affect economic actions, the likelihood of their occurrence, the manner in which they unfold and their consequences (Granovetter, 1985). This view became widespread in economic sociology, organisation studies, strategic management (Smelser & Swedberg, 2005) and, somewhat later, in economic geography. The GPN approach explicitly aims to apply embeddedness to make sense of the spatial footprint of the production network: why are such-and-such activities located in such-and-such places? According to Kleiber and Horner (Kleibert & Horner, 2018), the operations of actors within the same universalistic category of a transnational production system is very much contingent on their embeddedness in a particular society, place and social network. Embeddedness thus becomes crucial for understanding the spatial and social division of labour within a production network. The forms of embeddedness are also critical for the design of effective policies for the CCS (Salder, 2022).

We have adopted the multi-layered approach to embeddedness that Coe and Yeung (2015) proposed. We therefore distinguish between three levels of embeddedness.

- i. Societal embeddedness: the influence of institutional contexts on the actions taken by actors in production networks (rules, laws and regulations) which are mainly located at the EU level and the national level.
- ii. Territorial embeddedness: the local context of the location where a certain activity takes place, which is closely related to local clusters and ecosystems with distinct sets of agglomeration economies that selectively sustain and foster economic activities (Scott, 2000).

- iii. Network embeddedness: the linkages between different actors and the functional and social connectivity of those relationships (e.g. social network relationships based on trust).

As with the phases, the boundaries between these forms of embeddedness are not set in stone. Place-based communities are an essential element of agglomeration economies, but they are also closely linked to social networks. We analyse these levels of embeddedness more comprehensively .

Unit of analysis

The CCS are characterised by their emphasis on unique aesthetic qualities and, importantly, on near-infinite horizontal differentiation (Caves, 2000), volatile (cross-sectoral) cooperation, and, crucially, forms of collaboration that are often ad hoc and usually involve several actors with different skills and functions. Those forms of collaboration often permeate the legal boundaries of firms. This particular way of producing involves, as a result, “complex teams – the motley crew property”, as well as “close temporal coordination of their activities” (Caves, 2000, p.8). Watson (Watson, 2012, p. 617) added that “[t]he complexity of the [jointly produced product or service] necessitates the coordination of multidisciplinary skills” and that permanent centralisation is not economically efficient (Lorenzen & Frederiksen, 2005). Production must often be completed under severe time constraints (Hobday, 2000; Staber, 2004) Temporary networks, interpersonal collaboration and projects in the CCS are therefore very much intertwined. As de Klerk (de Klerk, 2015, p. 829) observed, “*[t]he dynamic environment in the industry is mostly project-based... thus often obliging these workers to find alternative employment between projects to optimise their limited work opportunities. Bricolage results from working arrangements structured by festivals or special assignments where creative workers move in and out of networks as they are needed*”.

The GPN approach has mainly been used to analyse the large-scale production of goods. Some CCSs, such as parts of the fashion industry, seem to fit this format of production well. However, at least a some CCS activities are different from the usual subjects of the GPN literature, which tends to focus on production networks in which large firms manufacture large volumes of standardised goods. In other segments, small firms predominate. Instead of churning out many similar (tangible) products, they focus on creating products, such as goods and services, in small numbers (often just one) that require production networks to be more or less ad hoc. The composition of those networks typically fluctuates. A performance, a song or an album, a painting and the design of a theatre are all unique products which are typically created by such ad hoc production networks that vary from product to product (Power & Hallencreutz, 2002; Power & Jansson, 2004; Pratt, 2006).

It must be noted that projects in some CCSs are less volatile (for example, the spring and summer collection and the autumn and winter collection of a large fashion firm, which may involve the same designers, suppliers and sellers). Therefore, they resemble the type of networks which are prominent in the GPN literature. In other CCSs, such as architectural design or festivals, the composition of the

networks is much more variable and contextual, and sequences of projects may have different networks and stakeholders.

In order to cover production networks in the CCS that are volatile and project based, we focus in most case studies on projects as a unit of analysis. This approach is very much in line with the literature on the forms of collaboration in the cultural and creative industries. In more recent economic-geographic studies and in sociological research on CCS, project-based work, which involves a multiplicity of organisational and personal social networks, is a key component of the analysis (see Watson, 2012 for a very thorough overview). Notably, studies on labour conditions in the CCS have benefited from departing from the project-based approach. The important role of project-based work has been corroborated in many CCSs (de Klerk, 2015).

In the CCS, then, the firm should not be granted a privileged ontological status. Instead, networks should be central. One could even go a step further and conceptualise the firm as a more permanent or sustained project or as a collection of long-term projects (although it is evidently subject to recombination and change) that has been solidified into a legal entity. The temporal dimension of the project and therefore of its network then become a crucial variable for the case studies. This shift evidently dovetails into our GPN approach, which emphasises the role of networks. In the CICERONE project, we conceive of these networks not *a priori* in terms of firms but in terms of interpersonal networks that are organised around a specific project. In *Art Worlds*, Howard Becker also highlighted interpersonal relationships (Becker, 1982). Our focus also allows us to emphasise the role of cultural value, which may trump economic value, and the salience of motives other than profit maximisation, especially in the creation phase. These distinguishing features of the CCS have significant consequences for the functioning of its production networks.

A more practical advantage of circling on specific projects is that it enabled us to select respondents more easily – we could simply focus on those individuals who were involved in a given project. It then also became easier to limit the number of respondents (only project-related key or lead actors or firms, strategic partners, strategic suppliers and key customers) that we had to consider.

Selection of cases

The main purpose of the CICERONE project is to provide a new foundation for CCS policies on the basis of a production network approach that generates novel insights on the functioning of the CCS and its cultural and social impact. Our approach situates the CCS in networks of production that extend far beyond the creation phase. We use case studies to map the configuration of production networks and to analyse relationships between actors in creation, production, distribution, exchange and archiving. The case studies are thus intended to uncover linkages and mechanisms within these production networks and to lay the foundation for more informed policies which not only extend beyond the creation phase but also take spatial footprints and governance structures into account.

Business models within the CCS vary widely. That variance obtains not only across sectors but also within them. There are differences in staff numbers, turnover, type of products, barriers to entry, the use of technology, capital needs, end markets and strategies, to name but a few. Networks also differ in terms of power relationships, shape and organisation, and the nature, complexity and geography of their linkages. At present, no data sets cover these characteristics comprehensively. Representative sampling is certainly not feasible within the timeframe of the CICERONE project. The investigation of the variance in question, accordingly, is a voyage into uncharted waters.

We have therefore opted for a purposive selection of cases, whereby researchers select the units to be sampled on the basis of their knowledge, which in our case is the background research that we conducted prior to the cases studies. The aim of this selection was to include cases which may plausibly be assumed to represent a sufficient range of easily assessable variations in key business model characteristics, notably staffing and turnover. This approach yielded cases that typify a significant proportion of the population of the CCS while also exhibiting sufficient differences to represent its variability (Gerring, 2007). In the case study reports that follow, each case study is positioned within the wider sector.

In this report, we examine case studies of production networks of projects in the architectural design sector in Europe, with a special focus on the Netherlands and Spain. Drawing on semi-structured interviews with actors involved in various phases of the production network, it provides insights in more general, shared aspects but also into more case-specific features of the architectural design sector. With the selection of three case studies, we have aimed at grasping at least some of the CCS' multidimensional diversity. Each case study, therefore, represents a different segment of the sector. Our case studies cover the production networks of the following projects in architectural design:

- 1) the interior of Theater Zuidplein in Rotterdam, with a specific focus on the highly innovative design of the acoustic wall designed by Studio RAP, a young and upcoming strong-idea architectural practice;
- 2) the design for a bathroom renovation that eventually expanded into an apartment renovation, designed and facilitated by a one-person firm named MEF architect; and
- 3) a typical case of urban planning commissions and building or construction projects by Guallart Architects and Pich Architects.

As such, these disparate case studies present valuable insights regarding the wider field of architectural design. Although these case studies can be seen as part of a cross-case research design – which is always more representative of the population of interest than single case study research (Gerring, 2007: 43) and which enhances external validity – given the large variety of business models and production networks, it is necessary to remain careful regarding generalisation. We do claim, however, that the information that was gathered through interviews with the actors uncovered novel insights and understandings of the structure of the networks in terms of spatiality and governance as well as of perceptions, decision-making, activities, and strategies. Thus, it is possible to gain a deeper

understanding of the causal complexity (Gerring, 2007: 61: “any feature of a causal problem that does not fit snugly with standard assumptions of linearity, additivity, and independence”) within these networks.

The case studies also shine light on how these networks are embedded in wider contexts – from the EU and national institutional arrangements down to the more place-based territorial conditions and, finally, to the social relationships between the key actors of the networks themselves.

Typology matrix

While the case studies are intended to present a rich picture of the key mechanisms and the main linkages that show how spatial footprints, governance structures and levels of embeddedness are intertwined in real-life situations, a higher level of abstraction that transcends the study of individual production networks must be accessed if general insights are to be derived. We must simplify characteristics and relationships in order to present a clear narrative for policymakers. The key elements of our approach – spatial footprints, governance structures and multi-layered embeddedness – guided us in reducing the complexity of the case studies so as to distil insights from findings.

The first step is to position concrete cases from the CCS in a simple grid which combines the spatial footprint with the governance structure. The two variables are crucial determinants of societal effects. A completely local production network with a horizontal governance structure and a mainly global and hierarchical network that is coordinated by a lead firm or actor differ starkly in their social, economic and cultural impact and in the policy interventions that they require. Furthermore, if creation is local but production and distribution are global, targeting policy only at the creation phase may have unforeseen consequences for the wider network.

In principle, the typology matrix of production networks distinguishes between different phases. Since these phases may overlap, as is the case of many forms of visual art, they may be merged. For each phase or set of phases, it is possible to determine whether a single actor is in charge of all activities. Different phases may then exhibit different governance structures. It may also be the case that one actor is ultimately in charge of the whole network and is clearly present in the coordination of each phase. Alternatively, a small number of actors may control the network. The typology matrix allows more nuanced representations of this kind. Using this typology matrix enables us to draw cross-sectoral comparisons between cases and therefore to depart from the conventional siloed approaches. We expect that certain combinations will transpire to be much more likely to occur than others: the likelihood of a small local network having a more horizontal governance structure is evidently much higher than that of a complex and truly global network adopting such a form of governance, which requires much more extensive coordination.

CCSs are embedded in multi-layered contexts, which range from the EU and the national level to that of the territorial and social network. Our empirical work shows how these contexts affect individual cases. Cross-case analysis shows how the forms of embeddedness are related to the typology matrix more generally. Power relations, for instance, may also depend on institutional conditions. Those conditions may allow an actor to assume leadership or to take advantage of the network.

This typology matrix is a starting point for an exploration of the potential role of hard policy levers (e.g. tax breaks, subsidies and such like) and soft policy levers (e.g. strengthening the institutional framework, establishing platforms for collaboration, improving education and so on) that various policymakers at different spatial levels may in principle manipulate. Policy makers can use this typology matrix as a tool for assessing the key characteristics of the concrete CCS populations, which may be defined narrowly or widely, whose societal impact they wish to improve. Filling this typology matrix clearly also requires new sets of data which allow the larger CCS populations to be profiled.

The typology matrix is crucial to constructing an overarching narrative that transcends the idiosyncrasies of individual cases. Moreover, it supplies a basis for our policy recommendations, which are phase and location specific and must be sensitive to the organisation of network governance. We strove for high uniformity to enable comparisons. We present a guide to achieving that goal below.

It is often difficult to compress information for a whole production network on the spatial footprint dimension from the outset. Instead, we divide the network into phases and then locate the actors in each phase. This process yields a refined stepwise analysis of the production network. The next step is to summarise the findings for the whole network. Production networks may be local from the creation phase to archiving or global from start to finish. It may also be the case that creation and production are entirely local or regional but distribution and exchange are national or even global. Identifying such spatial footprints would convey important information to policy makers.

Similarly, we adopt a stepwise approach to assessing the organisation of network governance. For each phase, we inquire which actor initiates, organises, monitors and controls activities. It may be that one actor is in charge of the whole network. It may also be the case that two actors are in charge of different phases. A more horizontal governance configuration without clear leading actors is also a possibility. How policies impact production networks depends on their governance configurations. Throwing money at a specific cultural and creative industry which is controlled by a transnational corporation that is located outside the EU would be a different proposition from financing a network in which the leading actor is close to the others, in the same country or even in the same city.

We use the typology matrix to systematise the classification of the cases that we studied. This matrix must be completed by using the actor categories in Table 2. We use the labels from Table 2 to ensure consistency.

Table 1. The typology matrix

PRODUCTION NETWORK PHASES	Local/regional	National	Intra-EU	Global	GOVERNANCE
Creation					
Production					
Distribution					
Exchange					
Archiving					
Network level					Lead actor/multiple actors/horizontal

Table 2. Key actors in the production networks

Creators	Actors who participate in the initial creation (individuals, such as writers and musicians, or collectives, such as fashion brands and film crews)
Suppliers (specialised)	Suppliers that provide specialised/dedicated services or products and are hard to replace in the short term
Strategic partners (private sector)	Providers of strategic resources (capital, labour, knowledge and certifications) such as banks, educational institutions, professional associations, tastemakers and critics
Strategic partners (civil society)	Actors that operate at neither the state level nor the market level and which provide essential goods, services or resources (funding, labour, information and certifications)
Strategic partners (public sector, multilevel)	Public sector actors at the level of the EU, the national, the regional or the local government that provide strategic resources (e.g. funding and certifications)
Distributors	Actors (individual or collective) in charge of delivering the good or service to the customer or consumer
Consumers	B2C (business to consumer): final market with large number of buyers
Customer	B2B (business to business): final market, typically with a single buyer (e.g. real estate firm commissioning a design for a building)
Lead actor(s)	Actor(s) who initiates, organises, monitors and controls the activities of the network

Phases

We depart from the GPN approach with its five phases. In many cases, however, the phases overlap, and borders are blurred. Such issues can be addressed easily by merging the cells for phases that overlap or by drawing dotted lines if the phases are distinct but their boundaries are blurred.

The spatial scales

We distinguish between four scales: the local or the regional, the national, the intra-EU and the global. These scales, in principle, correspond to different policymakers and, in many cases, also to different policies (from local policies to provide workspaces through national subsidy programmes to EU competition regulations and trade policies). The anchor point for *the local or regional* scale is the point at which initial creation occurs, that is, the point at which the aesthetic component of the good or service is created. This spatial level may coincide with a particular city, a large metropolitan area or a rural region. The origin of the value chain may be located elsewhere, as in the case of architectural design, a domain in which the customer may be located across the globe. However, our focus here is on the first moves of concrete actors from a specific CCS. We then inquire, for each phase, where the other key actors in the production network are located. The location of an activity is where the actors are from: e.g., flying in a choreographer from Norway and a light engineer from Israel to create a modern dance work in The Hague is still a form of global import.

Governance

Governance pertains to the whole network. We distinguish between three options: a) networks with a lead actor, b) networks with multiple lead actors (not more than 2 or 3) and c) bottom-up horizontal arrangements.

PART 1. The European production network of architectural design: an overview



1.1 Overview of the architectural design industry

1.1.1 Goods and services

Architects offer different types of services related to building design, landscape design, interior design, feasibility studies, project management, planning, certification, and property valuation (ACE, 2019). Notwithstanding the blurring of boundaries in design whereby architects can now also be active in other activities, such as designing cutlery or furniture or urban spaces, their main activities are still about buildings. According to ACE (2019, p. 29), “Two thirds of architects’ work relates to building design; this is the most important type of service offered by architects in every country”.

The services that architects provide – namely, the creation of designs – ultimately lead to the production of a physical good in the built environment, which can be observed by many people. Therefore, products of architects often become a public matter in everyday life, as the results are visible in urban space. Civil society and professional critics discuss and judge projects based on the perceived quality of the architectural design in terms of beauty, aesthetic pleasure, and expression. Accordingly, the essence of architecture centres on creativity. Because of this key feature, architects often profess themselves to be artists. When Judith Blau (1984, p. 47) observed the role of architects in the United States in the 1970s, she discovered that some even had a heroic view of the architect, making such statements as “they are romantic” and “architects are visionaries”.

However, designs of architects are complex products that require more than just creativity and self-expression. As Blau (1984, p. 47) stated, “architecture is viewed to have holistic features because ‘a person can combine art with science’”. Hence, in their designs, architects must not only focus on aesthetics and expressions, but also address technical specifications – which range extremely widely from emergency exits to lighting – and safety requirements while taking budget considerations into account. In addition, architects must include the requirements of the client, location factors of the specific area, the guidelines from the zoning plan, and building regulations.

According to Blau’s study (1984, p. x),

“most architects want to give priority to the needs of users, yet the expression in built form is difficult to achieve, given the prevailing social and economic conditions. That is, architects’ intentions to improve the usefulness of buildings are thwarted by multiple constraints – clientele, the market, and the organization of architectural practice”.

Thus, even when strong-willed and motivated architects want to prioritise the needs of users and the human environment, other stakeholders, such as real estate developers and investors, may impose their interests – most notably, cost aspects – thereby limiting the expressive freedom of the architect.

1.1.2 Labour

The profession of architectural design appeals to many because of its crucial role in shaping the built environment in which people live. Through their designs, architects have the ability to influence place identities, quality of life, and climate change, thereby directly contributing to society. These positive externalities cause architects to often act on the basis of intrinsic motivations, which is a key characteristic in the CCIs. However, despite architects’ evident societal relevance and place as the only certified profession within the CCIs, their role in shaping the built environment is anything but guaranteed.

Judith Blau (1984) observed how the role of architects in the United States in 1970s was undermined by other actors, including engineering firms, clients, and real estate developers. Much more recently, Flora Samuel (2018) stated that the role of the architect has become compromised or even marginalised. The tasks and responsibilities of architects are no longer clearly delineated, and for many, there is a lack of understanding about what it is that architects do and know. This makes it challenging for architects to defend their territory in the production process (Samuel, 2018). As a result, architects often find themselves in difficult positions in the labour market.

A distinction should be made between different types of architectural practices regarding their position within production networks and, related to that, their ability to capture value and shape their labour conditions. The field of architectural design is characterised by a wide variety of practices which differ markedly in size and business model. In addition, the role of a particular practice may differ from commission to commission and even change over the course of one commission. It is to be expected, then, that there is a large diversity with respect to roles played by architectural practices in production networks and, accordingly, to their capacity to capture value and their scope to shape their labour conditions. Power does not necessarily correspond with size – a small practice may be quite powerful in its limited local networks, whereas a large one may be less so in a complex, extended, international network.

It also seems that, in recent years, the position of architectural practices generally has eroded in production processes. As a result, their position in terms of power within the production network has also decreased, thereby weakening their potential for capturing value. This is illustrated by the development that practices increasingly only get paid for a specific task of the production process. Moreover, due to a high level of competition – between architectural firms, but also between different stakeholders in the production network – architects often have trouble getting assignments. Most notably, they have been losing ground to real-estate developers and construction consultant firms (Samuel, 2018; Koetsenruijter & Kloosterman, 2018). As a result of these developments, architectural enterprises often find themselves in difficult and unpredictable positions within the architectural field. To deal with this, architects must be inventive and resourceful, and they must fight for their position, tasks, and value within production networks.

Because of the barriers imposed by local regulations, environments, and traditions, it is almost exclusively large architectural practices that work across borders – especially the small number of so-called “starchitects” who are responsible for eye-catching iconic buildings (McNeill, 2009; Samuel, 2018). “Though a handful of international companies achieve sales of more than €50m, most architects work in small firms or are self-employed and are confined to national markets” (EY, 2014). Notwithstanding these difficulties, the demand for architecture is rising in emerging countries. For instance, China, India, and Brazil offer serious growth potential for architectural services. Large architectural practices – strong-delivery, strong-service, as well as strong-idea practices – from Western countries continue to dominate the market (EY, 2014).

1.1.3 Embeddedness

To grasp the wider implications of the findings of the case studies, they are to be positioned within the broader institutional context. In an earlier CICERONE report (Vriesema et al., 2020), this context was extensively laid out. Below, we briefly summarise these findings.

First, there is the context of the EU rules and regulations. The aim of the EU is to create a “level playing field and a harmonised regulatory system across European Union member states” (European Commission, 2015). This regulatory system concerns elements such as the requirement of professional qualifications, provision of services, public procurement, and energy performances of buildings, which are intended to warrant the safety and quality of the built environment and to increase cross-border competition. The market for architectural services, however, is very different from the clear-cut model in economic textbooks with its demand orientation, small numbers of actors, and inherent lack of transparency. This market is characterised not just by a high level of segmentation along various dimensions, but also by a specific market structure which is typically demand-driven where one client seeks a usually circumscribed set of architectural services. These services are offered by a limited number of architectural practices, but what they offer can only be partly spelled out a priori given the

complexity of most projects. As a result, there is often an asymmetrical relationship between client and architect where the latter has more information, but even then there are frequently serious uncertainties. The EU has aimed at making the procurement process, on the one hand, more transparent and, on the other, open to architectural practices from other EU member states.

Secondly, there is the national context. The Netherlands, like many other countries, has a deeply rooted indigenous architectural tradition which emphasises conceptual innovation (Kloosterman, 2008, 2010). In addition, the broader field of architectural design is highly institutionalised with formal and informal associations, an official government architect (“Rijksbouwmeester”), and a dedicated scheme of grants for innovative architectural projects (Kloosterman, 2018).

The high level of institutionalisation of the sector is intrinsically linked to the high regulation of the projects, products, and the architectural profession. To warrant the safety and quality of the built environment, there are not just regulations pertaining to the buildings and constructions, but also to the architectural profession itself. In many countries, the title of architect is protected by law in the form of certification. This typically involves not just meeting specified educational requirements, but also being registered with a government or non-profit agency which certifies those who have passed and identifies the level of skill and knowledge for certification (Kleiner, 2006). According to John Heintz (2018, p.1),

“[t]he use of a protected title communicates to the client that the bearer of the title fulfils the requirements and has the adequate qualifications to provide him or her with the required standard of service and will provide advice and services in the best interest of the client.”

Notwithstanding the aim of the EU to develop a more unified approach towards regulating architectural practices – notably, in setting the terms of competition – there is still a considerable variety in this institutional setting among member states. In the Netherlands, for instance, the title itself is protected, but, in principle, “any person can perform the relevant tasks” (Kleiner, 2006), which is not the case in Spain, where relevant tasks are also legally protected [1].

Third, there is the local level. Given the ambiguity of the product and the small number of actors, networks are often crucial in the matching process of demand and supply. Being based, as Studio RAP, in Rotterdam – an internationally renowned centre of innovative architectural design, both in the sense of the process of designing and the presence of realised designs (Kloosterman, 2010) – is a rather different context than that of, say, MEF Architect, a small stand-alone practice located in Vinkeveen.

The ideal-typical characteristic of cultural industries put forward by Scott (2000) explains why cultural clusters arise. In his view, cultural industries are highly dependent on agglomeration economies which facilitate local processes of matching, sharing, and learning because of the high volatility of consumer

demand, the need for highly specialised labour, and the prevalent drive to create something new and unique. Architectural design certainly fits this scheme. Its dependence on a variety of agglomeration economies within this CCI underlines the importance of territorial embeddedness as well as network embeddedness, as the latter is partly based on proximity. Societal embeddedness refers, in principle, to higher spatial levels, as rules and regulations are first and foremost nationwide. The Rotterdam case study will, however, demonstrate that decisions made by the national government to establish particular strategic institutions in that city have significantly contributed to the emergence of the cluster there.

Societal embeddedness

Societal embeddedness refers to the influence of socio-cultural, institutional, and historical origins on the actions taken by actors in production networks (Coe & Yeung 2015). It also refers to the “importance of values, attitudes, cultural elements that shape the production of goods and services, their aesthetics, meanings, value” (d’Ovidio et al., 2019). In the architectural industry, throughout the years and all over the world, there have been different perceptions of what a design should look like and which components are important – for instance, aesthetics, sustainability of materials, and functionality (cf. Ren, 2011; Samuel, 2018). To identify which historical socio-cultural aspects have influenced these developments exceeds the scope of this report. Architectural styles are socially determined, as architects have different experiences and background. Furthermore, their perceptions about architectural styles and aesthetics vary, and this is socially patterned (Blau, 1984).

In addition, external developments influence how people build and design buildings. For instance, the recent COVID-19 pandemic will likely change perceptions around the world. During the crisis, people have gained different experiences with their physical surroundings, as they were advised to stay inside and avoid public spaces. Accordingly, this development will likely create a demand for new effective designs of urban planning that are better equipped to deal with dangers such as pandemics. Architects will rethink and deliver new designs of dwellings, offices, public transport, and public places. In addition, as a result of the pandemic, new regulations can be expected regarding criteria of designs to change how citizens use buildings, public spaces, and infrastructure. Therefore, the crisis may influence the future of the architectural profession (Chayka, 2020).

Other external developments, such as climate change and digitalisation, have also influenced the type and priorities of architectural products. Digital tools, such as building information modelling (BIM) and 3D printing, have fundamentally changed the processes in which data and value are created and presented in architectural design (Microsoft & RIBA, 2018; Samuel, 2018). And due to climate change, priorities have partly shifted from cost-efficiency to more sustainable designs.

Finally, as mentioned above, architectural products can also be influenced and shaped by individual architects and their legacy. Rem Koolhaas has been a central figure in shaping the Dutch architectural style, and the so-called Superdutch generation. Likewise Ricardo Bofill and Oriol Bohigas, have been influential architects in contemporary Spain. However, this comeback of Dutch architectural design can also be attributed to many structural factors, such as the tradition of openness towards experimentation and extensive grant systems.

The examples shown above demonstrate the variety of possible socio-cultural influences that shape architectural design. Some developments are more local, while others, such as the COVID-19 pandemic, will likely influence architecture on a global scale.

1.1.4 Policy

The architectural industry is an example of a CCS since it centres on creative and aesthetic designs for the built environment (Blau, 1987). People are almost constantly confronted in their everyday lives by the products of this age-old industry. The Architects' Council of Europe even claims that “[o]f all the arts, architecture is the only one that everyone needs, since it provides a physical shelter for all human activities” (ACE, 2016: 2). In creating designs for these physical shelters, architects first and foremost deliver services to their customers. They can also – on a more aggregate level of scale – contribute to the identity of cities by designing pieces of iconic architecture, such as the Guggenheim Museum in Bilbao or the Markthal in Rotterdam (Ponzini and Nastasi, 2011; Scott, 2012). Moreover, through architects' designs, the industry is able to influence the quality of life, climate change, and job creation (ACE, 2018).

Because the architectural sector is a CCS that encompasses cultural, social, environmental, and economic aspects of the common good, the industry is highly institutionalised. Politicians on local, national, and international scales have created regulatory frameworks to safeguard and enhance the quality of architectural designs. Policies are mainly concerned with qualifications of architects, provision of services, public procurement, insurance, and energy efficiency. The directives should ensure quality and safety in architectural designs and are established to protect citizens – for example, construction safety, environmental protection, and cultural and historical protection (EC, 2017).

In eleven EU countries, the management of entire construction projects is fully reserved to qualified architects. However, there are a few variations; for instance, in some countries, such as Austria and Lithuania, this task of overseeing the project is shared with engineers. In Ireland, many people may manage the project, but the final certification must be signed by an architect or civil engineer.

The architectural industry is a complex and highly institutionalised CCI. Member states have different and sometimes contrasting regulatory frameworks to manage the architectural profession. However, a simplified distinction can be made between ex-ante and ex-post regimes. Ex-ante regimes maintain a high level of entry barriers for architects but less external controls during the building process. Alternatively, ex-post regimes maintain lower entry barriers but implement more control and surveillance in practice. Nevertheless, it is important to mention that many states are somewhat in between these two poles, as their regulations show slight variations and exceptions.

The regulatory regime

The regulatory regime impacts architectural design in two ways. First, in many EU member states, the profession of architect itself is regulated. This may range from registration, where architects must register at an official registration board, to certification, where the use of the title of architect is legally reserved to those who have met the formal educational requirements, to occupational licensure, where only those with the formal title of architect are legally allowed to perform certain tasks regarding the design of the built environment to protect the public interest (Kleiner, 2006). These regulatory regimes are still first and foremost national and not EU-wide (Architectuur Lokaal, 2017). This also implies that the roles of architects may differ considerably across countries.

The same can be said with the rules and regulations pertaining to the built environment. Designs can travel across borders, but there are limits. The built environment is almost everywhere strictly regulated, and rules and regulations may differ significantly between and even within countries and are often quite opaque. In addition, knowledge of local physical and socio-cultural conditions may hamper the export of architectural services. One strategy to deal with different local circumstances in a foreign country is either to hire expertise from that country or to set up partnerships with local architectural practices or other firms.

Regulations as a result of COVID-19

The architectural industry suffered for quite a long time in the wake of the credit crisis which broke out in 2008. This caused the market of architectural services and related construction activities to heavily shrink. According to data conducted by ACE (2018), the architectural industry has been recovering in recent years as jobs increase and salaries continue to rise. However, in 2020, the world was once again confronted with a crisis: COVID-19. However, there may also be opportunities to be taken out of this crisis. The architectural industry can assume a leading role in plans to recover from the pandemic, as architectural designs play a fundamental part in economic development, social change, and technological progress. During the COVID-19 crisis, people gained different experiences with their physical surroundings, as they were advised to stay inside and avoid public spaces. Accordingly, the pandemic will likely create a demand for new effective designs of urban planning that are better equipped to deal with dangers such as pandemics. Architects can rethink and deliver

designs of dwellings, offices, public transport, and public places. Therefore, the crisis may influence the future of the architectural profession and lead to new job opportunities (Chayka, 2020).

To conclude, as a result of the pandemic, new regulations can be expected regarding criteria of designs of buildings and cities. For instance, governments may implement new regulations to change the way citizens use buildings, public spaces, and infrastructure.

The architectural industry is highly institutionalised. The EU has introduced several influential directives in an attempt to harmonise regimes of member states. However, despite minimal qualification requirements, public procurement regulations, and environmental criteria, there is still wide variation between states. Member states differ in regulations concerning education, title protection, and reserves of activities. As a result, the architectural profession – namely, its requirements, tasks, and responsibilities – looks different in each country. Consequently, this hampers the free movement of architectural services. Therefore, the majority of architects cater to local markets.

1.2 Production network configuration of the architectural design sector

1.2.1 Input-output structure

The production process turning architectural designs into palpable constructions involves complex configurations of stakeholders, each with their own specific set of aims and resources. The roles and responsibilities in the actual process of construction are anything but permanent, and they are often opaque and contested (Samuel, 2018: 40). Architects, then, may fulfil different roles and assume diverse responsibilities in various settings. Below, we will describe the roles and tasks of key actor for each of the production phases in more detail.

Creation

In the first phase of a production process, a client often begins by conducting a preliminary study to explore the possibilities for a construction project. This research typically consists of a site and zoning analysis to be able to decide on the potential scope of a project. The preliminary research thus helps assess more precisely how the uses, scope, size, form, and, crucially, budget of the construction project can be reconciled and accommodated. This, then, enables the drafting of an architectural brief or programme which explicitly states a client's requirements. This brief or building program forms the basis for choosing and appointing an architect. The design of the architect should subsequently address the requirements mentioned in this brief.

Afterwards, the client shares their project wishes with multiple firms, who can then decide to compete for the procurement of the project (Pérez et al., 2010). In general, clients are able to choose between three procurement routes. First, through a selection procedure, the client can decide on a suitable firm. Architects can apply for this if they meet the requirements. Second, the architect services and realisation of the project can be merged and contracted into one contract. The client then decides to outsource the work to one market party, such as contractors or developers, with sufficient competence to oversee the entire construction project. When clients decide on this approach, the architect becomes a subcontractor and has less direct contact with the client. Third, a competition can be launched, after which negotiations are held with the winner(s). In this case, the client chooses the most suitable plan based on an anonymous assessment (Koetsenruijter & Kloosterman, 2018).

With every procurement route, firms start with the creation of a design. This design responds to the requirements of the client, together with environmental factors of the specific area, the guidelines from the zoning plan, and building regulations. The design is then converted into all kinds of sketches,

in which solutions are explored. Firms increasingly use 3D mass models to provide the client with a visual presentation of sketches meant to develop the shape and size of the construction project with a basic design. Together with the client, the architect and the contractor determine more or less how the building or project will look and operate (Fontan, 2016). After decisions are made on the basic design, the architect presents more detailed drawings to the client. An engineer is also included to decide on products such as plumbing, electrical, heating, and ventilation systems. In an interactive process between the architect, specialised suppliers, and the client, the designs move from sketch designs to preliminary designs, technical designs, and, finally, the executive designs.

Production

After the design phase is finished, the next step is for the client or architect to select all materials and to expand the stakeholder network. During this phase, the different actors who are relevant for the realisation of the construction phase must come together in a concrete set-up to organise a relatively complex division of labour. Different types of actors can assume a leading role in this. In some cases, architectural practices may assume a leading role, whereas in other cases the client seeks a contractor at the beginning of the process to organise the actual realisation of the building – the second procurement route. This is the moment in which multiple contractors may submit bids on the job of the leading actor. The client can compare the competitive bids and decide on a contractor. To obtain the legal rights to start construction, the design drawings must be approved. In order to do this, all construction documents and technical designs should be finished. The municipality must then assess the design on matters such as fire safety, structural safety, legal norms, and aesthetic quality.

After all documents are approved, the construction of the project starts. The realisation is always a significant phase in the construction process in which many parts and stakeholders come together. Construction workers follow the detailed construction drawings made by the architectural practices and the engineering firms. During the realisation phase, the architect can be brought in for supervision to assist and advise the client. However, this task is increasingly taken over by other parties, such as the contractor. Government parties might also oversee the construction phase.

Distribution

During the distribution phase, the construction is, in principle, completed. This implies that clients sell their product, and financial investors receive a return on their investment. In the case of a residential building, the end users are able to rent or buy the dwelling. Thus, the distribution phase is characterised by the formal start of the use of the object.

Exchange

The exchange phase is when the architecture project is evaluated: sectoral conferences, national and international awards, specialised publications, and former projects or even the personal trajectory of the founder or lead architect are elements of the exchange phase, as they influence the value of the project or of the construction perceived by key actors, such as the client, awarding bodies, or the

specialised media. The exchange and archiving phases overlap, as some of the documentation of past projects – in publications, prizes, or museums, for instance – also contributes to appreciate the value of the subsequent projects of the architectural practice.

As a cyclic activity, the exchange phase can be found scattered along the production process linking past architecture developments. Right at the creation phase, the client – private promoter or public administration – engages in an evaluation of potential architectural firms to select the one that will carry out the project. This negotiation of value can be held in formal competitions or through commercial processes where professional and personal networks play a key role.

To highlight the iterative characteristic of the GPN model, it is relevant to mention that the appreciation of former architecture projects developed by the architectural practice contributes to the negotiation of value of the current one as well.

Archiving

In the archiving phase, the construction project is documented. In architectural projects, the documentation is, above all, the actual realisation of the construction. For instance, projects such as a residential dwelling or a bridge are documented through their everyday use by customers. The construction becomes part of the urban environment and can be observed by many people. Because of this, architecture becomes part of a public debate in which professional critics and citizens have discussions about the architectural design. In addition, documentation also occurs through several architect prizes, as an architectural design can receive a special award. An example of such a prize is the Pritzker Prize, established in 1979, which is considered by many to be the Nobel prize for architects. Other awards focus on specific sub-elements, such as the Young Talent Architecture Award.

More generally, one can state that – especially for architectural design – the institutionalised process of archiving is well-developed with many dedicated magazines, books, sites, museums, exhibitions, and tours. For instance, a construction project can receive a honourable notion from architectural magazines or websites. These magazines focus on members of the construction network and inform them on new designs. In addition, knowledge about the history of the architectural design is distributed through educational courses in which future architects learn about the history of their profession.

1.2.2 Power relations

GPNs are not just neutral economic mechanisms of exchange, but social configurations in which power does play a significant role. Architecture is realised by a combination of parties: architects, clients, construction firms, real-estate developers, financial institutions, public sector actors (e.g. planners), engineers, consultants, and technical specialists.

In the past decades, power relationships in the field of architecture have changed, and this process was accelerated by the credit crisis of 2008. Many construction jobs were lost in the wake of the crisis, which led to a decrease in the number of large architectural practices and fragmentation with a higher share of small and, especially, one-person practises (ACE, 2018). This resulted in a bifurcation within the field of architectural design. On the one hand, there is the large number of small and one-person practices, the latter of which constitutes 74% of the 565,000 architects in Europe. These firms are mainly embedded in relatively simple, short production networks catering to local markets (Samuel, 2018). On the other hand, there are the large international practices that are globally active, capable of dealing with large, complex projects, and embedded in extensive networks which often cross borders.

In the architectural field, different firms compete with each other for commissions from clients, leading to various power relationships between these firms. In the case of complex architectural assignments, many clients demand a certain degree of reputation and experience from the supplying firm. Because of this requirement, smaller architectural firms have little chance compared to the international architectural firms. In addition, procurement policy creates certain barriers for smaller companies to compete for large assignments. Koetsenruijter and Kloosterman (2018) described how smaller firms often run into certain obstacles – namely, a lower degree of expertise, financial capital, and manpower – when competing with larger firms. As a result, they have little possibility to collect large and more complex assignments. On the contrary, the large architectural practices are increasingly developing into “hybridised organisations” (Samuel, 2018). Apart from professional architects, these firms are able to hire a wide variety of professionals from other disciplines. This then leads to firms who encompass diverse expertise with a wide range of internal skill sets. Consequently, these firms can deliver more complete and integrated services. Because of this, it is almost exclusively the large practices that work across borders; only a small number of so-called “starchitects” are responsible for eye-catching, iconic buildings (Samuel, 2018).

Competition for specific assignments does not only take place between architectural firms, but also between different stakeholders in the production network. In particular, architects have been losing ground to real-estate developers and construction consultancy firms, and their scope of activities within the whole construction process has decreased (Samuel, 2018; Koetsenruijter & Kloosterman, 2018). Because many clients outsource design tasks to contractors or consultancy firms, architects lose their more comprehensive role in the production process. In addition, the extreme fragmentation of the architectural field contributes significantly to this process of erosion and the shift of the locus of power.

PART 2. Statistical mapping of the architectural design industry



2.1 Introduction

This chapter describes the statistical landscape of architecture, exploring both current statistics and trends from over the years. The statistics show demographics of architects (e.g. age, gender, nationality) and characteristics of the types of jobs (e.g. building sector, hourly wage). First, the chapter provides a broad statistical mapping of the European architectural landscape. For this, two sources are used: Eurostat (the statistical office of the European Union) and the Architects' Council of Europe (ACE: the representative body for architects at a European level). Their datasets consist of collected data from national representative and registration bodies and data from a survey carried out by ACE. Afterwards, the chapter zooms in on specific national data which was used to conduct the case studies in the Netherlands and Spain. For the Netherlands, data (both more general and customised) from the Central Bureau for Statistics (CBS) and Atelier Rijksbouwmeester were used. For Spain, the main sources used are the Superior Council of Architects' Bureaus of Spain and the Catalan Statistics Institute.

Before embarking upon the statistical analyses, it is important to note some shortcomings of the available data. First, statistical differences can be observed between the datasets of ACE, Eurostat, and national statistics. This can partially be explained by their different approaches, which also cover rather different population sets. ACE mainly obtains data from architects who fill in their survey and architects who are members of representative bodies. The national statistics have access to a broader population group. For instance, CBS uses two datasets. The first dataset is selected by sector, counting, in principle, all persons who work in firms formally registered as architectural practices. These data, hence, include also persons who are not architects – for instance, managers, and draughtsmen or -women – but who work at these practices. The second dataset is selected by professional status: persons who are officially registered at the Dutch national architects register. The listed architects may work at architectural practices, but they may also work for, say, the government or do work which has little to do with architectural design. Therefore, the datasets of CBS include a broader population group than ACE or Eurostat.

Second, comparing between countries is rather difficult because nations differ in their extent of available statistical data on the architectural sector. Added to this are the different interpretations that countries have of what is implied by the architectural profession. There is a wide diversity in regulatory frameworks with respect to educational qualifications, legal title protection, and reserves of activities. For instance, in some countries, building activities may only be undertaken with the approval and supervision of an architect. In other countries, architects do not have these exclusive rights to build (European Commission, 2015). Thus, the different regulatory frameworks influence the sector and related economic activities, thereby complicating the ability to analyse and compare between countries. It is important to keep this in mind while reading the chapter.

2.2 Europe

In order to map the statistical landscape of architecture on a European scale, two sources are used: Eurostat and ACE. Below, we will provide detailed information on the methods behind their databases, disclose problems and constraints when producing a statistical mapping, and discuss some of the results derived from our analysis.

2.2.1 Eurostat

Eurostat collects statistical data on cultural and creative sectors from all EU member states. In an attempt to obtain more uniform and coherent data, Eurostat implemented a system of NACE classifications¹. Each industry is mapped through a number of NACE codes that measure economic activities. For the architectural sector, we sought to select the relevant NACE codes for each of the production phases – that is, creation, production, distribution, exchange, and archiving. We have two separate definitions for each phase: a minimal one and an extensive one. Below, our choices for the NACE code selection, as well as its shortcomings, are briefly explained.

Table 3. Relevant NACE codes for the creation phase in the architecture industry, code, title and scope

Code	Description	Minimal	Extensive
74.1	Specialised design activities		X
71.11	Architectural activities	X	
71.1	Architectural and engineering activities; technical testing and analysis	X	

In the creation phase, an architectural firm creates an architectural design with a client, contractor, and possible specialised suppliers. As such, the main NACE codes are 71.1 and 71.11 (the code “Architectural activities” is a sub-part of the larger code “Architectural and Engineering activities”). For the extensive analysis, we added 74.1, “Specialised design activities”.

Table 4. Relevant NACE codes for the production phase in the architecture industry, code, title and scope

Code	Description	Minimal	Extensive
71.1	Architectural and engineering activities and related technical consultancy	X	

¹ *Statistical classification of economic activities in the European Community*, abbreviated as NACE - derived from the French *Nomenclature statistique des activités économiques dans la Communauté européenne*

71.2	Technical testing and analysis		X
41	Construction of buildings	X	
42	Civil engineering	X	
43	Specialised construction activities	X	

After all drawings are approved, the construction of the project can start. This phase therefore includes technical testing and analysis, construction of buildings, civil engineering, and specialised construction activities. In addition, we added code 71.1, considering the fact that architects are often brought in during this phase for supervision and to assist and advise the client.

Table 5. Relevant NACE codes for the distribution phase in the architecture industry, code, title and scope

Code	Description	Minimal	Extensive
68	Real estate activities	X	
68.10	Buying and selling of own real estate	X	
77.4	Leasing of intellectual property and similar products, except copyrighted works	X	

During the distribution phase, the construction is, in principle, completed and sold. In order for the building to be put into use, real estate agencies become active to sell or lend property to customers.

Table 6. Relevant NACE codes for the exchange phase in the architecture industry, code, title and scope

Code	Description	Minimal	Extensive
58.11	Book publishing		X
58.14	Publishing of journals and periodicals		X
73.1	Advertising		X
91.01	Library and archives activities	X	
91.02	Museum activities	X	

The exchange phase is when the architecture project is promoted and evaluated: sectoral conferences, national and international awards, specialised publications, and former projects are elements of the exchange phase, as they influence the value of the project or of the construction perceived by key actors, such as the client, awarding bodies, or the specialised media. There were no NACE codes available that focus on sectoral conferences and awards.

Table 7. Relevant NACE codes for the archiving phase in the architecture industry, code, title and scope

Code	Description	Minimal	Extensive
91	Libraries, archives, museums, and other cultural activities	X	

The archiving phase is dominated by code 91, “Libraries, archives, museums and other cultural activities”, as this phase is focused on documenting the construction project. Furthermore, the exchange and archiving phases overlap, as some of the documentation of past projects also contributes to appreciate the value of the subsequent projects of the architectural practice.

NACE codes shortcomings

Before discussing the results of our statistical analysis, it is important to note some additional shortcomings of the NACE classifications. Most importantly, the dataset from Eurostat falls short in describing statistics from a GPN approach. The NACE codes and related activities do not clearly distinguish between the different production phases. For the architectural industry, the most important NACE code is **71.11, “Architectural activities”**. This code mainly focuses on designing activities, thereby overlooking the economic activities that follow in the production process. In order to gather data on the production, distribution, exchange, and archiving as well, we tried to assemble additional codes. However, some of them are rather broad and could also measure activities that have nothing to do with architecture. An example of this is code 73.1, “Advertising”. Although advertising is an important activity for architects and clients during the exchange phase, this code entails much more than just the promotion of architectural designs. In addition, some phases, such as exchange and archiving, have similar NACE codes. For this reason, we will only discuss data derived from the minimal codes in our statistical analysis.

Results

In the analysis of the architectural sector, the data refer to 2017. Two indicators from the classification of structural business statistics are used with data from Eurostat: the number of enterprises and the number of employees.

The table below (see next page) shows the total number of enterprises active in each phase of production per country. It also adds up all production phases, thereby revealing the total number of enterprises active in the entire architectural sector. Eurostat defines enterprise as follows:

“The enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations”.

Table 8. Number of enterprises in the architectural design industry in Europe

	Tot. creation	Tot. production	Tot. distribution	Tot. exchange	Tot. archiving	Tot. cycle of Production
European Union – 28	1,293,489	4,502,041	1,552,771	278,26	:	7,626,327
Belgium	43,327	140,120	54,077	12,811	8,778	259,113
Bulgaria	10,237	27,843	26,104	2,549	1,449	68,182
Czechia	34,942	212,332	48,223	:	6,236	301,733
Denmark	8,088	38,894	30,859	1,610	3,206	82,657
Germany	162,999	461,417	168,958	30,466	59,112	882,952
Estonia	2,674	13,129	7,189	872	2,529	26,393
Ireland	11,160	65,817	15,698	1,753	7,007	101,435
Greece	59,399	109,540	9,536	2,447	8,985	189,907
Spain	137,005	466,214	174,653	42,988	42,589	863,449
France	108,845	546,155	253,409	50,663	54,825	1,013,897
Croatia	7,140	23,729	6,161	1,071	617	38,718
Italy	259,294	698,974	252,671	32,637	30,976	1,274,552
Cyprus	2,064	9,326	1,140	443	:	12,973
Latvia	3,183	13,808	15,073	1,061	2,042	35,167
Lithuania	6,388	36,596	17,688	1,937	7,334	69,943
Luxembourg	1,894	5,261	3,601	1,080	394	12,230
Hungary	29,550	93,667	43,561	4,545	14,269	185,592
Malta	636	4,542	1,989	:	920	8,087
The Netherlands	50,080	216,827	34,329	10,010	84,693	395,939
Austria	22,047	52,282	20,719	4,220	11,659	110,927
Poland	77,629	340,055	66,289	13,231	:	497,204
Portugal	36,275	108,674	62,929	11,792	24,121	243,791
Romania	20,015	68,298	18,934	4,072	8,868	120,187
Slovenia	8,941	25,559	3,589	794	5,224	44,107
Slovakia	15,775	107,412	14,937	5,425	1,706	145,255
Finland	9,017	48,739	30,323	1,445	7,076	96,600
Sweden	41,483	141,663	68,185	5,270		256,601

United Kingdom	111,017	425,168	101,271	20,774	35,670	693,900
Iceland	1,091	6,131	3,593	275		11,090
Norway	14,142	70,067	59,560	1,236		145,005
Switzerland	8,661	30,086	4,720			43,467
North Macedonia	1,064	5,302	581	111		7,058
Serbia	2,196	9,195	1,529	303		13,223
Turkey	0	0	0			0
Bosnia and Herzegovina	1,342	5,001	1,016	183		7,542

Source: Eurostat, 2022

The statistics on enterprises first and foremost reveal the dominance of five European countries within the architectural field. For each phase of production except archiving, most enterprises are active in Italy, France, Germany, the UK, and Spain. The data reveal that most enterprises are active in Italy (1,274,552 enterprises), followed by France (1,013,897) and Germany (882,952). The countries with the fewest enterprises in the architectural field are, among others, Bosnia and Herzegovina, North Macedonia, Iceland, Malta, and Luxembourg. In addition, the statistics show that, for all countries, most enterprises are active in the production phase of architecture. This is no surprise, considering it includes all economic activities related to the construction of buildings. In general, by far, the fewest enterprises are active in the exchange and archiving phases of production.

The table below shows the total number of employees active in each phase of production per country. Eurostat defines employees as follows:

“Within the context of structural business statistics, an employee is a person who works for an employer on the basis of a contract of employment and receives compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind”.

Table 9. Number of employees in the architectural design industry in Europe

GEO	Tot. creation	Tot. production	Tot. distribution	Tot. exchange	Tot. archiving	Tot. cycle of production
European Union – 28	2,437,454	12,506,131	2,098,657	451,203		17,493,445
Belgium	27,873	234,245	21,912	5,867	7,647	297,544
Bulgaria	14,650	145,569	26,404	3,162	1,558	191,343
Czechia	39,601	247,858	37,100		2,259	326,818
Denmark	49,581	201,486	51,095	11,110	9,095	322,367
Germany	632,342	2,528,657	348,736	50,074	109,413	3,669,222

Estonia	4,785	49,329	9,071	703	1,151	65,039
Ireland	30,225	121,988	20,391	4,859	6,007	183,470
Greece	17,353	83,564	12,266	1,166	24,421	138,770
Spain	160,328	1,000,189	144,499	44,658	85,227	1,434,901
France	314,633	1,748,726	234,188	63,944	38,140	2,399,631
Croatia	20,279	111,395	10,968	1,662	694	144,998
Italy	48,744	827,886	71,461	13,626	22,372	984,089
Cyprus	2,967	26,642	2,574	1,212		33,395
Latvia	9,724	66,192	25,439	1,423	1,932	104,710
Lithuania	15,160	107,391	20,624	1,849	1,352	146,376
Luxembourg	7,738	50,436	2,970	1,403	118	62,665
Hungary	34,102	205,566	61,826	4,285	17,688	323,467
Malta	1,421	9,223	1,640		0	12,284
The Netherlands	98,844	396,014	75,321	17,610	44,972	632,761
Austria	54,381	315,242	38,559	7,289	7,688	423,159
Poland	75,234	672,166	161,566	13,119		922,085
Portugal	33,583	292,091	49,324	9,520	5,082	389,600
Romania	58,636	403,647	45,975	5,967	5,417	519,642
Slovenia	11,067	60,079	4,091	587	896	76,720
Slovakia	15,291	91,248	23,612	4,744	1,040	135,935
Finland	42,755	217,113	437		2,694	262,999
Sweden	105,053	438,017	70,795	10,376		624,241
United Kingdom	501,931	1,854,172	503,168	159,663	137,278	3,156,212
Iceland	2,995	15,946	1,588	338		20,867
Norway	48,995	269,015	29,656	6,294		353,960
Switzerland	0	0	0			0
North Macedonia	5,152	36,442	2,211	221		44,026
Serbia	13,798	80,397	5,084	967		100,246
Turkey	0	0	0			0
Bosnia and Herzegovina	7,954	41,708	4,390	295		54,347

Source: Eurostat, 2022

The statistics of employees are comparable with the statistics of enterprises, as the data reveal that most employees are active in Germany (3,669,222), followed by the UK (3,156,212) and France (2,399,631). The countries with the fewest employees are, among others, Slovenia, Slovakia, Malta, Luxembourg, Estonia, and Cyprus. The statistics show that, in each country, most employees are active in the production phase of architecture. In the production phase, percentages range from 58% (the UK) to 84% (Italy) of the total employment. The second highest percentages of employees belong to the creation and distribution phases. By far, the fewest employees are active in the exchange and archiving phases. Therefore, these statistics are similar to the statistics of enterprises.

2.2.2 Architect's Council of Europe

The Architect's Council of Europe (ACE) is the representative organisation for the architectural profession at a European level. Its membership entails 43 regulatory and professional representative bodies in all EU member states, UK, Switzerland, and Norway (ACE, n.d.-a). Through these organisations, ACE represents 562,000 architects from 31 European countries.

Every two years, the ACE publishes a comprehensive sector study in which it collects and analyses "statistical, sociological and economic data on the European Architects, the architectural market and the architectural practices" (ACE, n.d.-b). The last sector study was completed in 2018, and statistics were based on a survey given across 26 European countries, with a total of around 30,000 responses. The biannual study is statistical in nature and draws insightful comparisons between countries. The statistical survey is directly conducted amongst architects themselves (ACE, 2019), which contributes to a better overview of the profession and industry throughout Europe. Although many countries offer their own statistical data, there is a gap when it comes to comparisons between countries. Such a comparison is complicated by the inconsistencies of data collection.

The ACE collaborates with national organisations to disseminate the questionnaire among architects. This may, however, give a slightly distorted or unrepresentative picture, as not all architects are registered with national associations. In addition, although the survey does facilitate a comparison between countries, it is important to point out the various response rates. For instance, 8,654 German architects filled in the ACE questionnaire, but only 24 Polish architects did so. Accordingly, Germany's response rate was 15%, compared to a rate of just 0.4% in Poland. As a result, the ACE is able to portray some countries better than others.

The ACE sector study is divided into five chapters: 1) Architects in Europe, 2) Architecture: The market, 3) Architecture: The practice, 4) Architects: The individual, and 5) Country profiles.

Within these five chapters, the ACE provides insights on elements such as the number of architects and practices, the distribution of gender, employment status (working part- or full-time), fields of

employment, age profiles, client types, hourly charge-out rates, and practice turnovers. The study also links various variables together, including practice turnover by size, earnings by age, and earnings by gender. These comparisons shed light on wage gaps and other inequalities. Below, we will discuss some of the survey's findings in more detail.

Results

Number of architects

According to the ACE's survey, the estimated total number of architects in Europe (the EU member states plus Norway, Serbia, and Switzerland) in 2018 amounted to approximately 562,000. Of this number, most architects were located in Italy (160,000), followed by Germany (111,000). Compared to ten years earlier, just before the outbreak of the financial crisis, the total number of architects has grown by 24%. Spain, the UK, and France also employed high numbers of architects – 56,000, 41,000, and 30,000, respectively. These statistics are therefore in line with Eurostat, which also suggested the dominance of these five countries.

Firm size and field of employment

In 2018, 71% of the practices were one-person practices, 25% had 2–5 persons, and 3% had 6–10 persons (ACE, 2019). Countries in Scandinavia and the UK have by percentage more large-sized practices than the rest of Europe. The ACE's survey also showed the shares of different fields of employment. As could be expected from the very small average firm size, a large share of architects in Europe were sole principals or freelancers. Economies of scale are, apparently, of minor importance in this CCI.

Gender division

Another characteristic is the gender of architects in different countries. In 2018, 61% of the architects were male and 39% were female. Countries with the highest percentage of female architects were Sweden, Greece, Norway, Croatia, and Finland. Austria, the Czech Republic, and the Netherlands, on the other hand, had the highest proportions of male architects (ACE, 2019). Moreover, over the last few years, more and more women have decided to become architects. In 2018, 32% of Europe's architects in the age group of 50 to 59 years old were female and 68% were male. In the age group of architects between 30 to 39 years old, there were more female architects (53%) than male architects. Therefore, it seems that the profession is becoming more equally balanced with regard to the distribution of gender. However, in 2018, there remained an average pay gap of 25% between male and female architects. In 2008, male architects earned an average of 32% more than women. Over the past 10 years, this gap has slightly narrowed, but male architects still earn an average of €9,000 per year more than women.

Age

Apart from gender, the ACE (2019) also considered the age profile of architects in Europe. In 2018, most architects were between the age of 40 and 49, and only 7% of the architects were younger than 30 years old. The relative underrepresentation of this cohort is probably due to the aftermath of the financial crisis of 2008, which resulted in a large shake-out – especially of young workers – and a marked decline of the inflow of new workers. Poland, Hungary, Malta, Cyprus, and Romania were the countries with the highest proportion of architects under 40.

Earnings

According to the ACE (2019), the market for architectural services in 2018 accounted for €16,400 million. When considering the total value of Europe's construction market – including civil engineering and infrastructure – the estimated value was €20,850 million. The construction market of the UK, Germany, France, and Italy together accounted for more than half of the total construction output (ACE, 2019). When comparing the market to previous years, the construction and architectural markets is expanding. However, the market still remains smaller than it was at the pre-crisis level in 2008. Wages of architects also fell during the crisis. In 2008, the average gross wage of architects among the 31 countries covered by the ACE study was €34,000 per year. Between 2008 and 2010, there was a sharp drop. Now, earnings are slowly recovering from the crisis. In 2018, architects earned an average of €32,700 per year (ACE, 2019).

Type of building sectors

The ACE (2019) also examined the different types of building sectors. The majority of architects' turnover came from private housing. In total, 36% of Europe's architectural work was done in individual housing, and 18% was done in other private housing. This seems to indicate a high-level fragmentation of the market into many very small segments along spatial (local demand), expertise (e.g. renewal of a kitchen), and price or quality dimensions. The observed dominance of the sector by very small architectural practices is probably at least partly driven by this fragmentation of the market. For instance, in 2018, refurbishment accounted for 59% of work, and newly built for 41%.

Client types

In 2018, more than half of the work was done for individuals, which is very much in line with the above noted fragmentation of the market. The public sector (central government, local government, and other public institutions) accounted for 17% of the work.

Conclusion

Statistics from the ACE demonstrate the diversity in the architectural sector. Architects can, for instance, work for a public client wishing to renew parts of a city, for individuals desiring the renewal of a kitchen, or for a construction firm building new apartments. In addition, architectural practices can consist of one-person firms or employ a handful of employees. We selected our cases studies with

this fragmentation in mind. In order to showcase this diversity, we attempted to select architectural projects that differ in locality, size, and customer type (i.e. a small-scale project initiated by a private client and large-scale projects initiated by public clients). In addition, the selected architectural firms differ in terms of size and gender (from a self-employed female architect to a rapidly growing, male-dominated architectural firm and a highly established and institutionalised firm).

2.3 National data

Data from the Eurostat databases and the ACE are supplemented with national information available from commercial databases and trade body reports. First, we describe the Dutch architectural sector, followed by the Spain architectural sector.

2.3.1 The Dutch architectural design sector

In order to map the statistical architectural landscape of the Netherlands, we use a dataset compiled by Statistics Netherlands (CBS). The CBS was requested to compile this dataset by the Atelier Rijksbouwmeester, a government agency – in particular, a part of the Ministry of Finance, which is responsible for all of the real estate owned by the Dutch state – whose task is to promote, advise, and monitor urban development and the architectural quality of buildings and the built environment in general. The point of departure for this dataset was the list of certified architects provided by the Dutch Architects Registration Bureau (*Bureau Architectenregister*, or BA in short), which is an independent administrative body responsible for carrying out the Dutch Architects' Title Act. It also manages the architects' register and is authorised to act against any unlawful use of titles. To be able to use the title of architect in the Netherlands, one must, by law, officially register at the BA. This bureau, then, in principle, covers all of the architects in the Netherlands. By using the addresses of the architects on the list of the BA, the CBS was able to link the persons living there with other databases – namely, employment and tax databases – and construct a detailed statistical overview of demographic and labour-economic characteristics of the architects and the broader Dutch architectural sector. The statistical characteristics shown relate to December 2018.

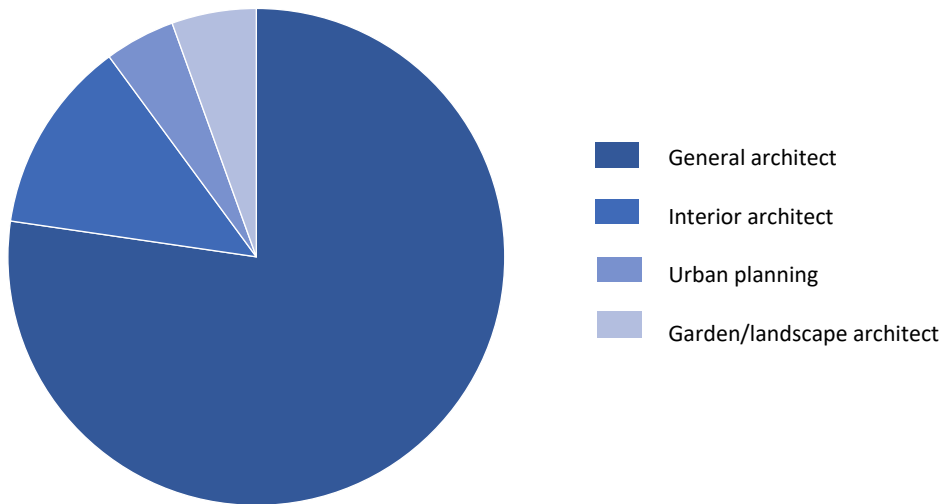
The statistical data zoom in on demographic characteristics and job characteristics of the Dutch architectural field. Before analysing the data, it is essential to note a shortcoming of the dataset: the lack of separate data on self-employed architects in the Netherlands, which, like in other EU countries, is a very large group and has risen over the years (Koetsenruijter & Kloosterman 2018).

Within the architectural field, four types of disciplines can be distinguished: general architecture, interior design, garden and landscape design, and urban planning. The figure below provides an overview of the distribution of the specific sectors. The vast majority of architects in the Netherlands were employed as general architects. The interior architects are the largest group after this.

As stated before, compared to other European countries, the Netherlands is among the three worst scoring countries concerning the percentage of female architects (ACE, 2018, p. 1-12). The figure below demonstrates this gender division for each segment. Interior design was the segment with the

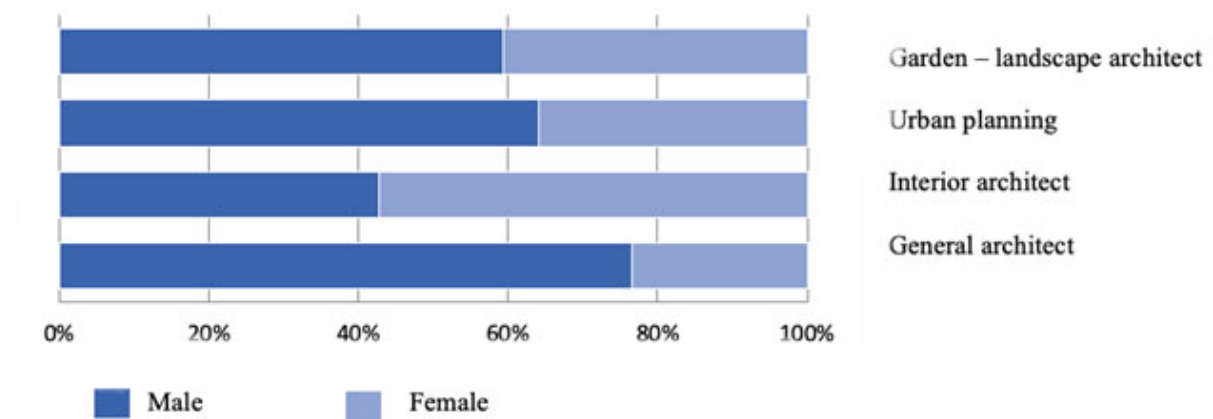
highest proportion of female architects. The segment with the highest proportion of part-time architects was also interior design, so there may be a connection between the two. Whether this large share of part-time jobs in this sectors is the result of female participation or vice versa cannot be investigated on the basis of the CBS data.

Figure 1. Share of architects per discipline in The Netherlands



Source: Kempen, S. van; Mâthot, R. & Kloosterman, R.C. (2021) *De ruimtelijke ontwerpsector ontleed. Jaarrapportage Ruimtelijke Ontwerpsector*

Figure 2. Gender distribution per architectural discipline in The Netherlands



Source: Kempen, S. van; Mâthot, R. & Kloosterman, R.C. (2021) *De ruimtelijke ontwerpsector ontleed. Jaarrapportage Ruimtelijke Ontwerpsector*

Moreover, the data reveal that the number of part-time and full-time architects in the Netherlands is close. In 2018, approximately 55% of architects worked full-time. When comparing these findings with the broader European statistics, it appears that the Dutch sector has a relatively large share of part-

time jobs. The ACE report (2018) stated that, on average, three-quarters of the EU's architects work on a full-time basis. This is a significant difference compared to the Netherlands, where full-time jobs comprise hardly more than half of the nation's architects (ACE, 2018, p. 1-13). Interior architects and garden and landscape architects appeared to, on average, work less hours per week than urban planners and general architects. Furthermore, general architects worked the most hours per week on average.

Finally, Koetsenruijter and Kloosterman (2018) stated that wages for men and women are unevenly distributed in the Dutch architectural sector. This is difficult to confirm with the statistical data of CBS because the dataset does not link average earnings to demographic characteristics. However, the dataset does provide data on the average earnings for each sector. These data revealed that interior architects often earned less than other architects. When this is associated with the figure above about male and female ratios for each sector, an assumption can be made about gender inequality regarding wage differences.

2.3.2 The Spanish architectural design sector

Following the economic and financial crisis that began at the end of 2007 and hit the construction sector – and, therefore, architects – especially hard, a recurring debate was created around the number of architects in Spain. Normally, the number of registered architects is taken as a reference to obtain the total mass of architects. In June 2018, according to the Superior Council of Architects' Bureaus (CSCAE), there were 50,305 registered architects in Spain.² There are currently 26 architects' bureaus, or COA, which have been part of the professional organisation CSCAE since 1931. It is precisely in the COAs where architects must sign their registration. However, not every graduated architect in Spain is registered. To the number of collegiate architects should be added architects who are not. However, these non-collegiate architects may be in various situations, including unemployed, working in the architectural sector, working in other sectors, and not registered and working abroad. Although Spanish law demands each architect to register in one of the COAs to be able to work in the profession, the Architect's Union has repeatedly denounced the high level of precarity of the sector. According to the union's last survey, around 37% of the architects in Spain are not registered.³

It is important to highlight that neither the CSCAE nor the Architect's Union in Spain offer data certified by a government institution. Both sources base their analysis on surveys that they perform with their affiliates, which already skews the sample. Nevertheless, the information that these surveys provide provides a decent approximation of the characteristics of Spain's architectural labour force.

² Data accessed through CSCAE web: <http://www.cscae.com>

³ Data accessed through SARQ (Sindicato de Arquitectos)

Socio-demographic profile of Spanish architects

The socio-demographic profile of architects in Spain presents a great disparity between genders. In a cross examination of rates between the ones provided by the CSCAE survey and the ACE report, the distribution indicates that 70% of architects are male and only 30% are female. Thus, Spain's gender gap in the field is much closer to the EU average (61% male and 39% female) than the Netherlands (77% and 23%, respectively).⁴

The average age of the architects is 46.5 years. Interestingly, precisely around this age is when the gender gap starts to reduce. That is, in the youngest segments of the architect population, women are starting to gain some ground compared to previous years.

Employment situation

Regarding the characteristics of the employment type of contract relation, it can be seen that the vast majority (almost 70%) of the architects in Spain are self-employed or autonomous. Only 14% are dependent salaried workers, and 11% practice both types of employment arrangements.⁵

This number draws much attention since it is considerably higher than the European average. According to the ACE, independent workers – a combination of the categories of sole principal, partner or director, and freelancer who are equivalent to the autonomous Spanish CSCAE – account for 70% of architects in Spain, while the self-employed account for 52% of the population of architects in Europe as a whole.

It is also relevant to understand how people working in the architectural field in Spain face great instability. The majority (66%) have a working arrangement with an indefinite time frame, which is directly related to the percentage of architects who are self-employed. Following that, temporary contracts are the second type of common employment arrangements of the practice. In fact, fighting against job insecurity and the various forms of illegal employment practiced within the architectural sector is a preferred objective of the country's largest architects' union.

Individual housing leads the market

With regard to the specific activities for which architects are sued, a vast majority has to do with private commissions. According to the CSCAE survey, almost 90% of the architects work for these individual commissions composed by residential rehabilitation projects (52%), residential new construction projects (56%), and construction management (53%). Although this is in line with the rest

4 CSCAE Advance results Survey Architects 2018: <http://www.cscae.com/index.php/encuentro-asamblea-2018-29-nov/avance-encuesta-arquitectos-2018>

5 CSCAE Advance results Survey Architects 2018: <http://www.cscae.com/index.php/encuentro-asamblea-2018-29-nov/avance-encuesta-arquitectos-2018>

of Europe, for which the market demand from the private residential projects sector exceeds 50%, it is clear that this segment leads with greater force in Spain.⁶

Earnings

Despite the fact that the architects' missions are very diverse in each of the European countries, according to a CSCAE study performed in 2015, there is a clearly unequal remuneration for the Spanish architects with respect to their counterparts in other EU countries. The architect in Spain assumes greater responsibilities, as what is done by a single professional in Spain would be the sum of three professionals' responsibilities – namely, building development, installation, and structure – in other European countries, each with fees whose sum would be approximately double that in Spain. These data are maintained when taking into account the differences in the cost of construction of the standard housing between Spain and Germany or France.

Taking this into account, it can be understood that the disparity in the numbers is just a small representation of the real disparity in the profession. In practical terms, according to the CSCAE's 2017 survey, the average income of a Spanish architect is €22,265 per year, which is similar to what the ACE's estimate of €26,000 for the country. In comparison, Spain is definitely under the EU's average earnings of €32,731 per year, according to ACE. Again, this is even more shocking when considering the fact that according to the studies of the CSCAE, Spanish architects also have greater responsibilities and activities in their functions.

2.3.3 An introduction to the Catalan architectural design sector

Table 10. Architecture companies and occupation in Catalonia

Year	Number of companies	Workers	Employees
2019	9,392	13,495	4,770
2018	9,455	13,167	4,040
2017	8,566	12,233	4,232
2016	8,326	10,999	3,799
2015	7,651	10,534	2,985
2014	7,689	11,047	3,580
2013	9,190	11,306	2,882
2012	9,751	13,335	3,548

6 CSCAE Advance results Survey Architects 2018: <http://www.cscae.com/index.php/encuentro-asamblea-2018-29-nov/avance-encuesta-arquitectos-2018>

2011	10,552	14,397	3,952
2010	10,987	16,757	5,944
2009	10,891	16,941	5,960
2008	12,503	20,019	8,034

Source: Catalan Statistics Institute

Since the financial crisis in 2008 that led to a transformation of the Spanish economy, the Catalan architectural sector has not recovered to pre-crisis figures. Even if recent data on companies, occupation, and employees suggest a recovery from 2015, the last figures still indicate a decrease of between 30% and 40% compared to 2008.

Regarding the economic output, a similar trend can be observed. Although the gross added value was above €700 million in 2008, it did not reach €400 million in 2019. Still, the recovery from the economic crisis has been substantial since 2013, the lowest year recorded in the series.

Table 11. Architecture production and gross added value in Catalonia

Year	Production value	Intermediate consumption	Gross added value	Gross operating surplus
2019	668,648	278,479	390,169	230,934
2018	591,548	243,850	347,698	225,152
2017	567,168	216,177	350,991	233,980
2016	473,141	231,421	241,720	141,069
2015	383,217	178,779	204,438	123,365
2014	483,576	185,744	297,833	166,554
2013	300,166	114,087	186,080	111,113
2012	519,413	186,638	332,774	217,513
2011	649,630	228,108	421,522	291,457
2010	686,964	238,989	447,975	246,215
2009	814,175	279,791	534,384	307,450
2008	1,024,583	323,580	701,003	457,472

Units: Thousands of euros

Source: Catalan Statistics Institute

PART 3. The fieldwork: Analysis and results



3.1 Case studies in the architectural design sector: setting the scene

The architectural sector presents a huge variation with respect to the consideration of potential case studies. We investigated three case studies, each of which covers a different segment of the architectural sector, with one based in Spain and two in the Netherlands.

The city of Barcelona was chosen because of its designation as “the city of architects” (Moix, 1994). With internationally acknowledged architects such as Ricardo Bofill and Oriol Bohigas, Barcelona has key stakeholders who play a key role in the emergence of innovative and creative architects' studios and the safeguarding of a strongly corporate sector. This is the case, for instance, of the ETSAB, the School of Architects, which is an exchange platform where knowledge communities are created and trust and reputation are built up throughout each architect's career. In addition, the powerful Association of Architects (COAC) in both the city and the region acts as a lobby defending the interests of its associates.

Initially, the fieldwork in Barcelona approached architects who function under a strong idea where the “genius” of the character and work of the main architect were evident. Several names were considered, and other criteria appeared decisive. For instance, sustainability in the process of material selection and the protection of the existing built environment became a common trait identified in some of our potential cases with the capacity to change the existing paradigm. Simultaneously, the increasing emergence of small but very innovative studios dealing with new forms of living (e.g. co-housing) and new approaches to the design process also became critically interesting.

As mentioned before, the architectural sector as a creative sector is probably one of the most “market-sided” of the whole set. Without underestimating their true vocation and their creative capacity, architects are usually well-paid and do not hold different jobs to make their ends meet. However, they are heavily affected by the macroeconomic context – particularly in Spain, where the real estate market has been a driver of growth for many decades.

In addition to the case study in Barcelona, a case study was selected in the city of Rotterdam. Similar to Barcelona, this Dutch city is known as a cluster for trend-setting architectural firms and progressive architecture. Spatial clustering in Rotterdam can also be observed among important national institutions dedicated to architecture, such as Nederlands Architectuur Instituut (Netherlands Architecture Institute), Stimuleringsfonds voor Architectuur (Architecture Promotion Fund), and Berlage Instituut (Kloosterman & Stegmeijer, 2004).

The other Dutch case study was located in Vinkeveen, a village located in the province of Utrecht. This case study was selected because the Italian architect moved to the Netherlands, taking her Italian roots with her. Her experience across two European countries (the Netherlands and Italy) provided us with interesting information on different national institutional contexts in the architectural field and the obstacles she faced when adhering to different regulations.

For this research, a qualitative research approach and interviews were selected to understand the activities, perceptions, experiences, and values of the actors involved in the production network. With the network as the unit of analysis, we chose to conduct interviews with the nodes – that is, the actors who constitute this network. In this research project, we set out not to generalise, but to understand the role of context and the structures that play a role in the different GPN phases of each case.

In this report, we unravel production networks in the architecture industry. We look both at the networks of architectural practices in general and the networks of individual architectural projects in particular. These function as windows of entry to understand the dynamics of the network at different scales. Focusing on a specific project makes it possible to evaluate who asks for it (i.e. the demand that initiates the cycle in the different procurement routes), how it is financially supported, who is in charge of the design, and who is responsible for the construction, while focusing on the networks of architectural practices provides a broader view. Although analysing the dynamics in all production phases is crucial to understanding the functioning of the GPN, our main interest was to analyse the design stage of the process, as that is there where the highest creative value is added.

The initial focus was thus on architectural design. However, the role of the architecture studio does not necessarily end with the finalising of the design and at the beginning of the construction phase. The subsequent phases (i.e. monitoring and management of the actual realisation of the design) were also analysed and addressed to explore GPNs in European architecture.

The different phases of the architecture industry can be characterised as follows: the creation or project conception; architectural design; the key phase of architectural design carried out collaboratively; the production or project development; the distribution or delivery to end users; the exchange or knowledge transfer of the brand or professional recognition through prizes, press coverage, international congresses, or academia and the archiving or the maquettes, mock-ups, and documentation that can be stored by the architectural firm, institutions, magazines, or museums.

It is worth noting that the linearity observed in the production network of other industries is not clearly identified in the case of architecture, as many iterations occur when involving other relevant actors, including the customer, builders, and technicians.

Table 12. Overview of the architecture phases



Below, we will present an in-depth analysis of the production networks in the architecture industry. The variation within this industry is very large along a number of dimensions. As such, cases were selected on the bases of business models of architectural practices (a proxy that allows to simplify the huge variation). Key characteristics of firms’ business models cohere in more or less consistent configurations – for instance, size of firm, purpose, strategies, target customers, organisational structures, sourcing, and operational processes.

There can be found a very large number of small (one-person) practices working on small projects, containing simple organisational structures, and catering mainly to local markets. There can also be observed a smaller number of still quite modest practices (less than 25 permanent staff). These medium-sized practices are able to acquire larger commissions on national and even international markets by exploiting their specific skills and expertise. At the other end of the distribution can be found larger architectural practices (more than 25 employees) whose business models comprise targeting large projects, often abroad, more complex organisational structures, and internal division of labour. These distinctions are, obviously, not permanent, and a practice belonging to the category in the middle may move up to that of the larger practices in due time or – as we have seen in the aftermath of the credit crisis – shrink to a one-person firm. Still, this basic typology provides an understanding of the diversity of the field from a more analytical perspective and helps us position our findings.

In our selection, then, we included one small practice catering to a local (niche) market based in Vinkeveen in the Netherlands, one up-and-coming practice (about 10 permanent staff members) in Rotterdam belonging to the middle category, and the cases of two established practices in Barcelona,

both of which have been operating on the global market for quite some time. Regarding the latter, we opted to combine the information from the interviews of both practices to construct an ideal-type production network. This way, the information cannot simply be traced back to one of the practices. The aim here is to show how a project from a consolidated architectural practice conforms to a production network and what type of policy implications might be identified. This part, then, is not based on a particular project; rather, it stems from a characterisation of both firms' more typical projects.

In addition, all of these practices are, in a sense, *strong-idea* practices, which means that they compete not so much on price as they do on the quality of their design. Focusing on strong-idea practices implies looking at the most *creative* architectural practices, as strong-delivery and strong-service practices are much more oriented towards technical and cost-related issues. In the case of the one-person practice, the strong-idea aspect relates to the aesthetic of the design, which is strongly influenced by Italian tradition. The design by Studio RAP is a case of the use of innovative digital technology to create an almost sculpture-like acoustic wall. In the case of the two practices in Barcelona, the strong-idea practices are quite similar in their business model.

A medium-sized practice

Studio RAP, located in Rotterdam, is an architectural practice that combines the power of computational design with innovative digital fabrication methods (Studio RAP, n.d.). They specialise in innovative technology and aim to improve architectural design and production. In addition, they “challenge the traditional ways of building and rethink the architectural profession” (Studio RAP, n.d.) and aim at creating sustainable design. Their niche projects, based on their highly specialised expertise, clearly fall within the strong-idea category. Together with Studio RAP, we chose a particular project characterised by both innovation and sustainability.

A one-person practice

MEF Architect, based in Vinkeveen, is a one-person firm that designs and facilitates projects on different scales – from bathrooms to villas and from staircases to interiors. The founder demonstrates her Italian heritage through the aesthetic and cultural values of her designs. She is often involved from the very beginning of a rough idea to the realisation of the project.

Established large practices

Two architecture studios in Barcelona fulfilled the conditions and were keen on participating in the CICERONE project. Somehow, their recognition of the role of research in all fields and knowledge creation facilitated their commitment. After some interviews, a third studio was discarded, as they were more emergent and had less global scope than the other two. Both of the included practices competed on *strong-ideas* regarding innovative solutions concerning sustainability.

Guallart Architects (GA) and Picharchitects (PA) were the two studios selected as representatives of the characteristics of the Barcelona case study. Despite intrinsic differences, both shared the

preconditions to become two excellent examples of the typology. Vicente Guallart and Felipe Pich-Aguilera are the two inspiring architects of the firms – Teresa Batlle, even if not in the name of the studio, was also a founding member of Picharchitects.

GA and PA were founded in the nineties, when the housing market and real estate in general were booming in the country. Sustainability and innovation have been paramount to both studios' designs from their inceptions. They both compete in international markets but are strongly embedded in the Barcelona context. They also both have strong partnerships with other actors, such as landscape designers, engineers, or quantity surveyors. Moreover, competitions are key to enhancing the studios' reputation and acknowledgement in the architecture world.

They were clearly part of a GPN that was global but strongly rooted in the Barcelona context. As a case study, we constructed a typical architecture project based on the information provided by the two architectural practices. Both studios are examples of how goods and services are provided in the sector, how policy influences this market-oriented sector, how labour conditions and requirements apply, and how embeddedness is key to explaining not only the influence of certain stakeholders on the work of the architectural firms but also the nature of their creativity and innovative pathways.

3.1.1 Positioning the cases in the wider field of CCSs and within the field of architectural design

Architecture is one of the most regulated industries of the CCS, and it becomes compulsory to be part of the “guild” of architects to be able to participate in the market. However, these regulations are clearly embedded in the local traditions and path dependency of the sector. The theoretical corpus related to “project ecologies” (Grabher, 2004) works extremely well in this architecture. Trust and reputation are essential factors in partnerships that compete in international contests. Prizes and awards are decisive in acquiring recognition. In the Barcelona context, the two studios considered are solidly related to the municipality of Barcelona and the regional government, to the point that Vicente Guallart became the head of the Urban Planning Office in the 2010s.

Within the field of architectural design can be observed two poles. On the one hand, there are the many small and one-person practices – the latter constitutes 74 % of the 565,000 architects in Europe (Samuel, 2018: 45) – catering to local markets and embedded in relatively simple, short production networks. On the other hand, there are the large international practices, which are globally active and capable of completing very large, complex projects and embedded in extensive networks which often cross borders. These two poles must be considered to grasp how global production networks function within the field of architecture. This also involves considering patterns of relationships between these two types and their dynamics.

Photo 1. Architectural projects by Picharchitects



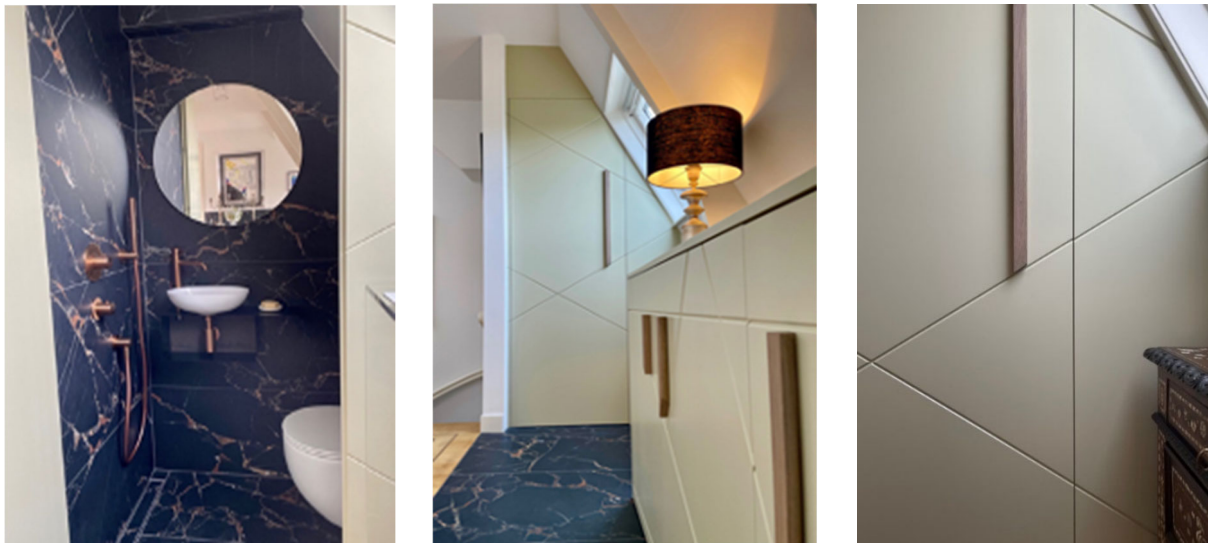
Source: picharchitects.com

Photo 2. Acoustic wall of Theater Zuidplein, Rotterdam (NL), by Studio RAP



© Photo made by Robert Kloosterman

Photo 3. Penthouse renovation by MEF Architect



Source: *mef-architects.nl*

The pandemic strongly hit the architectural sector, as the real estate market all over the world was dominated by uncertainty and limitations in terms of resources. Many small firms in Spain in general and Barcelona in particular were unable to survive, which enormously affected the fieldwork of CICERONE, as companies were struggling with the daily complications of the lockdown and were not willing to participate in a research project.

The architectural sector in Barcelona was explored broadly before selecting the cases that illustrate the typology. Two studios with a strong idea as a basis were approached at the beginning with no success. Since we were not a team from the Polytechnic University, our lack of reputation in the sector made it difficult to approach some potential cases.

The following table indicates the number of interviews in the sector:

Table 13. Number of respondents in the Spanish and Dutch architectural sector by type

Industry referents	Guellart Architects (GA)	Picharchitects (PA)	Other studios	Total
6	3	4	6	19

Theater Zuidplein	MEF	Total
8	4	12

3.2 Case study 1: Theater Zuidplein

For this case study, eight interviews were conducted with actors who play different roles in the production network of architectural design. Below, we will explain the findings and insights that these interviews provided.

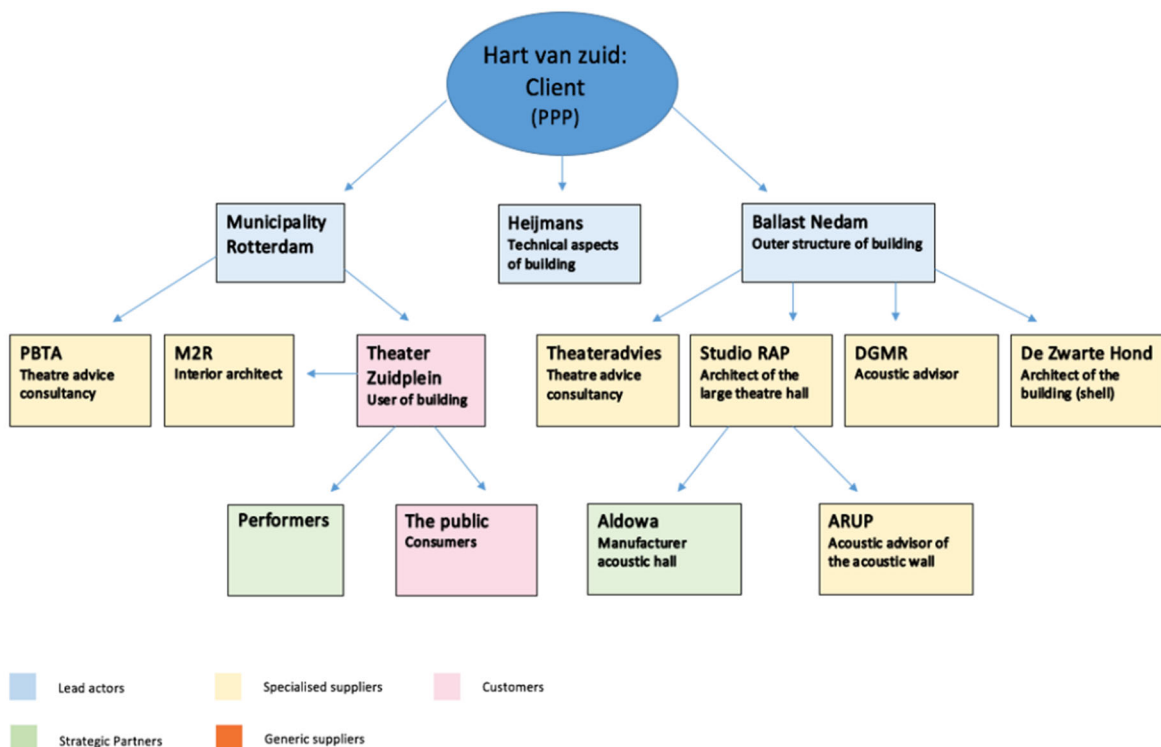
3.2.1 Phases, actors, and locations (network configurations)

Actors

The Theater Zuidplein project is part of “Hart van Zuid”, a large urban renewal project initiated by the municipality of Rotterdam. Because the municipality is a public client and the project exceeded the financial threshold, a competition was established according to EU regulations. The overall tender was won by construction companies Ballast Nedam and Heijmans. In a public private partnership (PPP), the two companies started a long-term collaboration with the municipality to work on various projects, one of which was the new theatre (Hart van Zuid, n.d.).

Below, we present a visual representation of the stakeholder network.

Figure 3. Case 1: Stakeholder network Theater Zuidplein



At the core of the network is the PPP, consisting of the municipality, Heijmans, and Ballast Nedam. During the project, the PPP had the final say in decisions related to the design and coordinated flows between actors in the production network, cooperatively taking on the role of lead actor. At the start of the project, the municipality was in close contact with the direction of Theater Zuidplein since they were the ones taking the building into use. Together with PBTA, a theatre consultancy, they set up an architectural brief containing more than 12,000 requirements that the building and its interior had to meet. Ballast Nedam hired a team of consultants and architects to transform these demands into concrete designs. De Zwarte Hond was hired to design the outer shell of the building, and, at the request of Theater Zuidplein, M2R was appointed interior architect, designing several parts of the building. In addition, DGMR and Theateradvies were hired as consultants. However, M2R's design for the interior acoustic wall was not accepted, as it exceeded the budget by half a million. Therefore, the municipality and Ballast Nedam decided to hire a different architect to design the acoustic wall. Because the traditional tender for this specific part had failed, no formal competition was created, and the municipality was allowed to award the job privately to Studio RAP. Studio RAP then hired Arup, an acoustic advisor, and Aldowa to help design and manufacture the acoustic wall. The architectural design of this acoustic wall is the predominant project that we analysed in this case study. However, it is intrinsically linked to the development and design of the entire Theater Zuidplein.

Locations

The Theater Zuidplein took over nine years to finish and was highly complex. Various specialised consultants and architects with niche expertise were involved to comply with the detailed functional demands from the municipality and Theater Zuidplein. What characterised this project was the close geographic proximity of many of the actors involved: the municipality, Heijmans, Ballast Nedam, Theater Zuidplein, M2R, De Zwarte Hond, Studio RAP, and Aldowa are all based in Rotterdam (Vriesema & Kloosterman, 2022). The residual actors were based in other Dutch cities. This proximity is no coincidence since both the municipality of Rotterdam and Ballast Nedam emphasised favouring collaboration with fellow "Rotterdamers" as a way to support local entrepreneurship and generate employment. Thus, because of the mainly local spatial footprint, the economic benefits have, accordingly, landed first and foremost in Rotterdam. In addition, the establishment of a relatively local network ensured a welcoming atmosphere in which actors shared a common ground. Some actors mentioned having worked together before and being aware of the skills and knowledge available to them.

Phases

Below, we analyse the production process of the newly built Theater Zuidplein. Due to blurred and overlapping boundaries between phases, this process cannot easily be disentangled into rather clear-cut phases. Therefore, when necessary, we slightly adjust the GPN phases to fit our case.

Creation

The Theater Zuidplein had a long trajectory, starting in autumn 2011 and finishing nine years later. The creation phase started when the Rotterdam city council decided to invest in the development of Zuidplein and its surroundings. One of the key targets was to relocate and expand the theatre to a more central location on the square. In collaboration with the direction of Theater Zuidplein and a theatre consultancy, an architectural brief was drafted, listing over 12,000 aesthetic, practical, and technological demands. In the following period from 2013 to 2015, the construction consortium Ballast Nedam and Heijmans gathered a stakeholder network to address these wishes in their proposed designs. The process of creating these architectural designs involved complex configurations of specialised suppliers, each with their own specific set of knowledge and resources. In a highly interactive process, Ballast Nedam, the main contractor, consulted with its architects and consultants on a weekly basis in order to work through various design stages, moving from sketch designs to preliminary designs, technical designs, and, finally, executive designs.

Production

The next step was for Ballast Nedam and Heijmans to select all materials and to expand the stakeholder network. Construction of the new theatre started in 2018 and finished two and a half years later. Different actors, relevant to the realisation of the construction phase, came together in a concrete set-up to organise a relatively complex division of labour. Construction workers followed the detailed designs made by the architectural practices and engineering firms. Ballast Nedam and Heijmans oversaw the planning and coordinated flows between actors, and the direction of Theater Zuidplein was present to assess whether everything was in accordance to their wishes. During construction, some last-minute changes were made, thereby blurring the boundary with the creation phase.

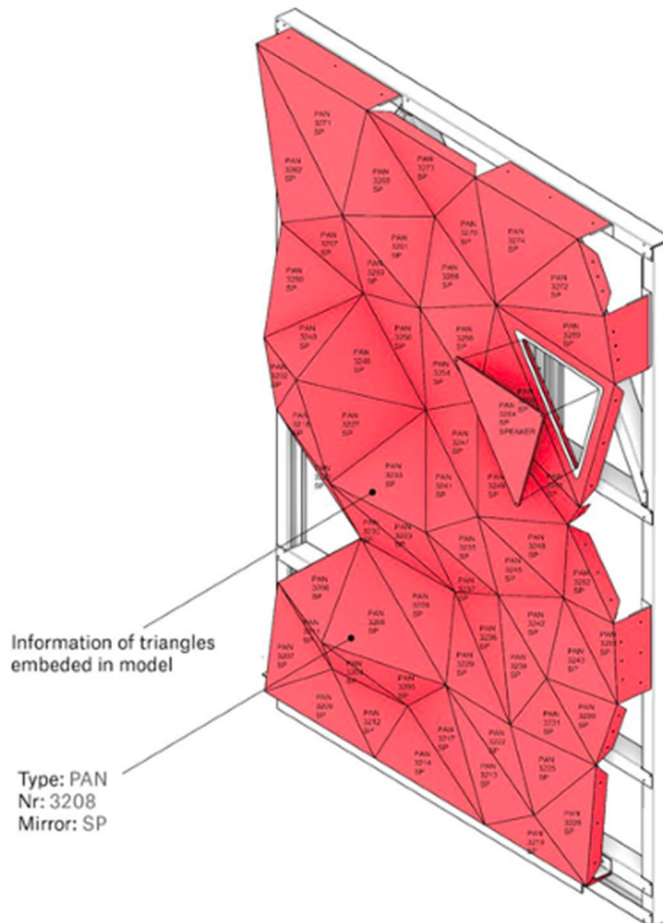
One part of the construction, the production of Studio RAP's acoustic wall, was highly innovative, as it involved a completely digital workflow. The designs, consisting of 6,000 computer-aided design (CAD) drawings with unique numbers and angle rotations, were forwarded to Aldowa, the manufacturer (Vriesema & Kloosterman, 2022). By means of algorithms and machines, Aldowa nested the 6,000 triangles in plates as efficiently as possible. Because of Studio RAP's singular expertise regarding its algorithms, they were needed to supervise construction, a task increasingly taken over by project managers instead of architects. Thus, Studio RAP's specific knowledge and skill set demanded control in the stages of creation, production, preparation, and engineering.

Distribution

Ideally, distribution entails the transfer of a product from production to where it can be sold – the exchange phase. However, designs of constructions are not mass products that can be distributed to customers like songs or clothing. Instead, the one-off designs for Theater Zuidplein were already commissioned in the creation phase. After the selection of the architectural practice had taken place, there was a one-to-one, interactive relationship between designers and customer, which did not leave

much room for a distribution process. So, in this case, as well as in most architectural projects, the distribution phase – characterised by the bringing together of a product and customer – had already happened at the beginning of the project. In fact, the products are often made on behalf of a client.

Figure 4. Case 1: CAD-drawings of components of the acoustic wall



Source: Studio RAP, 2020

Exchange

The exchange phase contains the formal opening of the building. The theatre was officially opened in September 2020. Despite ongoing COVID-19 measures limiting the number of visitors, there was a festive opening accompanied by Queen Maxima and the mayor of Rotterdam. The new building offers Theater Zuidplein the opportunity to grow to accommodate 100,000 to 120,000 visitors per year. However, due to COVID-19–related circumstances, shows were delayed for some time.

Archiving

In architectural projects, archiving is above all the actual realisation of the construction project, when the building becomes part of the urban environment and can be observed and visited by many people. As such, Theater Zuidplein is documented through its everyday use by customers and when

professional critics and citizens discuss the quality of the architectural design. In addition, being a public and centrally located building in Rotterdam Zuid, the design has received publicity in several newspapers and on architectural websites (e.g. de Volkskrant, AD, NRC, BNA). This awaited publicity was pivotal for the actors involved, as it helped increase their visibility and create brand awareness. As such, actors wanted to see their contributions recognised. For this reason, Arup always includes clear agreements about publicity in their contract.

If we conclude contracts for large halls and we are present from the start till the end, then we already describe in our contract that all communication to the outside, from whatever party, must always mention the architect and us. (...) Agreements are made in advance to ensure that when we have been working on a project for ten years, our name is on it.

For Studio RAP, designing and engineering the acoustic wall resulted in a large amount of publicity, which is an important means for them to grow as a company.

We have an active social media plan to increase requests for future assignments. ... The buzz is also important, isn't it? The buzz around your company helps you convince people. With the ultimate goal of obtaining contracts, absolutely.

This publicity and the consequent brand recognition was, for many actors, the main reason to get involved, even more so than monetary value. In fact, the designs for the new theatre have attracted widespread attention and have been recognised by juries for awards. For example, Theater Zuidplein was nominated for the Dezeen Awards 2020 interior award and awarded the BNA Best Building 2021 prize in the “Liveability & Social Cohesion” category. As such, Theater Zuidplein evidently became part of the public debate.

3.2.2 Relationships between actors (governance)

The production process transforming architectural designs into palpable constructions involves complex configurations of stakeholders, each with their own specific set of aims and resources. Especially when it involves a complex and risky project such as Theater Zuidplein, the need for a more specialised distribution of labour increases. Throughout the process, various architects and consultants exchanged ideas and opinions to assist each other and optimise the theatre design. In order to manage flows between actors, the stakeholder network was organised according to a nested structure, very much like Russian matryoshka dolls. The municipality, in conjunction with Ballast Nedam and Heijmans, took on the shared role of lead actor. Below that level, there was De Zwarte Hond, the architectural practice responsible for coming up with the designs for the outer shell of the building, followed by architectural firm M2R and consultants DGMR and Theateradvies, responsible for the interior of the theatre. Nested under these was Studio RAP, the main actor in designing the

acoustic wall of the theatre hall. Studio RAP then took on Arup, an acoustic advisor, and Aldowa, a manufacturer.

Hence, the network was, in essence, characterised by a hierarchical top-down structure in which the municipality, Ballast Nedam, and Heijmans had the final say in decisions concerning the design, the stakeholder network, and the project's budget. However, throughout the process, actors were given a high degree of freedom to voice and enforce their ideas. For this reason, actors partially debated the top-down structure and argued that there was more of a decentralised power climate. Rather than exercising a high degree of control, the lead actors provided freedom throughout the process for specialised suppliers to elaborate on certain design choices. This flexible attitude was the result of two key network characteristics.

The first reason was derived from the fact that most actors were located in Rotterdam. The municipality and Ballast Nedam tried to hire local firms to support entrepreneurship and boost the urban economy. As an example, the project manager from the municipality explained how he came into contact with Studio RAP:

I happened to come across Studio RAP at a trade show in Rotterdam and we struck up a conversation. Studio RAP was a fairly new, start-up company near the location of the theatre. The owner of Studio RAP explained about his company and approach. They were not involved with theaters or acoustics, but with lots of other innovative and interesting things. And then I said: maybe we can do something for each other. And so the ball started rolling.

The fact that such a young and innovative Studio RAP was from Rotterdam was part of the reason that it was hired. Although it was not originally taken into consideration, this local proximity between actors had another benefit: it created a common ground between actors. The actors were embedded in local socio-cultural and institutional contexts and shared a similar vocabulary. Some actors indicated that they had worked together before, thereby making them familiar with each other's work methods. This strengthened effective communication between actors, and collaboration could flourish. Throughout the process, the lead actors trusted the specific expertise and skills of specialised suppliers, and because of the efficient collaboration between actors, there was little need for interference. However, this does not imply that the lead actors were not deeply involved, as they did oversee the process, demanded to be kept informed regularly, and gave the final approval. As an example, Ballast Nedam's project manager discussed his relationship with Studio RAP:

It's a matter of trust. The architect from Studio RAP and I called each other regularly. I said: I feel a lot to support you but then you have to show the good things. So essentially I was also kind of the controller, but it was more of positive criticism, positive direction steering.

Secondly, because the project concerned the building of a public theatre, the lead actors to a large extent prioritised artistic and acoustic values. This paved the way for architects and consultants to

advocate creative and aesthetic design choices. Hence, both the lead actors and specialised suppliers shared motivations and envisaged the same end goal: to create an aesthetically pleasing theatre with high-quality acoustics and lighting. Contrary to many contemporary construction projects, risk reduction and cost efficiency were not as important as innovation and creativity. So, in order to achieve the end goal, the lead actors were willing to take risks and provided specialised suppliers with a high degree of autonomy. Regarding the nature of the project, the director of Aldowa mentioned the following:

It was not like the traditional construction world where everyone does their own trick and mainly focuses on costs. Everyone thought it was a unique project and wanted to contribute to make it a success. (...) And the great thing about it is that, when you agree in advance that you will work on a dream together, then you can address each other later on, motivate each other to do it differently and together. We could always talk to each other and hold each other accountable, that is why I think it worked out so well. We discussed choices and could always say: what about our dreams? (...) With such a unique project it is not just about the costs. We were all willing to go the extra mile. Willing to work and to create something beautiful.

Thus, the fact that actors envisaged the same goals, as well as proximity and familiarity within the network, made for a collaborative production process. Actors were in constant negotiation, using their different resources – mostly in the form of different kinds of complementary proprietary knowledge. The lead actors were well aware that, in order to optimise construction, they relied on architects and consultants with specific expert knowledge on theatre designs. As such, power became less concentrated as a result of the distribution of resources of the actors involved (financial capital and sophisticated forms of human capital) as well as of habitus – the deeply ingrained habits, skills, and dispositions of actors.

The appropriation of value

The creation of value throughout the production process is characterised by a high degree of cooperation and regular interactions between actors. Considering all of the actors involved, the remaining question is how the value is appropriated. Here, different forms of value can be distinguished from economic profit, visibility, and publicity to feelings of pride, creativity, and innovation.

First, the distribution of monetary value amongst actors initially received its framework from the overall structure of the PPP. As the client and initiator of the project, the municipality decided on a budget for building the theatre. Within this budget, Ballast Nedam had to submit a proposal and, on the basis of an agreed upon budget, they were able to hire architects and consultants. Actors negotiated with Ballast Nedam about the terms of their contracts through which they decided on their

specific responsibilities, tasks, and pay. According to an employee from DGMR, these negotiations are always difficult, since each project is essentially different and has a competitive side to it.

Together with other competitors, you register for a certain sum. Because of the competition, you always end up asking a slightly lower percentage of your initial asking price. (...) I think that everyone, each subcontractor and consultant, enters [into the negotiation] by bidding a bit under their sum.

Alongside DGMR, an employee from Arup also stressed the smaller amount of profits on cultural projects: “Arup usually earns larger sums when they are consultants for, let’s say, developing a tower”. It is plausible that, in many cases, as the actors initially entered with a lower negotiated pay than preferred, this value was not equal to their added value. Take the employee from DGMR, for example:

I'm not saying that it was a bad job for us, but we don't earn that much in most theatre projects. Let me put it this way, I make a nice turnover, but I don't make very large profits on cultural projects. (...) I think there is very little profit percentage on such projects, for all parties involved.

However, almost all of the actors made it especially clear that monetary value was not their priority. Remarkably, when we asked actors about the distribution of value in the project, they did not immediately associate it with monetary value. One of the main extrinsic values which they hoped to gather was publicity and increased visibility for their firm. Theater Zuidplein, as a public and centrally located building in Rotterdam Zuid, evidently became part of the public debate. For this reason, it was argued that most value ultimately ended up with the municipality, considering the fact that it received a “beautiful new theatre in their city” (DGMR). In addition, because of the public status of the theatre, the building received publicity in newspapers and architectural journals. To create brand awareness, actors wanted to see their contributions recognised. As such, one of the largest motivations for most actors was to appropriate value in the form of visibility and publicity. Accordingly, actors attempted to show the significance of their contribution to the project.

However, tensions occasionally arose when some actors felt that they received inadequate attention in the public sphere. This finding brings an interesting nuance to the previously mentioned power dynamics whereby actors emphasised the high degree of cooperation and communication throughout the production process: “working towards a shared dream”. When the building received publicity, this collaborative sphere was slightly undermined by actors’ tendency to focus on and attach priority to their own contributions. As a result, some actors felt that their added value was not in proportion to the publicity that they received.

However, these tensions were put into perspective by other – perhaps more important –intrinsic values. A common topic in interviews was the pride that actors experienced as a result of having built

a unique theatre in Rotterdam that would be observed by many people. Being able to work on a creative and innovative project gave actors a feeling of satisfaction.

3.2.3 Positioning the case in the typology matrix

PRODUCTION NETWORK PHASES	Local/regional	National	Intra-EU	Global	GOVERNANCE
Creation	Creators				
Production	Lead actors	Lead actors			
Distribution	Lead actors				
Exchange	Lead actors				
Archiving		Lead actors			
Network level					Horizontal/dispersed: Ballast Nedam and the municipality of Rotterdam as lead actors

In the preceding schematic representation, we have positioned the case of the production network of the interior of Theater Zuidplein, Rotterdam. With regards to the distribution of power, we have found a nested structure, very much like Russian Matryoshka dolls, with the municipality in conjunction with representatives of the Theater and two construction firms on top. Below this public private partnership, there is an architectural practice responsible for the design of the outer structures of the building, and an architectural firm responsible for the interior of the theatre. Nested under this layer, we come across Studio RAP which is the main actor in designing the façade of the theatre hall. The actors involved have been using their different resources (mostly in the form of different kinds of complementary proprietary knowledge) and as a result, there did not appear to be one dominant actor. Within the framework of the assignment, power has been very much dispersed which is the result of the distribution of resources of the actors involved (financial capital and sophisticated forms of human capital) as well as of habitus – the deeply ingrained habits, skills, and dispositions of the actors involved – which also determines the relationships in the production network.

The spatial footprint of the network has been first and foremost local. Except for the engineering consultancy (a transnational firm with an office in Amsterdam) and the consultancy specialising in theatre interiors (also located in Amsterdam), they were all based in Rotterdam. The only phase which clearly has a wider spatial setting is that of archiving. The websites, journals, magazines and newspapers which have presented this project, are mostly aimed at a national audience. The economic benefits have, accordingly, also landed first and foremost in Rotterdam. The theatre and its interior are, evidently place-making elements contributing to the local identity. This was one of the explicit aims of the municipality who wanted to boost the quality of place in this relatively deprived part of Rotterdam. This aim was, however, also shared and internalised by many of the actors who wanted to participate in the realisation of something special and beautiful.

3.2.4 Dynamics: changes over time (including impact of Covid-19)

Digitalisation: Studio RAP's digital workflow

Over the past decades, the nature of the architectural profession has changed considerably (Blau, 1984; Franck, 2017; Vriesema & Kloosterman, 2022). In the past, architects would often supervise production from start to completion, being the lead actor in the creation of the design, mediating between actors, and managing others during construction. Today, architects' scope of activities is increasingly limited, and their responsibility often stops after finalising a preliminary design. The design is then handed over to a real estate developer who will carry out its completion. When this happens, the architect not only loses tasks and responsibilities, but also some degree of control over the design, as the client or real estate developer could decide to make changes in, for instance, materials as a way to save on costs. As Franck (2017) describes it, "increasingly, the role of the architect seems to be reduced to that of a 'shaper', a 'form-giver', a 'designer' – with very limited responsibility regarding the outcome of the entire endeavour".

Architects have been losing ground, while other actors have been attaining more prominent roles. Underlying architects' marginalised role are various developments in the broader field (Frank, 2017; Dent & Whitehead; 2002, Imrie & Street, 2011; Vriesema & Kloosterman, 2022). An important influence has been the growing use of digital technologies such as BIM, CAD, and 3D printing. These digital tools have, to some extent, enabled real estate developers and construction consultancy firms to carry out the creation of architectural designs. As such, the responsibility of designing no longer exclusively belongs to the architect, thereby potentially forgoing the profession's necessary expertise and skills (Samuel, 2018; Koetsenruijter & Kloosterman, 2018). As a result, clients can decide to outsource the design phase to real estate developers or construction consultancy firms as a way to save on costs.

However, the trend of digitalisation does not necessarily have to be harmful to architects (Vriesema & Kloosterman, 2022). On the contrary, the case of Theater Zuidplein and, in particular, the part of Studio RAP's acoustic wall show how architects can use digital techniques to empower and enrich their position. By means of a digital workflow approach, the owner of Studio RAP tried to ensure that, as the architect, they were needed in the phases that followed after finalising the design of the acoustic wall. In practice, "digital workflow" means that Studio RAP both designs and produces digitally, using complex design software, robotics, and 3D printing. Because Studio RAP has exclusive knowledge of its software, they had to supervise during engineering and construction. As such, Studio RAP tried to counter the decoupling of the creation phase from the production phase. Regarding his approach, the owner of Studio RAP mentioned the following:

We really try to take on a lot more responsibilities than just an architect's fee. We also try to attain tasks in production preparation and engineering. And this is simply a necessity, because as you probably know, it is a pretty competitive industry. In principle, there are thousands of other architectural firms to choose from. So as a young company, we quickly knew that if we had an assignment, we had to ensure that we generated a lot of turnover. That is why we try to add production and engineering.

The digital workflow ensured that Studio RAP was involved in several tasks throughout production, resulting in a larger turnover. Moreover, it also provided Studio RAP with more control over its design:

We also know how to build things, and that gives us persuasiveness in construction. Because look, most architects are simply blown away by contractors, because they have a much bigger mouth than all those neat architects. So as the architect, it helps when you know how to build things, and you have to be very prepared and decisive.

Because other actors do not have similar knowledge about Studio RAP's digital software, the latter was able to take on a lead role throughout production and make less concessions on the way:

Everyone knew that only we could translate our digital design into something physical. So it was pretty easy, it was non-negotiable. If we don't do it, it won't finish. So yes, that does give you a good negotiating position. (...) And the beauty of it is that, as a designer you are back in the lead. The contractors do not get our digital approach at all. They don't understand what we've done. If something breaks and we're not there, they're in big trouble. So we have been in the lead quite a lot in these kinds of assignments, simply because we are the only ones that truly understand how it works.

Thus, Studio RAP's exclusive knowledge of its digital software provided them with more tasks, a larger turnover, and more control throughout the process. By applying their approach, Studio RAP is an example of an architect who tries to "break out of the mould of being 'designers only' and look at

ways to reclaim their lost responsibilities and also explore new alternative services” (Jones 2006, p. 81).

In addition to improving the position of the architect, this alternative digital service should also benefit the client. According to the owner of Studio RAP, a digital workflow makes for an efficient construction process: “because everything is done with computers, there are smaller margins of error”. These technologies are able to deliver a level of precision that can never be achieved by humans:

Normally contractors build everything with centimetres of tolerance. Because the designs are all made by hand, it is never perfect. People are not perfect. But we do everything digitally, and machines that produce digitally are perfectly accurate. So I don't have to work with tolerances. It's already perfect because of those machines. (...) For example, our design for the acoustic wall consists of 6,000 unique triangles that connect with each other perfectly, no tolerance necessary.

In addition, studio RAP, together with Arup and Aldowa, were able to optimise both the durability and the acoustics of the design. The software allowed them to calculate how to cut the 6,000 triangles from plates with the lowest percentage of material waste, and numerous scenarios were tested to obtain optimal acoustics. Without the software, testing this many different design forms would have been impossible. Hence, according to the owner of Studio RAP, the benefits of his digital workflow are obvious: besides the fact that the architect has a better starting position and regains more control over the end result, it ensures a cheaper, more efficient, sustainable, and precise construction process. With this case study, we therefore analysed a project in which the architect was strongly present thanks to the possibilities presented by digitalisation. Unlike many current construction projects, this research shows an alternative production process in which the architect's tasks are not limited to the creation of a preliminary design. Accordingly, Studio RAP's innovative approach could serve as an example for other architects, as it shows how to enforce more responsibilities, control, and turnover by building up expertise. In the case of Studio RAP, this knowledge focused on digital techniques of both designing and building.

However, for many architects, it is not easy to go along with this trend of digitalisation, as it requires significant investments. Not all firms have the financial capacity to balance their present workload while investing in future technology, since adopting new technologies is a heavy cost that includes not only the purchasing of the new software, but also the time to instruct staff on the method of use (Microsoft & RIBA, 2018). Therefore, not all architectural firms will be able to distinguish themselves in the same way that Studio RAP has done. Moreover, in order for Studio RAP to implement this digital approach, a crucial requirement is that clients are on board. Due to the innovative character, this requires a certain attitude from the client – namely, a high degree of trust and a willingness to take risks. Luckily for Studio RAP, in the case of Theater Zuidplein, both the municipality and Ballast Nedam were willing to take this risk. However, this is largely due to the nature of the project: a theatre

building in which innovation and aesthetics were prioritised. In other projects, such as commercial real estate, a client may be less willing to apply Studio RAP's digital workflow.

3.2.5 Impact

Economic impact

The financial construction of the Theater Zuidplein building was rather complicated. The building is part of the much larger redevelopment project “Hart van Zuid”, a project that the municipality of Rotterdam has been strongly committed to since 2009. Rotterdam South has over 200,000 inhabitants, but the area lacked a vibrant centre and cohesion. The municipality therefore decided to work closely with construction companies Heijmans and Ballast Nedam to achieve an integral improvement of the area. Their ambition goes beyond spatial quality alone and focuses on providing extra jobs and better facilities for residents. To achieve this, Ballast Nedam and Heijmans are investing 200 million euros in the project, while the municipality has set aside 110 million, a third of the total investment. By means of the redevelopment, which is expected to last 30 years, the municipality hopes to attract more visitors from outside the city and offer residents better facilities. The plan should also create 300 permanent jobs and 750 temporary jobs.

Therefore, Hart van Zuid is seen as the economic engine of Rotterdam South. As a centre, it can have a positive socio-economic impact on the surrounding neighbourhoods. As the project manager from Ballast Nedam stated,

The money is used to improve the centre of Rotterdam South, but it goes much further than this. The buildings and surroundings can give a boost to the entire neighbourhood. The appearance, there is so much in it. (...) This will also cause housing prices to rise.

One of Hart van Zuid's projects is Theater Zuidplein. The theatre and its cultural offer are seen as drivers of the urban economy. With regard to the financial construction of the theatre, the municipality has concluded a 24-year lease with Ballast Nedam. During these 24 years, Ballast Nedam will generate its income from the rental agreement. In addition to renting out the theatre, they are responsible for the technical maintenance of the building. In the construction world, this is called a design-build-maintain (DBM) contract. After 24 years, the property will be transferred to the municipality.

So, the municipality of Rotterdam has entered into a partnership with market party Ballast Nedam, which includes dozens of smaller design-build (DB), DBM, and design-build-finance-maintain (DBFM) contracts with other suppliers. Within these contracts, Ballast Nedam tried to hire local companies situated in Rotterdam. For example, for the designs of Theater Zuidplein, Ballast Nedam collaborated

with Studio RAP, Aldowa, and De Zwarte Hond. Both the municipality of Rotterdam and Ballast Nedam emphasised collaborating with fellow “Rotterdammers” to support local entrepreneurship and generate employment. This way, the generated income stays within the municipality.

To conclude, the municipality wanted to stimulate economic activities and give the neighbourhood an economic boost with the Theater Zuidplein project. In particular, they intended to enhance employment by enlarging the theatre and the consequent increased cultural activities. They also attempted to hire local parties to realise the construction. Studio RAP is an example of a young company that Ballast Nedam was happy to support.

Social impact

One of Hart van Zuid's key goals is aimed at improving the socio-economic situation of residents in the surrounding neighbourhoods. The reasons behind the social program are the high unemployment rates in Rotterdam South and the high percentages of practically educated people with no opportunities for career development. In order to change this, the construction sites are used to create additional jobs for young people to gain experience. Spread over ten years, the municipality will invest €3.75 million in temporary jobs and internships.

In their search for employees and interns, the municipality and Ballast Nedam jointly focus on finding local talent to enhance career development and retain workers in the South of Rotterdam. Young individuals are stimulated to learn a trade and start their own business in the area. The idea is that these entrepreneurs become role models while improving the local economy. Residents and local entrepreneurs should feel like owners of Hart van Zuid.

In addition, because Ballast Nedam received an assignment from the municipality that exceeded the €50,000 threshold, it is obliged to have a social return of investment (SROI). With a social program they are committed to, among other things, the company must provide employment or training opportunities for people at a distance from the labour market. Regarding the social program, the municipality mentioned the following:

Hart van Zuid works with SROI, meaning social returns of investment. The social objective is to give people with a disadvantage on the labour market the opportunity to gain work experience. (...) We have strict requirements to measure this and make sure they are executed. So Ballast Nedam, as a contractor, has to make sure that 5% of the work is filled by the less fortunate, the socially weak. Think of security guards, for example. That is a social obligation in the contract.

Apart from providing a particular social group with employment, Hart van Zuid is characterised by a collaborative planning process in which the municipality attempts to include residents, entrepreneurs,

and visitors in the design processes. According to the municipality, this participation is crucial for the successful realisation of plans.

Cultural impact

The newly built theatre should become the cultural hotspot of Rotterdam South. The building is the new home of not only the Theatre Zuidplein, but also a branch of the Rotterdam Library and various other cultural functions. The “Kunstenpand” is located near the public transport interchange and the main entrance of the Zuidplein shopping centre. A broad series of programming in the field of art, culture, reading, and learning ensures that the Kunstenpand will fulfil an important social role for Hart van Zuid. The municipality calls it the living room.

So the idea is that, apart from performances, more neighbourhood-oriented activities will arise in the building. Residents and entrepreneurs who develop initiatives there. So there is a large hall with coffee facilities. And the library is also located in the building. As such, it should function as a living room. People should be comfortable and willing to drop by and hang around in the building.

Finally, Ballast Nedam and the municipality take environmental effects into account. As a concrete example, the municipality mentioned the solar panels on the theatre and the LED theatre lighting:

There are 1600 solar panels on the building. These are, however, not solar panels that feed the energy consumption of the building, because a cultural institution can conclude very cheap energy contracts. But we had a nice roof, so as a municipality we said: then we will turn it into our own business. We invest in solar panels and yield energy. Something that's also very innovative: we have used LED theatre lighting. That's what everyone has in their house these days, but LED theatre lamps, that's new. The artists also had to get used to it, because that gives a different kind of light. But we did it because it is better for the environment.

3.2.6 Policy

Production networks in architecture are contingent on the wider context. Different forms of embeddedness – most notably, territorial, societal, and network – offer a window to analyse policy measures in a more systematic manner (Kloosterman, 2022). Below, we will analyse how the cases of Theater Zuidplein and MEF architect are anchored in specific territorial, cultural, and social ecosystems and regulations. We will then continue to examine how these different forms of embeddedness intersect with policy. On the basis of this analysis, we will provide policy-related suggestions to optimise the architectural sector. Here, we will focus on specific issues, such as the

contribution to economic development and employment, labour conditions, and the impact on social and cultural identities.

Territorial embeddedness

Territorial embeddedness refers to the institutional context in which different actors and phases of production are anchored. Because the architectural sector encompasses cultural, social, environmental, and economic aspects of the common good, the industry is highly institutionalised. Politicians on local, national, and international scales have created regulatory frameworks to safeguard and enhance the quality of architectural designs. Policies are mainly concerned with the qualification of architects, provision of services, public procurement, insurance, and energy efficiency. The directives should ensure quality and safety in architectural designs and are established to protect citizens – for instance, construction safety, environmental protection, and cultural and historical protection (EC, 2017). Below, we will analyse how activities in the Theater Zuidplein project were shaped and constrained by local, national, and international regulations.

Despite production being highly local – considering the fact that each phase and the majority of actors were located in Rotterdam – the regulatory frameworks shaping the project were mainly found at the EU scale. In the architectural industry, the EU is seen as an influential actor that exerts a great deal of power over the daily practices of architects. In the Theater Zuidplein project, the EU's legislation on public procurement governed how the municipality purchased services from contractors and architectural practices. The municipality of Rotterdam was obligated to follow a formalised procedure and outsource contracts objectively, transparently, and in open competition (EC, 2017). The public procurement legislation is intended to create an EU-wide level playing field to give practices a fair chance of competing for large assignments (EC, 2017). However, the legislation has been criticised for its paradoxical conditions: the rules aim to secure equal competition but accidentally raise barriers or even exclude smaller practices wishing to grow due to the required track record and financial risks in case a project is not awarded (Koetsenruijter & Kloosterman, 2018; Samuel, 2018).

Studio RAP, as a relatively small and young practice, recognises these critiques and finds itself restricted because of the EU's current tendering rules. While they often wish to participate in a large public assignment, they will not be accepted due to limited experience. In addition, the owner of Studio RAP points to another drawback, as the EU procurement legislation could restrain architects from enlarging their role. Tenders for architects typically focus on proposals for architectural designs. The architect is requested to submit an idea for a design but not for the phases that follow. This makes it highly difficult for architects to take on more tasks and obtain a greater say throughout production. Studio RAP is not interested in merely carrying out the tasks of a designer; with their digital workflow, they wish to be the lead actor throughout the design and construction phases, thereby counteracting the erosion of the role of architects. This approach is also what distinguishes them from other architects. If they must work within constraints set by the EU – that is, being limited to the role of a

“designer” – they lose their competitive advantage (Vriesema & Kloosterman, 2022). Studio RAP would have a better chance of winning and enlarging their role if tendering procedures allowed architects to propose ideas for design and construction.

Luckily for Studio RAP, the initial tender for the acoustic wall failed, allowing the municipality and Ballast Nedam to award Studio RAP the assignment without again having to adhere to the EU procurement legislation. This provided Studio RAP with the opportunity to collaborate on a large public construction project and improve their track record.

Social returns of investment

In addition to the obligation to outsource contracts objectively and in open competition, the municipality had to adhere to an SROI legislation, which means that they had to provide employment for people at a distance from the labour market. Whereas the public procurement law of the EU mainly influences how the municipality chooses their specialised suppliers and strategic partners, it also influences how they gather generic suppliers. Among the security guards, for example, there had to be a percentage of people who would have difficulty finding a job without this law.

Although EU legislation formed the basic framework for gathering a stakeholder network, the local character of this project has had a significant impact on societal embeddedness and network embeddedness, which were both crucial for the project’s end result.

Societal embeddedness

Societal embeddedness refers to the influence of socio-cultural and historical origins (Coe & Yeung 2015). In the case of Theater Zuidplein, each phase and the majority of actors were located in Rotterdam, which is known as a cluster for trend-setting architectural firms and progressive architecture. Spatial clustering in Rotterdam can also be observed among important national institutions dedicated to architecture, such as Nederlands Architectuur Instituut (Netherlands Architecture Institute), Stimuleringsfonds voor Architectuur (Architecture Promotion Fund), and Berlage Instituut (Kloosterman & Stegmeijer, 2004). The actors are, therefore, part of localised ecosystems and benefit from agglomeration economies.

The case of Theater Zuidplein – in particular, the collaboration with Studio RAP – shows how the municipality of Rotterdam has a high regard for architecture and innovation. The municipality of Rotterdam emphasised favouring collaboration with fellow “Rotterdammers” to support local entrepreneurship and generate employment. The municipality and Studio RAP first ran into each other at an architecture conference in Ahoy (Rotterdam). This shows how spatial clustering enables face-to-face interactions and helps connect architects to clients. Because of Studio RAP’s innovative digital character and mission to improve and change architectural production, the municipality was happy to

support it. Despite the fact that it was a risk, the municipality and Ballast Nedam provided Studio RAP with a high degree of freedom to carry out their working method.

The municipality of Rotterdam has a high regard for architecture. By consciously supporting young and innovative architectural firms such as Studio RAP, they maintain this image of high-quality and innovative architecture. This image in turn attracts many architects to settle in the city, thus reinforcing each other.

Network embeddedness

As firms cluster in a specific city, they can also create network embeddedness. To explore this type of embeddedness, it is key to analyse the linkages between different actors and understand the functional and social connectivity of these relationships.

In the case of Theater Zuidplein, the establishment of a relatively local network was crucial for how the project evolved. The local proximity ensured a welcoming atmosphere in which actors shared a common ground. Some actors mentioned having worked together before and being aware of the skills and knowledge available to them. Due to high levels of trust and frequent face-to-face interaction, collaboration could flourish. According to the manufacturer of the acoustic wall, actors were constantly exchanging knowledge and stimulating mutual learning in favour of innovation. Studio RAP inspired many with their digital approach. In addition, the municipality, as the client, offered space to its specialised suppliers to develop their ideas. Finally, many actors were driven by strong intrinsic motivations to create an aesthetically pleasing and cutting-edge theatre. This shared habitus made for effective collaboration.

3.3 Case 2: MEF Architect

3.3.1 Phases, actors, and locations

Actors

The founder and owner of MEF Architect, Maria, is based in Vinkeveen, a village located in the province of Utrecht. She is self-employed and works from her self-designed home. She has a long history of working in the architectural sector, first helping her father with his business in Italy, and later taking over his business. When she moved to the Netherlands, she first started to get familiar in the field through journalistic writing. After a few years, she felt she was established enough to start her own company named MEF Architect. Her Italian roots are not only her trademark, but also a liability in some ways. With a fully Dutch-speaking competition, she finds herself often in a disadvantaged starting position. However, she has managed to make a name for herself and is a well-established architect for luxurious renovation projects and villa construction projects.

Lucia, the client, is the other important actor in this case. She met Maria during a get-together organised by Italians living in the Netherlands, and through LinkedIn, she kept up with Maria's works and designs. Once her financial situation allowed for a change in the interior design of her apartment in Amsterdam, Lucia knew that she wanted to approach Maria, for she was acquainted with her work, taste, and style. They met and talked things over, and Maria began composing the proposal.

I go there. I have a look. I start giving them my vision of the place. What I would like to do and what I'm telling what the project can become. They contact me and say: "oh, that was nice. Oh, let's make it." Or I don't hear anything from them.

Locations: transcending the physical space

From a more spatially integrated perspective, it becomes evident that the relevant locations in this case exceed the physical locations of Vinkeveen and the sites of construction. Maria's Italian roots and cross-border experience have a direct impact on her work style, vision, and clientele. Furthermore, experience within the Italian socio-cultural and architectural context accommodates new ways of seeing, thinking about, and designing interior and exterior spaces.

The client approached Maria for a bathroom renovation. In this desire to renovate her apartment, Maria recognises a cultural aspect:

The living room is a public space. And the toilet belongs to the private spaces. So there was no difference, there was no separation from the two aspects of the living. And it was strange that in the living room where you welcome many people, it is where you live, and then you have the toilet inside, just located in front of the kitchen and visible from the kitchen. The kitchen is the place where most of Italians... We spend most of our time there because we like cooking, because it belongs to our culture, to stay very long, to cook, to prepare many meals. And it was bothering her very much. So she said: I detest it because I have a very nice window with a very beautiful view towards Amsterdam. And I have to keep these doors shut because I will see a toilet.

A significant, institutionally embedded difference between the Dutch and Italian architectural sectors is that, in the Netherlands, it is required to specify a discipline of architectural practice – for instance, architecture of buildings, interior architecture, urban architecture, and landscape architecture.

I made this decision to come to the Netherlands and I wanted to get in touch with my colleagues just to understand the way of working, you know, get in touch with the mentality of Dutch people. And they asked me: “Are you architecture for outside or are you architecture of inside?” And I didn't know why they asked this question because for me, in Italy, you are just an architect. [...] I have to specify this: here in Holland the disciplines are split, but in Italy architecture is everything. Our slogan is: “as an architect, you can design everything, from the city to the spoon”. (Maria)

Phases

It is worthwhile to constantly scrutinise the relevance of the GPN model per case and per sector. In this case, the GPN model is useful, as it shows the overlapping of the phases. There are no vast divisions and distinctions of the phases, as the actors and the locations remain predominantly the same. One deficiency of the GPN model when trying to apply to this case is the fact that this approach neglects an important development before the creation phase. An important element within the sector of architectural design is, namely, how and why a particular architect is chosen to execute the project. This results in an extensive process of promoting, broadcasting, word-of-mouth advertising, and social networking.

Creation

The creation of the architectural design is both subject to and a result of constant dialogue. In this phase, the need or desire of the client is being grasped, and an offer is made. In other words, the creation phase is characterised as an iterative process that, in a way, overarches the consecutive phases. Through ongoing checks, alterations, and adaptations to the original offer or tender, the creation phase is relevant from the very start of the project, when the client articulates their ideas, to the very final touch-up of the project. The creation phase indicates the process of creating the design

while being subject to constant feedback loops, even when the realisation and construction phase has initiated, meaning that it overlaps with the following GPN phases. She starts with a mood board:

The mood board is an overview of what you imagine the place could be. You let them feel what the mood, the atmosphere of that place could be. And in the mood board, you choose not only the style, but also the colours, the nuances, the combination of materials. There are just panels with photos and also the range of the colours and some accents.

Maria’s designs stand out, and she attracts a clientele characterised by a love and appreciation of Italy and Italian culture. When asked what this means in terms of style, she answers,

So they like a little bit to have a little more Italian style house, a little bit more show-off. Let's say Dutch houses designed by architects or interior design architects are very quiet houses. They prefer natural colours. More “calm” with sandy colours, and they are very minimal. Italian houses are a little bit more ‘remarkable, like an Italian girl. And they are a lot, when they are dressing up. So an Italian house is a more “bold”.

Table 14. Case 2: production network of MEF

	Creation	Production	Distribution	Exchange	Archiving
Actors involved	MEF Architect Client	Carpenter MEF Architect Client Tiler Plumber Plaster Construction workers		MEF Architect Client	
Activities	Mood board, wishes and ideas for the design, making an offer. Iterative process with feedback loops.	Realisation		Negotiation of value	

3.3.2 Relationships between actors

The architect is both the designer and initiator of the product as the intermediary between the client and the construction phase. Therefore, the relationship with both the client and contractor is key to realising a successful project. Thus, their skills and expertise expand to a whole range of arenas, providing many additional services instead of merely drawing a design. Social skills, strong ties, openness, and trust are necessary skills to capture the client’s desires and achieve the desired result.

Yes. Yeah, I prefer people that they like me and trust me. And yeah, I think that that's very important. It's very important that you have a comfortable feeling. Look, in all these years, I have been experimenting a lot to get clients in Holland because of course, for me it was not easy because I'm Italian and I'm thinking a little bit out of the box. I have another mentality, you know? So I started working for expats and now most of my clients here in Holland are Italian. I'm working with Italian clients here in Holland. And that's nice because they can see and read between the lines what kind of person I am. I made the offers in Italian, and they trust me because I am a little bit doing intermediation work between the Dutch reality and Italian reality. And I am here, so I help them a lot in finding people; I find a contractor and other people. And the funny part is that I got also clients, Dutch clients who are crazy for Italy.

Through constant dialogue with her clients, Maria translates the words of the clients into the tangible construction of the project. This requires not only a constant and iterative dialogue, but also a highly refined set of social skills. In the case of this particular project, the language metaphor proves even more relevant, since Maria and Lucia communicated in Italian. Navigating within the Dutch construction sector with a non-Dutch mother tongue is difficult, as it is not particularly easy to combat the competition. When she knows that possible clients are also negotiating with the two other architectural firms in her area, Maria says:

They are a much more integrated in the territory than me, and they are Dutch, of course, so they can sell themselves very, very well. I can also make conversation in Dutch. But maybe if I make a mistake with a preposition, I don't know what the clients think. Maybe they think it is bad communication. [...] There are people who just look at the portfolio and they [the other firms] have a much wider portfolio than I have here. Half of my life I spent in Italy. So clients are a little afraid that maybe because I'm Italian and here in Holland since 15 years, that I cannot give a good product because, for example, let's say, I have to study the rules of the municipality's land use plan whereas the other firms know already the rules because they applied these rules many times before. Even though, if I study, I can achieve the same aim. This is a factor that is a little bit uncomfortable for the client because they think, oh, maybe she doesn't manage to understand the rules while they already know the rules. And this is something that they find risky. Even if they do like me, and we had a nice conversation. They are happy with me, but they think that there is a risky factor. The fact that I don't know the rules like they have because they applied the rules every day. I know the rules in Italy, but here I have to study. So this is a little bit a question or worry for my clients. So when I know that I have to compete with these two big offices, I don't go.

Another key characteristic is the involvement from beginning to end. Maria did not only draw the design; she also took care of the contractor, plumber, tiler, and plasterer. In other words, she compiled the team, as she is in the lead actor in this process. Lucia chose the painter, as he was recommended to her by a close friend. Maria was present in and ultimately responsible for all of the phases of the

production network. As shown in the yearly report of the Dutch National Architects (Rijksbouwmeester 2021), these one-person firms make up the majority of the architectural sector and are characterised by this high level of engagement with the project. This case therefore reflects a large segment of the architectural sector while also highlighting the diversity and variation within this segment – in this case, a form of cultural capital that Maria possesses – her extensive knowledge of Italian interior design and has managed to use to her advantage.

Indicative of being self-employed in the cultural and creative sector is overworking one’s own boundaries. To look out for one’s own interests and draw the line is challenging when it feels that the rate of success is quite literally in one’s own hands. The dilemma of the client’s interest versus one’s own interest is significant:

Sometimes they propose things that are not suitable for that space or are very expensive. So when I say: ok, this door costs ten thousand euros, do you still want to have it? - Oh no, they say, oh my god. So it is a very back-and-forth process, and I don’t know if it is worth it or not. Sometimes I’m not really calculating how many times I have to change the project because the priority for me is that they are happy. Sometimes I work more than I expected and more than I have calculated. Then in the end, when they are very satisfied, I let them know: look, I worked five hours more than I expected. Is it OK for you? Because sometimes I keep on changing, changing, changing, changing and at a certain point I have to look also at my interests.

3.3.3 Positioning the case within the typology matrix

Table 15. Case 2: The spatial footprint and governance configuration of the production network of MEF

PRODUCTION NETWORK PHASES	Local/regional	National	Intra-EU	Global	GOVERNANCE
Creation	Creator		Creator		
Production		Strategic partner and specialised suppliers			
Distribution	Strategic partner and specialised suppliers				
Exchange			Customer		
Archiving			Creator		

Network level					Horizontal/dispersed: customer and creator as lead partners
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3.3.4 Dynamics over time

Whereas the COVID-19 pandemic has hit the cultural and creative sector hard, MEF Architect has benefited in some ways, as the enduring stay-at-home advice boosted the familiarisation with and tolerance towards digitalisation and online meetings. For her, this provided a window of opportunity to get back in touch with her old, Italian client base. This is, in itself, an interesting phenomenon, as one could expect an architect to be required at the very spot of the project realisation. It is too early to tell, but with the different innovative techniques and materials, the architect could change from being physically present to being more of an intermediary that creates designs remotely.

Another implication of the COVID-19 pandemic is the consequence of many people working from home. People spend more time in their house and are, therefore, revaluing and redecorating their interiors. The home is changing to a sphere that is a “home” which must accommodate for work as well. With more time being spent between the walls of a home, changes have been made to how people view and value their homes and interiors. Indeed, MEF Architect saw a spike in requests and projects during the COVID-19 crisis.

Another key development, according to Maria, is the rise of online platforms, such as Pinterest and Instagram. Many clients have an idea in their head which is, often, quite unrealistic or very expensive. Beauty, however, does not always come with the required functionality:

It is sometimes a struggle because they have the image of Pinterest of these beautiful bathrooms with a lot of shelves and niches, everything open. But in the daily life, you cannot have such images and you also need some space with storage, to hide the toothpaste, you know, the toothbrush! You keep everything tidy when you just open the door and close it. It's nice on paper but you know, it has to work too. They are very influenced by Pinterest. They come to me with a lot of pictures in here, and even though I made my mood boards, they keep on watching Pinterest.

3.3.5 Impact

Social impact

This case shows the importance of the local networks of small creative firms. Through her career, Maria has met and worked with a handful of experienced constructors, painters, tilers, plasterers, and more. She has actively constituted her own flex pool of helpers who know the ins and outs of her project and working style. This manner of working is characteristic of small architectural firms to which the social network and the connections are essential for a successful realisation of projects.

Cultural impact

The cultural impact in this case is quite distinct. This is because Maria's style, taste, and methods vary greatly from other small or one-person firms in the Netherlands, as her strength is her Italian descent which she emphasises in her profile. The impact of this profiling is that she facilitates the Italian-style houses and interiors that her clients desire.

3.3.6 Policy

The creative part of architectural design is often not covered or included in policies surrounding architecture. Furthermore, the designed policies do not always consider the architectural design sector as part of the creative and cultural sector as a whole. This begs the question of what and who regulates what a profession – and the according activities – entails. Is the architectural profession mere entrepreneurship, or are there various recognisable interfaces with creativity and other cultural industries?

In this particular case, straightforward policy aspects do not become as apparent as they do in other cases, such as the case of the Theater Zuidplein, where there is a higher involvement of governmental actors and more publicity. However, one-person firms represent about 85% of the Dutch architectural sector (Rijksbouwmeester). Therefore, it is interesting that a case that is reflective of such a large segment of the sector is not very indicative of the policies that affect it. The policy areas that this case touches upon are the free movement of labour within the EU, the market barriers, and the regulations around formal registration.

Expats such as Maria are entitled to implement their knowledge and work elsewhere in Europe without requiring a visa. To facilitate this free movement of labour, qualifications are universally accepted across European countries and institutions, and there should be no discrimination in choosing a native or migrant worker. In reality, as this case portrays, there is a difference between

formal and informal barriers to the market. Maria's movement to and qualification in architectural design in the Netherlands went swiftly. However, in practice, it seems that the language barrier is significant in gaining access to the relevant clientele.

These exclusionary aspects do not come about in the creative part of the production; on the contrary, the creativity and originality of Maria's work are what stand out. However, she recognises difficulties in trust in the practical part where she is expected to know the land use plan of the municipality, the guidelines, and the many regulations surrounding construction practices in the Netherlands. Language seems to be a barrier for competition and a hassle for administrative matters. So, in a sense, the movement of labour across Europe is indeed not too challenging or complicated, but the following task of implementing and carrying out the architectural practices is another matter.

In this case, cultural capital is a key component of Maria's career. Distinguishing the formal and informal language, relationships, and modes of communication requires a well-developed set of social skills. She aims to combine the best of both worlds for "Italians living in the Netherlands or Dutch people loving Italy", and she has the knowledge of the architectural field, guidelines, regulations, style, and ideas that she brought with her from Italy.

3.4 Case 3: Guallart Architects and Picharchitects - Established large practices

The focus in this case is on how a project from a large, consolidated architectural practice conforms to a production network and on what type of policy implications might be identified. It can be characterised as a design- and innovation-centred project since strong-idea strategies prevail. Both architecture studios are consolidated enterprises named after the founders and lead architects: Guallart Architects (GA) on the one hand and Picharchitects (PA) on the other. Both studios are at the forefront of innovation in sustainability. Therefore, they are a choice to pursue the stated goals of CICERONE and analyse the contribution of architecture – as a creative industry – to economic development, sustainability, social cohesion, and identity in the EU from a GPN perspective.

The strength of this kind of studio's value proposition relies on its focus on the quality of design and innovation. Embedded in a sustainability vision, the firms create sustainable designs and promote a prepositive stance on urban dynamics. As globally competitive firms, these studios combine local or national projects with global competitions. The present analysis is not based on a particular project; rather, it stems from a characterisation of the firms' more typical projects. This entails a challenge, as they can be divided into two separate groups – urban planning commissions and building or construction projects – with some differences in the phases or actors involved. However, the network is best depicted like this, as the analysis will enjoy more granularity and complexity.

To develop the current analysis, we introduce a visualisation (see Figure 5 on the next page) of the GPN of an established large architectural practice project. This visualisation will help develop the subsequent parts of the report.

3.4.1 Phases, actors, and locations

Actor's breakdown

The architectural firm is the main actor, point of access, and central node of the network. As the visualisation key indicates, they are the creators of the project. Architects specialise as a competitive strategy in the market. In this way, the studio assumes a lead role in the market.

We always try to be the first ones in some subjects, like, for example, now we are talking a lot about the bio-cities, you know, all the buildings that produce food, energy, and goods (...).

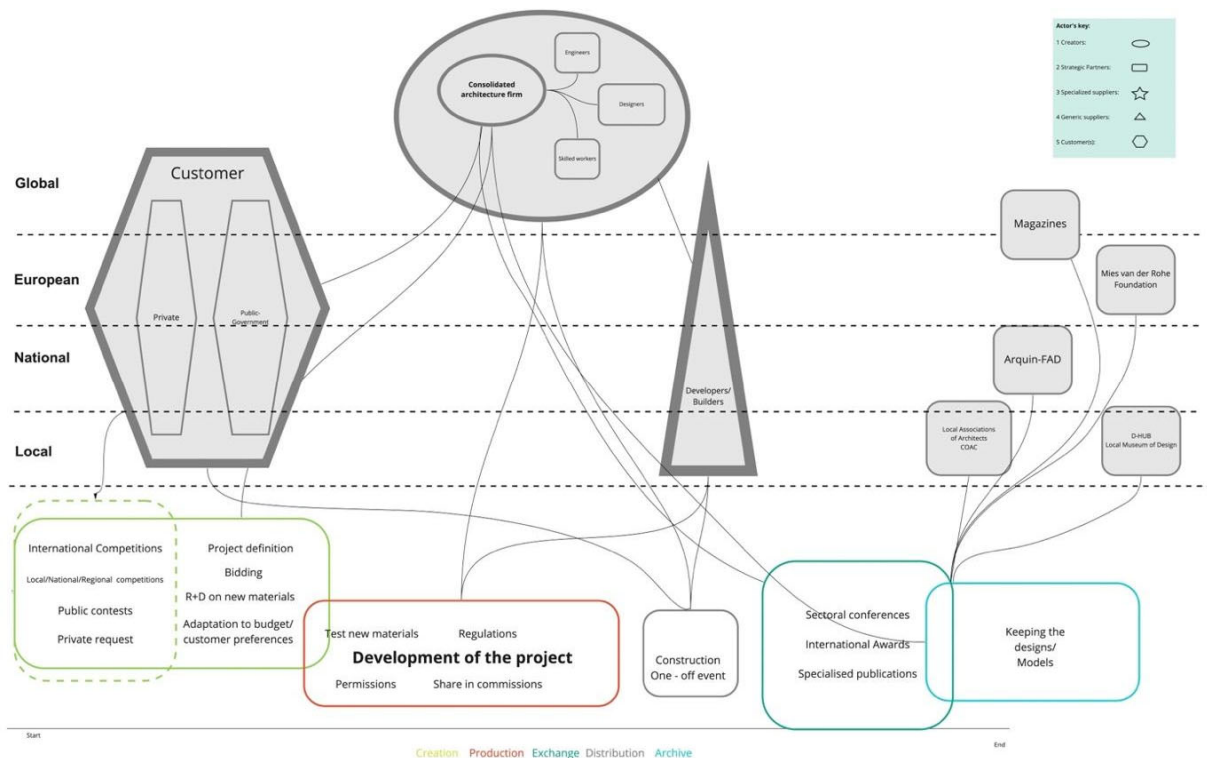
So, we always try to be first one in the world regarding some innovative subjects so that we don't have contestants yet for some years. (Honorata Grzesikowska, GA Manager)

However, the initiator and co-creator is always the customer. The customer is the most powerful actor, as they have the financial resources and decide the conditions and specifications by which the project will be selected, either in a public competition or through a private direct request. The customer is a public entity or a private organisation.

The developers, builders, or construction companies are other very powerful actors, with even higher control over the actual implementation of the project. They are considered specialised suppliers, as they are not easily interchangeable given their network, expertise, and proximity to the project development.

The fourth category of actors is comprised by cultural institutions, architects' professional organisations or guilds, and specialised media. They are strategic partners due to their involvement in the project's recognition of value and its documentation, archiving, and dissemination.

Figure 5. Visualisation of the GPN: Phases, actors, power relations, and geographical scope



Project characteristics

For this case study, a typical architecture project could be any kind of building or a master planning and urban development commission. Therefore, all architecture scales are included in the professional practice of our case study: houses, buildings, public space, and master planning, which involves

developing cities from scratch. The current focus of GA is to tackle climate change through architecture and planning:

So, in my case, I am right now more focused on urban planning, but also focused on the radical transformation of solutions related with climate change and how architecture and planning should be connected with that. (Vicente Guallart - GA)

PA shares a similar alignment on sustainability and innovation as the core specialisation permeating its projects:

With more than thirty years of experience in research and development in architecture, we add value to buildings through the parameters that are more advanced sustainable systems, both at an energy, architectural, environmental, functional, economic, and social and throughout the entire life cycle of the building. (PA website)

On the one hand, GA is more focused on the design, creation, and development of the architecture project – as in design and folder – while PA's approach includes all the phases until the keys are delivered to the end users:

(In) our office, we do projects, obviously architectural projects, but we identify ourselves not only, not so much with the project, with the folder, but also with the finished and functioning building. (Felipe Pich, Founder PA)

The necessity of including other partners is common in most projects. Depending on the scope of the contest or the type of customer, partners might come from all over the world. In some cases, when the project must be developed or built in another country, it is common to find associates based in the location of implementation. This is the case, for instance, with Chinese partners in GA.

Almost in all projects we have a partner, which is another architectural urban design office, or it could be a research institute or some educational institute that is from there, that is from China. It is from the city where the project will be done, or it is from another city in China. So, we are working together with our partner. Then depending on who has better skills in which subject we divide the work. And then also depending again on the subject, we also hire some expertise. (Honorata Grzesikowska, GA)

In some cases, this means that the architect studio remains relatively small in terms of permanent employees and connects with the necessary allies or partners, depending on the type of project, the place where it must be developed, and other conditions. In fact, the ecology of the project is essential for a proper delivery and somehow prevents growth towards large, extended studios.

I would say that in Spain we don't have this culture of creating organizations, so architects are still working as almost as family business. And then that means it is very difficult that

they grow the company, and they think in for example, working with partners, that this is very normal. So, I would say that this is something that we are still learning, and this is something I want to consolidate also, the idea that we create this culture of growth in the organizations. So, when you see a big firm is because they have been able to organise. And this is something really very important. (Honorata Grzesikowska, GA)

As mentioned before, the GPN model is non-linear or circular in the architecture case. This is particularly relevant when addressing the exchange and archiving phases. Even if they are portrayed at the end of the model, these two phases can occur before the creation, production, and distribution phases of a particular project. The reputation of the firm, developed throughout a career, and popularity or success of a particular project contribute to the exchange and archiving phases of the GPN.

If you take his [Vicente Gualart] CV and all the things that he did from the beginning of his career, that and all the experiences that he has, all the fields that he touched so not only design but also education, research, art, exhibitions. So, you really have to touch all of these fields to become a world known architectural office. (Honorata Grzesikowska, GA)

Territorial scope

National and international competitions are the most common start of the projects developed by the studios in this case study and, thus, the production network. The customer, usually a public administration or institution, organises an open or “by invitation only” competition. Depending on the brief, it might include a high or low level of specifications about the final product. In other cases, the project can be initiated by a client, who is attracted to the architectural firm’s reputation and former work (pull effect), or the other way around – that is, by the studio presenting a proposal to a client (push effect). It is at this point that the creation phase starts.

China is currently the source of many competitions, and it attracts many global and world-renowned architectural firms, since they organise more competitions, have better compensation fees, and are looking for the most innovative ideas around the world.

(Chinese clients) have more ambition in the sense that competitions are big, they are doing cities from scratch and neighbourhoods and so on. So, in general, I have been invited to be sometimes juror, sometimes also a participant. And then I understood that this is a good place where you can develop ambitious projects without, I would say any limit. (Vicente Gualart - GA)

The phases have a different categorisation depending on the place, since location determines who starts the phases and their specifications. That is, the architectural firm involvement in the different

phases of the GPN of a particular project may depend on where it takes place. In a European context, the firm is usually involved in the creation, production, and distribution phases.

We understand that the production phase, even the occupation phase of the buildings and maintenance, also must be impregnated with the original concepts of the project and nurture the experience. These phases nurture the following ideas for the following projects and therefore, for us this transversal vision of the projects is fundamental. We do not have happy ideas that others then develop, but we collaborate with other agents from the beginning until they leave us, let's say, and side by side with the developer, with engineering, with everyone until the end. (Jordi Paris - Partner PA)

However, in China, the architecture studio is not involved in the development and realisation of the idea. The control over the project itself is assumed by the public administration, which is the guarantor of the execution phase. Somehow, the Chinese authorities become a powerful actor once the architecture studio is decided, and they “buy” the idea and are responsible for materialising it.

Competitions in China are different than in Europe, generally. While in Europe the architect studio is involved in all the project phases, from the idea, to the planning, to the project and construction, the client in China, a public administration mostly ever, looks for ideas that once chosen are developed by them. So, in general, you do win a competition, but you will not be involved in the development of the idea because they have a system that, well, things are very complex: the documents need to be Chinese, but they are very open and very creative about being international and having these this kind of idea of some sort. (Vicente Guallart - GA)

The push approach is another possible start of the project. The studio has an entrepreneurial drive that may be linked to the local or national network of developers and institutions as strategic partners or customers:

I have been also doing my career, inventing myself, my projects. Sociopolis in Valencia was invented by me, and I offer someone, why don't we do a neighbourhood from scratch using social housing but also international architects. So, I would say that it had been normal for me to try to create the needs or to develop the vision for someone that even if I didn't know that this is the kind of project they should be doing. And then this is something that I like the idea of acting as an entrepreneur, that is creating the concept, trying to develop the building, the project and trying to make it possible. (Vicente Guallart - GA)

3.4.2 Relationships with other actors

The firms have a project-based team in what could be regarded as a pulsating organisation: a core team belongs to the architecture studio and a network of collaborators, both firms, and individuals, and temporary workers join to develop and produce the specific project. The core of the firm is composed of few people (10–20) mostly located in Barcelona. For two or three months, a project-based team is assembled to develop proposals for competitions. When they are finished, these last professionals will move on to collaborate with other organisations or on their own projects. This project-based team is not dependent on location, even if personal and professional networks from universities and other projects play a critical role:

Every time that we do an international project, we create a team that again is like to make a movie, and then our partners in China always are different. So, we have been working with 15 different companies as partners. What makes us kind of difficult thing. But depending on the situation, depending on the project, and depending on the opportunity, we find people collaborating with us that sometimes they have been former student from IAAC. Universities in the field of architecture, universities are the places where the networks are created and then we share some similar principles. I will say that sometimes I have been working simultaneously with people in Mexico, in USA, in Barcelona, in Lebanon and China. I would say the only question we take care is about the time frames, because we know that when someone is sleeping, the other is working and these kinds of things. But in general, you know, for us, the idea of the location has never been important. We need the right person in the right moment to do the right thing. For example, our traffic consultant, they are in Italy, but they are working in Russia, they are working in China. When we find good people, we like to work with them. This is another good principle. We like to play; we like to find good and creative people and we like to work with them. (Vicente Guallart - GA)

The (co-)creation phase is led by this combination of professionals and firms that emerge from a learning process that has been taking place in the past through different production cycles and production networks with a global spatial distribution. It is essential for the studio to create strong ties among the different actors that might be working around different projects in different locations across the world.

So I had been created a network of the best expert I can find on energy, water, ecology and so on. And these people are the best, by definition, I would say. And then from that point of view, there is no discussion about how we create creativity, because all of them I had been learning from them in the last years or so. That means that I have been trying to create that dynamic team, that they are very good. And then I am always looking for good people. But I think that the most difficult thing is to connect the good projects with a good client. This is the most difficult thing in urban development. (Vicente Guallart - GA)

As per the production phase, the construction company or developer is the main actor. In Spain, the building sector is one of the most powerful industries of the country. After the Spanish Civil War, and with the urgency to renovate and rebuild, the dictatorship established an interesting agreement with private developers: the state would provide the labour force – mostly prisoners from the republican side – and the company would assume the building and exploitation of large infrastructure – for instance, motorways. These were companies faithful to the regime, able to grow and monopolise the market without restraint since no competition from abroad was possible. Large developers and builders of today made their fortune during the Franco regime – for instance, Acciona, OHL, and ACS- Dragados, companies that are currently part of the benchmark stock market index IBEX 35.

Their role has been key in the trajectory of the country. Housing policies, infrastructure subsidies, and land planning, among other developments, were designed under the influence and lobbying of those responsible for building a “great Spain”. The dictatorship certainly benefited from the consolidation of large companies of builders and developers with high returns. Somehow, this affected the transparency and monitoring of the sector.

Well, for me, for some time now, and particularly here in Spain, the main problem in the construction sector that must be solved is the lack of control, the lack of control and the lack of transparency. That really the organization from the project to the work, and even after that, is like tremendously full of errors and imperfections, like information is lost between one actor and the other, that there are very high margins, as for the construction companies, because they really know that many things will go wrong and this is tolerated and considered as a normal thing, while there should be much more vision and concretion and control also of the costs and how things should be done. I think it is an issue. And then for this to work and really that what is proposed in an architectural firm to come to be in the work in the right way, there should be first much more collaboration and secondly, much more transparency. (Zuzana Porchazcova, Sustainability Director - PA)

There is a common perspective on the power of the developer as an actor that leads to the materialisation of the architecture project, the construction, as a one-off event characterised in the distribution phase of the production network. It may also be the initiator of the project in the case of private initiatives. A new type of developer is flourishing, even if the “traditional developer” still prevails:

The traditional developer, his mantra was to build cheap, to sell expensive and run away. And then the new developers, they want to stay. The building is to stay and to have clients and to build the city as a service. And then to from this point of view, there are more people, more people every day that are more connected with this innovative side of the urban development. (Vicente Guallart - GA)

The power dynamics are transforming slowly, though it remains to be seen if there is a generalised alignment on the long-term vision of the project between the studio and the developer:

We need new types of developers, which they don't seek like a very fast return in money, but they can see this and the quality of the buildings that they want to create, the quality of that environment will give them better results. And also provide them a lot of money and a lot of value, but maybe not coming so fast. You know, you don't get the revenue in one year. You get the revenue. Maybe you don't get so much revenue in one year, but you get revenue, stable revenue for the next 10, 20 or 30 years. So future forward-thinking developers is also what we really need. (Honorata Grzesikowska, GA)

In contrast, the execution of power and transparency in the international contests that China organises was highlighted by the interviewees:

We are working in China because we don't see corruption there and we see that everything is very clean. In China, you always get the design brief. So, you already have a list of the things that you have to deliver. And if you don't deliver one of them, it means that you don't pass, you are out. The quality already is on a high level because you have all this list of the things that you have to produce and you have to deliver. And then always we strive for the best quality, which is maybe not the best, because we always work a lot, because always we can do things better, right? But yes, with the experience that we already have, we try to always produce very good quality. (Honorata Grzesikowska, GA)

Territorial, network, and institutional embeddedness

Considering the embeddedness of the architecture studio, there are several aspects in which the city of Barcelona plays a key role as an inspirer and contributor to the reputation and brand of the studio. Certain stakeholders in the city are determined to understand the value of the city brand with respect to architecture. The ETSAB (Barcelona School of Architecture) and the COAC (The Architects' Association of Catalonia) are the most powerful and locally acclaimed. Arquin FAD, the Mies van der Rohe Foundation, and the Disseny HUB are institutions located in Barcelona that are strategic partners in the recognition of value of the architectural project and contribute to its archival and knowledge codification. They are providers of spaces and events where strong ties among professionals are created. They prevail over time and contribute to the consolidation of the firm.

First, the academic field generates many relationships and many times this takes shape not only in academic programs, but also in cultural programs. And then there are a series of international events, which are produced in this series of relationships, not to mention that there is also a very large rotation among students of architecture, between different schools, which then generates a series of international relations. Likewise, from Barcelona, for example, we have led an industry of editorial production around architecture, which is

basically international, that without doubt makes architecture a global industry. (Roger Subirà, Arquin FAD).

One of the events that they organise and that are key for consolidating reputation is the celebration of prizes or awards where quality and innovation are key attributes in the contest. They also protect in archives the legacy of the winning projects. Their task is essentially the protection of the property rights and creativity of architects as artists and designers. Part of their work is to achieve subsidies and grants from local, regional, and national governments.

We would stand up, we would act in the case of an attempt to destroy, for example, one of the works that have been awarded with the FAD prize. In addition to the dissemination, etc., we aim to generate a certain meeting point around quality architecture. (...) we claim that public institutions recognise architectural quality as a value and that they recognise that one way to do it is through these awards, so their support would be to give us economic support. (Roger Subirà, Arquin FAD).

The role of Barcelona

Even if architectural production at the local level has decreased over the last three decades since the 1992 Olympic Games, there is a locally embedded project exchange phase that has international reach and recognition at the institutional level. This fertile ecosystem was validated when the European Commission decided to trust Fundación Mies van der Roë, a Barcelona-based institution, with the organisation of the new European Architecture Award.

The great architecture awards at European and peninsular level are all held in Barcelona. We are not only talking about the Mies van der Roë Award, the FAD Awards, but also the Rosa Barba Award, the Biennial of Landscape, which is the most important international landscape meeting and the most important award, Heritage Awards, Urban Planning Awards. (Roger Subirà, Arquin FAD)

The location is indeed very important to the profile of the GA studio, as Vicente Guallart was the chief architect of Barcelona.

This experience is very valuable for our clients because Barcelona is a very successful city and being a part of being a chief architect of Barcelona, it's a very important part of our portfolio of the office. So in this case, because Vicente was a chief architect, the location is very important for us as a Barcelona is an exemplary project regarding many subjects of city creation. (Honorata Grzesikowska, GA)

Additionally, Barcelona is an attractive destination for highly talented workers, accomplishing Richard Florida's dream of a creative city.

There is a really good base of people who come to live here (Barcelona) or who have studied here, or who simply want to come to do internships and are delighted to be in a city of the sea as very beautiful, known and it is like an attraction in itself. I believe that all the companies that are here must feel it. (Roger Subirà, Arquin FAD)

Furthermore, Barcelona and Catalonia are special places for developing opportunities, as they are fertile ecosystems for innovation.

Well, I believe that it is a place of special opportunity. Well, this allows us to have a very diversified real estate offer, both in the primary residential and holiday sector, as well as in tertiary products, such as offices, also at the level of the big capitals, such as Barcelona. And of course also shopping centres, industrial warehouses, etc.. I believe that in the end it is the richness of the territory that really allows us to offer a very diversified range of products to meet the different needs we have in relation to real estate assets. Catalonia also has a privileged location in terms of logistics and therefore not only in terms of tourist cruises, but also in terms of distribution logistics, it can be a gateway, preferably to the Mediterranean, to Europe or the rest of Spain. (Marc Torrents, Director APCE)

Also, in Catalonia, coming from abroad, I can also see that there is an ecosystem of innovation and collaboration between technological institutes and universities and between industry-university-companies. (Zuzana Porchazcova - PA)

3.4.3 Positioning the case in the typology matrix

This typology matrix of an established large practice's project case breaks down its global production network's governance and spatial footprint by phases. The network is hierarchically organized. Even if the architectural firm is the most central node of the network, the customer as the most powerful actor, the network gatekeeper, and the main decision maker of the architecture project.

The creation phase has a global scale, since actors may be based in Europe, America, Africa or elsewhere but the project takes place in Asia, where the customer is based. The customer, in this case a public administration, is the initiator of the architecture project, the commissioner and decision maker thus holding the power of the creation phase and therefore the path of the subsequent stages. The production phase is carried on by a national building company that has the expertise to navigate local regulations and assemble a network of providers and holds the power over the architecture firm. Their role starts once the creation phase is over and the building design is delivered and approved. The sites of exchange that award prizes, commissions or media coverage to architects and architecture firms are the most powerful actor of the exchange phase. Their activity has a global dimension and expands on more than one project. The curation, selection and archiving are performed by local institutions like the Design Museum of Barcelona or the Architects' Association of Catalonia. These

archiving actors have freedom to decide how, where and for how long they will interpret and store designs.

Table 16. Case 3: The spatial footprint and governance configuration of the production network of an established large practice.

PRODUCTION NETWORK PHASES	Local/regional	National	Intra-EU	Global	GOVERNANCE
Creation				Customer	
Production		Specialised supplier			
Distribution		Distributor			
Exchange				Strategic partners – private sector	
Archiving	Strategic partners – civil society				
Network level					Hierarchically organised

3.4.5 Dynamics over time

The impact of COVID-19 has been the most influential recent transformation. It includes positive changes, however, since it has been a driver of substantive and deep debates on the role of architecture. As a lead architect explained, the crisis has accelerated the debate on how architecture and urban planning can improve cities’ quality of life:

And right now, this (the zero emissions city) has become the mantra of the European Union for the year to 2050. So that means that the crisis has accelerated the debates and the solution that we were discussing connected with the climate crisis. So now we are fighting the life crisis and the climate crisis at the same time. And this has short term and middle term projects, and then the future has been accelerated, which is very good for us because we have been trying to push for the future. The future has been accelerated by the crisis. (Vicente Guallart, GA)

As in other industries and sectors, location lost some importance due to the remote work that the COVID-19 pandemic brought. The consolidated studios were able to not be impacted very much in their production network:

Already since a few years we work with partners from around the world. We literally work with people from South America and China and US and Europe at the same time so our, you know, working time is 24 hours, the whole connect at the time. And so, yeah, location maybe is not so important. (Honorata Grzesikowska, GA).

Regarding the digital transformation of the architectural sector and, particularly, how this archetypical project is carried out, there is an opportunity and a challenge with the ongoing implementation and standardisation of BIM. As with every innovation that involves information management and digitalisation, this new codification of knowledge – as in, a digital representation of the project – poses a challenge to the commodification of architectural designs that could result in the loss of property rights. This tension is particularly relevant when, like in this case, the GPN is distributed globally with actors based in different countries and legal systems.

3.4.6 Impact

Economic impact

The economic impact of the architecture project is mostly located in the distribution phase, where the actual building is constructed. The multiplier effect on partners and specialised and general suppliers is the most beneficial in terms of economic development (e.g. jobs, GDP, etc.). This impact is traced to the local level, where the development takes place.

On the other hand, in terms of the project design, which is the creation phase, the economic impact is spread internationally given the globally distributed temporary organisation assembled to work on the assignment. The architectural firm is in Barcelona, so there is a stable team of full-time employees or regular collaborators that are locally based. However, even before the COVID-19 pandemic, this pulsating organisation has been composed by specialists distributed all over the world, so they can be understood as team members or partners that participate at the global level and whose economic activity is a result of the project being created and developed elsewhere.

Even if it also happens at the European level, there is a predominant local impact of the GPN in terms of research, innovation, and business development:

The development, innovation and research of the projects favours the local economy. Because knowing well how things work here and with the possibility of having very close relationships with industrial partners. They are producing things and we understand very well how the processes work, well, let's say, within the global construction, there is also an intense part that allows us to really develop things from the deeper knowledge, from the more understanding and more proximity. And is true that we also have some innovation projects

with companies at European level (...), but it is also true that more naturally it happens at the local level. (Zuzana Prochazkova – PA)

Social impact

The most relevant social impact is a result of the sustainability embeddedness in the project. Given the environmental perspective considered during the project, sustainable architecture increases the societal wellbeing and contributes to a more human-centred built environment.

In contrast to other socially oriented projects carried out by different firms – for instance, the Atri Cooperative based in Barcelona that is focused on creating affordable and reusable public housing – this market-oriented project is targeted to customers with a high purchasing capacity. The end user does indeed benefit from the project as a direct effect of being able to afford it and use it.

Cultural impact

The cultural impact of the architectural project is connected to the urban dimension. Thus, the urban aesthetics and the composition of the landscape are impacted by the project, whether it is an urban plan or a building. This impact is most evident in flagship buildings, whose presence contributes critically to the city brand, and which have become a tool for competition between global cities.

On the other hand, this impact is bidirectional. Thus, the city also feeds the diffusion, knowledge, and appreciation of the architectural sector: Antoni Gaudí, modernism, or the most recent rationalism are indelibly associated with Barcelona in what constitutes a virtuous relationship – not only culturally, but also in the economic and social spheres.

Today the Asia-Pacific region is the most prominently emerging region in terms of growth in demand for emblematic projects. The region not only attracts the interest of global architectural firms, such as those involved in this case, but also presents an urban transformation that is leading to a substantial change in the positioning of cities on the international stage.

3.4.7 Policy

According to the fieldwork carried out during this research, the main policy that intervenes in the archetypical project of a consolidated architectural firm is the public commission of construction or urban planning projects.

The public sector as a client plays the most important role as a policy driver in the projects of market-oriented firms, such as the one involved in this case. With a history of more than twenty years, the growth and evolution of architectural firms, project after project, was not fuelled by subsidies or specific support policies to promote the firms. Nevertheless, public contracts were key to the activity of the firms and their progression.

As for the regulatory function of public policies, there is a shared perspective on the slower pace of the administration's development compared to the architectural sector. That is, there are policy issues in which the administration and regulations are regarded as limitations for innovation. In other words, innovation in the architectural sector – perhaps as in any sector – is faster than the administration:

We as architects, as a creative industry company, we have a lot of good ideas on how to create a better world, how to make self-sufficiency possible. It can be done already. Now, we already have resources, we have materials, we have knowledge. But what stops us are the rules and is the administration. (Honorata Grzesikowska, GA)

More specifically, there is a policy challenge that concerns the studios and the potential transformation towards a more sustainable and circular architectural design. There is also a lack of policy awareness regarding the economic and fiscal dimensions of the evolution towards a circular economy:

I think that most of the things that were talked about fifteen years ago have now been captured in regulations in the various countries of the Union. Directives take ten or fifteen years to become a reality for Europe as a whole, because the countries of the South are always lagging behind a little later. And therefore, the whole issue of sustainability has gone from being an issue of energy and is becoming an issue of materials towards a circular economy. And that is the great transformation, because it is an economic transformation that requires new pricing and new economic, financial and fiscal bases. And that is, and I believe, the great challenge. Because if there is no fiscal and economic framework, sustainability... in other words, if doing it badly continues to be cheaper than doing it well, it will not work because it is left to the efforts of the people. (Felipe Pich – PA)

PART 4. Conclusions



4.1 Conclusions

We have analysed the production networks of three cases of architectural practices in the Netherlands and in Spain. Departing from the GPN approach, we examined phases and actors in the creation and subsequent realisation of the design. The production networks of architectural practices did not resemble neat, linear value chain sequences. Instead, we found a complex web of interactive relationships between architectural practices, clients, strategic partners, and dedicated suppliers. First, the start of a project is usually initiated by a client who wants a new or refurbished building. In this pre-design phase, the client chooses an architect – usually from a limited number of practices which are, in principle, able to do the job given their location and business model. This is typically the impetus for the formation of the production network. Secondly, in the cases that we analysed, architect and client are in more or less continuous contact with each other. Even relatively small and simple design assignments – such as the renovation of a bathroom – often present rather unexpected issues. To be solved, they require intensive exchanges between actors. With the increase in complexity of a project, the chances of unforeseen problems obviously rise, thus necessitating even more frequent – typically face-to-face – meetings to deal with these problems and, from a more practical point of view, the implications for the budget. The creation, production, and distribution phases are intertwined and hard to separate, as new solutions may have to be found along the way. With that, there can also be witnessed shifting combinations of actors involved in the process of the realisation of the design. Architect, client, and the actor in charge of the overall construction are, however, almost constantly present in these discussions.

What emerges from our cases is a project-based type of organisation where the boundaries of the firms involved are diluted and, apparently, even temporarily suspended. Notwithstanding the partial fit of the GPN phases to the real-life production networks in the architecture industry, this approach has contributed to unpacking these networks, their timeline, and the division of labour among the actors much more clearly.

A key element of the GPN approach is the spatial footprint of the production network. That footprint is evidently quite limited for the one-person architectural practice of MEF, both in terms of clients and construction workers. Some of the elements of the refurbishment are, however, from Italy, as they are essential in conveying an Italian image. This small-scale, locally oriented practice can still be crucial in improving the quality of the built environment by being close to customers and aware of local opportunities, preferences, and traditions. The breakdown of architectural practices within the EU suggests that these small practices are very numerous and make up a large part of the employment in the architecture industry.

The Studio RAP project – the acoustic wall in Theater Zuidplein – displays a more complicated picture with crucial input from the Arup office in Amsterdam for calculating the sound profile. Still, this project has a very strong local imprint with the client, the construction firm, and the dedicated supplier (Aldoa), all located in Rotterdam. Regarding the Spanish example based on two cases, it is striking to observe how the production networks have become global – concerning clients, suppliers, and partners – with a notably strong presence in China. This country leads the growth in the demand of architecture services and is the world's largest construction market. It is, moreover, also regarded as a fertile place for the development of ambitious projects.

Using the architectural firm as the point of access to the network, the GPN approach has been validated as a useful exploratory methodological tool to understand how power, embeddedness, and value are distributed among the phases and actors.

The governance configurations in the architecture industry mirror the intricate divisions of labour and the continuous involvement of architects, clients, representatives of the construction firms, and strategic partners such as the local authorities. Given these more opaque, highly interactive, and more volatile configurations, identifying the lead actor in charge of initiating, organising, monitoring, and controlling the production network is not easy. What we can say, though, is that architects must deploy their resources strategically – in the case of Studio RAP, knowledge, reputation, performative qualities, and chain integration – to carve out their niche. An example of this can be found in the archetypical strong-idea project carried out by an established global practice based in Barcelona. The reputation of the firm, framed in the exchange phase of the GPN model, has emerged as one of the main assets. This is, at the same time, a confirmation of the circularity and non-linearity of the production network cycle. From a more dynamic viewpoint, accumulating a portfolio of successful projects – which may be an outstanding design for a kitchen or bathroom for one architectural practice but a large housing development or plan for a new urban neighbourhood for another – is essential to a firm's evolution or its main architect's career and, thus, to acquiring a more powerful position within the network.

Like all economic actions, production networks in the architecture industry are embedded within social, cultural, and institutional contexts. We first briefly examined the societal embeddedness – the embeddedness at the EU and the national level. We then turned to the territorial embeddedness – the insertion in the local context. Finally, we considered network embeddedness – the social networks.

At the level of societal embeddedness, we can point to the fact that the architecture industry is likely the most regulated CCS, as governments want to safeguard the quality and safety of the built environment. One crucial aspect of this regulation is that only those qualified with an appropriate certification and registration with a relevant body may legally practice architecture. Within the EU member states, differences exist regarding the regulation of the profession of architect. In the Netherlands, the title itself is protected, but not the relevant tasks, whereas in Spain, these tasks are

also legally protected. These different sets of regulation also impact the role that architects play in these different contexts. In the Netherlands, architects must compete with engineering professionals – notably, on the aesthetic aspect of the design – whereas in Spain, each building project requires the involvement of a licensed architect. This may also affect the governance configuration and position of architects in the power distribution.

The EU has embarked on a programme of liberalising the market by ensuring the architects' right to provide services in the EU member states and by introducing rules of competition which are aimed at opening up the national markets for competitors from other EU member states. The first part of this two-pronged liberalisation programme has been quite successful, as shown by MEF and the international staff of Studio RAP. Still, the second part is more problematic, as it seemed, at least in some cases, to stifle competition and increase thresholds for young practices. For instance, Studio RAP was able to get the commission for the acoustic wall due to the nested structure of the whole theatre project.

Regarding the territorial embeddedness, the practices in Barcelona and Rotterdam have benefited from a set of agglomeration economies. These comprise a labour pool, a dedicated infrastructure, and, clearly, a local atmosphere conducive to architectural design. The latter aspect is very much embodied by local governments that are both promoters and important clients of innovative architecture, which helps local practices develop their skills and reputation. The commissioning of Studio RAP is an evident illustration of this.

All of the case studies included in this research used their personal ties to get commissions and deal with dedicated suppliers and strategic partners. As noted above, building processes are usually very complex, involving a range of materials, techniques, and expertise. They are seldom straightforward and tend to encounter unexpected problems which are only partly covered by contracts – if at all. In such open-ended situations, strong network ties are crucial to being able to function, as they are built on trust generated over longer periods of time.

The field of architectural design is very diverse. Our cases, though, have demonstrated shared characteristics with respect to the shape of the production network, the governance structure, and the embeddedness on different levels. These similarities can also offer insight on how to devise policies aimed at improving the socio-economic position of architectural practices and enlarging their role in making the built environment more sustainable.

Notes

Even with these different segments, we can frequently encounter horizontal differentiation whereby very different designs are offered for the same commission and, hence, more or less the same amount of money (Caves, 2000). This horizontal differentiation is also related to different forms of competition. There are possibilities for competing on price by exploiting economies of scale through standardising the design and minimising local adjustments, as can be seen with what seem like off-the-shelf designs of residential and office buildings. Many designs, however, are basically unique, as they are customised to fit within a particular local context and meet the demands of the client. Moreover, the actual design is often the result of a complex interaction between architects, clients, and stakeholders from the private and public sectors. Notably, in the latter case, we found that architectural practices often offer not just the design of these buildings, interiors, and landscapes, but also supervise or participate in the management of the construction and completion of the design.

The market for architectural design thus shows a very wide range of variation along multiple dimensions. Related to that is a fine-grained segmentation of architectural practices with different business models and strategies of competition. Type, size, and technological complexity of the project evidently segment the market. In addition to these, we also identified further segmentation, as architectural practices may pursue different competition strategies with specific configurations of price, service, technological competence, or aesthetic quality.

According to the 2014 EY report “Creating Growth, Measuring Cultural and Creative Markets in the EU” (p.86), the mainstay for European architects is to be found in private residential development, which accounted for about half of their revenues in 2012. The design of shops and offices accounted for about one-third in 2012, whereas the remaining 20% of the revenues was generated by commissions from the public sector – namely, social housing. These figures give a rough estimate of the importance of different clients. The distribution may be quite different for different countries, and they may have changed as the effects of the 2008 financial crisis were slowly overcome.

This high degree of segmentation of the market for architectural design contributes to the fact that there is usually a relatively small number of architectural practices that compete for a commission. There is, in addition, also an issue of information asymmetry, as the practices themselves tend to have much better knowledge of their own capabilities in relation to the project than the client. Sometimes, a client directly asks an architectural practice to come up with a design. Reputation – local, national, or even global – then determines the choice. The field of architectural design is also characterised by extensive system of prizes which help create and foster reputations of both practices and individual architects. These prizes and awards may focus on thematic topics – such as the Richard Morris Hunt Award for preservation established in 1990 by the Architects Foundation and the French Heritage

Society or the Daylight and Building Component Award on Daylighting established in 1980 by VELUX, Denmark – or on career acknowledgement – such as the Pritzker Architecture Prize. In other cases, the market for architectural design typically works through “architectural competitions to select a design, competitions to select a designer and competitions to celebrate various kinds of achievement” (Samuel, 2018: 19). The price range for these competitions is often predetermined, which implies that the proposed designs compete on other aspects. Forms of competition in architectural design are, hence, in many cases multifaceted.

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Appendix A. Methodology

A1. Research methodology

Introduction

The general aim of the CICERONE research, and in particular of WP2, is to understand the role of Cultural and Creative Sector (CCS) in the local development of EU countries starting from the configuration and dynamics of their global production networks (GPNs). This work package is based on a case study approach combining quantitative with qualitative research. The former is aimed at positioning the sector along a number of dimensions, while the latter will uncover the more in-depth aspects of the GPNs of the selected industries. While the project adopts a prevailing qualitative approach, it also envisages secondary data analysis. The case study approach is coherent with the research aim because of its ability to cover both the phenomenon and its context.

This appendix presents the main methodological issues of the WP2, some of which have been pointed to at the beginning of the reports.

Methodology stands for the systematic examinations of procedures and modalities of explanation that are used for the analysis of empirical data⁷.

In social sciences, empirical research may adopt a descriptive or an explorative logic; however, all research is always informed by a theoretical apparatus, even though the connection between theory and empirical research takes different connotations in the different disciplines/fields.⁸ Notably, epistemology draws a distinction between explanation and comprehension. Explanation implies the search for a stable nexus of causality between two (or more) variables, independently from the social and historical context. The underlying assumption is that we should be able to identify universal laws explaining the nature of observations (like in the so-called hard sciences). Comprehension refers to the traditional Weberian conception of understanding the meaning of the action for social actors. Such a meaning is influenced by institutional, normative and cultural dimensions that are spatially and historically specific. Reality is not simply described, but it is read, analyzed and interpreted.

In a situation where universal laws are inapplicable, the logic is to search for empirical generalizations. In order to move towards empirical generalization, social sciences make use of models or typologies

⁷ Selvin, H. C. (1958). Durkheim's suicide and problems of empirical research. *American journal of sociology*, 63(6), 607-619.

⁸ Rueschemeyer D. (2009) Usable Theory: Analytic Tools for Social and Political Research.

starting from Weberian insights. Weber describes ideal types as ‘mental constructs, formed by the analytical and one-sided ‘accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified analytical construct’.⁹ Through ideal types, reality is recomposed and synthesized starting from classificatory categories, so to help researchers to identify dynamics and mechanisms that underlie social processes.

Traditionally, empirical research is based on either qualitative or quantitative methods (or both). The distinction between the two has a technical nature: the choice depends on many elements, such as the research questions, data availability or the approach that drives it.

The choice of the method: the case study

Among many qualitative methodologies, case study research investigates in-depth into a real-life phenomenon by considering its situatedness and contextual embeddedness.¹⁰ Such a case can be an individual, a group, an organization, an event, a problem, or an anomaly.¹¹ Contrary to the quantitative logic, the case is chosen because it is of interest¹² or for theoretical reasons.¹³ Unlike experiments, the contextual conditions are not delineated and/or controlled but are part of the investigation.

In the case study methodology, the selection of cases is a crucial phase, and generalization of results is mostly based on that. There are two modalities to select case studies:¹⁴ random and information-oriented selection. Random selection is usually chosen to avoid systematic biases in the sample; in such circumstances, the sample size is decisive for generalization.

In social science research, cases are generally not randomly selected because it is difficult to in depth explore a huge sample. Moreover, random selection not necessarily provides informative cases, while in a research based on information-oriented selection of cases, the generalizability of results can be increased by the strategic selection of cases. As Flyvbjerg claims:

“When the objective is to achieve the greatest possible amount of information on a given problem or phenomenon, a representative case or a random sample may not be the most appropriate strategy. This is because the typical or average case is often not the richest in

⁹ Weber, [1904] in Rossi P. (1974)(ed.) *Lo storicismo contemporaneo*. Loescher, Torino: 124-125.

¹⁰ Ridder, H.G. (2017). The theory contribution of case study research designs. *Business Research*, 10(2), 281-305.

¹¹ Burawoy, M. (2009). *The extended case method: Four countries, four decades, four great transformations, and one theoretical tradition*. Univ of California Press; Stake, R.E. (1995). *The art of case study research*. Sage, London; Yin, R. K. (2014). *Case Study Research Design and Methods* (5th ed.). Thousand Oaks, CA

¹² Stake, R.E. (1995). *The art of case study research*. Sage, London

¹³ Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, 50(1), 25-32.

¹⁴ Flyvbjerg, B. (2006) Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2).

information. Atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied.”¹⁵

Information-oriented selection of cases implies that case studies are selected based on the expectations about their insights into processes, agency, strategies (information content). The experiment in hard sciences can also be seen as an extreme example of information-oriented selected case studies.

“Carefully chosen experiments, cases, and experience were also critical to the development of the physics of Newton, Einstein, and Bohr, just as the case study occupied a central place in the works of Darwin, Marx, and Freud. In social science, too, the strategic choice of case may greatly add to the generalizability of a case study”¹⁶

Cases bring new knowledge either because they have a strategic importance in relation to the general problem or because they help to test the validity of the theory. Moreover, case studies allow cross-country comparison: the different contexts shed light on different dynamics related to economic circumstances, national and local regulatory framework, labour market, local culture and know-how, and so on. According to Robinson¹⁷ the choice of the territory assumed as the basis of the comparison (being it a nation, region or city) should be carefully chosen in relation to the single case study rather than assumed a priori.

Research design and research steps

As said, WP2 is based on a mixed methods approach of investigation. This means using both quantitative and qualitative tools; primary and secondary data allow a complex research design composed by several interconnected research dimensions: a sector description, an analysis for the identification of the case studies and the case studies themselves.

Industry description

Quantitative data was used to have a factual overview of European GPNs in CCS together with literature and desk analysis.

Literature analysis and quantitative (secondary) data were used to explore and describe the features of each sector, its quantitative consistence and its European production network, its role in the European economy, the territorial distribution of its companies and the typical business models.

¹⁵ *Ibid.* p.229

¹⁶ *Ibid.* p226

¹⁷ Robinson, J. (2011). Cities in a world of cities: The comparative gesture. *International journal of urban and regional research*, 35(1), 1-23.

1. Literature review – for each industry
 - a. Configuration of the Production Network (input-output structure) in the selected industry
 - b. Prevailing governance typology in each industry (e.g. power relationships, barriers to entry, value adding mechanisms, labour processes/skills ...) + possible governance typologies considering single interfirm relationships
 - c. Key socio-institutional dimensions affecting network configuration/dynamics (e.g. fiscal incentives, property rights, labour legislation, path dependent cultural aspects) at various levels (European, national, regional)
 - d. (possible) Changes over time (e.g. digitalisation, technologies, ...) + possible firms upgrading processes (value capture strategies)
 - e. (possible) National variations and specificities (e.g. national funds that support the film industry)

Statistical mapping of production network of CCS in Europe

Statistical data at the EU level (by Nuts 1, 2, 3 if possible) on number of firms, employment, VA, ... relative to the *different network phases* (e.g. creation, production, distribution, etc.) composing the Production Networks of the 8 selected CCIs.

Case studies in WP2

One of the strengths of the research lies in the fact that the great variety of case studies share a common unit of analysis. This is the production network of actors, firms, organisations involved in projects, which is very much in line with a whole body of literature on forms of collaboration in the cultural and creative industries. According to Watson (2012, p. 168), the benefits of a such project-based approach are:

“... first it moves beyond [solely] structural analyses to allow for an understanding of the importance of agency in project work; second it allows us to move on from firm-level analyses to develop an understanding of the complex social networks involved in [production networks]; and finally it moves on from research at the meso-level on inter- and intra-firm networks to provide micro-level analyses of project work.”¹⁸

Such an approach enabled the whole research to take into account agency *and* structure as well as their interaction, thereby heeding the view of Powell and Smith Doerr¹⁹ who conceptualise networks both as relational forms and structural ones.

¹⁸ Watson, A. (2012). Sociological Perspectives on the Economic Geography of Projects: The Case of Project-Based Working in the Creative Industries. *Geography Compass*, 6(10), 617-631, p. 618.

¹⁹ Smith-Doerr L, Powell W (2005) Networks and Economic Life. In Neil Smelser and Richard Swedberg, eds. *The Handbook of Economic Sociology*, Russell Sage Foundation and Princeton University Press.

As anticipated in *The Cicerone approach to production networks* section of this report, cases were selected on the basis of their informative power and of the theoretical expectations about their insights. Particularly, case studies represent a sufficient range of variation in terms of key business model characteristics, geographical span within the EU limits and cross the borders of European countries, finally and obviously they are accessible to researchers.

Such choices aim at bringing new knowledge on the contribution of the European CCS to local development, sustainability, social cohesion and (local) identity. Furthermore, as already discussed, an information-oriented selection of case studies increases the generalizability of results.

In details, theoretically based case study selection was grounded on the review of the existing literature on CCS and their organizational forms²⁰ assuming a novel viewpoint. Three common aspects underlie this choice.

- a) GPNs in the CCS, as in any other industries, are characterized by differential power relations. Powerful actors (the lead firm) are those who drive networks and make things happen: as explained, their ability derives from their control of key resources, namely physical, economic, technological but also social, political and immaterial ones. The control of resources however does not automatically imply that the actor is powerful until power is exercised. Rather than being matter of actors' position in the network (more or less marginal actors), power should be conceived as the capacity to concretely exercise control within it. Governance identifies the authority and power relationships that affect how resources – material, financial, human, etc. – are distributed and flow along the chain. Following Gereffi it is possible to distinguish between two typologies of networks: the producers- and the buyer- driven chains. Governance as drivenness embraces a broad idea whereby governance refers to the whole chain dynamics: this concept is meant to capture the power that lead firms exert over other participants and to highlight its ability to govern the chain by making decisions about where, how and by whom goods/services are produced. In the identification of concrete governance typologies characterising a specific sector, the concept of governance as drivenness is one important aspect²¹.
- b) Relationships between lead firms and the other actors in the network differ across industries due to the particular features of the products/services produced, to the production process and the organization of that specific industry. The configuration and coordination of global production networks are also shaped by the expansion of demand and markets. Goods and services' demand needs to be created and sustained by final consumers and end users (i.e. think about the increased role of merchandising). It is therefore important to satisfy customer pressures, (i.e. price, quality), the so-called time to market (i.e. time imperative) as well as the

²⁰ Different disciplinary insights have been gathered from literature in business, economics, sociology, economic geography.
²¹ Greco, L. (2016) *Capitalismo e sviluppo nelle reti globali del valore*. Carocci, Roma.

basic access to the market and to new markets (i.e. in emerging economies). Finally, the choices and strategies of production networks are also influenced by financial considerations, which relate both to firms' activities and to their shift to non-manufacturing ones. Such aspects refer more to technical, organizational dimensions and demand that are shaped primarily by the industries' internal logic.

- c) As underlined, the innovativeness of the CICERONE project lies in the application of the GPNs perspective to the CCSs. Whilst a vast array of studies has concerned the manufacturing industry, considerably less attention has been devoted to the cultural and creative sector. The empirical work required by the project intended primarily to make a contribution to the understanding of the CCS considered by the project at European level. Nonetheless, the empirical research aimed also to account for the broad institutional context in which production networks operate. Institutions do not only influence chains' dynamics but should be considered constitutive of these networks in ways that are critical for understanding their social and economic consequences: institutions were therefore not be considered external to the networks even though they are not strictly connected to inter-firms' relationships.

For each industry, case studies numbers range between two to four, according to the identified typologies, complexity of the case studies, availability of interviewees and so on.

Case study analysis

The empirical research based on case studies (namely the production network of projects) was carried on through the exploration of the single network-nodes and their relationships. Qualitative data was used to produce novel knowledge in the field and constitute the base for further research.

The explicative power of the selected case studies lies in the fact that the analysis is able to produce a 'substantive' representativeness of the EU CCS rather than their statistical one; in other words, case studies analysis allows understanding dynamics, mechanisms, relationships, etc. useful for explaining the functioning of such sector.

After selecting case studies, the empirical investigation was carried out using interviews, observations, ethnographies, digital ethnographies. The key dimensions of the analysis are: the network configuration and its geographical footprint; the governance dimension (power relations; value creation); the variety of embeddedness forms; the impact on socio-economic development.

As already indicated, production networks are socially and territorially embedded, beyond their organizational embeddedness. Societal embeddedness places economic actions within a multilevel institutional and cultural framework. Territorial embeddedness appreciates the differing ways in which firms are anchored to different places and to its specific resources and features, for instance the local culture, labour forces, policies, raw materials and so on. Ultimately CCS industrial dynamics

in Europe was analysed both in their ideal-typical sense (by accounting for the specific sector-level characteristics affecting inter-firm linkages) and with concern to the differentially embedded nature of their economic activities. Attention was paid also to the ways in which actors mobilize and deploy resource, forge alliance, shape regulatory structures through discursive constructions and mechanisms that legitimate the GPN configuration, i.e. eco labels, fair trade, ethical labour, environmentally friendly productions, etc. Consideration was also devoted to any relevant policy (or the lack of it) at the different stages in chain, which may affect the way in which the whole chain is configured. Policy analysis has looked at different kind of policies, i.e. cultural but also industrial as well as regulatory and trade policies. Additionally, policy and policy environment were addressed in their multiscale nature.

A unifying matrix focusing on the two key dimensions of governance (power) and spatial footprint allowed synthesizing the case study results by conducting a series of comparisons in different contexts. In addition, the systematization in the matrix is designed as a tool for policymakers in support of better CCS-relevant policies.

Research strategy

Preparing the interview

For each node of the production network, interviews were made to all the informed people that were considered suitable to understand the mechanisms at play in the node. The number of interviews was decided by each team according to the availability of interviewees and the information to be gathered. Three or four pilot interviews were recommended in order to recalibrate / reorganise the interview script; in some cases, interviewees were not available for the interview, but they were asked a number of key questions via mail: this solution was adopted if no alternative was possible. Empirically, the field was accessed through a company, which represents a node/phase in the network; starting from that, the whole network (both relations among phases and phases themselves) has been explored.

At the beginning of each interview, the interviewer presented him/herself and presented the research. The interviewee was given a leaflet containing information on the research as well as on the specific role that the EU can play in this field. After the signature of a consent form on the part of the interviewee, the interviewer started recording the interview. Interviews were done in person or in videoconference when the situation required it.

Each case study gathered qualitative data on a number of topics, which are detailed in the next section containing the interview outline, namely:

- The interviewee profile
- The organization profile

- The network configuration
- The governance structure and strategies
- The embeddedness
- Policy
- Contribution to development

Qualitative data gathering

All interviewers allowed recording the interview with digital recorder. Interviews were then transcribed *verbatim*, pointing out emotional status only if particularly relevant.

Each interview was labelled and stored using all the following variables:

- Industry
- # case study
- Phase of the production cycle
- # interview (within the phase)
- Geography (Nuts3)
- # interview (within the industry)
- Date (DD/MM/YY)

Interviews coding

A two-step codification was used:

- 1) Codification of the interview according to the homogeneous excerpts on the basis of thematic areas identified for the research:
 - Network configuration → CODE: NET-CON
 - Spatial organization of the networks → CODE: GEO
 - The governance of the network → CODE: GOVERN
 - Embeddedness → CODE: EMBEDD
 - Institutional conditions → CODE: INSTIT
 - Policy → CODE: POLICY
 - Contribution of the production network to the development of European regions → CODE: EU_DEVELOP
 - Any other relevant issue that we might "discover" → CODE: OTHER
- 2) Codification of all the excerpts in each of the previously identified thematic areas (input-output structure, its spatial organisation, governance, institutional conditions, role in the EU development, other) based on relevant analytical categories.

- Ex. Mechanisms of value appropriation; modalities of cooperation among organisations; upgrading mechanisms, working conditions, social/cultural embeddedness; any other new element

A2. Interview outline

Profiling the case study

A first step in the interview outline was to profile the interviewee and her or his organization, company, or agency.

Interviewee's profile

Themes to analyse:

- Position within the organization/agency/company/etc.
- Years spent in the position
- Main responsibilities
- Years spent in the organization/agency/company/etc.
- Years spent in the industry
- Years spent in the field
- Competences required for the job
- Any other relevant theme

- What is your job position within the organisation/agency/company/etc.?
- How many years have you been working in this position?
- What are your main responsibilities?
- How many years have you been working in this organisation/agency?/company/etc.?
- How many years have you been working in this industry?
- What are the main skills/competences required for your job?

Organisation profile

Themes to analyse:

- Brief history of the organisation
- Core business
- Legal nature of company
- Employees
- Any other relevant theme

- What does your organization/agency/company/etc. do/develop?
- What is the main activity performed by your company/organization/agency/etc.?
- What is your core business?
- Is your organization/agency/company/etc. independent or is it a part of a bigger company? (if yes) how responsibilities with the headquarter are distributed?

- How many employees does your organisation/agency/company have?
- Can you briefly tell me about your or organisation/agency/company?
(gather some information on its history, key moments, etc.)

Network configuration

The second step of the interview outline aimed at shedding light on the whole cycle of cultural production from creation to final users (actors involved, roles, geography). In what ways is the industry X articulated/organised? How does the division of labour occur in the industry? Who are the main actors? Their roles? The geography?

The sketch of a diagram together with the interviewee can be a very useful tool at this stage: we suggest to use a large sheet of paper and start with the interviewee in the middle; then add the other organisations/agencies/actors/... involved in the different phases (locate the phases at the corners of the paper). Use this diagram as a map throughout the whole interview.

- Among the projects (services/activities/goods/event) that you briefly presented us, let us consider now the chosen one (possibly it should be one that involves an extended/extra-local/European/international network). Please, help us to identify the whole cycle of cultural production and your role in it.
- Who are the actors that are involved, together with you, in the carrying out of your project (i.e., customers, intermediaries, consumers/audiences, etc.)?

Actors involved

Possible actors involved:

- Artists, composers, designers, creatives
- Producers
- Suppliers, impresarios
- Audience, customers
- Intermediaries, dealers, experts, critics
- Media, influencers
- Archivists
- Any other relevant actor

Themes to analyse for each actor:

- Description of the actors
(Who they are? Big or small organizations/groups, independent, subsidiaries...)
- Role played by the actor in the network
- Type of resources mobilized (financial, economic, reputational, technological resources...)
- Any other relevant theme

- Who do you work with?
- Who are the people that are involved in the realization of the project?
- Who are the suppliers that are involved in the realization of the project?
- Can you tell us more about them?
- (i.e. SME / large organizations, public/private, local/global, independent/subsidiaries, etc.)
- What kind of resources do they mobilize in the project?
- (i.e. a service, an idea, technical or professional knowledge, raw materials, a semi-product, a final product, financial assets, etc.)
- Who are your customers? or your audience?
- Do you sell directly to the final consumer?
- Are there any actors in your business that you would define as intermediaries? Why? For instance, because they help your product/you to be visible, or they “translate” your work for the audience, or they appreciate particularly your work.
- Is there anybody that helps you in promoting your products/projects? (e.g. art curators, advisors, critics, etc.)
- Do they have an impact on your business? How?
- What do they do precisely?
- What does their intermediation consist of?
- Could you give me an example of a situation in which intermediaries were useful to your business?
- How did you come in contact with this intermediary?
- How did they find you?
- Has your relationship with intermediaries changed over time? Why?
- Do media and influencers play a role in your business?
- How do they impact on your activities?
- How do they get to know you?
- Let us consider the social media. Are there any influencers on Instagram/Facebook/etc. that have an impact on your strategies/activities?
- Have your own accounts an impact?
- Do you use them to promote your project?
- Have you or has your organisation got an archive of your projects (creations/services/activities/products)?
- Have you or has your organisation been part of a show/exhibition/etc.?
- Does collecting exist as a practice in your business?
- (If yes), Who are the collectors? Does a collecting market exist?
- Who decides on what will be archived and in which form?
- Have your projects ever been part of a collection?
- Are there any museums/institutions particularly important in your sector that collect major/innovative works?

Spatial organisation

Themes to analyse:

- The geography of the network
- The issue of physical distance
- The management of distance (if relevant)
- The management of communication (if relevant)
- Any other relevant theme

- Where are the actors/organisations of the network located? (Use the diagram to identify actors)
- (consider all the phases of the PN)
- Have you ever experienced any problem due to the distance? (for instance, dealing with something implying face-to-face communication; the need to check a process personally; ...)
- How do you communicate with the different actors in the network?
- Do you need to travel a lot?
- How is the geographical distance managed?

Governance

What kind of relationships govern and regulate the network organization in the Industry X? What are the economic, socio-institutional, political aspects affecting inter-firms' dynamics?

Relations among network organisations

Themes to analyse:

- Type of relationships between actors (formal/informal)
- Decision-making process concerning the project. (who decides, autonomy / cooperation / subordination, participation)
- Existence of standards / conventions to follow
- Resources: type of resources that the interviewee can mobilise, whether they are specific or generic, easy to find or difficult, locally based, ... type of resources that the interviewee needs, whether they are specific or generic, easy to find or difficult, locally based, ...

- What's your role in the network?
- What [actor/organisation x's] role in the network? (Use the diagram to identify actors)
- How do your customers/suppliers/partners/... choose you?
- How did your customers/suppliers/partners/... get to know you?
- What are your relationships with customers/suppliers/partners/... based on?
- (i.e. trust, competences, flexibility, quality, price, uniqueness, etc.)
- Has your relationship with customers/suppliers/partners/... changed over time? Why?
- Has your relationship with your customer(s)/audience impacted on your business in terms of production/profit growth, number of people working in the company/organization/agency/etc., visibility, etc. Could you quantify it?
- Do your suppliers/partners provide you with standard projects?
- Have you ever asked them to customise their products for you?
- Do your suppliers/partners provide special goods/services that are difficult to find?
- Do your suppliers/partners provide special goods/services that only they are able to provide you?
- Have you ever developed a project together with suppliers/partners?
- How do you select your suppliers/partners?
- How did your suppliers/partners get to know you?
- Have you ever had any problems with suppliers/partners? how did you solve them?
- Has your relationship with suppliers changed over time? Why?
- Do you have direct relationships with the consumers/audience of your project?
- (if yes) How do you manage it?

- Does audience/final consumer participate in your creation/production/distribution/exchange/archiving processes? How?
- How important are audience/consumers' preferences/judgments for your projects/business/activity?
- Does their judgment affect your creation/production/distribution/exchange/archiving processes?
- How are your relations with your customers/suppliers/partners/...regulated/governed?
- (i.e. formal agreements, informal accords, individual contracts, codes of conducts, etc.)
- Have you got any exclusive agreement with your customers/suppliers/partners/...?
- Does it include non-disclosure clauses?
- Does it include the use/concession of technologies/knowledge that are protected by (any kind of) agreement that you cannot use/replicate for other processes?
- (If yes) what kind of agreement?
- Who decides how to create/produce/develop/make/provide/etc. the project that you carry out?
- Does your customers/suppliers/partners/...participate in such a process?
- Do you have a say in such a process?
- Has your customers/suppliers/partners/... their own margins of autonomy in such a process?
- Do you have your own margins of autonomy in such a process?
- Can you/your customers/suppliers/partners/... negotiate terms and conditions of the creation/production/distribution/exchange/archiving/etc. process?
- Is there any quality standard to be respected in such a process?
- What are the consequences in case of non-compliance with the contract/standard?
- Do you envisage any kind of reward for your best suppliers? What does it consist of?
- Do you have any knowledge of the destination of the project (service/activity/good) that you produce/ create/develop/make/provide/etc.?
- In your opinion, how easy would it be for you to replace your other customers/suppliers/partners/...with others?
- In your opinion, how easy would it be for your customers/partners/... to replace you with other suppliers/partners?
- What do you/ does your company/organization/agency do better than others in your industry?
- What is your specific asset/advantage with respect to others?
- How important is reputation in your business? What elements are crucial for it?
- How do you build your reputation?
- How do you make yourself/your organization/agency/company known?
- Have there been any crucial moments in your organization' history/your career that have changed your reputation?
- Have there been any people that have been particularly important for your career/your organization' growth?

Price and value

Themes to analyse:

- Mechanisms at play in the price and value formation (decisions, relevant aspects such as brand, status, reputation, production...)
- Actors involved (or excluded) in value/price formation
- Any other relevant theme

- Who decides the price of the project that you exchange with your customers/suppliers/partners/...?
- On the basis of what dimensions?
- (i.e. market position, competencies, reliability, reputation, brand, design, technology, etc.)
- Can you/your supplier(s)/customer(s) negotiate the price? On what basis?
- With respect to such a price do you think that your contribution is adequately rewarded?
- Could you tell us how much it costs the realization of the project that you exchange with your customers/suppliers/partners/...?
- How often do you receive a non-monetary reward for your work? What do you receive instead?
- Does the price of the service/activity/good that you exchange with your customer(s)/supplier(s) allow you to run your activity/business according to legal and social standards? Why/Why not?
- Do you know the final price at which the project (service/activity/good) is sold?
- In your opinion what are the elements that contribute to determine the final price of the project?
- (it might be the price of the final good, the price of the ticket of a concert/show/exhibition but also the price of the whole exhibition/festival)
- Do you think that the final price of the project is appropriate? Why?
- Do intermediaries impact on decisions about the price of your project? How?
- In your opinion does the final price of the good/service reflect its value?
- In which stage of the production cycle (refer to the diagram) is the value of the project mostly created?
- Who are the actors/organisations in the PN that gain the most from the realisation of the project? Why?

Working conditions, labour and collective actors

Themes to analyse (when applicable):

- Profile of the workforce/associates/collaborators/partners
- Recruitment process and wage definition
- Organisation of work
- Presence and role of trade unions in the organisation/agency/company/etc.
- Presence and role of trade unions and/or business/trade associations in the industry
- Any other relevant theme

- Do you have employees/collaborators/associates, etc.?
- How is your workforce composed?
- (i.e.: percentage of professionals/consultants/technicians/workers, etc. out of the total, but also percentage of women/men, percentage by ethnicity, etc.)
- How is work organized in your organization/agency/company, etc.?
- (i.e.: on projects, regular working time, piece rates, etc.)
- What types of contracts does your organization/agency/company mainly apply to them?
- (i.e.: fixed-term contracts, permanent contracts, agency staff, freelancers, consultants and contractors, etc.)
- Do they work mainly full time/part time?
- Where do they mainly work?
- (i.e. offices, ateliers, workplaces, at home, in co-working spaces, etc.)

- What aspects do you mainly consider when selecting the workforce?
- (i.e. skills, formal training and education, experience, reputation, flexibility, technical knowledge, etc.)
- Do you employ foreign professionals/workers? Why?
- Do you have internships? Do you have any specific agreement with schools/universities in this respect?
- How do you set salaries and working conditions for your workforce?
- (i.e.: collective agreements, plant level agreements, informal agreements, individual negotiation, etc.)
- Does your organization/agency/company set any productivity incentives/bonus for your workforce?
- Do workers have a say in the activity carried out by the organization/agency/company?
- Do your workers must respect any codes of conduct?
- Do your workers must respect any non-disclosure agreements/clauses?
- Are trade unions present in your organization/agency/company/etc.?
- What are their main claims?
- Have they ever helped you? When?
- Do they influence your business? How?
- (i.e. through the bargaining process, strikes, demonstrations, disputes, etc.)
- Have you had any conflicts with unions recently?
- (If yes), Could you tell me what was the issue?
- How did you negotiate your positions?
- What is the role of business associations/trade associations/etc. in your industry? (at different levels: local/regional/national/international)
- Do you participate in some of them?
- (If yes), How is this beneficial?

Skills and knowledge

Themes to analyse:

- Main skills/competencies/resources required in the industry
- Skills/competencies/resources that make the interviewee / organization crucial / important for the network.

- What kind of skills/knowledge/competencies/technologies/etc. are involved in/needed by your production/creative/distribution/etc. process?
- Do you have any specific expertise that makes you irreplaceable to your partners?
- Do you find skill/knowledge/competencies/technologies in the local labour market or do you need to acquire/buy them from abroad/very far from you/in a difficult way?
- Do you provide any training programme to your workforce? Who decides for them?
- Does/do your customer(s) play a role in such a process?
- (i.e.: sending consultants/technicians/skilled workers, organizing training programmes, etc.)

Innovation

Themes to analyse:

- Main innovations for the industry and the specific economic activity
- Impact of innovations on the cycle of production

- Impact of innovations on relationships with partners
- Impact of digitisation
- Any other relevant theme

- How do you keep yourself informed on the latest technologies/innovations/trends/etc. that are relevant for your business?
- (i.e.: fairs, contests, consultants, journals, magazines and sector publishing, etc.)
- What is the most important/recent innovation that has been introduced in your creative/production/ distribution/exchange/archive process?
- (focus on different types of innovation: product, technological, stylistic, in the distribution, ...)
- Who/what urged this innovation?
- How did this innovation impact on your business?
- (Please, explore the different implications of this innovation)
- Did it allow you to develop new organizational capabilities?
- To hire new/qualified workforce?
- To reach other customers or/and enter new/different markets/businesses/activities?
- To acquire new/better capabilities?
- How did innovation impact with your work?
- Have you been asked to acquire new skills?
- How did this innovation modify your relationships with the other actors/organisations of the network?
- Have you ever needed/solicit collaboration with schools/universities/ laboratories/education centres/etc. for developing/learn any innovation?
- (i.e. for finding skilled professionals/workforces and/or for developing new skills/competencies/knowledge)
- Is there any research centre with which you cooperate to research and develop new services/products/ideas? Are they private, public or are they the result of public-private partnership?
- Has digitalisation had an impact on your activity? How?

Embeddedness

Relations between the production network and the region

Themes to analyse:

- Resources that the territory/context offers and relevance for the activity carried out
- Advantages/disadvantages connected to the area
- Role of Institutions
- Policies
- Any other relevant theme

- What kind of resources can this territory offer to your organization/agency/company, etc.?
- (Here's a list of possible items that you may explore: know-how, traditions; logistics; skilled labour; research structures, academies and schools, innovation hubs, incubators; geography and natural resources);
- For instance, with reference to social resources:

- What kind of social resources can the community of this area offer to your company/organization/agency/etc.? (i.e. local work ethos/culture, informal relations, attitudes towards the economy, openness to innovation, diversity, social values, cultural activities, etc.)
- In what ways are they relevant for your activity?
- Do you think that the local community supports your economic activity? (If yes) In what ways?
- Would you say that it is strategic to be here? Why?
- What factors keep you here?
- Has this territory a special reputation in your industry's tradition? How do you benefit from it?
- (i.e. territorial brand that may help your activity?)
- What are the problems of the territory that impact on your organization/agency/company, etc.?
- Do institutions (regional, local authorities, ---) in this territory encourage economic initiatives in your industry? In what ways?
- Do institutions (i.e. region, local authorities, ---) encourage cultural initiatives in this area? In what ways?
- Does the economic and institutional context in which you work help/hinder your activity? How?
- (focus on fiscal requirements, industrial policies, labour regulation, environmental standards, trade policies, etc.)
- Do you think that the existing policies at regional level are adequate to the needs of your organization/agency/company?
- (focus i.e., on innovation policies, labour and tax regulation, incentives, industrial policies, etc.)
- Do you think that the existing policies at national / international level are adequate to the needs of your organization/agency/company?
- (focus on innovation policies, labour and tax regulation, incentives, industrial policies, trade policies, intellectual property right agreements, etc.)
- Has your organization/agency/company, etc. tried to influence policy making?
- Has your organization/agency/company, etc. benefited from policy initiatives developed in industries connected to yours?
- Do you participate in some regional-funded project/initiative?
- In your opinion what should be done at a policy level to promote/help your industry/activity?

Contribution to socio-economic development

Themes to analyse:

- Socio-economic impact of the PN on the region
- Birth/decline of new/traditional job/economic activities connected to the PN
- Birth of new professional/technical schools/courses connected to the economic activity
- Collaboration with institutions/universities/schools
- Participation of the interviewee/organisation in local cultural/social initiatives
- Economic/social/environmental sustainability
- Any other relevant theme

- Does your involvement in a network of (global) activities impact on the economy of the region you work in? In what ways? (i.e.: incomes, employment and wages, local taxation, touristic trends, etc.)
- Has your participation in the network favoured the birth/diffusion/expansion/decline of new/traditional jobs/professionals and/or economic activities connected to it?
- Has your participation in the network favoured any collaboration with universities or local schools?
- Has your participation in the network favoured the birth of new professional/technical schools/courses/etc. connected to your activity?
- Has your participation in the network favoured the development of local cultural and social initiatives?
(i.e.: festival, fairs, competition and contests, community revitalization programs, urban regeneration, etc.)
- Has your participation in the network favoured the involvement of your organization/agency/company, etc. in the social life of your locality/region? (i.e.: charity initiatives, with prisons, etc.)
- Do you support/promote any local association/organization/initiative/festival/fair/sport club/etc.?
- Are you involved in any local association/club/organisation for the promotion of the local society?
(i.e. local festival, local fairs, etc.)
- Has your participation in the network contributed to improve the well-being of your workforce's conditions in this region? (i.e.: labour standards, diversity promotion, health and safety, etc.)
- Has your participation in the network contributed to improve the environmental sustainability of your economic activity? (i.e.: introducing cleaner technologies, environmental sound processes, materials, etc.)
- Do you think that your business has contributed to change/improve your region's image/reputation? In what ways? (i.e.: local specializations, brand rent effect, testimonials, etc.)

Concluding session

- In your opinion, how important is your contribution to the production network you participate in?
- How do you think you are contributing to the development of local society?
- What are the main values that inspire your activity/organization?
- How do you imagine this industry in ten years' time?
(focus on e.g. cultural hybridization, technological innovation, new markets, etc.)
- How do you imagine you/your activity in this industry in ten years' time?