

Strong owners, weak clients?

Client performance and innovation in two iconic architecture projects

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Abstract

The paper seeks to contribute to the recently revived debate on owner performance in large-scale production projects and the impact that this performance has on innovation activities. Basically it offers an analytical framework that is to overcome the classic division between strong and weak owners and instead covers a diverse spectrum of roles clients can play in construction projects. Based on this our aim was to look into how different roles affect innovation activities and their outcomes.

Conceptually it combines a resource-based view of the owner with a network approach. Empirically it examines two contrasting models of owner performance in large-scale iconic architecture projects: the European Central Bank in Frankfurt and the Elbe Philharmonic Hall in Hamburg. We maintain that while innovations happened in both projects they exhibit contrasting patterns and the differences reflect the different network positions of the owners.

1. Introduction

Recent project management research has placed a strong emphasis on client organizations, particularly when it comes to large-scale projects. Informed clients, or “strong owners” (Winch and Leiringer, 2016), are supposed both to form a bulwark against Flyvbjergian project failures and to encourage innovativeness (e.g. Gann and Salter, 2000; Nam and Tatum, 1997; Slaughter, 2000) in construction projects. Particularly the recent success stories of well-managed mega-projects in the UK that have been favourable to innovation – e.g. Heathrow T5, the London Olympics Construction Programme and Crossrail (Davies and Mackenzie, 2014; Davies et al., 2014) – suggest that “intelligent clients” (Aritua et al., 2009) have been crucial for the achievements of those large-scale ventures. These not only relate to the orthodox performance indicators, but also concern the generation of novelty in the construction value chain.

Our intention with the proposed paper is to challenge this recent celebration of the client’s role in construction project management. More specifically, we seek to elucidate the diverse spectrum of roles clients play in innovation. Strong owners, for instance, can leverage their authority to both support the creation of novelty, but also to mobilize resistance against innovation. Weak owners, in contrast, by definition are hardly in a position to impede new ideas, but they also will lack the clout to turn into reliable allies to generate and implement innovations. Hence, we not only conceive of owner strength as based on “involvement and commitment” and “technical competence” (Nam and Tatum, 1997). We also stress that this strength is essentially positional, particularly in relation with involved project-based organizations.

More specifically, we seek to advance two key arguments. We maintain, first, the strength (or weakness) of owner organizations in large-scale projects is grounded both on the *resources* an organization is able to employ – particularly its technical competence and the time it invests in its actual engagement with a project – and on its *position* within the wider organizational ecology. Second, while it is clear that owners’ resources and owner position shape the practices as well as the results of innovation processes in large-scale construction projects, there is no unambiguous pattern as to how and with what result this occurs.

Based on these arguments, our paper will provide conceptual contributions to the literature on project organizations and innovation in two areas: First, the analysis is to

conceptually and empirically widen the recent discussion on how the strength or weakness of owner organizations in project ecologies contributes to the generation of innovations. Second, on a more general level, we shall offer an interesting approach of employing a classic network vocabulary for an analysis of innovation processes in interorganizational projects.

We shall develop and specify these arguments in two steps. First, we will review different literatures on the involvement of “project owners” (Winch, 2014) in innovation processes (e.g. Lampel et al., 1996), focusing on the resources they bring in and the positions they hold. The discussion will include a critical reflection of the “large sophisticated business user” in “complex product systems” (Miller et al., 1995), which some project management scholars regard as a paragon for construction (Winch, 1998; Gann and Salter, 2000). We argue that the combination of resource strength and central position this sophisticated business user exhibits is rather an exception and does not seem suitable as a role model for construction. Based on this we develop an exploratory typology of owners in interorganizational projects in which we combine a resource-based and a positional perspective.

In the second step we present findings from in-depth case studies of innovation processes in two recent iconic large-scale architecture projects in Germany, (a) the European Central Bank in Frankfurt, and (b) the Elbe Philharmonic Concert Hall in Hamburg. Both projects exhibit similarities when it comes to size and scale of investment; the time span from the idea to realization; and the explicit appreciation of the history of the site and of the intended future development of the neighbourhood. However, they differ systematically when it comes to owner resources and owner position. Whereas the European Central Bank (ECB) controlled the process of planning and realizing its new headquarters in a very reflexive and organized way, the City of Hamburg rather stumbled into the concert hall project, that came up through private initiative and gained momentum through an image published by the Swiss architects Herzog & de Meuron in 2003; in decisive periods of the 15-year process from the first ideas to completion the city administration completely lost control. In other words, the ECB performed as a competent and committed client and took a central position over the entire project cycle. Its centrality even increased when a tender for general contractor model failed and also procurement was concentrated with the bank. The City of Hamburg, in contrast, was unable to invest considerable resources and, as it was not able to operate in a central position,

moved to a peripheral role in order to get the project completed at all. While there were innovations in both construction ventures, the character of these innovations and the processes differed substantially.

2. Project owners and innovation

That owners or clients – as those who eventually have to pay – necessarily hold pivotal positions in project ecologies is certainly not a new insight (e.g. Morris and Hough, 1987). Also, it is obvious that being a project client substantially differs from buying “finished goods”. “(O)wners of [...] projects cannot verify the quality and performance of the products prior to purchase” (Lampel et al., 1996: 575). Owners are therefore in an “agency dilemma with respect to the organizations on which they depend for effective solutions to the problems that arise during the project” (p. 564). An effective control of these organizations requires the investment in and the employment of resources – technical expertise and time for the supervision of project implementation. The uncertainty inherent in the agency dilemma and the consequent need for investments are even more significant when innovations are at play. The assessment of how these investments affect innovation in and innovativeness of projects is however controversial. While some studies corroborate the idea that competence and involvement of owners support innovations (e.g. Nam and Tatum, 1997) others explicitly argue against that (Lampel et al., 1996; Ivory, 2005). According to this research “(o)wners display the behavioural pattern of ‘back seat’ drivers: they have sufficient expertise to veto innovative solutions, but little of the hands-on knowledge needed to gauge innovative technical insight” (Lampel et al., 1996: 565).

Regardless of the contrasting positions when it comes to innovation both literatures have one important aspect in common: The owners’ capacity to influence innovations depends on their availability of (or investment in) internal resources. These resources can be supportive or obstructive for the generation of innovations. Recent work on “owner project capabilities” (Winch and Leiringer, 2016) also sustains such a resource-based view of owner organizations.

While we agree that the impact of owners’ investments on innovations is anything but obvious, we believe that there is a considerable shortcoming in the solely resource-based view as it undervalues the inherently relational character of both project

organizations (e.g. Engwall, 2003; Grabher, 2004; Grabher and Ibert, 2011) and innovation processes (Garud et al., 2011; 2016). This is to say, also owner organizations' positions in relational environments have an impact on whether and how innovations happen.

And while these positions are partly based on the organizations' investments in internal resources, they are substantially influenced also by other mechanisms that unfold on the level of interorganizational networks or even organizational fields. Thereby a single owner's position largely lies outside the reach of its resource investments. An analysis of how owner performance influences innovation processes would therefore have to incorporate such a relational (and also institutional) perspective.

Table 1: Types of owner performance in large scale projects

		Resource Availability	
		Strong	Weak
Position	Central	1	2
	Peripheral	3	4

We maintain that the conjunction between resource-based and a positional logic is already implied in the basic principal-agent constellation. While the principal has a central position as the one who eventually pays, he is weak when it comes to expertise and involvement in the projects he commissions. The contrary holds for the agent. In table 1 we have split the different logics inherent in a principal-agent model – resources and position – in two different dimensions and synthesized these in a simple two-by-two matrix.

Cell 1 portrays what is usually understood as a “strong owner”, and what the recent work on “intelligent clients” (Aritua et al., 2009) or “best-practice clients” (Mackenzie and Davies, 2011) considers as role model for construction projects to improve their performance and support innovations. The cell also reflects the archetype of a committed and competent owner whose involvement is likely to propel innovation: the “large sophisticated business user” in “complex product systems” (Miller et al., 1995). Clients of flight simulators, aircrafts and other customized small batch products, whose business success strongly depends on the quality of these complex systems, “have an important stake in the innovation process” (ibid.: 370).

However, this combination of strong resources and a central position by no means constitutes a mainstream pattern of owner performance but is a specific configuration in a very particular business field. Take cell 2 as an alternative model: Owners can have central positions even when they are incompetent and exhibit an utterly outspoken disinterest in the project process. The standard advertising client can be seen as a case in point here (e.g. Grabher, 2002).

This framework clearly does not offer a straightforward tool that helps identify constellations and mechanisms likely to support the generation of novelty. Nevertheless, it provides a useful starting point for the analysis of two contrasting models of owner behaviour in large-scale construction projects. For the moment we shall discuss the two axes of our matrix separately and look into how resource investments and network positions contribute to innovations in projects.

2.1 Resources: expertise and involvement

Lampel et al's (1996) differentiation between technical expertise and supervision time (involvement) offers a good overview of the different types of investments owners can undertake. Expertise adds to owners' ability to assess the risk of introducing

novel technical solutions, but the actual consequences of this ability for innovations remain contested (Lampel et al., 1996; Nam and Tatum, 1997; Ivory, 2005). Ivory (2005), for instance, argues that construction clients' competence to judge the risks of innovation, renders them less likely to acknowledge the benefits. A recognition of benefits, in contrast, is most likely in constellations where buyers and suppliers of project share the same knowledge base, such as in complex product systems (Miller et al., 1995; Lampel et al., 1996; Winch, 1998).

Lampel et al. (1996) suggest a differentiation of owner expertise when it comes to its impact on innovations in power plant construction projects. Whereas technical expertise seems to have a negative effect on project innovativeness, the contrary is the case for project management capabilities. That is, they place the emphasis on the second type of investment: the owners' will and capacities to engage with the implementation process. While usually not being a "driving force" (Nam and Tatum, 1997: 263) of innovation, construction clients may be involved in enabling the implementation of novelty. According to Nam and Tatum (1997), a successful involvement presupposes the organization's "commitment to innovation", i.e. a positive attitude to novel solutions. Such a commitment has an effect on innovation in two ways: by raising the ambitions when a project is conceived (Slaughter, 2000; Gann and Salter, 2000) and by understanding involvement as a support and not a containment of novel solutions.

The more recent contributions (e.g. Davies et al., 2014; Davies et al., 2017; Winch and Leiringer, 2016) focus on the concept of "dynamic capabilities", i.e. the capacity of organizations to adapt their resource base to changing circumstances. Basically, the conclusions of this work are consistent with the 1990s literature on owner involvement, however with three specifications:

First, the nexus between management capacities and innovations is considered to work (also) the other way round: Including innovations in the project strategy may even facilitate the successful delivery of complex large-scale ventures (Davies et al., 2017).

Second, the possibilities for owners to foster innovation are not evenly distributed over the project cycle. Davies et al. (2014) identify four "windows of opportunity" in which strategic promotion of novel solutions can occur: the "bridging window" – when basic ideas arise; the "engaging window" – when the project network is assembled;

the “leveraging window” – when solutions are developed and implemented; and the “exchanging window” – when lessons are reflected.

Third, Winch and Leiringer (2016) interestingly argue that the nature of capabilities depends on the type of organization and the role that it plays in project networks. Building on Winch’s (2014) model of “three domains of project organizing” the authors maintain that what are operational capabilities for project-based organizations can be dynamic capabilities for owners, as projects are not their core business. With this argument, the focus shifts from a purely internal resource-based view to an approach that considers network constellations and the positions that different players in these constellations occupy.

2.2 Positions: central forces, stewards and brokers

While studies that address the interrelation between structures of and positions in interorganizational networks and innovation abound (e.g. Powell et al., 1996; Ahuja, 2000; Phelps, 2010; Davis, 2016; Qi Dong et al., 2017) less is known about how this applies to project networks. In fact, there is some network-based work on interorganizational project that deals with the management of uncertainties and paradoxes as general problem to be tackled (e.g. Jones and Lichtenstein, 2008; DeFillippi and Sydow, 2016; Sydow and Braun, 2017). Yet, most of the work on project organizations and innovation draws on a resource-based “dynamic capabilities” approach (e.g. Davies et al., 2014; Davies et al., 2017).

As a noteworthy exception Boland et al. (2007) – examining the impact of Frank Gehry’s “challenging geometries” in conjunction with the introduction of 3-D technologies – highlight the generation and diffusion of innovations in project networks: The authors describe Gehry’s office in a central position, and the architects’ demanding design constitutes a “centralized push” that engenders “wakes of innovation” across heterogeneous supply networks. Boland et al. draw on literatures that focus on complex innovation paths (e.g. Garud and Karnoe, 2001; Garud et al., 2016). It is unclear whether also owners can be sources of a centralized push. In Nam and Tatum’s (1997) study, for instance, only in one out of ten projects the owner was the “driving force” of an innovation.

Within ‘classic’ network literature innovation is typically debated in a polarity between open and closed networks (e.g. Coleman, 1988; Burt, 2001; Obstfeld, 2005, 2017).

Whereas open structures exhibit lacking or weaker connections – “structural holes” (Burt, 2001) – between the entities that make up the network, closed or dense networks feature strong ties. When it comes to innovation, Obstfeld (2017: 23f., *original emphasis*) nicely summarizes the relation between both types as contrasting: “Open networks present a *knowledge advantage* and an *action problem*”. For closed networks it is vice-versa: They exhibit an “*action advantage*” and a “*knowledge problem*”. While loose structures facilitate the access to new ideas outside existing knowledge domains but render the coordination of disperse individuals or organizations difficult, coordination is easier for focal actors in dense networks, who are however less able to get in touch with new knowledge.

Also the meaning of centrality differs between the two network types. In closed networks central positions feature direct connections (closeness centrality) with as many other positions as possible (degree centrality) (Freeman, 1978/79) which enables both intensive communication and efficient action within the network. In open networks the position of the “broker” and the process of “brokerage” are crucial. Brokers are those individuals or organisations that occupy “structural holes” (Burt, 2001) between actors that do not have a direct tie to each other. A broker can either control information flows between the two others (“*tertius gaudens*”) or connect them (“*tertius iungens*”). According to Obstfeld (2005, 2017) this latter mode of brokering activity is at the heart of generating novelty. Tying previously disconnected individuals or organizations together implies a recombination of knowledge stocks and thereby increases the likelihood of new ideas.

Interorganizational project networks incorporate features of both closed and open networks. They constitute, on the one hand, organizational constellations that encourage to get things done within a predetermined timeframe (Lundin and Söderholm, 1995). Thereby temporary interorganizational collaboration requires the effective coordination of interdependent tasks. On the other hand, however, temporary collaboration also involves structural holes between previously disconnected social worlds and thereby opens up opportunities for innovations. Owners, as the sponsors of projects, are likely to have an interest in increasing network density in order to effectively mobilize and deploy resources, coordinate tasks and support delivery in time and budget. In a paper on project governance, Turner and Keegan (2001) describe this role as “steward” (see also DeFillippi and Sydow, 2016: 10). Owners can, however, also engage in brokering activity between

the different worlds within the project network and thereby may be supportive for the generation of novelty.

3. Owner resources, owner positions and innovations in large signature architecture projects: the cases

3.1 Data and methods

The evidence presented here is part of an interdisciplinary research project funded by the senator of academic affairs of the City of Hamburg on “Large-scale projects as innovation drivers in the construction industry”¹. The overall project comprises six case studies of recently completed large-scale construction projects in Germany: two structural engineering, two infrastructural engineering and two mixed projects.

The findings presented here concentrate on the two structural engineering case studies: the new premises of the European Central Bank in Frankfurt and Hamburg’s recently inaugurated Elbe Philharmonic Hall. The analysis draws on an extensive documentary analysis and on the transcripts of 46 interviews with management and technical professionals both from the core organizations who were involved in planning and construction and from selected firms in the supply chain. The interview plan thereby followed the relational pattern of the “project ecology” (e.g. Grabher, 2004). A first wave was to identify innovations and concentrated on the core of the organizational ecology: the project owner, the architect, the structural engineer, the principal contractor(s), the project management consultant who supports the client. In the second wave, we moved further into supply chain and the stakeholder environment in order to look into single innovations in more detail.

The interview transcripts were coded. For the purpose of this paper we retrieved the material coded as “client involvement” and cross-checked the findings with related codes and interview contexts. In a second step we sorted the quotations along the theoretical categories “resources” and “positions” – oriented along the arguments developed in section 2. This pattern – summarized in the tables 3 and 4 – in a sense constitute the independent variables of our analysis. When it comes to the dependent variables – “innovations” – we looked into what was discussed as novelties and specific features of both projects by interviewees as well as in the professional and

¹ Project code LFF FV 56

general public. The issue here was not only about the actual novelties but rather about how innovations were generated and implemented over the project cycle.

3.2 *The cases: similar conditions, contrasting owner behaviour*

The examined projects – the new headquarter of the European Central Bank in Frankfurt and the Elbe Philharmonic Hall in Hamburg – are two of the largest and most prominent construction ventures in Germany of the last decades. Both exhibit similarities (see table 2) when it comes to size and scale of investment; the time span between first ideas and completion (15 to 16 years); a close connection with the history of the site and the future of the surrounding areas. Both have been designed by “global architects” (McNeill, 2009), “strong idea firms” (Coxe et al., 1986; Kloostermann, 2010) with a very clear understanding of what they want and a reputation that allows them to push their ideas through. Both buildings are technically sophisticated – e.g. both structural engineers received awards for the innovativeness of the construction. Finally, both projects essentially contribute to the image of the cities in which they have been built. The new ECB premises strengthen Frankfurt’s position as the financial centre of continental Europe, also symbolically. Hamburg’s new concert hall paradigmatically “reflect(s) the city’s desire to play at the forefront of interurban architectural and cultural competition” (Balke et al., 2018: 998).

Still, ECB and Elbphilharmonie represent different types of buildings that entail fundamentally different technical and institutional requirements: on the one hand, basically an office building with high security standards, on the other, a concert hall in conjunction with a hotel and luxury apartments. More importantly, though, both cases profoundly diverge with regard to the process of planning and implementation and the way how different players behaved – particularly when it comes to how the project sponsors performed their roles as clients. The ECB proved to be very reflexive and organized, able to control the entire project cycle from the decision to build own premises instead of renting office space, through the location search, architectural competition, procurement and construction to the almost frictionless relocation of almost 2,500 workplaces over four weekends (Studener, 2017). While there was a public debate about the project particularly with regard to the architecture and the way how the architects dealt with the historic building of the wholesale market, the ECB succeeded in professionally managing this, in close collaboration

with Frankfurt’s city administration. In fact, the European Central Bank came close to what Davies and others (e.g. Davies et al. 2014) refer to as best-practice “intelligent clients”.

Table 2: The case studies – basics

	ECB	Elbe Philharmonic Hall
Sponsor:	European Central Bank	City of Hamburg
Building Type:	Landmark High-rise office building, integration of listed wholesale market hall	Landmark concert hall (2 halls) with combined use as a hotel and apartments, on top of 1950s warehouse
Location:	Frankfurt/Main	Hamburg
Responsible Architects:	COOP Himmelb(l)au, Vienna	Herzog & De Meuron, Basel
Entire Project Period:	1st quarter 1998 (plot search) until 4th quarter 2014 (completion)	4th quarter 2001 (first project idea) until 4th quarter 2016 (completion)
Construction Period:	2nd quarter 2010 until 4th quarter 2014	2nd quarter 2007 until 4th quarter 2016
Gross Floor Area:	Around 185,000 m ²	Around 125,000 m ²
Total cost:	Approx. €1.2b	Approx. €870m

Figures from Förster et al., 2017a; Herzog & de Meuron, 2017

The City of Hamburg, in complete contrast, rather stumbled into a project that came up through private initiative and gained momentum through the seducing image of a glass structure on top of an old brick warehouse that the Swiss architects Herzog & de Meuron published in 2003. The project produced a comprehensive parliamentary inquiry due to massive cost escalations as well as an almost two-year suspension of construction works. One of the local newspapers accompanied the process as a series – “Insanity, episode 425” (C1_Own_2). In fact, the story of Hamburg’s new architectural icon very much parallels the “great planning disaster” of Sydney’s Opera House that Peter Hall (1982) extensively reports on.

3.3 *The European Central Bank (ECB)*

Resources

The ECB administration was quite aware of its status as “one-off-project sponsor – strong expertise in monetary policy issues but not in construction” (C2_Own_2) and therefore deliberately invested in inhouse expertise. The institution mobilized know-how existing in its premises division and created a ten-people project office inside the bank, but outside its organization matrix. Expertise that was not found in-house was hired externally. The office existed almost without staff changes over the entire project cycle and worked as an internal knowledge hub in all project phases. It was responsible e.g. for the project specifications prior and subsequent to the architecture competition; for the effective involvement of the bank’s decision-making bodies; for the organization of procurement and for contract management and control during construction. The “clients” (C2_Own_2) of the office emphasized the extremely high quality of the office’s output. The competition specifications, for instance, had the character of “pre-planning document” (C2_Own_3) rather than merely providing guidelines for competing architects. The project office could draw on the knowledge infrastructure of the bank for tasks like public relations, risk management, reporting (C2_Own_3).

The bank’s investment in and use of own expertise was the most visible manifestation of its strong and continuous involvement. For instance, the new premises project was closely linked to the bank’s decision structures. A project steering committee was set up, and the ECB’s governing council had the last say for all essential decisions (C2_Own_1). For this purpose, the project office had to set up a regular reporting scheme in order to keep decisionmakers up-to-date (C2_Own_2).

The bank’s involvement not only entailed providing internal resources but also hiring external support that helped to perform as a strong owner. From very early on, therefore, the ECB commissioned a project management consultancy firm to act as a complement to the internal that helped perform the multiple tasks that were related to the project office. During the construction phase an additional construction management firm was commissioned that concentrated on scheduling and coordination on the construction site (C2_Proj_1). Over the entire project cycle, however, the overall oversight remained within the project office.

Position

Setting up the project office not only added to ECB's knowledgeability. Also, it placed the bank in a pivotal position within the project network. While continuously being a central node, the specific way how the bank's ten-people task force filled this position changed over the project cycle. In the early period, it was particularly responsible for the project specifications competing architects had to comply with (Studener, 2017). Here, the office raised the ambitions with regard to some of the project objectives, for instance by requiring an energy efficiency level of the building that should be 30 per cent above what the draft version of the German energy saving directive (that only would come into force five years later) stipulated (Förster et al., 2017b: 178).

There was one decisive turning point in the project process that rendered the role of the project office even more central. The bank's original plan was to limit the central position of the project office to the relations with planning and consultancy firms and to realize the building ensemble on a turnkey base. When, however, there was no general contractor that met the price expectations the ECB had calculated, the bank's governing council decided to change strategy. A second tender in packages and lots was launched (Studener, 2017: 159). That decision placed the project office in the middle of a complex procurement process, eventually managing between 200 and 300 contracts, including claims, the oversight of the project management etc. (C2_Own_3).

The way how the office performed this central position, was based on the fact that it operated outside the organization matrix. As a consequence, the in-house unit on the one hand performed as the focal actor of the project network, the project "steward" (Turner and Keegan, 2001). The members of the project office sought to increase the density of the project network, for instance by co-locating with contracted planning and consultancy firms as well as with Frankfurt's ECB coordination office in a joint office space. During the planning stage these offices occupied one floor in ECB's previous office tower, during construction they moved on site. The ECB thereby wanted to both secure effective problem-solving and create a trustful atmosphere.

On the other hand, the project office also acted as a broker that connected the different worlds that were joined together in the project. Most clearly brokerage occurred between the bank's decision-making bodies and the project: Construction related topics had to be turned into decidable matters, and, in turn, bank-based processes and practices were applied in a construction project management

environment. In a sense, the ECB inhouse team – as it operated independently from the bank’s organizational routines – performed multiple translations within the organizational ecology: e.g. between the construction world and the ECB board; between future users and planning and construction firms; between the involved organizations and the public opinion; between the bank and the construction supply chain.

Table 3: Owner resources and owner position ECB

Categories	Manifestation	Representative quotes
Resources		
Expertise	Creation of inhouse-knowledge hub (project office)	<p>“People sitting in the project office who had collected [experience] regarding refurbishment of rental objects.” (C2_Own_2)</p> <p>“The programme specifications that describe the owner’s ideas [...]. I mean, I have never seen such a precise account of what the owner wants.” (C2_Own_3)</p>
	Deliberate use of bank expertise (e.g. risk management)	<p>“Take the topic of risk management that prevails in the bank anyway: it was simply translated into the project.” (C2_Own_3)</p> <p>“Information policy was one specific feature of the project. We had a colleague from the PR unit in our team, and we built up an information management system.” (C2_Own_2)</p>
Involvement/ Commitment	Robust governance structure	<p>“The bank reserved the right to make adaptations in terms of safety, functionality, so as not to be convinced into something.” (C2_Own_1)</p> <p>“All this was meticulously prepared over an entire year together with the Controlling unit, so that then the whole governance structure was fixed. And this structure was exceptional.” (C2_Own_3)</p>
	Continuous commitment	<p>“Most of the people who accompanied this project, did that from before the architecture competition.” (C2_Own_2)</p>

Strong external PM support	<p>“We knew what the bank needed. And the external [partner] used their knowledge to say “watch out, these things could pop up.”” (C2_Own_2)</p> <p>“You cannot manage such a project in a ten people inhouse unit. In peak times 100 staff of the project management consultant supported us. And you need their specialized knowledge.” (C2_Own_2).</p>
Position(s)	
(Modest) central force through ambitious project specifications in the initial period	<p>“Of course, it was us in the project office [who had this courage]. I mean, we are also architects...” (C2_Own_2)</p>
Shift into a more central position after the failure of general contractor selection	<p>“The general contractor thing was always an issue. And then we thought we can do something good for the market [...] and not only for the big players.” (C2_Own_1)</p>
Both steward and broker	<p>“The core was the project management consultant and the construction manager. We were the core. And the ECB.” (C2_Proj_1)</p> <p>“We knew our users. We knew what they wanted.” (C2_Own_2)</p>

Innovations

The strong investments that the ECB made and the pivotal position that its project office held in order to keep the whole project under control also influenced the ways how innovative practices and solutions were established throughout the project. And the bank’s strong grip and the way how novelty developed were emblematic for two counteracting forces that governed the bank’s attitude: its inherent risk aversion, on the one hand, and the desire to produce an outstanding piece of architecture – “a modern building for a modern bank” (C2_Own_1), on the other. This ambivalent position prevailed over the entire project cycle: It was hence important to provide very detailed specifications of the buildings already ahead of the architectural competition in order to become knowledgeable about the project at a very early stage; these specifications yet should exceed standards and thereby exhibit the bank’s ambition. Construction only could start when there was 85 per cent certainty about costs (C2_Own_1); and yet, the bank spent more than one billion Euros and undertook a careful refurbishment of the wholesale market in accordance with conservation guidelines.

The ambivalence in particular affected the double role that the project office performed within the project network. As “steward” the inhouse unit was mainly to secure that the building was realized within the timeframe and the budget that originally had been calculated and agreed by the bank’s governing council: the project office thereby enforced the bank’s “no-change-policy” (C2_Own_2). It organized a smooth collaboration process particularly between the different planning and consultancy firms and managed to avoid delays by postponing many conflict solutions to the period after project completion (C2_Proj_1). In the steward role, the ECB and its inhouse experts also sought to avoid risks and thereby hindered the deployment of radically new solutions, when it, for instance, only accepted long established “tried and tested” elements for the façade (C2_Arch_2). In a sense, while deliberately choosing a signature architecture, the ECB, through its strong grip on the project “curbed” the signature architect (C2_Oth_2).

As broker, however, the project office operated in the interstices between different social worlds that were involved in the project. Most importantly, this happened between the bank and the project. The transfer of the bank’s capacities in risk management, public relations, reporting procedures etc. into a construction project management context provided substantial process innovations for the project and helped guarantee that the project ran in a smooth and largely uncontested fashion (C2_Own_3). Brokerage happened also with regard to technical solutions: In every tender, for instance, the bidding firms were explicitly invited to offer also alternative suggestions that depart from what the planners had proposed (C2_Own_3).

3.4 *The City of Hamburg*

Resources

When it became clear in 2004 that the whole project would become too big to be afforded by the small local real estate developer who had launched the idea and activated his former university fellows Jacques Herzog and Pierre de Meuron, the City of Hamburg stepped in and took over as project promoter and sponsor. The city administration saw itself in the lucky position to possess a large-scale project management body – “ReGe” (*RealisierungsGesellschaft*) – that had been established in 2000 to manage the preparatory groundworks for the A 380 Airbus plant within a former estuary of the Elbe river. This organization took over the entire

operational responsibility for the concert hall project. While it possessed a certain capacity in project management and the executive manager exhibited a longstanding experience in leading positions within the North German policy arena, ReGe did not have any record of structural engineering projects, let alone of collaboration with global signature architects (C1_Own_2).

What is more, the city administration did not seek to compensate this lack of expertise and experience with a strong support through its large building administration or other knowledgeable bodies. Instead, the city's decisionmakers had full confidence in ReGe's capabilities (C1_Own_2). While there was officially a project oversight through Hamburg's building authority, its involvement remained largely restricted to "asset management" (C1_Own_2), that is, the city government accomplished its formal role as a shareholder of ReGe. Also the Department of Cultural Affairs, i.e. that division in the city administration that would be responsible for the future use of the concert hall, did not really build up knowledge capacity. This situation changed over time, after the future artistic director of the Philharmonic Hall started in 2007 – only after the design process had been completed. In 2008, the public oversight fully moved to a project task force within the cultural department (C1_Own_2).

Among the political decision makers there was the desire to create a "Bilbao effect" (C1_Own_2): the objective was, besides an iconic design, to build no less than one of the best concert halls in the world. As a consequence, there was a huge political support in the early stages of the project when public stakeholders were successfully convinced – even the Hamburg Chamber of Architects that against its own rules did not insist on running an architecture competition (C1_Own_1). This early commitment for the ambitious general objectives of the venture, however, did not translate into a strong involvement when it came to implementation.

The underestimation of the operational effort that a project of this size and ambition would entail materialized on several levels: There was no robust governance structure and the political and administrative oversight of ReGe was unclear. What is more, also the actual investment in management resources was low. ReGe's Executive in the beginning of the project considered that "three persons" would be sufficient to "go through with that" (C1_Arch_3). Hamburg was also modest when it came to using external project management capacity. Even after the project had run

into serious problems in 2009, and costs had already more than doubled, the then newly contracted project management consultancy never deployed more than 25 staff (C1_Proj_1).

Position

In stark contrast to its modesty with regard to investments in expertise and control capacity the City of Hamburg adopted a central position within the organizational ecology. In the early periods, this centrality was enacted by key political personalities and ensured the political and public support for the project's ambitious objectives. Closer to implementation ReGe developed into the central node of the project network. Although, unlike in the ECB case, a general contractor could be successfully hired – albeit in a tender with only one bidder – and ReGe therefore did not have contractual relations with the entire supply chain, the public body was formally linked to both the architects and the general contractor (C1_Own_2). As a consequence, almost all interactions between architects and construction company passed through the owner organization. The ReGe management hoped that it would thereby get better control over both planning and construction execution (Fiedler and Schuster, 2015). On top of that, contractual links not only related to actual construction, but also included (1) a complex PPP model, with the general contractor as shareholder of a holding that would own the commercial envelope of the project – a hotel and luxury apartments; and (2) the city's financial involvement as the creditor of this holding in a “forfeit model” (Fiedler and Schuster, 2015: 19). This model is to exploit the creditworthiness of the public sector. It was supposed to save credit costs, and the contracting parties agreed to share the savings.

Also in the case of the Philharmonic Hall the owner position changed with a critical turning point in the project process. After a two-year suspension of construction works, the City of Hamburg (deliberately excluding ReGe from informal negotiations behind the scene), the architects and the general contractor in 2013 achieved an agreement that included a complete reorganization of contractual relations (C1_Own_2). Basically, the owner left the central position, confining its activity to the role of a client who simply pays. After this change, the building was completed without any amendments within three-and-a-half years.

Table 4: Owner resources and owner position City of Hamburg

Categories	Manifestation	Representative quotes
Resources		
Expertise	Use of a public owned project management body - no expertise in signature architecture buildings	“As to the ReGe executive you had to really search [...] to say: He has experience in architecture projects.” (C1_Own_2) “People were confident that ReGe would have the capability [...] and there was no need to control it [...] And that proved to be a fatal mistake.” (C1_Own_2)
	Expertise of public departments limited to asset management and weak user representation	“And then they thought: Let’s take the young civil servant for that project [...]. And 50 percent of his working time will suffice.” (C1_Own_2).
Involvement/ Commitment	Diffuse governance structure	“At that point the city was not set up [in terms of workforce] in a way to take the decisions that would have been needed.” (C1_Cont_3)
	Strong project promotion in the early period	“There was a campaign: Hamburg builds the Elbe Philharmonic Hall. Photographs depicting celebrities with helmets as testimonials for the project.” (C1_Own_1)
	Weak deployment of resources both internally and externally	“The client started and said “I can go through with that with three people.”” (C1_Arch_3) “We only were a small team and [our successor] took more staff into the project”. (C1_Proj_2)
Position		
	Central force in the early period to achieve political acceptance	“In fact, they tried emotionalize the project in order to achieve acceptance.” (C1_Own_1)
	Central but weak position between the two conflict protagonists	“When you stand contractually in the middle of everything, and you have incomplete plans and you start to tender [...] when you make this mistake right at the outset [...] then it takes you six years to get all this sorted.” (C1_Own_2)
	Shift into a peripheral position after re-negotiation	“The second thing decided in the re-organisation was, that the client simply steps back in central decision processes and stops demanding changes.” (C1_Cont_2) “The reorganization implied that we – as City of Hamburg – fully moved

Innovation

The City of Hamburg and the bodies that represented the city government in the project process actually played no real role with regard to the technical and aesthetic qualities of the new Philharmonic Hall. The decisionmakers did not articulate any requirements – apart from small details that they could inject into the architects’ planning process (e.g. a third small studio hall (C1_Own_2)) – and they did not intervene in the implementation process. When it was necessary that the city administration would get involved, the bodies in charge were not able to do that. That is, in the Hamburg case the owner did not actively contribute to innovations that were developed within the project.

The innovation dynamics generated in the Philharmonic Hall project echoed the processes the Boland et al. (2007) describe as “wakes of innovation” that a challenging design triggers and that spread through the project networks. Translating the architects’ radical design vision into a built form entailed a whole series of singular solutions that were not at hand before the project. The architects “set things in motion [...] of which they did not know how they would resolve them. [...] they had the plan to resolve them [...] they had the idea to resolve them” (C1_Own_2). For particularly critical elements they commissioned the production of prototypes before ordering on a large-scale (C1_Arch_4).

The ways how the complex problems of implementing challenging structures and materialities – e.g. spherically curved glass elements in the façade; the inner covering of the main hall made from individually milled and cut high-density gypsum fibreboard slabs – were solved correspond with what Tryggstad et al. (2010: 697) refer to as “trials of strength”: As the architects enthusiastically sought to depart from the “prevailing ‘order’” of standard solutions, they had the “burden of proof” (C1_Arch_2), i.e. they had to mobilize arguments and supporting evidence in order to convince construction firms, that the radical visions can be realized in practice. Implementing innovative solutions was spearheaded by the architects and took place in three steps: first searching partners with “an own interest to experiment [...] that try hard – with interest and passion” (C1_Arch_1), convincing them, and then collaboratively working on the realization.

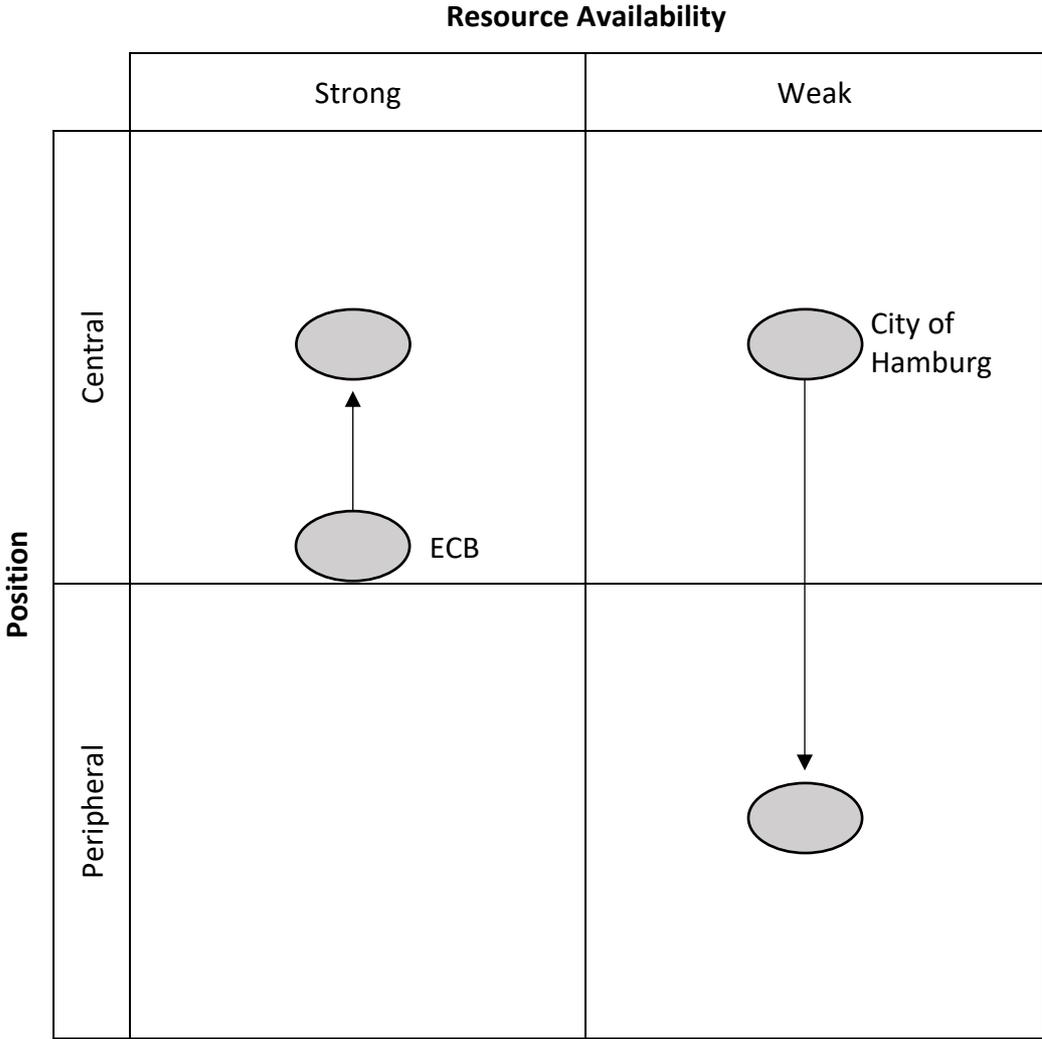
Hamburg's city government had no grip on this at all. And yet, it contributed to the innovation, by supporting the enthusiasm for the project in its early stages and by not giving up in spite of the serious political turmoil the project went through. In part, the City of Hamburg also supported innovation precisely by having no grip and therefore not curbing the radicality of the designing architect.

4. Discussion

The evidence that we have unfolded over the last section confirms and illustrates the contrasting patterns of owner performance that the two case-studies of large-scale iconic architecture projects reveal. Table 5 summarizes the insights by assigning the two cases to the cells of our two-by-two matrix. The marked difference on the resources-axis is evident. The ECB, although being a one-off project sponsor with a core business far away from construction, invested a lot in expertise and control capacity. Unlike that, Hamburg's city administration, despite existing experience in managing e.g. the construction of transport infrastructures, school and university buildings, fully underestimated the investment requirements linked to being the sponsor and owner of a large-scale architecture icon (Fiedler and Schuster, 2015).

The position-axis highlights that both projects experienced critical turning points through which owners had to change positions so as not to jeopardize the completion of the project. Both however moved in opposite directions: The bank – after failing to find a general contractor – increased its centrality in the project network; Hamburg's city administration – after two years of paralyzed construction works – moved out of its central position and left the completion of the building largely to the firms that it had contracted for this purpose.

Table 5: Owner performance of ECB and City of Hamburg



When it comes to innovation processes within the projects we can, at first glance, confirm our initial argument that there is no straightforward logic of how owner investments and their positions in project networks affect the generation of novelty in large-scale construction projects. Nevertheless, also here the contrasting patterns between the ECB and the Elbe Philharmonic Hall provide some illuminating additional insights. In the case of the Central Bank, innovations were both supported and weakened through the owner’s position *within* the network. The project office performed both brokerage and control and the innovations prompted through its brokering activities were mainly incremental and procedural. The ECB’s significant investments in expertise and involvement were also important, but in an indirect fashion: These investments were necessary conditions for the bank to successfully occupy a central position at all. Hamburg’s city administration supported radically

new solutions pushed through by a strong architecture firm through being *outside* the network, that is, because of not being able to exert control. The lack of investment hindered Hamburg's decisionmakers to hold a central position. Available resources, it seems, are hence conditions that help obtain central network positions rather than elements that shape innovation processes on their own.

The findings point to two additional features of how the performance of project owners shapes innovation processes. The first is about owners' attitude towards novelty, their "commitment to innovation" (Nam and Tatum, 1997). Both the ECB and the City of Hamburg wanted an outstanding architecture and therefore strongly promoted that the iconic buildings would materialize. In Frankfurt this desire was mitigated by the bank's built-in risk aversion that tamed the architects; in Hamburg the enthusiasm was amplified by the decisionmakers' ignorance that allowed the architects to implement their design in an uncompromising fashion. The second feature is about the "windows of opportunity" Davies et al. (2014) refer to that offer specific moments in the project cycle that favour the generation of novelty. The ECB's 'brokerage' innovation activities concentrate on the first two windows – i.e. the "bridging window" of idea generation and the "engaging window" in which the composition of the project network happens – a consequence of the bank's "no change policy" (C2_Own_2): The building should be built as it had been planned. The radically new solutions e.g. for the glass envelope of the Elbe Philharmonic Hall extended very much into the "leveraging window" – the actual implementation. As the design embodied challenges of which the architects "did not know how they would resolve them" (C1_Own_2) a lot of innovation activities was carried out in a close interplay between architects and specialized suppliers.

5. Conclusion

With this paper we have sought to contribute to the recently revived debate on owner performance in large-scale production projects and the impact that this performance has on innovation activities. Our intention in particular was to challenge the recent celebration of the "strong owner" (Winch and Leiringer, 2016) as both a bulwark against Flyvbjergian project failures and a vehicle of innovativeness. Instead we wanted to offer an analytical framework that covers a diverse spectrum of roles

clients can play in construction projects. Based on this our aim was to look into how different roles affect innovation activities and their outcomes.

Conceptually we developed a framework that confronts a resource-based view of the owner used in most of the current contribution in the project management literature (Winch and Leiringer, 2016; Davies et al., 2017) with a network approach that addresses the position of owners in the relational constellation of an interorganizational project. Empirically we examined the investment in resources and the network positions of two owner organizations in large-scale iconic architecture projects that behaved in completely opposing ways: the European Central Bank as an owner who invested a lot and occupied a central position for the construction of its new premises in Frankfurt; and the City of Hamburg that dramatically underestimated the necessary investment and eventually moved into a peripheral position within the Elbe Philharmonic Hall project.

We found that innovations happened in both projects – and that the way they developed particularly reflect the different network positions of the owners. In the ECB case the bank's brokering activities within the network favoured the generation of novelties; in the Hamburg case, the city's position outside the network enabled the architects to implement their radical design vision.

Our findings offer some clues to develop a broader understanding of how clients in project constellations act as vehicles or barriers to innovations. Also, it introduces a new conceptual perspective – the network position – of analysing different roles in project networks. Of course, the paper has limitations: The focus on signature buildings implies an emphasis on the nexus of ambitious design and its material implementation. Subsequent research should widen the empirical spectrum and include cases with a stronger focus on technical and construction-related topics.

Also, we deliberately excluded additional differences between the owners. While the ECB built the new headquarter as a monolithic organization that planned to move into and use the new building as soon as it would be completed, the City of Hamburg performed in a fragmented constellation in which future users were involved, if at all, only in a limited fashion. Future research should therefore seek to include other structural factors of owner differentiation and their impact on innovation processes in large-scale projects (e.g. Kurukawa et al., 2017).

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