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Walls and bridges: knowledge spillover between ‘superdutch’ architectural firms

Robert C. Kloosterman*

Abstract

Innovation thrives on the face-to-face exchange of tacit knowledge. In this article, the focus is on how firms in a cutting-edge cultural industry, namely architectural design in Rotterdam and Amsterdam, can exchange knowledge. By using in-depth interviews with the main players in this field, I have explored different conduits for the exchange of knowledge. These conduits turned out to be rather different than was expected: the importance of the individual signature creates high walls between firms and no project-based organizations were found. Instead, the spin-offs, the highly mobile labour pool and the dedicated institutions function as bridges for knowledge exchange.

Keywords: spillovers, project-based organizations, agglomeration, architectural practices, cultural industries, The Netherlands, Rotterdam

JEL classifications: D21, J62, L84, M13, Z11

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1. Introduction

Contemporary Dutch architectural design is world famous. Not only just Rem Koolhaas but also quite a number of other architectural practices are seen as highly innovative and as sources of inspiration for others (Lootsma, 2000; Betsky, 2004). When Koolhaas won the prestigious Pritzker Architecture Prize in April 2000, he was, of course, primarily honoured for his fascinating oeuvre, but he was also explicitly praised for his influence on an entirely new generation of Dutch architects who emerged onto the national and international scene after 1985 (Architecture Week, 2000; see also Lampugnani, 1988, p. 245 and The Phaidon Atlas of Contemporary World Architecture, 2004). Members of this so-called Superdutch generation, comprising Erick van Egeraat, UN Studio, Kees Christiaanse, MVRDV, West 8 and Neutelings & Riedijk, to name but a few, have now all acquired international fame (Colenbrander, 1995; Lootsma, 2000). Like many other innovative activities, these famous architectural practices are spatially concentrated; most of them can be found in Rotterdam and, to a lesser extent, also in Amsterdam. One might even argue that the spatial proximity in the case of architectural practices is much closer than in many other sectors as they sometimes not only share an office building but also even the same office spaces within buildings.

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Architectural practices form part of the so-called cultural industries, those activities that are ‘concerned with producing and marketing goods and services that are permeated in one way or another with broadly aesthetic or semiotic attributes’ (Scott, 2000, p. 2; see also Pratt, 1997). The relatively small architectural practices also seem to conform to an important ideal-typical characteristic of cultural industries put forward by Scott (2000, pp. 11–12). In his view, cultural industries are organized in clusters of small and medium-sized establishments that are highly dependent on specialized local labour markets especially since work in cultural industries, given the volatility of demand, tends to be intermittent. As such, the innovative architectural practices in Amsterdam and Rotterdam appear to be a typical case of cultural industries more in general (Seawright and Gerring, 2005). We can use the case of the Superdutch architectural practices, therefore, as a strategic window to explore one crucial aspect of spatial clustering namely its relationship to the emergent effects also postulated by Scott. These effects involve processes of mutual, interactive learning and exchange of knowledge that underpin innovation (see also Breschi and Lissoni, 2001; Bathelt, 2003, 2005 and Scott, 2004a, 2006). We will, therefore, investigate along which conduits knowledge can be exchanged.

The issue of how knowledge is exchanged within a cluster transcends the importance of the case of innovative architectural practices in the Netherlands and even that of the cultural industries in general by far. Much of the literature sees the exchange of uncodified or tacit knowledge as a precondition for processes of (sustained) innovation, which themselves are deemed necessary to maintain competitiveness in a globalizing world (Storper, 1997; Cooke and Morgan, 1998; Brown and Duguid, 2000; Feldman, 2000; Hotz-Hart, 2000; Simmie, 2001; Boschma and Lambooy, 2002). The geographical concentration of related sets of innovative economic activities, such as the inevitable example of Silicon Valley, enables the exchange of knowledge that is still not codified or standardized and which can only be exchanged properly through face-to-face contacts (Storper and Venables, 2004). More recently, however, the role of geographical proximity in interactive learning (Malmberg and Maskell, 2002) has been downplayed somewhat, while the role of other forms of proximity (cognitive, organizational, social and institutional; Boschma, 2005, p. 71) are now increasingly seen as at least complementary if not necessary for innovative firms.

Whatever the balance should be between local networks and global links, three observations can be made safely. First, many researchers still stress the importance of proximity for innovative economic activities as it enables the exchange of tacit knowledge against low costs necessary for interactive learning (cf. Glaeser et al., 1992; Asheim, 2000; Feldman, 2000; Breschi and Lissoni, 2001, Elfring and Hulsink, 2003; Power and Lundmark, 2004). Secondly, there is a gap as many studies are mainly on the theoretical level and the statements about how knowledge is exchanged remain seriously empirically underdetermined (Markusen, 1996; Martin and Sunley, 2003; Cumbers and Mackinnon, 2004; Boschma, 2005; Kloosterman and Boschma, 2005). Thirdly, there still seems to be a bias with attention focused mainly on specific regions (e.g. Silicon Valley, the ‘Third Italy’) and specific (high-tech) sectors such as information and biotechnology (cf. Cumbers and Mackinnon, 2004).

Below, an attempt is made to uncover the bridges along which contextualized knowledge is exchanged between key firms in a *cultural industry*, namely the avant-garde of Dutch architectural design. In 2001, Gernot Grabher published his pioneering study on such bridges between firms in another cultural industry. He showed that firms

at the high-end of advertising engaged in so-called project-based networks that constitute a larger *project-ecology* (Grabher, 2001, 2002a, b, c). These project-based networks were to a large extent *ad hoc*, and in many cases collaboration preceded trust. These complex but highly flexible ‘ecologies of creativity’ that transcend and sometimes even seem to neglect the boundaries of the firms have been found elsewhere in cultural industries (Eikhof and Haunschild, 2007), more specifically in musical production (Uzzi and Spiro, 2005) and in financial services and consultancy (Faulconbridge, 2007; Hall, 2007; Faulconbridge et al., 2007). It appears, therefore, as if project-based ecologies are a much more general phenomenon in today’s knowledge intensive and creative activities. Given the role of proximity in facilitating contact-rich projects, insights in the applicability project-based ecologies may have significant repercussions on how to assess current economic trends in urban areas. If they are indeed important in other knowledge-intensive activities, the degrees of freedom with respect to location may be rather limited even within cities.

Knowledge spillovers between firms or workers of firms rarely leave an easily traceable ‘paper trail’. According to Krugman (1991), economists should, therefore, refrain from tracking these flows. This methodological rigour would, however, in essence equate social reality with what is measurable (and, in most cases, formally codified) and lead to a severe ontological reductionism, which would ‘... neglect a host of important forces that also influence the geographical distribution of industry and economic activity’ (Martin, 1999, p. 7; see also Scott, 2004b). To investigate along which conduits exchange of knowledge among innovative architectural practices in Rotterdam and Amsterdam can take place, requires a different approach, namely an intensive analysis based on qualitative research (see also Grabher, 2001, Uzzi and Spiro, 2005; Grabher and Ibert, 2006). For this explorative research, semi-structured interviews with 26 innovative architect firms and 11 more open interviews with key informants have been held between June 2004 and June 2006.

In the next section, the concept of innovation in architectural design will be briefly elaborated and the selection process of the architectural practices that were interviewed will be explained. I then assess the position of recent Dutch strong-idea architectural design (Section 3). In Section 4, I turn to the relationship between proximity and innovation and subsequently identify three different modes of exchange of knowledge (Section 4). Each of these three modes is then examined: inter-firm networks (Section 4.1), mobile labour pool (Section 4.2), and dedicated institutions (Section 4.3). In the conclusions (Section 5), I will reflect on wider issues regarding the relationship between proximity and innovation, urban *milieu* or creative city and the significance of status and recognition as motives in the cultural industries.

2. Innovation and ‘strong-idea’ architectural practices

Cultural industries have become more important for advanced urban economies. In direct terms, by creating employment and generating income (cf. Pratt, 1997; Scott, 2000, 2004a; Power, 2002, Kloosterman, 2004) and more indirectly, by boosting the quality of places through creating and supporting an infrastructure that is attractive for other knowledge workers, inhabitants and tourists (cf. Zukin, 1995; Florida, 2002; Markusen and Schrock, 2006). A precise delineation of cultural industries is very hard, but there is no doubt that architectural design is very much part of these economic

activities aimed at creating value by adding symbolic or aesthetic qualities. Attention for these aesthetic qualities of architectural design is widespread; the socio-economic aspects of architectural design have attracted much less attention. Analyses of architectural design primarily from the perspective as an economic activity or cultural industry are still quite rare but apparently increasing (see for instance: Gutman, 1988; Winch et al., 2002; Knox and Taylor, 2005; McNeill, 2005; Sklair, 2005). This increase may be linked to a change in the market for architectural design. Within a globalizing world, icon or flagship buildings are increasingly used to express a specific (local) identity of cities (Rykwert, 2002; McNeill and Tewdwr-Jones, 2003; McNeill, 2005; Sklair, 2005; Heathcote, 2007). The Guggenheim Museum in Bilbao (Frank Gehry), the library in Seattle (Rem Koolhaas), the Mercedes Museum in Stuttgart (UN Studio), the Millenium Bridge in London (Norman Foster) and the Borneo Sporenburg Bridges in Amsterdam (West 8) are cases in point.

The expanding (global) market for flagship buildings has heightened the premium for unique, innovative buildings. Innovation in cultural industries is mostly *product* innovation—a new design or style—which can be used to conquer new markets (cf. Becker, 1982, pp. 63–66; Drucker, 1985). In contrast to high-tech innovations, these high-concept innovations are usually hard to patent. Ownership of the original idea is, however, in some settings protected in a looser and informal way as outright plagiarism tends to be frowned upon if not openly condemned. Just as with high-tech innovations, high-concept innovations imply competing on ‘quality’ or uniqueness of the product rather than on competing on price (Cooke and Morgan, 1998, p. 11). Within the large and diverse population of architectural practices, only a minority are able to come up with such high-concept stylistic innovations that allow them to cater to the very high end of the market where the unique qualities of the building are paramount.

Gutman (1988) has made a three-fold division of architectural practices based on their market orientation and way of competing. He thus distinguishes ‘strong-delivery firms’ (build many buildings but not seen as innovative designers) and ‘strong-service firms’ (able to build quality design, but are first and foremost business-oriented) and ‘strong-idea firms’, which are ‘... organized to deliver singular expertise or innovation on unique projects ... and often depend[ing] on one or a few outstanding experts or “stars” to provide the last word’ (Gutman, 1988, p. 55).¹ These strong-idea architects are mainly responsible for contemporary iconic architecture (see also Sklair, 2005 who uses the same distinction).

In this research, the focus is explicitly on the case of innovative architectural practices or strong-idea firms. To identify these firms, I have benefited from the fact that architecture is a very well-developed and perhaps even hyper reflexive field in the Bourdieu sense (1979) with a whole army of *connaisseurs* and critics writing everything from blogs on the web to coffee-table books with lavish illustrations and from reviews in newspapers to thorough scholarly works. Every year, the Dutch professional architectural journal *Architectenwerk* (<http://www.architectenwerk.nl/top40/2002/totaal.htm>) produces a ranking of architectural practices based on the number of pages devoted to them in several Dutch architectural journals. Assuming that such

1 Strong-idea practices might develop into ‘strong-service firms’ or even ‘strong-delivery firms’ after a while when the ideas of the founder are becoming less innovative or have become more mainstream (see also Sklair, 2005). The firm then competes less on the quality of the design than on the ability to deliver (on time, within the budget).

journals are focused on the more innovative designs, the ranking gives us a good, albeit anything but perfect, line-up of strong idea-architects in the Netherlands. The firms were selected on the basis of six yearly rankings (1997–2002) of Dutch architectural firms, the so-called *Architectenwerk Top 40*.² Nearly, all of the architectural practices that were thus selected were (very) willing to be interviewed and only one refused. The 26 interviews, almost always in the offices of the practices, took on average 2 hours, only one lasted less than 1 hour, some even took three or more hours. The interviews were taped and then transcribed verbatim. In addition, 11 key informants were interviewed to get a more general view of the field. Before addressing the key issue of the ways in which knowledge may spillover between these firms, a brief sketch of the rise to international fame of Dutch strong-idea architects will be presented.

3. Superdutch: the emergence of a (new) wave of innovative architectural design in the Netherlands

Plan Zuid, a neighbourhood in Amsterdam designed by Hendrik Berlage in 1915, is still high on the list of architectural tourism. The same can be said for the famous Van Nelle Tobacco Factory (1925–1931) by Brinkman & Van der Vlugt in Rotterdam. The *Lijnbaan* in Rotterdam (1949–1953) by Van den Broek & Bakema has weathered the ages less well and is now being reconstructed, but was once seen as ‘a prototype of a post-war urban shopping centre’ (Taverne, 1990, p. 148) and ‘experts from all over the world came to admire this model of a rational and integrated shopping, business, and living core for a modern city’ (Betsky, 2004, p. 36). Aldo van Eyck’s Orphanage in Amsterdam (1957–1960) and the *Centraal Beheer* office of Herman Hertzberger (1970–1972) attracted attention by aiming at building on a ‘human scale’ (Ibelings, 1995, p. 113). From expressionism to functionalism, from modernism to structuralism: all these designs can be seen as specimen of Dutch design, which made a mark on international architecture in the 20th century (Lampugnani, 1988, pp. 239–244).

In the 1990s, after an interlude, Dutch architects again made a name for themselves as the so-called Superdutch generation. This comeback of Dutch architectural design can be attributed, first, to more structural factors. To start on the demand side, there is a tradition of openness towards experimentation. The opportunity structure made ‘the Netherlands a kind of free haven for architectural experiments’ (AP15). An Amsterdam-based foreign-born architect confirmed this view: ‘Dutch architecture has a very good reputation... clients are much more open for new ideas, not dogmatic’ (AP10). Respondents have explicitly referred to the role played by the (public–private) social-housing associations, which gave Dutch architects a break to actually *build* something at a relatively young age (AP12, AP16; KI1; KI6).³

The openness towards experimentation (cf. Betsky, 2004) has been a feature of the Netherlands already in the 1960s and, hence, cannot explain the later rise of Dutch architectural design. According to our respondents, the explanation of the rise also has to be sought on the supply side and in the changes in the supporting institutions. In the 1970s, young architects could not get a job with established practices due to the fact that

2 See Kloosterman and Stegmeijer (2005, pp. 207–213) for a more elaborate assessment of these rankings.

3 AP stands for a respondent of an Architectural Practice and KI stand for Key Informant. A list of the respondents has been added.

the demand for architectural services was at a very low tide because of the recession. Most of the Superdutch generation, who graduated in these years, *had* to start for themselves (AP18) as architects or, sometimes, as publishers of architectural books or journals.⁴ These start-ups were greatly helped by a supporting institution, i.e. an extensive grant system that gave subsidies to young architects to travel, to publish books or to do research or to do concrete projects (AP9, AP20). The grant system—especially the Stimuleringsfonds Architectuur and the Fonds voor de Beeldende Kunst, Vormgeving en Bouwkunst (Visual Arts, Design and Architecture Fund)—was instrumental in creating opportunities for starters. The grant system, moreover, saw architects primarily as artists (AP20) and thus stimulated an innovative approach (cf. Betsky, 2004, p. 282). The grant system was extended in the early 1990s when the Dutch government took a conscious decision to improve the quality of the built environment. Indirectly, however, this policy also strengthened the supporting institutions for architectural practices as an economic cluster (Vollaard, 2003; Stegmeijer, 2006). Due to the strong Rotterdam influence in the government at that time and the active architectural policy of the city itself, the key institutions of that architectural policy, the NAI (The Netherlands Architecture Institute), the Stimuleringsfonds Architectuur (The Netherlands Architecture Fund) and the Berlage Institute, were located there and not in the cultural capital Amsterdam (KI4; KI6).

The story of the rise of Dutch architectural design, however, cannot be told solely in structural terms as Rem Koolhaas was a crucial change agent in bringing about the rise of Dutch architectural design. He opted to move his fledgling architectural practice in 1980 from London to Rotterdam. He acted as a prime mover who used his talent to create, within the evolving structure of institutions, a new path along which Dutch architecture could develop just like change agents Ralph Lauren and Donna Karan helped to make New York a fashion capital (Rantisi, 2004). The respondents corroborated the crucial role of Koolhaas. Most of the architects I interviewed, in addition, not only mentioned Koolhaas as one of the most respected architects, but also see him as a crucial innovator of Dutch architecture and indeed as the leader of the ‘Dutch Architecture School’ after 1990 (AP1). They admire his conceptual approach, his daring designs, his way of organizing his practice, and his international orientation. According to one interviewee, ‘The Netherlands has a kind of punk tradition with a certain boldness . . . notably due to Koolhaas (AP3)’. Another mentioned the ‘ability of Koolhaas to translate a design problem into a conceptual issue’ (AP20).

Rem Koolhaas is also important in explaining why Rotterdam became much more of an international centre of architectural design than the Dutch cultural capital Amsterdam (Kloosterman and Stegmeijer, 2005). In the 1990s, he and his OMA practice (and the spin-offs of OMA), a dedicated infrastructure (institutions such as the NAI, Berlage Institute), a (growing) highly skilled labour pool (partly educated at the nearby Delft University of Technology), the availability of cheap office space, and a particular local (modernist) atmosphere intersected in Rotterdam. The proximity of clients did not seem of any relevance—Koolhaas, for instance, has built only a handful of buildings in Rotterdam—and neither was there a big need for co-location with key

4 Notably 010, a Rotterdam-based publisher of books on architecture that was founded by architects in 1983, has to be mentioned. This publisher, partly thanks to generous grants, was instrumental in spreading the fame of the Superdutch architects (KI10; KI4, KI3).

suppliers as architectural practices are located at the very beginning of the value chain. However, the labour pool for workers in the strong-idea practices encompasses both Amsterdam and Rotterdam; in that sense there is only one cluster with two central-urban nodes.

What has now emerged in Rotterdam and Amsterdam is highly complex family tree of strong-idea architectural practises with basically three levels or generations. The first generation—with Koen van Velzen Claus & Kahn Architecten, Erick van Egeraat, Jo Coenen, Mecanoo Architecten, Wiel Arets, UN Studio and, of course, Rem Koolhaas—started their firms in the late 1970s or first half of the 1980s when, due to the recession, not many job opportunities at existing practises were on offer. These entrepreneurial architects chose to set out on themselves and, eventually, laid the foundation for the Superdutch fame (Lootsma, 2000). Many members of the second generation—e.g. MVRDV, Neutelings Riedijk, Architects, West 8, Marlies Rohmer and Meyer en Van Schooten—at first worked for the practices of the first generation and then, in the late 1980s and early 1990s, they also started their own firms and have gained international recognition. We are now witnessing the rise of the third generation—e.g. Atelier Kempe-Thill, BAR architecten, DaF-Architecten, NL Architects, S333, CASANOVA + HERNANDEZ—who have worked for the first generation but increasingly also for the second generation and started in the late 1990s and after. The fact that we now find many foreign-born architects starting their own practice especially in Rotterdam goes to show the underlying strength of the ‘Dutch’ cluster of architectural practises. Although there are marked stylistic and other differences between and within these generations, they tend to share the conceptual approach as pioneered by Koolhaas in combination with a pragmatic, cost-effective attitude (Lootsma, 2000).

4. Proximity and the exchange of knowledge

The case of strong-idea architects in Amsterdam and Rotterdam displays the spatial concentration; a specialized labour market and we also see the contours of a ‘dedicated local institutional infrastructure’ with both formal (e.g. Berlage Institute, NAI, grant system) and more informal components (e.g. Koolhaas’ OMA as an informal post-graduate school). Spatial proximity may generate important emergent effects such as mutual learning and cultural synergies through knowledge spillovers, which underpin sustained innovation (Storper, 1997; Scott, 2004, 2006). Already Marshall pointed to the role of knowledge spillover—‘the mysteries of the trade become no mysteries, but are as it were in the air’—beside the presence of specialized labour pool and a dedicated supporting infrastructure of suppliers and institutions, as a force of agglomeration (Marshall, 1920, p. 225). With the increasing importance of knowledge-intensive, innovative and usually small firms in advanced economies after crossing *the Second Industrial Divide* (Piore and Sabel, 1984; Asheim, 2000), attention has been focused once again on clusters and the role played by knowledge spillovers (see, for instance, Markusen, 1996; Martin and Sunley, 2003; Cumbers and Mackinnon, 2004; Simmie, 2004; Boschma, 2005). Notwithstanding the fact that ‘interest in cluster development has exploded in recent years (Wolfe and Gertler, 2004: 1071), how knowledge actually spills over and if it is indeed a significant force of agglomeration (and also on which spatial scale it is articulated) remains a contested issue’ (Breschi and Lissoni, 2001; Malmberg and Maskell, 2002). Below, the linkages between the innovative or

strong-idea architectural practices will be explored on the basis of the interviews. The qualitative data will be used to investigate how exchange of ‘spatially sticky tacit knowledge’ (Wolfe and Gertler, 2004, p. 1073) can take place between the strong-idea architects. Three conduits of exchange of knowledge are distinguished and will be explored empirically: (i) inter-firm linkages; (ii) labour pool mobility and (iii) dedicated institutions. To follow up on Alfred Marshall’s it is in the air but where does it land?

4.1. The walls between firms

I start with the first conduit of exchange, the inter-firm linkages. New industrial districts dominated by cultural industries or otherwise, are seen as characterized by dense inter-firm networks; firms working together facilitated by their proximity. Grabher (2001, a, b, c and Grabher and Ibert, 2006) went even one step further when he showed that notably in cultural industries, the so-called ‘project ecologies’, whereby members of different advertising firms work together in temporary projects, are a dominant organizational format. These inter-firm networks seem to erode the boundaries of the firm and create a very intricate pattern of *ad hoc* relationships where trust is as much a preliminary condition as an emergent characteristic. These project-ecologies constitute the more permanent format to organize face-to-face contacts and thereby to exchange highly contextualized knowledge about who or what is ‘cool’, as concrete nodes for mutual learning and innovation (cf. Storper and Venables, 2004).

In the case of the strong-idea architects, inter-firm linkages—let alone project ecologies—are rather rare. Almost no networks of collaboration between architectural firms were found. Most of the interviewees also leave no doubt about this lack of inter-firm collaboration: ‘collaboration rare; big egos’ (AP4); ‘our sector is in, any case, very autarkic, we are soloists because of pig-headedness, vanity, fear’ (AP8) and there is ‘rarely collaboration with other architectural practices’ (AP18); ‘many practices do not communicate with each other’ (KI6). This lack of collaboration becomes even more poignant if we take into account that many architectural practices share an office building and, in quite a few cases, even the open-plan office floor. One internationally famous practice, for instance, shares its building with several other architectural firms but has only one collaboration project with a direct neighbour, namely with one, which is led by the wife of one of the partners of the famous practice (AP26). A young architectural practice sharing an office building with three other young firms also share computers, printers, fax; but do not collaborate on commissions and there is also no exchange of workers (AP3). Another young practice also shares office space with other architectural practice, but ‘apart from lending a beamer, do nothing together’ (AP9). Again, a young practice shares the same office building with other practices but ‘not much contact with other practices; do share fax, Xerox, they do discuss clients’ (AP10). We have come across some exceptions. According to one respondent ‘Amsterdam has an architectural atmosphere...[the respondent] knows many colleagues and is also involved in exchange of workers with other practices...financial managers of important firms in Amsterdam have regular meetings: can you spare someone?’ and even goes on excursion with two other practices in Amsterdam (AP22). One practice in Rotterdam also mentioned that there is ‘sometimes exchange of workers with one or two other practices’ (AP14). These are, however, the exceptions.

The architectural practices that come up with innovative design tend, as observed by Gutman (1988), to depend on one or two dominating key figures, who, in many cases,

have lent their names to the firms as well. They are usually also strong egos, who want not only to see their signature attached to a building, both in the sense of certain style characteristics but also that it will be ascribed to specifically to themselves. They want rather strict control over the design process and most describe their organizational structures explicitly as flat with an informal work culture, but they are very sure to have the last word. Collaborating with other strong-idea firms, subsequently, is very rare as strong egos than have to negotiate with other strong egos, who also want to create buildings with their particular signature. Strong ideas in architecture are, apparently, very 'sticky' and linked to carefully constructed identities. They do not even leak to the adjacent desks of another firm under the same ceiling (cf. Brown and Duguid, 1999). Competition is, evidently, strong on quality and extremely segmented.

4.2. The bridges of the labour pool

Tacit knowledge can also be transferred by mobility of individual workers from within the specialized (local) labour pool (cf. Breschi and Lissoni, 2001 and Power and Lundmark, 2004). Whereas almost no inter-firm relationships were found, this form of transmission of knowledge between firms seems very common. The empirical research (which is rather scarce, Cumbers and Mackinnon, 2004, p. 964), moreover, shows that a highly mobile labour pool is a crucial conduit for the exchange of knowledge. I will explore the significance of mobile labour as a conduit of knowledge on the basis of three-fold division of the labour pool in strong-idea architectural practices that can be distilled from the interviews (this three-fold division was also explicitly mentioned by AP7):

1. Short-term workers (including trainees) who stay for anything up to 2 years.
2. Mid-term workers who stay between 5 and 8 years.
3. Long-term workers who usually stay with a firm.

The first category of workers constitutes an essential conduit for exchange of knowledge through face-to-face contacts. These workers tend to be highly mobile, especially trainees, moving quite easily from one (strong-idea) firm to another. The turnover rate is relatively high given the volatility of the demand for these kinds of architectural services and the rather large size of most architectural commissions in terms of labour input from the perspective of an individual firm. 'After two years, about half of the workers leave' (AP11) and: 'newcomers stay, on average, one or one-and-half year' (AP21). Proximity of practices, evidently, facilitates the mobility of labour. This holds even stronger given the fact that in many cases Dutch (mainly Rotterdam) practices are communicating vessels and often compete with each other for the same commission (AP21, AP17 and others). As one respondent said a 'pool of young graduates moves around here; they start, for instance, with Koolhaas and after two or three years they go to MVRDV' (AP20). The high mobility is not only generated by the volatility of demand, but also is, in some cases, at least a conscious strategy of practices to constantly have a hard-working and cheap labour pool that is amenable but with fresh ideas. High rates of labour mobility have been found important for innovative clusters in other cases (Power and Lundmark, 2004, p. 1040). Moving from one practice to another, mobile workers take with them 'embodied' knowledge (they have then acquired a certain *habitus*: a whole set of do's and do nots regarding architecture but frequently also with respect to dress code and other outward features), hence, constitutes an important conduit for spillover. This spillover also occurs, of

course, if they start a practice themselves, but they usually set up their own firm after having moved to the second category of workers (see subsequently).

There is also a second bridge along which knowledge can be exchanged as many of these young workers from different firms interact with each other on a very frequent base. They often live within the same (cheap) apartment block, which are easy to find in Rotterdam; go to the same lectures and also to parties of other architectural workers, and in many cases even have partners with the same background (mostly working for other practices).

Together, they create a ‘buzz’ in the vein of Storper and Venables (2004) that contains both noise (gossips) and voice (strategic knowledge).⁵ One respondent (AP21) told us that the news of the outcome of (Dutch and foreign) competitions spreads rapidly as those who work with the winning practice, the first to know, immediately call up their partners working with the less lucky practices way before the official announcement. I will get back to these linkages within the labour pool below.

The second group (up to 5–8 years) has, of course, more experience. Many of them take part in competitions and, if successful, start their own firms: ‘most employees stay here for five to ten years and then start their own firm’ (AP18). Others become part of the wider creative field and go to work for architectural journals, institutions related to architecture (e.g. grant-giving institutions), clients or the government. They can also, of course, stay with the firm and become part of the third category.

The third category forms the backbone of established practices workforce: ‘the core stays long’ (AP24). They work as trusted project managers and enable the strong-idea architects to take on more projects. They thus, help to create stability and maintain quality and identity when a practice is successful and grows. They are, in marked contrast to the two former categories, quite scarce.

It is the first category of young and highly mobile workers, accordingly, that gives firms the necessary flexibility to cope with the very volatile demand. The flexibility is not only the result of switching between firms, but also of a seemingly permanent large oversupply of applicants, from the Netherlands but increasingly also from abroad. One famous firm (AP26) gets 40–50 applications *every week*; another famous practice 40 (AP18) and yet another famous 20 (AP17). One respondent remarked: ‘this latent supply makes it very easy to expand quickly’ (AP21). Even small and considerably less famous strong-idea practices get gatecrashers (AP10; NL). Many trainees are from abroad: ‘about 90 per cent of the trainees are foreigners’ (AP17). They usually send their applications to different, but stylistically related, practices; well aware of the specific styles of these practices through books, publications and their presence on the web and, of course, through the iconic buildings themselves. Because of the oversupply and this process of self-selection, firms do not have to look very actively for these young workers as they come to them: eager and well-informed about the particular styles of the practices.⁶ Given this clear oversupply and its propensity to self-selection regarding the type of practice and its style, search costs for the practices regarding young workers

5 See also Grabher and Ibert (2006, p. 1921) on this: ‘Face-to-face contacts and “hanging out” together facilitate casual conversation which allows the expansion of contacts and knowledge about other actors...Casual conversation keeps open communication channels so that they are available for substantive purposes such as the “triangulation” of rumours or gossip’.

6 The *Archined* site serves as an important portal to Dutch architectural firms for potential (foreign and Dutch) applicants.

can be relatively low. The proximity of the practices is, on the other hand, very efficient for the many would-be strong-idea architects from all parts of the world and reduces their search costs as they can easily visit about ten famous practices within the span of 1 week. There is also another side to the coin, as foreigners ‘do not want to work and live outside large cities as Amsterdam and Rotterdam’ (AP25) and, therefore, contribute to clustering in these cities.

The young foreign architects are not only attracted to these firms by the fame of Dutch architectural practices but also to Dutch architectural culture more in general. Especially, the opportunities for young architects are seen as very attractive. One respondent from outside the Netherlands told that she worked only 1 week with a famous Dutch practice and then had to go on a trip to the United States to represent ‘Dutch’ architecture (KI9). They are willing to put up with relatively low wages (close to or the minimum wage as stipulated by the collective wage agreement, i.e. about 1,844 euro gross earnings per month, <http://www.architectencao.nl>), long hours and job uncertainty as they see a job with a famous strong-idea practice as a crucial break in their career and a very useful addition to their CV. The flat, project-oriented organizations within the firms with the strong-idea architect him/herself usually in the role of instigator and conductor/director offers even newcomers easy direct access to the heart of the design process and thus the opportunity to acquire crucial skills to become a strong-idea architect oneself. As one respondent put it ‘The best foreigners come to the Netherlands; they elaborate the ideas and, subsequently, start their own firms’ (AP20). We are now seeing the emergence of a group of foreign-born strong-idea architects in Rotterdam and to a lesser extent Amsterdam who are the spin-offs of Koolhaas’s spin-offs.⁷ Without these highly motivated, highly mobile and relatively low-paid workers architectural practices and, arguably, more generally, cultural industries would have trouble to survive.⁸

There is another conduit for the exchange of knowledge among strong-idea architectural practices, which also involves the mobility of labour. Almost all the architects we interviewed, started their firm when they won a competition. Some even won a competition while still studying, but most were working with another firm and then participated, on the side, in some kind of competition or were able to get a grant. Within Dutch architecture at least there seems to exist a spin-off tradition: young workers are allowed to work on competitions—sometimes even encouraged do that by their employers—on their own behalf and if they are selected they will, in many cases, set up their own firm. This is widely accepted and very much ‘part of the deal’ (AP3). Some even help their employees with setting up their own firm (AP8, AP22); one claimed to ‘consciously stimulate people to start their own firms’ (AP15) and another said: ‘I am a school’ and he helps his young workers with setting up their own firms (AP8). The walls between firms of the same generation are, as shown above, high. Within these firms, however, there are low thresholds for spin-offs and this inter-generational bridges for the transfer of tacit knowledge (embodied in the starters)

7 An exhibition organized by Olga Vázquez-Ruano and dedicated to new architectural practices in the Netherlands (Creatieve immigratie in NL ‘Typisch NL architectuur door NO NL architecten’, ABC Architectuurcentrum Haarlem (from 20 June 2005 to 31 August 2005), also made this point. According to Vázquez-Ruano: ‘Superdutch is increasingly Superbabel’.

8 The layer of low-wage workers may be there permanently, but for the individuals concerned the membership might be largely temporary.

between firms might be very important as the profuse and successful offspring of Koolhaas' OMA has shown. Design competitions, hence, form an essential link in the highly self-reflexive field of architecture not only just by linking different players but also by constituting a key mechanism for reproduction of strong-idea firms and their own local cultures. The conceptual approach pioneered by Rem Koolhaas has thus been reproduced in the OMA spin-offs.

4.3. The bridges of the institutional linkages

Agglomeration confers advantages to firms. The spatial concentration of firms reduces research costs for both workers and firm and enables spillover of knowledge through, as we have seen labour mobility. Agglomeration may also have a more dynamic property and lead to emergent effects (Scott, 2000, p. 12) as the spatial concentration of firms and workers enables the formation of 'cluster-specific' institutions (Malmberg and Maskell, 2002, p. 441). These institutions may be formal or informal, and they may link suppliers and customers, monitor quality, match firms and workers, contribute to the (re)production of labour, or, very important, play a significant role in the spillover of knowledge. Localized *dedicated* institutions may, for instance, encourage trust and thus reduce cognitive distance within the cluster and, hence, foster the spillover of knowledge (Malmberg and Maskell, 2002, p. 441). Architecture is a very well developed field with a broad set of formal and informal institutions where people—workers, employers, critics, publishers, students, clients—can meet.

The formal educational institutions are very important bridges or conduits of learning in the architectural field. Nearly, all of the interviewed strong-idea architects were at the moment of the interview working as a teacher or lecturer at a school of architecture or had worked as such. Combining their work as architects with (part-time) teaching jobs helps young architects to survive in the first difficult phase as head of an independent practice. It enables them and other more established to put their views forward, to find new, talented and suitable workers for their own firm, meet other lecturers and also to keep in touch with new views and fads in architecture. Being close and even part of the formal educational institutions opens a strategic window to '[o]ne of the most important sources of knowledge flows' namely 'the knowledge embodied in highly qualified personnel which flows directly from research institutes to private' (Wolfe and Gertler, 2004, p. 1076).

In the Netherlands, the Faculty of Architecture Delft, <10 kms from Rotterdam, is obviously important. One could even argue that this is the 'anchor' institution, or in other words, the necessary initial condition for the Rotterdam cluster. Koolhaas and a host of other strong-idea architects have taught there. The Rotterdam-based Berlage Institute should also be mentioned. According to one respondent, at the Berlage Institute '90 per cent of the students are from outside the Netherlands' and which is 'important for networks... and contributes to the architectural climate' (AP2). The conferences and lectures organized by the Berlage Institute are seen as very important, not only to listen to famous Dutch and foreign architects but also to meet each other and exchange the latest gossips about who is hot in architectural design and who is not (KI9, KI2). The same is said about the lectures of the NAI: 'important for young firms' (AP13).

Another essential component of the institutional framework is the intricate web of committees, boards and architectural juries that decide self-reflexively in peer-review procedures over design competitions, exhibitions and grants. Due to the extensive grant

system in the Netherlands, there are many slots to be filled and many respondents were in one way or another involved in this. These committees and boards serve as *gatekeepers* that control access to assignments and grants, which are crucial for start-up firms and they clearly also offer contexts for face-to-face meetings with other important players in the architectural field. Again, one respondent mentioned the existence of highly personalized conduits. According to him as there are many couples with, for example, one working with an architectural practice and another one with grant-giving institution (KI2). The architects I talked to, typically realize the importance of this institutional set-up for reproducing the architectural culture and were usually willing to invest in this infrastructure generating positive external effects even though the direct benefits for them seemed negligible.

Identifying the more informal institutions for the exchange of information proved rather difficult. There is some evidence for the existence of specific spaces in Rotterdam (cafés, nightclubs and discos) where (young) architects regularly meet (cf. Zukin, 1995). There is, in addition, an important conduit, that started as an informal institution. A complete football competition for architects, named *Archicup*, is organized in Amsterdam in which employees of about 50 architectural practices participate (<http://www.archicup.nl/>). Unsurprisingly, ‘... a lot [of information] goes around there’ (AP16). In Rotterdam, ties proved to be weaker as only a yearly tournament is organized.

These dedicated formal and informal institutions are part of a thick, localized institutional web that underpins learning and innovation in architectural design in Rotterdam. They seem, however, to be less important as conduit for knowledge than the formal channel of labour mobility (see also Cumbers and Mackinnon, 2004, p. 967). These institutions, however, appear to play an important role in incorporating young architects from abroad in the Rotterdam cluster who start as interns or trainees and then work their way up, sometimes to become owners of their own strong-idea practice themselves.

5. Conclusions

Cultural industries are becoming more important as generators of wealth and jobs in advanced urban economies. Understanding how they are embedded in these cities and how this is related to their capacity for innovation and, hence, competition becomes more and more crucial. The case of Superdutch architects provides us with glimpse of an innovative cultural industry that is clearly linked to specific places, namely Rotterdam and Amsterdam. Based on the views from the flexible specialization literature, it is often assumed that firms in cultural industries form dense, localized inter-firm networks, which display a highly developed division of labour and are linked through traded interdependencies as one firm provides the highly specialized input for another (Scott, 2000, 2006; Bathelt, 2003). To sustain this fine fabric of relationships and to be able to reproduce the highly skilled and specialized labour that constitutes the *sine qua non* for every innovative industry, these firms are supposed to be embedded in wider social, cultural and institutional context of untraded interdependencies (cf. Storper, 1997). As architectural practices in Rotterdam indeed display the key ‘technological-organizational elements’ as identified by Scott (2000, pp. 11–12)—considerable direct human involvement, dominated by small and medium-sized establishments, specialized local labour market and emergent effects in terms of institutional infrastructures—it seemed a highly *typical* case of a cultural industry. In line

with an important strand in the literature on cultural industries, I expected the project-ecologies to be a dominant organizational format and node for the exchange of knowledge in architectural design as has been shown for other cultural industries (cf. Grabher 2002b; Eikhof and Haunschild, 2007).

Quite contrary to what was expected, I did not find the dense inter-firm networks in the case of Dutch strong-idea architectural practices. Although they are indeed spatially concentrated in the largest two Dutch cities, Amsterdam and Rotterdam, and sometimes even share open-plan office spaces, they tend to work on their own; afraid that collaboration will dilute their design and signature and thus may blur authorship (cf. McNeill, 2005). High walls exist between firms and almost no project-based inter-firm organizations have been found. The drive to create an eye-catching building with the architect's own evident signature prevents project-based forms of collaboration as in that case the authorship of the design threatens to get blurred. Project-based formats are, arguably, not very conducive where individual authorship is very important and, consequently, limited to a specific part of the knowledge-intensive activities (advertising, finance) where collective authorship is the norm. From the perspective of much of the literature on cultural industries, the architectural practices turned out to be rather atypical. Theorizing networks in cultural industries should, it now seems, include the nature of the product and its relationship to the firm. The design of a building is so much part of the identity or brand of the strong-idea practice (cf. McNeill, 2005) that this constitutes symbolic capital for that firm. Inter-firm collaborations would dilute this source of competitiveness (and of personal satisfaction for the strong-idea architect).

Spillover of knowledge does occur, however. The bridges that allow this spillover conducive to innovation are mainly to be found among the young workers, many of them from outside the Netherlands. More specifically, the way labour is embedded is key to understand the localized capacity over time to come up with innovative designs. The fame of Dutch practices partly in the wake of Rem Koolhaas, the favourable opportunities for young, innovative architectural practices to get grants and even to get their designs actually build and acclaimed educational institutions as the Berlage Institute attract a large labour pool, increasingly from abroad. Tapping into this global labour market has the consequence of further spatial concentration in the Netherlands as most of them only want to live in cosmopolitan cities with an array of amenities (cf. Florida, 2002). Highly mobile and often in close touch with their counterparts, they can move from one strong-idea practice in Rotterdam to another there or one in Amsterdam and in the process accumulate as well as distribute essential knowledge on innovative architecture. The well-developed firm-internal mechanisms for stimulating spin-offs and thereby reproducing a particular ('Superdutch') *habitus*, on the one hand, and the well-developed national institutional framework of grants and chances to build, on the other, are two main pillars on which the more enduring innovative capacities of Dutch architecture rests. The spatial concentration indeed facilitates the spillover of knowledge and also enables the development of an intricate network of *untraded* interdependencies (e.g. through boards, juries, schools of architecture, and even football competitions).

These localized untraded interdependencies manifest themselves most clearly in the embeddedness of labour. What we see, especially in Rotterdam but given the strong ties with Amsterdam also there, is a local production system that is intimately linked to what Allen Scott (2000, pp. 32–33) has called a *place-based community*. The Superdutch architectural practices are manifestly part of these place-based communities, which are

‘...not just foci of cultural labor in the narrow sense, but also active hubs of social reproduction in which crucial competencies are maintained and circulated’ (Scott, 2000, p. 33). We have also found strong evidence of ‘comparatively homogenous collectivities’ especially among the young workers and the many partnerships between them are perhaps the best example of the engaging in ‘mutually complementary and socially coordinated careers’. The institutionalized mechanisms for spin-offs are a way of ‘connecting generations of workers to one another through time’ and for transferring ‘accumulated interpersonal cultural capital’ (Scott, 2000, p. 33). The intertwining of formal and informal educational trajectories (for instance, the combination of the Berlage Institute and the OMA as post-graduate schools) are the highly localized ‘distinctive institutional infrastructures’ for reproducing labour (including the habitus that covers traditions and conventions). Superdutch is, therefore, based on a combination of this place-based community and a favourable opportunity structure (on higher spatial scales: national and international).

Cultural industries are becoming one of the mainstays of urban economies (Scott, 2004, 2006; Currid, 2007). The findings for the case of the Superdutch architectural practices have also wider implications for how cultural industries must be seen. First, that innovation and competition on quality are not automatically leading to high wages and good overall working conditions. Many of the young, mostly talented and highly motivated employees have to work very hard to earn a living. Their position resembles that of apprentices and journeymen in medieval guilds, learning the ropes from the master in his workshop and acquiring through face-to-face transmission the necessary habitus for moving upwards. Nowadays, however, the relationship is much more monetarized and less reciprocal. Only a few become highly successful (fame and fortune) as celebrity architects (cf. Sklair, 2005) in these *winner-takes-all markets* characterized by a continuous oversupply. Second, opting for such a career implies that cultural industries are dependent on another species than the *Homo Economicus*. Status as a creative artist and the ability to make one’s own decisions is more important than mere profit maximizing (cf. Amin and Thrift, 2007). Many interviewees have referred to other drivers than mere financial motives (AP3, AP10, AP13). In addition, several interviewees said that they did not want their firm to grow beyond a certain limit because this would exceed their span of control, in the sense they could not determine the design of the building (AP4; AP24). They thus, fall squarely under the strong-idea architects who are primarily design-oriented and not business-oriented (cf. Gutman, 1988). Third, the commodification of culture and economization of cultural industries have made these economic activities into promising avenues to urban growth. However, quality and innovation in cultural industries are not only contingent on talent but also on being embedded in other than just profit-maximizing relationships. Creators who are primarily interested to make something beautiful and not profit, grant-giving institutions and far-sighted clients that recognize and stimulate this drive towards quality and innovation are crucial for the long-term success of cultural industries.

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Appendix 1

Fieldwork

Architectural practices (alphabetical order does not correspond with the coding of the architectural practices)

Architectenbureau K. van Velzen, Hilversum

Architectenbureau Micha de Haas, Amsterdam

Architectenbureau Marlies Rohmer, Amsterdam
Architectuurstudio Herman Hertzberger, Amsterdam
Atelier Kempe-Thill, Rotterdam
BAR architecten, Rotterdam
Bentham Crouwel Architecten bv
Broekbakema, Rotterdam
CASANOVA + HERNANDEZ ARCHITECTEN, Rotterdam
Claus & Kahn Architecten, Rotterdam (Amsterdam)
DaF-Architecten, Rotterdam
de Architecten Cie., Amsterdam
Erick van Egeraat associated architects (EEA), Rotterdam
Jo-Coenen & CO, Amsterdam (Maastricht)
Kuiper Compagnons, Rotterdam
Mecanoo Architecten, Delft
Meyer en Van Schooten Architecten BV, Amsterdam
MVRDV, Rotterdam
Neutelings Riedijk Architects, Rotterdam
NL Architects, Amsterdam
NOX Architecten, Rotterdam
Office for Metropolitan Architecture (OMA), Rotterdam
S333 Studio for Architecture and Urbanism, Amsterdam
UN Studio, Rotterdam
West 8 Urban Design and Landscape Architecture, Rotterdam
Wiel Arets Architect & Associates, Amsterdam (Maastricht)

Key Informants (alphabetical order does not correspond with the coding of the key informants)

Aaron Betsky, director of *NAi*, Rotterdam
Adrie Duijvenstein, former director of *NAi*, Rotterdam
Bernard Hulsman, architecture critic, *NRC-Handelsblad*, Rotterdam.
Hans Oldewarris, director and founder of *010 publishers*, Rotterdam.
Jannie Rodermond, director Stimuleringsfonds voor Architectuur, Rotterdam.
Harm Tilman, Editor *De Architect*, The Hague
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