Crossing the radical edge.
Which kind of innovation can architectural design competitions produce? A differentiated approach based on housing.

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This paper investigates how the format of architectural competitions influences the degree of innovation achievable. Innovation can be defined as a new combination of means and aims. The applicability of the notions concerning innovation developed the management and social disciplines to architecture has received little attention-- especially for what concerns approaches looking at innovation in the post-modern reflexive sense, beyond technology and profit as briefly described above. Available theoretical frameworks concerning innovation in planning and design (Ibert, Verganti) have highlighted specific features that applies to these fields. The papers argue that both frameworks are relevant, as the innovation that can be achieve through architectural competitions is mostly design-driven, but in case of radical innovation it implies changes at organizational level as well. Starting from the differentiation between radical and incremental innovation along the Verganti's model, the paper compares the process foreseen from three competitions set-ups for innovative housing design (IBA Hamburg, Europan and the Vienna system of subsidized design and build housing competitions) with two processes where housing innovation was achieved without a competition (Borneo Sporenburg, Amsterdam, 2000 and Cité Manifeste, Mulhouse, France, 2005). The question of how and when the alignment between the different innovativeness of the relevant actors (architect, developer and sponsor) can happen represents an essential difference in the case studies analyzed. Processes not based on competitions are able to integrate a dialogue between the actors that will facilitate this alignment as well as create a fruitful exchange that can move the team nearer to a solution. The design of competitions aimed at innovation will need to cater for the hows and whens of this alignment. Exchange and dialogue are needed, because of the complexity of the task and of the positions of the various actors. While a dialogue happening too late might put the implementation at risk, to confront innovation with the requirements of implementation from the beginning on might reduce the innovativeness of the proposal. As well, similarly to what described concerning the relevance of the design industry leaders, also in the analyzed processes radical innovation could be achieved (both with or without competition) when at least one key actor on the client's side took upon himself the role of care-taker of the innovative vision, becoming kind of invisible motor in the process. An integrated perspective is necessary, looking not only at the competition phase but at the whole process, from conception to implementation and use.

Keywords: innovation, radical design-driven innovation, innovation in planning architectural competition design, collective housing, dialogue-based architectural competitions.

Introduction

It is a common assumption that the competition format is conducive to the production of innovative design solutions. Yet the question of how the format of architectural competitions influences the degree of innovation achievable is little researched, as little attention has been given about how to understand and categorize innovation in architecture, especially innovation based on design and not technological advances.
The aim of this paper is to question how different competition settings influence the possibility of achieving innovative design solutions and the degree thereof. This paper will thus first review available theoretical frameworks concerning innovation in design and planning, and then compare how the processes/conditions highlighted in these frameworks are reflected in five processes from the field of collective housing. In the selected case studies the achievement of innovative design was declared as important aim of the process. Three of these processes used the open competition setting; in the other two cases architects were directly commissioned. The restriction of the analysis to the field of collective housing—thus to one family of products—is thought to allow an easier comparison of the innovations achieved. The sources used to analyze these five processes include the briefs, available publications documenting the processes and the results, as well as interviews with relevant actors conducted in the frame of my doctoral thesis research.

Innovation

Innovation has been traditionally defined as a new combination of means and aims that produces an added value of some kind. The traditional view of innovation referred to the process of profit-driven manufacturing and linked the possibility of an added value with a form of technological advance. Today innovation is increasingly understood as something that goes beyond technological change. As a result it includes products and processes that have nothing to do with technique, such as social innovations, political innovations, new lifestyles. Also included are measures that do not necessarily raise efficiency or profit, but still can bring an advantage, such as environmental strategy, sport, communications, as the understanding of post industrial innovation has moved beyond industrial production/manufacturing and its enterprise organization.

This wider notion makes of innovation something less clear-cut. It cannot be protected through patents, and it is increasingly steered rather through networks, than by singular individuals or enterprises, as suggested by studies on lead user-developed innovations for products ranging from open source software to high performance windsurfing (van Hippel 2002). If industrial innovation could be made started in the research laboratory of a company by a group of inventors matching users profiles with new products, post—industrial innovation - also called ‘reflexive innovation’- happens outside the lab, in a global context connected via networks of different kind. Behind it we find a much more heterogeneous and diversified group of actors that need to act in multiple contexts and with increasing reflexivity (Rammert 1997).

Distinction between radical and incremental innovation

The applicability to architecture of the notions concerning innovation developed by the management and social disciplines has received little attention—especially for what concerns approaches looking at innovation in the post-modern reflexive sense, beyond technology and financial profit. Yet these notions might represent an important starting point to answer some of the questions raised by the call for papers.

In order to describe innovation economists have introduced the distinction radical versus incremental innovation. This dichotomy refers to the degree of innovation
contained in certain changes, and presupposes that there are substantial differences between the two kinds of innovations in terms of impact on the existing set up and response they require from the management and the users, thus they should be considered separately.

This dichotomy applies to the internal dimension of the organization introducing the innovation (knowledge, resources): incremental innovation is ‘competence enhancing’, as it is based on the existing set-up, while radical innovation is ‘competence destroying’, as it requires a totally new set-up. It also applies to the external dimension (the market itself, including the users): incremental innovation does not annihilate the competitiveness of other products on the market, while radical innovation does. Radical innovations make existing products obsolete and non-competitive, while challenging existing users’ expectations and needs (Abernathy Clark 1985).

These two dimensions can, but do necessarily have to, coincide. Innovations radical in terms of change required in the producing organization might be only incremental for what concerns the final users and the market they represent (see for example the electric car). On the other hand a different keyboard can be produced with little change to the existing production processes, but requires a radical response from the market and the users.

According to the American the sociologist and statistician Rogers who first draw attention to the relevance of innovation adoption processes (Rogers1983), innovation decisions have to do with the evaluation of the specific characteristics of the innovation, and will be driven by cost-benefit analysis and by uncertainty. Adopting innovation is about believing in an advantage, in terms of costs, efficiency/performance, or even status. However, the adoption rate will also depend on how compatible the innovation will be with previously introduced ideas and values, as adopting something new and unfamiliar- even if of potential benefit- involves a large dose of uncertainty. The decision to adopt will also depend on the innovativeness of the ones adopting it. In Rogers’ definition (p.36) innovativeness is ‘the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system’. People have, in other words, different degrees of innovativeness and deal differently with the risk taking involved when going for a radical decision. The degree of innovation, its being incremental or radical, is reflected in the level of risk involved both in producing and adopting it. It will therefore strongly influence both the decision to produce it and also how the final users will react to it.

In the competition setting design submissions strategies have been distinguished between designs that implement the brief and the ones looking for a creative solution (see for example Manzoni et al, 2012). The perspective in these analyses is that of the architect and how he manages business approach versus creativity. The radical/incremental innovation dichotomy perspective relates however to the whole process, starting from the competition setting in itself. Radical solutions are in fact more difficult to achieve, because they often imply a new set-up at many different levels, and might not happen under standard setting. Therefore the question if and/or how radical solutions be achieved under ‘standard’ conditions of architecture competitions is relevant. But what can be said about radical innovation that is design-based and not technology based? What are the specific conditions and barriers?
Radical and incremental innovation in design: the model of design-driven innovation (Verganti)

By changing the meaning of products, design can also be the motor of radical innovation, as suggested in the model of design-driven innovation developed by the Italian management researcher Roberto Verganti. Radical innovations move ‘outside the spectrum of possibilities of what people knew and did’ (Verganti 2009, p.52). Radical innovations move beyond the immediate fulfilment of existing users’ needs on the basis of existing models and creates a new meaning of the product Incremental innovations move instead within the adaptation of existing socio-cultural models, and represent de facto small ‘breaks’ within the status quo.

While this model was developed for design products, it can be applied to architecture and to the work of architects. A first connection between the notion of design-driven innovation and architecture is the shared background of the actors involved: design-driven innovation, intended as an innovation that is born out not of users’ needs, but out of an interpretation of societal trends and dynamics, and thus represents a jump – was mostly developed within the Italian design industry - for example Alessi - and was mostly the outcome of a collaboration between architects designers and entrepreneurs with a vision. These collaborations were not intended to find a better functional solution to a given problem, but were aimed at creating a new and better interpretation of the problem, thus establishing new meanings about what specific products are about. This in essence a vision shared by architects who are willing to search creative design solutions in a wide societal perspective and not simply implement a given brief. Architects as well can understand their task as not only about solving given problems, but also about finding ways to conceive space for given needs, in a perspective not necessarily prioritizing the immediate user, but looking ahead, at the development of society as a whole. In this perspective, radical interpretations are the most interesting ones and design becomes a critical process that is aimed at innovation as a new interpretation of the meaning of a product and not at creative problem solving.

The basic principle of radical design-driven innovation is that designers act as interpreters. Through their interpretation they produce a novel meaning and envision a new context of life for the product. Their reference is a wider perspective on the changes in society, culture and technology, what can be defined as the ‘design discourse’. This discourse is an informal diffused research process shared by other parties interested in the meaning of things, such as architects, suppliers of raw materials, editors of magazines and other media, universities and design schools, hotel and exhibitions designers, consultants in the sociology and anthropology of consumption (Verganti 2009, p.118).

In the process analysis of Verganti design-driven innovation results out of a collaboration between designers and company leaders interested into implementing radical visions and willing to take the risks involved in it. As described by one of them (Alberto Alessi in Verganti p.109), it is about ‘walking the unknown path’ and being able to ‘move on the enigmatic borderline between what could become real (…) and what will never become real’.

Innovation in planning
While the perspective of design-driven innovation provides a relevant framework in terms of definition of what an innovative architectural design radical in nature is and does, in architecture competitions the clients or sponsors are very often public actors, and not private entrepreneurs. In these cases the issue of innovation has to be looked at also in terms of planning, and of the connected political and administrative decision processes.

Innovation is in fact an important issue also for political and administrative systems. These systems are often confronted with ‘new’ problems that can not be solved with usual tools (such as revitalization of industrial areas, shrinking cities, sustainability, integration of migrants, or creation of housing attractive to specific users groups). For such problems regions and/or cities need to develop new approaches and innovative solutions for innovation deficient sectors. The issue is particularly relevant in the current context of competitiveness among the so-called ‘learning regions’ and regional innovation systems, where ensuring the possibility of innovation in planning is part of necessary collective survival and success strategies.

The planning disciplines represent a specific case of policy innovation, and have in the last years joined the debate on how to implement innovative solutions, and which barriers need to be confronted. The planning context follows in fact a different logic than the manufacturing and service sector, if not in toto at least in substantial parts (Fürst and Knieling, 2002; Ibert, 2003; Häußermann and Siebel, 2004). In particular risks will need to be minimized, as the innovation process within a political context and system has higher transaction costs than ‘individual’ innovation processes. Therefore the planning sector has specific difficulties to pursue radical innovation.

As top-down processes, possible in manufacturing or services, do not apply here, planning innovation has a lot to do with breaking existing routines, changing mentalities, creating the possibility of new approaches from within, in order to confront open-ended questions. This means that planning innovation needs to be organized as a learning process.

It has been noted that particular efforts are needed to separate the consensus reaching process – necessary in planning and administrative systems - from the innovation phase (Fürst and Knieling, 2002). These two processes (consensus reaching, innovation) are in fact steered by opposite logics, and will in the end tend to neutralize each other. Separation in terms of phases (first the idea, then the administrative part) or in terms of institutions (separation between the ones deciding the innovation and the ones implementing it).

Looking at a series of innovative projects realized as part of the EXPO 2000 Hannover and of the IBA Emscher Park, Ibert (2003) suggested as well that extra-ordinary events are possible tools to break the status quo and create a starting point for innovative planning. Possibly architectural competitions can also act in this sense. The advantage of the connected ‘charismatic effects’, is that they work as communication vehicle for the new both towards the involved actors and towards the outside of the organization. They also fulfill the somehow narcissist need of recognition of public administration. In this sense they open planning innovation to marketing and ‘packaging’ strategies (Ibert, 2003, p.88).
What discussed for the planning context makes clear that next to the object-related layer, innovation – especially once the public hand is involved- will also have to work on a **organizational level**. Ibert writes: ‘The innovation task changed the object of urban and regional planning- innovation oriented planning is ‘immaterial’ planning’ (Ibert, 2003, p.36, original text in German). It is not about the hardware of a city or a region, but about the software, and about the management of the required complex and interactive communication process.’

**Competitions and housing innovation**

Housing production very often involves public competitions of different kind calling for innovative approaches to compensate for a general lack of innovation within this sector. There are in fact relevant public interests at stake in producing housing that is affordable and that can perform both over the short and long term, reacting to an increasingly fast changing society. As private market forces rarely have been able to fulfil these requirements, there is in Europe a long story of state intervention in housing. Today however interventions are mostly steered through indirect object subsidies to private developers (both commercial and non-profit ones), often with a competition attached calling for innovative proposals able to cater for new societal trends.

Because of this combination- the fact that competitions are common in the provision of housing in many European countries, and innovation is a recurrent and relevant theme in these competitions – housing provides an interesting and wide enough field of research in relation to the question of how the setting of a competition relates to the potential of achieving innovation and/ or which degree there of.

Housing competitions across Europe come in a variety of formats. Next to delivery-oriented competitions, such as property developers’ competitions (Case study 1), there are many open formats such as Europan (Case study 2) or the ones connected to extraordinary events such as the German *Internationale Bauaustellungen* or IBA (Case study 3) where the aim is to achieve prototypical solutions, trend setters, housing beyond current standards. A detailed overview of these case studies is provided in the appendix.

These three formats of architectural competitions all include innovation as part of their stated aims. Yet innovative results radical in nature happened when innovation had a clear priority and relevance, in the brief as well as at political level. Where a balance is sought between innovative design and other more standard aims (for example sustainability or affordability) incremental innovation is the most likely result, as for example is the case of the Viennese property developers’ competitions. A **specific focus on innovation** is in fact needed as radical innovation will hardly happen by chance.

The question of **how and when the alignment between the different innovativeness of the relevant actors (architect, developer and sponsor) can happen** is central and represents an essential difference in the setting of the competitions analyzed. In the case of the property developers’ competitions, by directly involving a designer -developer team, the alignment between architect and developer – fundamental to reach implementation -happens within the initial phase of the project and is sealed by the selection of the bid. Yet on the developers side the aim of the innovation is linked to the need of getting access to the site, so it is not – or only in part- an own interest, it is a...
‘must do’ for the developer, and not necessarily a ‘must have’. Once the team has won the bid, the ‘care taking’ is mostly left to the architects, but the final decision power is in the hands of the developers. This might cause little attention being given to the actual implementation of the concept, making innovation more strategic packaging of the design than real substance. On the other hand, the involved developers have a binding commitment to realize the competition proposal. This cannot result in a building completely different from the proposed design or in no building at all. In this lies a great potential for incremental innovations that might secure the bid while still limiting the risks on the developer’s side.

In the case of Europan, even if relevant decision makers are part of the jury, there is no binding commitm ent on their side to implement the selected project. Because of this lack of connection, winning an Europan competition is no guarantee of implementing the proposal, and many of the projects will never become reality. The alignment of the innovative concepts with the expectations of the involved players- especially the ones who will carry the risk of it- is expected to happen during the jury session and in the following stages, but this is often very problematic. According to the current president of the organization Thomas Sieverts (Sieverts, 2011), competitions such as Europan are more the starting point of a long process that often excludes the winning architects. Therefore in order to still preserve the obvious qualities of the open setting of Europan, it is necessary to include in later stages ‘other competitive formats which should be part of the competition brief from the very beginning’. He suggests that this also has to do with an increasing complexity in the planning and building processes in which architects will have to take new positions.

The example of the competition Smart Price Houses for the IBA Hamburg 2013 shows a possible middle way. The setting combined an open competition calling for innovative approaches in the first phase, together with a second phase where the selected projects could be further developed and then presented during a fair to interested developers who could choose not only the site to bid on, but also which of the two projects to realize. In this setting, the competition’s jury has given away part of its decision power, as it makes a first but not a final selection of projects for the different sites. It is then up to the developer to select which project that will be realized. Yet, in the case looked at in detail in this paper, the fair did not work. Possibly because of the far reaching radical aspects of the proposed design- based on the idea of providing to the users a basic multilevel structure and not a finished building - no standard housing developer was interested. The developer who eventually stepped in was introduced to the architects directly by the chef of IBA and was de facto an outsider for what concerns housing, his fields being office buildings.

This further suggests that radical innovation might need to move out of standard set-ups also in terms of actors, not only in terms of process. This is of course not easy, as it represents a further unknown. A high pressure due to the exceptional setting of an international event such as the IBA also leads to the definitive need to move from the drawing table to the construction site and might help. Still much depends in the end on how and with which resoluteness the actors involved manage the unforeseen and therefore also on how much relevance the innovative aims have for them. Are the actors really interested in taking risks involved in delivering something exceptional, or will a more standard solution also work? Is the realization of the innovation a must?
To conclude, it seems that in order to be effective in terms of delivering a built building, the design of the competition aimed at achieving radical innovation needs to confront two contradictory requirements: it has to provide enough freedom for innovative proposals that might imply a new and not yet foreseeable organizational setting, and still providing an organizational setting. This means that predefined settings need to be complemented by the possibility of one-off solutions that cannot be predicted in advance.

**Housing innovation without competitions**

The previous analysis of competition settings showed that in order to be effective the implications of a design-driven innovation need to be catered for at organizational level. Yet in all the three cases the design itself was developed on the basis of a predefined brief and ‘within’ the submitting practice or team. Thanks to ability of ‘reading’ the brief and interpret it, the team managed to match the expectations of the jury. But are competitions the best way to achieve innovative interpretations or can innovation more effectively achieved otherwise? What are the advantages and what is missing?

In order to start answering this question, two processes of well known housing design-driven innovation that have not relied on competitions have been reviewed. The first case (Case study 4) concerns the masterplan for the Borneo Sporenburg site, Amsterdam Eastern Harbour (2000), developed by the Amsterdam Planning Department with the aim of creating a new urban housing typology. The second analyzed process (Case study 5) concerns the *Cité Manifeste*, a smaller rental housing project in Mulhouse (France), developed to test how the performance of subsidized affordable housing can be raised while.

Other than in competitions, in these projects the design innovations emerged out of collaboration and exchange. Both projects involved *workshops of some kind* and intense dialogue between the actors involved. This was for example the case for Borneo and Sporenburg, where the typology able to respond to the masterplan’s vision and to the developer’s expectations was found in a workshop, after a competition failed to deliver an innovative design deemed to work. Or in Mulhouse, where the architects were directly selected by the client’s side and were asked to cooperate together through an intense series of workshops, in order to make sure that their ideas could as well ‘work together’. Here the relevant collaboration was not only between architects and clients, or architects and experts, but also - and maybe surprisingly - between different architects/planners, who could profit from each other’s ideas and creativity, even if this meant renouncing to part of the authorship’s claims. For this to happen, architects had to be able to work in such collaborative settings.

The role of the innovation care-taker (in Amsterdam, the director of the Planning Department, in Mulhouse the director of the non profit developer) appears here more clearly cut than in the competitions processes described before. These actors initiated the project, defined the aims of the innovation and where involved all along the process. They not only steered the project through the difficult patches and are the main risk-takers at a personal level, but they were part of the design process as well.
Compared to competitions, there appears to be a higher degree of flexibility in the processes here considered and at the same time a stronger idea from the beginning on about what needed to be achieved. This flexibility is especially relevant for what concerns the possibility of changing direction if needed, without stalling the whole process. This was especially clear in Amsterdam, when the competition did not bring the expected results, but also in Mulhouse, when the bidding procedure for the construction had to be repeated and some exceptional measures had to be devised in order to explain the project to potential contractors.

For what concerns the necessary resources, the analysis also shows how time and personal involvement are essential once innovation and especially radical innovation is sought after, and not necessarily construction money.

Crossing the incremental-radical edge.

What discussed above implies radical design-driven innovation can be achieved both through architectural competitions and as well other more dialogue-based processes. Non-competitive, dialogue-based processes might be easier to steer, and appears to have worked well especially in front of specific expectations of some kind (find a typology that incorporate an own front door with high density requirements, or develop new approaches for affordable housing based on a specific site) developed by a visionary but delivery-oriented client. The value of competitions, on the other hand, lies in the fact that they are democratic system open to newcomers and potentially more far reaching than other selection procedure, they can be more charismatic, and this charismatic effect might include also the developers pushing them to more experimentation and to take more risks if involved from the beginning on (see for example IBA).

As radical innovation is about crossing an enigmatic edge and chartering unknown territories, no setting will give a 100% guarantee that a satisfactory radical result will be found. However, the case studies have highlighted a series of conditions that might help move the results of a competition move from incremental to radical:

**Open formulation of the brief**
The brief needs to provide enough free spaces and constitutes a project in itself. As radical innovation it is not about fulfilling the task, but defining the task anew, strict requirements and prescriptions should be reduced to the minimum possible.

**Relevance of dialogue**
Specific attention needs to be given to how and when relevant actors other than the architects will be involved and to their risk-taking rationale. Radical innovation needs a dialogue between the interpreters and the ones in charge of the implementation, in our case between architects, clients, planners, developers, users. This dialogue represents an important phase on its own right, as it implies conflicting perspectives and adjustments in order to align the different innovativeness of the various actors. The degree of innovation effectively achievable will strongly depend not only on the submitted design proposal, but on how far the relevant stakeholders might go, thus if the organisation behind the call for innovation is open to the implications of radical change. As the alignment of the innovativeness of the involved actors is an essential aspect of
the process, the design of competitions aimed at innovation will need to cater for the hows and whens of this alignment.

The case studies have shown that a dialogue happening too late might put the implementation at risk (see for example the IBA) but as well that to confront innovation with the requirements of implementation from the beginning on (as in the case of the property developers’ competitions) might effectively limit the degree of innovation achieved. The format of this dialogue, and it inclusion or not in the competition phase is therefore a very relevant question that needs to be confronted. New forms of competitions that include the possibility of a dialogue (dialogue based architectural competitions) should be considered. This format of competition is of quite recent use in architecture – at least for what concerns public procedures. It is used in German speaking contexts for situation for projects where the brief is not yet definable. In Nordic countries the use has been documented also as a way to ensure efficiency (reducing the number of entries) while helping submission to correctly interpret the needs of the client and enhancing creativity (reported by Kreiner, 2010). However further research should pay attention to how dialogue based competitions could be used as a way to come to more radical solutions.

**Role of ‘care-taker’**

Similarly to what described concerning the relevance of the design industry leaders, also in the analyzed processes radical innovation could be achieved (both with or without competition) when at least one key actor on the client’s side took upon himself the role of care-taker of the innovative vision, becoming kind of invisible motor in the process, making sure that the initial aims were not lost along the way. The more power and involvement the care-taker had, the more of the innovative result could be achieved. The role ranged from initiating the project, defining the brief of the project and the expectations of the project, steering of the ‘free spaces’ for the design and managing the risk. Paradoxically, they took the responsibility for potential failures, even if in case of success their role was not fully recognized. The recognition of the importance of a care-taker does not mean that architects are less relevant, but that the inventive power of the architects needs to be accompanied by another kind of power that could steer the project along the process. Only when these two powers were aligned and could share the aims, radical results were achieved.

**Accepting failure as possible outcome**

Competitions might fail. A failure will translates in a loss of credibility for the ones running the competition and there is a risk of ‘packaging’, meaning by this that standard solutions will be marketed as innovative because they resulted out of a competition. Competitions looking at achieving radical innovation should not rely on the expectation that a winner will be found in any case.

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1 Dialogue-based competitions have been criticized for a variety of reasons. The lack of dialogue is seen for example by the Architects Council of Europe as an important guarantee for protecting the copyrights of the participants as the client is practically in a position to shuffle ideas from one project to another. (Pendl, 2011). Moreover, this format has also been thought to neutralize creativity as it create a safer field for architects to move on (Kreiner 2010).
Directions for further research

Failures and restarts are part of the search for innovation. A high level of uncertainty will invest the whole process of radical innovation, including the implementation and the use phase, not only the competition phase. If in the innovation process competitions represent an important piece, but not the whole, it seems important to develop more integrated perspectives, looking at how different formats of competitions and non-competitions based phases can work together and how change and risk can be managed at different levels (material and immaterial, design-driven and organizational). In a time in which the role of architects is changing, moving from building to strategy and specialization, a better understanding of design-driven innovation processes in architecture and planning might represent an important resource not only for the architects themselves, but as well for other stakeholders in the planning sector.