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UNCERTAINTIES AND POSSIBILITIES: EXPLORING INNOVATION IN ARCHITECTURE BASED ON OPEN DESIGN COMPETITIONS IN FINLAND

HEINI-EMILIA SAARI, OSCAR PERSON AND MATTI VARTIAINEN

Design competitions form an essential part of architectural work and are widely associated with innovation in architecture. Yet despite scholarly interest in both design competitions and innovation, empirical studies into their relationship in architecture have remained limited. This article puts forward a multidimensional understanding of architectural innovation based on an analysis of documentation from 37 open design competitions in Finland, an architectural context where there is a long-standing and active commitment to design competitions. Three main types of innovation are identified from a wide range of references to innovation in the studied documents. Nevertheless, in a number of competitions, innovation did not emerge as a prime concern, and references to innovation appeared inconsistently. The study thus underlines both the potential diversity and uncertainty of innovation in architecture, while also questioning it's taken-for-granted status in design competitions. The findings call for a more nuanced consideration of the meaning, scope and practices of innovation in architectural projects and competitions where innovative outcomes are desired.

Keywords:
architecture, innovation, design competition, evaluation

Introduction

Design competitions constitute a prominent practice for translating urban aspirations into new architecture. Set apart from "standard consultation exercises" (White, 2014), competitions are celebrated as "vehicles for the release of creativity, vitality, new talent and new ideas (...) creating opportunities for renewal and change in the built environment" (Strong, 1996, p. 29). In particular, competitions are seen to foster innovation by opening up opportunities for young or unknown designers (Andersson et al., 2016; Lehrer, 2011; Lipstadt, 2003; Katsakou, 2009), facilitating design exploration, experimentation and creativity (Lipstadt, 2003; 2009; Rönn, 2018a; 2018b), generating diverse alternatives and ideas (Lehrer, 2011; RIBA, 2017; Rönn, 2018b), pushing back on established conventions and elites (Katsakou, 2009) and endowing designers with the experience of greater artistic freedom than in their day-to-day practice (Lipstadt, 2003; Till, 2018).

This article examines how the open design competition, widely held as an especially productive arena for innovation, cultivates innovation in contemporary architecture. In analysing documentation from open design competitions in Finland, this article pursues two aims: it explores the scope and meaning of innovation articulated in competition documents and interrogates how pursuits of innovation appear in competition processes.

The idea that innovation occurs in design competitions draws on canonical cases in the history of architecture, such as the Sydney Opera House, the Jewish Museum in Berlin and Parc de la Villette in Paris (Larson, 1994; Lipstadt, 2003; 2009; Till, 2018). It is also brought forward by practising architects and planners (Bern, 2022; Bloxham et al., 2018; Davison et al., 2018; Forlati, 2014; Kazemian & Rönn, 2009a; 2009b; Larson, 1994; Rönn, 2009), experts and policymakers (RIBA, 2017; ROTI, 2017; SAFA, 2013; UIA, 2017) and scholars (Adamczyk et al., 2004; Andersson, 2012; Kazemian & Rönn, 2009b; Lehrer, 2011). However, the link between competition and innovation has also been criticized as "more ideology than fact" (Larson, 1994, p. 472) or "quasi-mythic" (Lipstadt, 2003, p. 404). For example, Tostrup (1999; 2009, p. 26) argues that instead of favouring novelty, design competitions may uphold the status quo by demanding "adherence to shared norms".

At the same time, empirical studies on the relationship between design competitions and innovation remain limited in architectural literature, especially when looking beyond reports of individual buildings and competitions. Architecture (and related fields such as urban design and urban planning) were also long absent from innovation studies (Hobday et al., 2011), a gap previously underlined by Forlati (2014), Faulconbridge (2010) and Kloosterman (2008). The one-of-a-kind nature of architecture projects (Ednie-Brown et al., 2013), their site-specificity (Styhre, 2011),

their symbolic and aesthetic meanings (Kloosterman, 2008) or public value as a common good (Katsakou, 2009) also transcend the focus on economic opportunity, performance and efficiency that was long favoured in mainstream technology, engineering and management literature on innovation (Castle, 2013; Hobday et al., 2011; Jaaniste, 2009).

That said, innovation has been deemed essential for forward-looking architecture (Ednie-Brown et al., 2013). Associated with questioning social norms (Dovey & Dickson, 2002) and rethinking society for the future (Holston, 1989; Jaque, 2019; Swyngedouw & Kaïka, 2003), for some, it is indeed what sets the work of architects apart from "mere building production" (Castle, 2013, p. 5; Ednie-Brown et al., 2013). For example, Dovey and Dickson (2002, p. 36) discuss programmatic innovations involving "the production of fields of social encounter, new functional juxtapositions, and forms of spatial segmentation" in their study of Rem Koolhaas/OMA's projects. In his seminal analysis of Brasília, Holston (1989, p. 52) characterizes the Modernist approach to innovation as "the creation of new forms of social experience" on the urban scale. Given the interest in innovation as a means of making an impact, innovativeness may even be seen as key to architects' societal relevance (Castle, 2013, p. 5; Ednie-Brown et al., 2013).

Innovation in architecture is often viewed as the exclusive domain of exceptional individuals, projects and firms (Faulconbridge, 2010; Gospodini, 2004; Kloosterman, 2008; Daniell, 2013). For example, Faulconbridge (2010) focuses on the geographies of innovation created by global architects, while Daniell (2013) foregrounds the role of entrepreneurial 'true innovators' as catalysts for spreading new ideas and interactions. However, the centring on the heroic, individual innovator has also been criticized by proponents of relational and collective architectural activity (see Jacque, 2019). Focusing on the political dimensions of innovation, Jacque (2019) urges for a shift towards collective, heterogeneous and less human-centric understandings of innovation in architecture. Innovation could then become a subversive "infrastructure" to contest linear narratives of progress and growth, signalling a radical departure from mainstream discourses (ibid.).

In any case, whether innovation is seen as a basic condition of architecture or a controversial aspiration, a foundational question remains: what constitutes an innovation in the first place?

What innovation means in architecture and how it is evaluated appears to be "in the eye of the beholder" (Kreiner, 2016, p. 55). On the one hand, innovation is commonly described as novelty; "notably new design" (Östman, 2005, p. 6), "the opposite of built heritage", or pioneering, unique spatial forms "dismissing tradition" (Gospodini, 2004, p. 232). On the other hand, some scholars suggest that the meaning of innovation

does not necessarily entail absolute newness, but differentiation (Ednie-Brown et al., 2013). Here, architectural innovation emerges from a more incremental interaction between new and old (Abel, 2017; Dal Falco, 2019; Katsakou, 2009; Picon, 2013). For example, Troiani et al. (2013, p. 12) propose viewing architecture as a "continual project of reformulation (…) but not necessarily one of novelty". Similarly, for Picon (2013, p. 129), "true innovation" requires "a reflexive stance on history and tradition". In practice, architects typically navigate between these different perspectives, balancing a "conservative acceptance of the prevailing order" and a "radically optimistic belief in the creation of the new" (Dovey, 1999, p. xii).

While such diverse – at times, even conflicting – perspectives reflect the multitude of possibilities associated with innovation in architecture, Ednie-Brown et al. suggest that the "everywhere-ness" of innovation also signals a lack of clear meaning in architectural discourses (2013, p. 11). How architects and other stakeholders of architectural projects engage in innovation – including how innovation is interpreted and evaluated – has also yet to receive the necessary research attention to root the concept into today's architectural practice. In analysing how innovation is referenced in design competitions in Finland, this article addresses this gap in architectural literature by exploring what architectural stakeholders recognize as innovative, and how such ideas are articulated and amplified throughout the competition process.

Innovation in design competition research

According to the International Union of Architects, competitions "in architecture, town-planning, landscape and other related fields are design contests to evaluate multiple proposals in a formalised procedure" (UIA, 2017). They are organized for different kinds of urban projects, from masterplans to singular built spaces and urban structures and take various formats, from open to restricted or invitational processes, and from exploring alternative ideas to seeking optimal designs based on project specifications (Lehrer, 2011; UIA, 2017). In brief, design competitions are organized – and proposals are awarded and rejected – for a variety of reasons.

That said, the core process remains largely the same. Participants submit design proposals to be "compared on the basis of a specified task, a defined programme and evaluation criteria, and anonymously assessed by a professional and independent jury" (UIA, 2017). Moreover, open competitions are especially seen as conductive to innovation, because even young designers and non-local actors with fresh views can get involved (Kreiner, 2018; Larson, 1994; Lehrer, 2011; Malmberg, 2006; Sagalyn, 2006; Strebel & Silberberger, 2017).

Two considerations shaped our approach to study innovation in such competitions. Firstly, in design competitions, even unrealized (unbuilt) proposals can shape architectural imagination and discourse, paving the way for transformations in built environments. In fact, runner-up proposals at times become as influential as the actual winners (Larson, 1994; Lehrer, 2011; Lipstadt, 2003), such as OMA's unbuilt vision for Parc de la Villette (Adamczyk et al., 2004). In other words, architectural innovations can appear not only in the form of the spaces and buildings that (may or may not) materialize from a design competition, but also in the submitted design proposals as 'intellectual goods' (Katsakou, 2009), or the procedures to invite, create, evaluate and implement them (Rönn, 2018a; 2018b). This take on innovation distinguishes architecture from much research on product innovation (e.g., Rogers, 1995; Anderson et al., 2014) where innovations are commonly identified by their implementation and their successful adoption as products in the marketplace.

Secondly, rather than the sole accomplishment of an individual, innovation in design competitions represents a "collective concern" (Rönn, 2018b), contingent on the practices of the process and the stakeholders involved. Relevant factors include the information given to the participants, the brief and evaluation criteria, and the jury's dynamics (Andersson & Rönn, 2015; Menon & Vanderburgh, 2014; Rönn, 2018a). Design competitions typically entail negotiations and contestations among various actors and their goals for the project, which all impact the scope and outcome of what is produced and awarded (Andersson et al., 2016; Bern, 2018; Cucuzzella, 2016; Lehrer, 2011; Kreiner, 2016; Rönn, 2009; White, 2014). The process can involve, for example, difficulties in reconciling technical requirements with the jury's aesthetic judgments (Cucuzzella, 2016) or tensions between private and public interests (Andersson et al., 2016).

In acknowledging the presence of such varied dynamics, the scope of innovation was in this study explored in an open-ended and inductive manner. The aim was to chart the varied and potentially shared views of the multiple actors involved, especially in terms of how those views on innovation were articulated in documentation produced at different stages of the competition process. In particular, the research objectives were to understand what was interpreted and evaluated as (an) innovation or as innovative, and how these ideas were expressed in public documentation throughout the competition processes.

Material and methods

The Finnish research context enabled the study of publicly available documents from a diverse range of contemporary design competitions that adhered to a nationally codified format. Design competitions have a prominent role and history in Finnish architecture. In the early 1900s, as noted by Nikula (2006), the absence of an established professional elite

fostered a vibrant architectural scene where innovations from design competitions were readily diffused. By the mid-20th century, Finland's modern architecture gained international recognition, spearheaded by Alvar Aalto's competition wins like Paimio Sanatorium (1929) and Otaniemi campus masterplan (1949). Since then, the idea that architectural competitions foster innovations has remained widely accepted in Finland (Kazemian & Rönn 2009a). The open design competition format also remains prestigious, seen in its public association with projects of societal importance (Holmila, 2019; 2021; Nikula, 2006), such as Helsinki Central Library (2012–2013), Guggenheim Helsinki (2014) and, more recently, the extension to the National Museum of Finland (2019).

Most design competitions in architecture in Finland are overseen by the Finnish Association of Architects (SAFA). Importantly, Finnish design competitions in architecture also involve urban planning and urban design, as urban designers and planners are integrated in the architectural profession and are often educated as architects (Aarrevaara, 2009; Nupponen, 2000). Correspondingly, the Finnish competition system does not separate between urban planning, urban design or building design projects. These are all operated by SAFA, follow the same set of competition rules and they are published on the same professional platforms, such as SAFA's bulletin Arkkitehtiuutiset and designated websites (https://arkkitehtuurikilpailut.fi and https://www.safa.fi/kilpailut/).

The study included all open design competitions published by SAFA over a five-year period (2013–2017) as a foundation for acquiring a contemporary and sufficiently varied – yet manageable – perspective on the scope of innovation in open design competitions in Finland. The material of study comprises of two types of documents: competition programmes (competition invite and brief) and jury reports, obtained for each competition from SAFA's online competition archive (https://www.safa.fi/kilpailut/arkisto/). In Finnish design competitions, the organizer creates a competition programme to communicate the conditions and objectives, including the design guidelines and evaluation criteria, 'clearly and unambiguously' to potential participants (SAFA, 2008). The jury is responsible for approving the competition programme and the conditions of participation, as well as answering participants' questions about the project. At the end, the jury's evaluations are recorded in a jury report, which is published as a public record. The jury report is produced and signed by all members of the jury, assisted by the competition secretary. In an open competition, 1/3 of the jurors at a minimum shall be architectural professionals, including "independent experts" appointed by SAFA's competition committee, and have a voting majority in the jury panel (SAFA, 2008).

The research material contained competition programmes and jury reports from 37 open competitions (3.255 A4 pages in total). The compe-

titions spanned different geographical locations, from relatively small localities such as Toijala and Hämeenkyrö, to the greater Helsinki Metropolitan Region, as well as different types of urban contexts and design and planning briefs, facilitating a varied and generative domain for conceptual analysis. A summary of the studied competitions (Table 1) follows below.

Table 1
Summary of the 37 competitions included in the dataset.

Year	Name	Type	Scope	Brief	Stages
2017	Europan 14: Helsinki	Ideas	Urban planning	Mixed-use	1
2017	Europan 14: Oulu	Ideas	Urban planning, reuse	Mixed-use	1
2017	Europan 14: Tornio-Haparanda	Ideas	Urban planning	Mixed-use	1
2017	Ylivieska Church	Architectural design	Building design	Religious	1
2017	Vantaa Aviapolis	Ideas	Urban planning	Mixed-use	1
2017	Kuopion soiva ja sykkivä sydän	Architectural design	Building design	Mixed-use	2
2017	Tampere Art Museum and Pyynikintori	Architectural design	Building design	Cultural	1
2016	Jyväskylän Kankaan sydänkorttelit	Architectural design	Urban design	Mixed-use	1
2016	Suomenlinna Länsi-Mustasaari Island	Ideas	Building design	Residential	1
2016	Tampere Hiedanranta area	Ideas	Urban planning	Mixed-use	1
2016	Seinäjoki Törnävä Hospital area	Ideas	Urban planning	Mixed-use	1
2016	Myllykoski Church	Ideas	Building design	Religious	1
2016	Tapio Wirkkala Rut Bryk Archive	Ideas	Reuse, concept design	Cultural	1
2016	Kauniainen City Hall block	Architectural design	Urban design	Mixed-use	1
2015	ARA Vartiosaari	Architectural design	Urban design	Residential	1
2015	Rajalta kotiin	Architectural design	Reuse, building design	Residential	1
2015	Extension to Alvar Aalto Museum	Architectural design	Building design	Cultural	1
2015	Jätkäsaari Primary School	Architectural design	Building design	Educational	2
2015	EUROPAN 13: Espoo	Ideas	Urban design	Mixed-use	1
2015	EUROPAN 13: Jyväskylä	Ideas	Urban design	Residential	1
2015	EUROPAN 13: Seinäjoki	Ideas	Urban design	Mixed-use	1
2015	Guggenheim Helsinki	Architectural design	Building design	Cultural	2
2015	Pietarsaari Siikaluoto	Ideas	Urban planning, reuse	Mixed-use	1
2015	Kuopio Mölymäki area	Architectural design	Urban design	Residential	1
2015	Kouvola Central Blocks	Ideas	Urban design	Mixed-use	1
2014	Extension to Lapland Central Hospital	Architectural design	Building design	Health	2
2014	Akaa Toijala Centre	Ideas	Urban design	Mixed-use	1
2014	Extension to Tampere Music Academy	Architectural design	Building design	Educational	1
2014	Kangas Piippuranta	Architectural design	Building design	Residential	1
2013	Vaasa Ravirata area	Ideas	Urban planning	Residential	1
2013	Summer theatre for Hupisaaret in Oulu	Architectural design	Building design	Cultural	1
2013	Yara Kotkaniemi Estate	Architectural design	Reuse	Mixed-use	1
2013	Nordic Built Challenge Finland	Ideas	Reuse	Office	2
2013	Campus 2015	Architectural design	Building design	Educational	2
2013	Hämeenkyrö Environmental School	Ideas	Building design	Educational	2
2013	Helsinki Central Library	Architectural design	Building design	Cultural	2
2013	Mikkeli Satamalahti	Ideas	Urban planning	Mixed-use	2

The analysis began by identifying innovation-related textual references in the documents, before thematically structuring and interpreting them in more detail. The competition programmes were analysed in their entirety, whereas the analysis of jury reports focused primarily on the award-winning entries and the general evaluation. Individual evaluations of unplaced entries were excluded to concentrate on the proposals the jury deemed successful or noteworthy. However, prominent features of unplaced proposals were typically also addressed in the general evaluation.

In an effort to account for all potential passages concerning innovation or innovativeness in the texts, a broad preliminary understanding of innovation was synthesized as *a new or unique idea or scheme, a novel combination or a reinterpretation of an existing idea* based on different perspectives from existing architectural literature (including dedicated issues of Blueprint [2016] and Architectural Design [2013]; Gospodini, 2004; Östman, 2005; Katsakou, 2009). This understanding bridges two perspectives: One line of thought suggests that innovation means distinctively new work that pioneers "the passage from one dominant design paradigm to another" (Gospodini 2004, p. 232). In contrast, another commonly expressed view in literature is that "innovation doesn't have to be new. It can be the translation of an old idea into a new place or the stitching together of unlikely parts" (Samuel, 2016, p. 17, in Blueprint #347). Guided by the explorative approach of the inquiry, in addition to direct references to innovation or innovativeness in the documents, implicit statements corresponding to the preliminary formulation were also collected, such as: "The buildings have *a distinct architectural language, which is a new and topical interpretation* of the 60s lamella block architecture" (Kauniainen Town Hall block jury report[1] [emphasis added], p. 23). Negative statements such as un-innovative, conventional or generic were also recorded.

As the analysis progressed, the initial broad framing was iteratively revised into a more refined definition of architectural innovation grounded in the research material. Moreover, a qualitative coding scheme to capture the varied references to innovation in the documents was developed over multiple rounds of thematic analysis (Braun & Clarke, 2006). The initial analysis and assessments for the coding scheme were carried out by the first author and informed by the author's training in architecture and professional experience with design competitions in Finland. The second author and an externally contracted architect with experience in Finnish architectural competitions later joined the process and assisted in reviewing and refining the coding scheme.

To build on the thematic analysis, having discerned a set of dimensions unpacking how innovation was addressed, interpreted and evaluated, the emphasis placed on each dimension in each document was

1 The competition programmes and jury reports cited in the text were accessed through SAFA's public digital archive (https://www.safa.fi/kilpailut/arkisto/).

scored on a scale from 0 to 3 (0: non-existent, 1: present but irrelevant, 2: secondary and 3: primary) by the first author. As a reliability check, the externally contracted architect independently assessed the emphasis placed on each dimension in a subset of documents, and the scorings were compared against those of the first author before the first author scored all the documents.

Using the assessment as a foundation for acquiring a more holistic view of innovation in the studied competitions, the documents in which at least one of the innovation dimensions distinguished in the coding scheme was deemed to be a primary or secondary concern were clustered in terms of how the different dimensions co-occurred and were emphasized. Based on this, a typology to illustrate the varied scope of architectural innovation in the studied competitions could be delineated. Next, the emphasis placed on the distinct types of innovation in the competition programme and the jury report of each competition – and if the emphasis differed – was studied. Finally, the differentiating features of the competitions were considered (see Table 1), including the type of brief (such as educational, residential, or cultural), scope (urban planning, urban design, building design, reuse, or concept design) and format (one or two-stage process, ideas or architectural design competition).

Three main types of multidimensional innovation in Finnish open competitions

The references to innovation in the studied documents spanned multiple dimensions and, in a number of documents, emerged as a pronounced concern, rendering the total dataset an intriguing basis for surveying the complexities and nuances of innovation in Finnish architecture. That said, no innovation-related statements could be found in nine documents (all competition programmes), and in a large share of the remaining documents (24 out of 65) the emphasis on innovation was deemed rather limited (evaluated as 1: present but irrelevant).

Following the twofold definition of architectural innovation developed in the analysis, innovation emerged as a design or proposal *a) introducing new practices, solutions or ideas,* and/or *b) challenging, reinterpreting or developing existing conventions, solutions or models*. Building on this definition in interpreting the nuances in the references to innovation in more detail, four main dimensions were distinguished: Technology, Aesthetics, Programming and Typology (see Table 2).

Table 2
Four dimensions of architectural innovation derived from the thematic analysis. CP=Competition programme, JR=Jury report.

Dimension	Exemplary quote	Related concepts
Technology *Challenging building conventions, suggesting new conceptual solutions for technical interfaces and/or new ways of organizing the development process*	"The functions of the campus area (...) provide the opportunity for using innovative hybrid solutions in the provision of heating and cooling systems." Campus 2015, 2013, CP, p. 31. "ARA will utilize the innovations in housing construction and assisted living or the organization of service production thereof in its own design management and guidance." ARA Vartiosaari, CP, 2015, p. 5. (Translated from Finnish)	Technological innovation (Katsakou, 2009) Cross-fertilization of technologies (Ednie-Brown, 2013) Digital innovation (Carpo, 2013 Sustainability innovation (Boxenbaum et al., 2010)
Aesthetics *Reinterpreting or introducing a new, unique, or distinct expression or composition of architectural or urban elements*	"A distinct and original block is created between the bay and the boulevard, which serves as a clear node (...). The new nucleus has been nicely accentuated by making a small twist in the boulevard." Europan14 Helsinki, 2017, JR, p. 18. "The proposal WTWMF (...) has (...) presented how a future Aviapolis can (...) be a pilot for innovative (...) urban architecture. The project shows how a reinterpretation of a traditional architectural approach can result in an urban structure that supports modern needs (...)." Aviapolis 2017, JR, p. 30.	Innovative design of space (Gospodini, 2004) Formal innovation (Katsakou, 2009)
Programming *New models and solutions for the uses or interactions that take place in the building, building block or the surrounding environment*	"Using innovative thinking the functional possibilities of the spaces can be expanded and made more efficient, and the pedagogical possibilities of the spaces increased (...)." Kuopio Sykkivä Sydän, 2017, CP, p. 34. (Translated from Finnish) "The proposal gives an excellent starting point to the development of a completely new functional concept for the library." Helsinki Central Library, 2013, JR, p. 167. (Translated from Finnish)	Programmatic innovation (Dovey & Dickson, 2002) Programmatic innovation (Katsakou, 2009) Functional innovation (Katsakou, 2009)
Typology *Reinterpreting or introducing a new kind of building or block type*	"The grid block has gained a new, free interpretation which forms an urban structure which is structured like a mosaic while simultaneously remaining flexible in terms of its realization." Mikkeli Satamalahti, 2013, JR, p. 32. "The author develops a very interesting overall solution using an original typology. A traditional block formed at the north-eastern edge of the competition area skilfully transforms into almost a tower house towards the south-western end." Kankaan Piipuranta, 2014, JR, p. 17. (Translated from Finnish)	Urban innovation (Katsakou, 2009) Functional innovation (Katsakou, 2009)

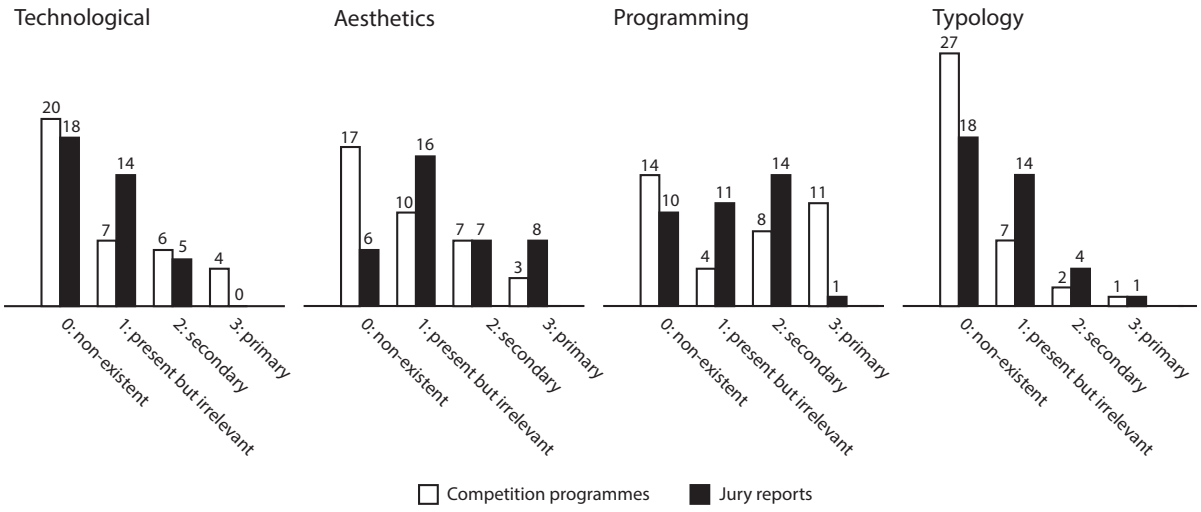
In seeking a holistic view of innovation in open design competitions, both the *frequency* of references to different dimensions of innovation and the *relative emphasis* placed on them illustrate how innovation was expressed in the studied competitions. In general, references to different innovation dimensions identified in the competition programmes did translate into the accompanying jury reports. However, in some cases, references to a particular dimension did not reoccur and/or other references appeared as more emphasized. Moreover, the frequency by which innovations were referenced (see Table 3) and how they were emphasized (see Table 4) across the four dimensions varied across the studied competition programmes and jury reports. Introducing something new or challenging existing models was most often discussed as Programmatic innovation, while references to Typological innovation were least numerous.[2]

2 In terms of emphasis (scale 0–3), a statistical disconnect between what was requested in the competition programmes and what was later emphasized in the jury reports was found for Technological and Aesthetic innovations. Technological innovation was emphasized more prominently in competition programmes (M=0.84 , SD=1.07) than in the associated jury reports (M=0.65, SD=0.72), t = .90, p < .05. In contrast, Aesthetic innovations were emphasized in jury reports (M=1.43, SD=1.04) more than in competition programmes (M=0.89, SD=0.99), t = -2.51, p < .05.

Table 3
Frequency of references in competition programmes and jury reports.

	Technology	Aesthetics	Programming	Typology
Competition programmes	63	39	100	15
Jury reports	45	96	92	29
Total	108	135	198	44

Table 4
Emphasis distribution across competition programmes and jury reports (n=74).



The references to innovation within a document were typically multi-dimensional; they were seldom confined to a single dimension, and the different dimensions of innovation often co-occurred. The references to innovation spanned three or four dimensions in nearly half of all studied documents (n=34), underscoring the varied and rich nature of architectural innovation. Probing the scope of innovation further across the four dimensions and how these were emphasized, three main types were distinguished (see Figure 1): 1. Conceptual innovations, 2. Functional innovations and 3. Integrated innovations. While not exhaustive, as distinct examples, these three main types illustrate the rich and varied ways through which the scope of architectural innovation was articulated in the studied documents.

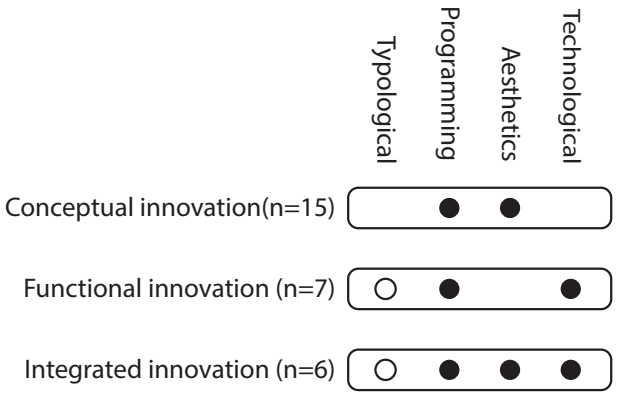


Figure 1
Innovation types based on the distinguished dimensions.

The first type, Conceptual innovation, suggests an approach to innovation where a combined emphasis is placed on aesthetics and programming. One instance also involved Typological innovation. Featured in fifteen documents, Conceptual innovation interweaves a stronger interest in new architectural compositions or symbolic expressions with new models for activities and the use of spaces. A salient example of Conceptual innovation was identified in the competition programme of the Helsinki Central Library competition (2013) in which the organizers wished the architecture to combine new ways to use spaces with aesthetic aspirations; "express *[Aesthetic]* the new programmatic concept *[Programming]* in an interesting way" (p. 64, codes added in italics to note reference to dimension). Another example, found in the jury report of Aalto University's Campus 2015 competition (2013, p. 5), the jury stated a wish to "select the design that would best reflect the university's vision *[Aesthetics]* of a solution capable of bringing people and different fields together and encouraging them to interact in new and productive ways *[Programming]*". In parallel, "some of the best entries offered new and innovative reinterpretations of the existing architectural themes at Otaniemi *[Aesthetics]*" (p. 16).

The second type, Functional innovation, highlights the interrelationship between technological and programmatic aspects in challenging construction conventions and articulating new technical solutions, while fostering new models of use and, in a few instances, suggesting new typological solutions. This type of innovation was evident in seven documents, including the competition programme for the Vaasa Ravirata ideas competition (2014, p. 19): the organizers state that "high-qualit, innovative solutions shall be pursued in the urban fabric and in combining different house types *[Typology]*, organization of private and public spaces *[Programming]* and green construction *[Technology]*" (translated from Finnish). In addition, showcasing a more pronounced interest in these dimensions of innovation in general, the Siikaluoto (2015) jury report refers to innovation in technical infrastructure and in public mobility as complimentary: "in the innovative proposals (...) the railway underpass had been developed into a bridge-like structure *[Technology]* that would open up a public connection on both sides of the tracks *[Programming]*" (p. 6).

The least common (n=6) – yet most all-encompassing – type of innovation identified was Integrated innovation, featuring a heightened interest in aesthetics, programming and technology. In one case, these dimensions were featured together with a heightened interest in typology. Integrated innovation was, for instance, identified in the Guggenheim Helsinki (2015, p. 4) competition, as the brief included considerations about aesthetics ("We believe that original, world-class architecture can speak across cultures while refreshing and enlivening the urban environment"), programming ("Performance-based initiatives would also play a key role, reflecting the spirit of today's most innovative practices") and technology ("The Guggenheim Foundation is looking for inspiring and innovative ways of using one of Finland's greatest resources: timber", p. 66). In brief, this innovation type would thus involve new technical solutions to produce novel aesthetic experiences and forms of engagement with the spaces.

Besides being articulated in a multitude of ways, the type of competition and the structure of the competition process appeared to in part inform the broader stance on innovation in the studied competitions. Based on the textual references, innovation was most prolifically emphasized in two-stage competitions, ideas competitions, urban planning competitions and competitions for cultural projects. For example, design competitions involving urban planning were noteworthy in their association with all three types of innovation, and conceptual innovation in particular (as in Vaasa Ravirata, Europan 14 competitions, Vantaa Aviapolis, Tampere Hiedanranta), in comparison to the general distribution of the distinguished typology in the data. Many competitions for cultural projects – such as libraries or museums – also emphasized innovation, again showing an especially high connection to conceptual innovation (as in

Tampere Art Museum, Tapio Wirkkala Rut Bryk Archive, Helsinki Central Library). Functional innovation was mainly highlighted in competitions involving the reuse of spaces or structures (as in Nordic Built Challenge Finland, Europan14 Oulu, Pietarsaari Siikaluoto).

Correspondingly, patterns could also be discerned regarding a less pronounced interest in innovation. In general, competitions in urban design seemed to place less emphasis on innovation than urban planning or building design competitions based on the dataset. In terms of project types, educational, health-related and residential architecture competitions appeared to have been least concerned with innovation (exemplified by Jätkäsaari Primary School, Extension to Lapland Central Hospital and Kuopio Mölymäki residential area).

Lost in translation? The uncertain pursuit of innovation in open design competitions

Despite the common coupling of innovation and design competitions, the study reported here underscores that innovation does not constitute an automatic aim or outcome of open competitions, nor does it need to be a pronounced concern of the stakeholders involved. A number of the studied competition programmes and jury reports did not refer to or seemed to place limited emphasis on introducing something new or rethinking existing conventions. That said, in a range of other competitions, innovation seemed to have formed an important consideration. The analysis also uncovered a variety of ways for how to potentially understand the scope of these pursuits. Based on this study, the scope and meaning of architectural innovation span various facets of architecture. The references to innovation in the studied competition documents covered multiple thematic dimensions. Indeed, while the references to innovation were in some cases limited to a single dimension, they mostly co-occurred, suggesting that innovation in architecture is perhaps best approached as a multidimensional endeavour.

The distinguished dimensions and exemplifying typology for innovation bring together a variety of discussions on the scope of innovation in architecture. The varied meanings attributed to innovation and the inconsistency of references to innovation in the studied documents also follow past discussions on design competitions, which highlight the presence of diverging objectives and aspirations (Menon & Vanderburgh, 2014; Merikoski, 2020; Volker & Meel, 2011) – even paradoxes (Manzoni et al., 2016) – that can rarely be satisfied in a single project (Merikoski, 2020). Several previous studies have also identified contradictions between the competition guidelines and the pursuit of innovation, for example, involving tensions between innovation and sustainability assessments (Chupin & Cucuzzella, 2011; Cucuzzella, 2016), qualification requirements (Geertse, 2016; Kouzelis et al., 2009) and feasibility (Geertse, 2016).

This could perhaps explain why the ways in which the scope of innovation was discussed – as captured in the dimensions and types of innovation – was seen to vary between the competition programme and the jury report in a number of cases in this study.

There are also several other explanations for such discrepancies to emerge in design competitions. Firstly, beyond the fact that innovation is not always a necessity, innovation always involves a touch of the unknown. According to Lipstadt (2000, p. 35), "as much as there is a legitimate need for innovative works in a field (...) there is an equally legitimate need that they be rarely found". In brief, as innovation potentially destabilizes business as usual, it also carries risks for stakeholders. Past studies suggest that aligning all parties behind something unforeseen appears to pose a particular challenge in a competition project (Forlati, 2014; Katsakou, 2009). Due to this "security versus innovation" dilemma (Rönn, 2009), competition stakeholders may favour tried-and-tested solutions and designers with a proven track record (Andersson & Rönn, 2015; Katsakou, 2009; Kreiner, 2016; Menon & Vanderburgh, 2014; Rönn, 2009; Strebel & Silberberger, 2017). For example, Andersson & Rönn (2015) show how conventions of residential space and prejudices about user needs have overridden innovative schemes in senior housing competitions in Sweden (although Andersson [2015] also found some historical successes in this regard). Indeed, juries may even be averse to unconventional solutions despite the client's explicit wish to the contrary (Kreiner, 2016). Returning to the results of this study, a limited interest – as potentially expressed in a lack of references to or emphasis on innovation – in some competitions may accordingly be expected and 'inherent' to innovation and competition processes.

Given the risk of innovations becoming overshadowed by other concerns in the competition process, a fruitful venue for further analysis and comparison may sit in unplaced proposals and the discussions surrounding those which fell outside the scope of this study. In this context, jury-judgement is perhaps best viewed as a sense-making process in which emerging interpretations of the proposals' qualities and the evaluation criteria inform the jury's understanding of potential outcomes (Van Wezemael, 2011). Thus, even if there is enthusiasm for innovation at the start, other factors may come to dominate the jury's discussions (Andersson & Rönn, 2015; Kreiner, 2016). In contrast, at times, innovation may become foregrounded only at later stages of the competition, as our findings also appear to suggest. For example, participating architects may create proposals that exceed the requirements of the brief, thus extending the possibilities of the competition programme (Bern, 2022). In any case, as Kreiner (2016) has previously argued, while architectural competitions can yield innovative proposals, it is up to the jury to recognize those innovations for them to be translated into future environments and practices. To this end, unplaced entries and the formation of their

assessments may hold worthwhile yet unrecognized areas of innovations to be acknowledged in future studies.

Further, recognizing the uneven distribution of references to innovation in this study, the pursuit of innovation seems to vary among different types of open design competitions. This was perhaps most evident in the low level of interest in innovation in competitions with strict project specifications, in contrast to more explorative competition settings, such as ideas competitions or two-stage competitions. This finding corresponds with previous studies by Kreiner (2018), Geertse (2016), Volker & Van Meel (2011) and Volker (2010), who have analysed how public procurement procedures intended to produce fair and transparent outcomes, such as technical evaluation frameworks, may hinder innovation in design competitions. In this study, building design competitions for educational, health-related or residential architecture – projects that often involve complex functional specifications or regulation – seemed to carry the least emphasis on innovation. In fact, innovation might not appear as a realistic or even a desirable objective for clients in such cases. When it comes to housing specifically, the lack of engagement with innovation can perhaps also be reflected in the ongoing debate regarding the homogeneity of housing construction in Finland, where critics argue that efficiency and quantity are being prioritized over quality (Pelsmakers et al., 2021; Saarimaa, 2021; SAFA, 2020; Tervo, 2021). Given the links identified in this study between innovation and particular types of competitions, competition processes themselves could be seen as potential topics for innovation, as previously suggested by Rönn (2018a; 2018b).

Finally, the typology presented here is situated in, and responsive to, the empirical research setting and should be understood as such, rather than an exhaustive description of the studied competitions or a universal framework for understanding the scope of innovation in architecture in general. Recognizing the embeddedness of design competitions in the local planning and design culture and institutions, further insights from the Finnish architectural context and other national competition systems are needed to further unpack the notion of innovation in architecture. For example, in the Danish context, Kreiner (2018) has discussed mounting tensions in reconciling creativity, fairness and efficiency limiting innovative designs that could provide fertile ground for future studies.

Conclusions

Embracing the diverse realms of architectural work exemplified in the design competitions studied here, understanding how the (open) competition format may accentuate both the possibilities and uncertainties associated with innovation in different kinds of projects becomes critical. That said, in addressing new developments in this area through

design competitions and studies thereof, it should be noted that this study was not pursued to promote innovation as an inherently good objective in architecture. Instead, it was grounded in a curiosity about what innovation potentially entails and the almost mirage-like notion of innovation that sometimes accompanies discussions on design competitions. In doing so, our aim was to promote discussion on the scope, meaning and practices of innovation in architecture.

Indeed, the inconsistencies found in references to innovation in the Finnish competitions studied here propose some critical considerations for design competition organizers and participants. Seeing as architects and institutions may choose to engage with the open competition format in part for its innovative reputation, acknowledgement of the associated uncertainties should inform the development of purposeful competition practices. The interpretative work of the jury in particular can expand or limit the innovation possibilities of a competition. In light of such complexities, competition organizers and clients seeking an innovative outcome are likely to need a consistent strategy to prioritize this aim throughout, from planning the competition programme to selecting the winner, and beyond.

To conclude, innovation is not only the domain of a small group of global or avant-garde designers, as underscored by the data for this study. Authors of awarded entries in the competitions studied here ranged from established and nationally or internationally recognized architectural firms, to independent practitioners and even architecture students. Neither was innovation exclusively limited to particularly extravagant or high-end projects. The studied competitions featured projects of cosmopolitan ambition, such as Guggenheim Helsinki and Helsinki Central Library, but also initiatives in small localities like Hämeenkyrö (population of 10.000) and Pietarsaari (19.000) that sought something new. Thus, in acknowledging a greater diversity in architectural practice, expanding the inquiry into more "ordinary" cases can foster a richer view of architectural innovation that should not be overlooked. For example, there appears to be a pressing demand to collaboratively "craft new habits of thought" (Gutierrez, 2014, p. 80); develop new solutions and rethink conventions to build sustainable urban futures (Cutler, 2013; Ednie-Brown et al., 2013). In doing so, observing Jacque's (2019) call to recognize innovation as "something that in different ways the field of architecture is forced to do" (ibid., p. 16) invites architects and researchers collectively to reimagine their agency.

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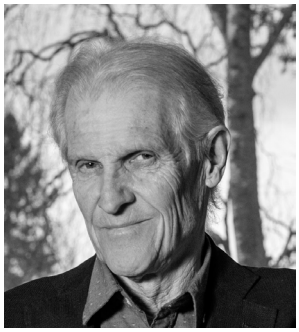
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