

A Comparative Analysis of Design Competitions on large-scale

Projectⁱ -the case study of the New Fair Milano complex and New Fair Milano city complex, Italy

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Introduction:

Design competitions, especially those related to large-scale urban projects have been considered as an important tool to select the design solution to the posed design problems. However, they are often criticized for having too vague or too rigid format or being too eager for instant success. Analyses on design competitions are often fragmental and personalized due to their inherent complexity and no clear definition of how design quality can be evaluated. Thus, it is highly necessary to perform a scientific analysis of design competition framed on the basis of systematic, comparative and interactive knowledge of current design competition models. By means of systematically examining interactions of different roles, networks and their relations with design qualities, this research will creatively elevate, elaborate, scrutinize and map innovative design solutions and therefore constitute the interplay resource of design competitions to reconstruct better design competition format in a sustainable way, when confronted with the change of our 21st century built environment. The case study of contemporary large-scale design competitions on the New Fair Milano complex and New Fair Milano city complex were chosen due to their relatively high availability of information and special roles in relation to urban redevelopment of Milan.

1.0 State of art

Design competitions are necessary to be recorded, scrutinized and analyzed due to its controversy characteristics. On one hand, it spurs the productivity and innovations and enhances the efficiency of project implementation. On the other hand, it is disruptive on the condition of hegemony of power and interests. However, the analyses on design competitions are often fragmental and personalized due to their inherent complexity and no clear definition of how design quality can be evaluated. Thus, it is highly necessary to perform a scientific analysis of design competition framed on the basis of systematic, comparative and interactive knowledge of current design competition models. In this research, we consider design competition as platforms not only to ensure design quality but also to contain innovative solutions as real synergies to improve the quality of our contemporary built environment in a longer term. By means of systematically examining interactions of different roles, networks and their relations with design qualities, this research will creatively elevate, elaborate, scrutinize and map innovative design solutions and therefore constitute the interplay resource of design competitions to rethink design competitions in a sustainable way. Thus, we are able to distinguish “innovative procedural dynamics and design solutions” on design competitions through evaluations, by which design is fit for purposeⁱⁱ, sustainable, efficient, flexible, creative, responsive to the urban context and promote urban development as a whole.

2.0 Conceptual framework

Based on above-mentioned background, in order to adequately analyze design competitions, the conceptual framework along with the development of the research was developed in order to articulate our findings. Generally, competition processⁱⁱⁱ includes a sponsor (also known as initiator or client) who initiates the design competition and provide expenditure and resources for running the competition. The sponsor normally engages with a professional adviser for professional consultations on phase of design competition specification. With the assistance of the professional adviser, the sponsor defines the brief scheme and ultimate objectives of competitions following his/their political, economic and social agenda. The professional adviser plays a crucial role in developing and testing the competition process. In some cases, other parties such as technical adviser are also appointed by the sponsor due to the complexity of the project. The professional adviser will be responsible in assisting of selecting the Jury board and set up the procedural rules(competition conditions), which will be supposed to instruct the competition process. The Jury will evaluate the competitors, distinguish the qualities according to the selection criteria specified in the project program document (the competition brief with consensus among them) and select the final winners. The roles of sponsor, professional adviser and other possible parties are intertwined during the competition specification phase and put a major impact on the decision of selection criteria on choosing the winning entry. At the phase of competition specification, we will elaborate those generic and procedural factors which affect results of this phase and their degree of importance. Afterwards, the core phase of design competition: the competition selection process will be analyzed with the same scheme. We will explore the generic factors, procedural factors and their degree of importance which affect the selection of winning entry as a result. Most importantly, up to the phase of design competition evaluation phase, we will ask: Is this design competition successful, how and why?

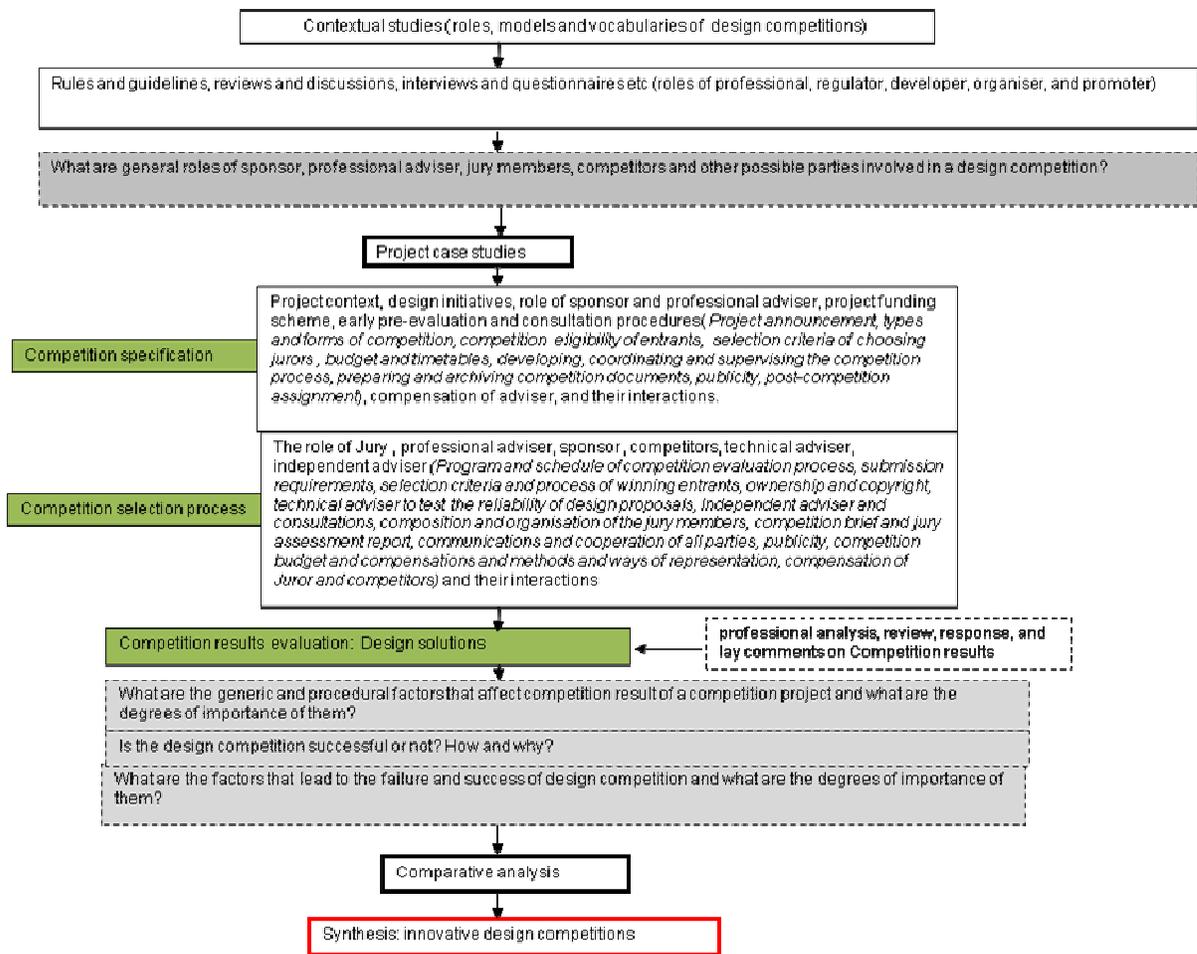


Diagram 1: Conceptual framework in parallel with the research by the authors

Type and forms of design competitions^{iv}

There are various types of design competitions according to guidelines of different professional organisations. The definition of design competition is varied from country to country. However, there are general types and forms of design competition which are commonly accepted. We will introduce a temporary table on the summary of type and forms of design competition with respect to their purpose. Meanwhile, other types of design competitions will be introduced and completed to the table in parallel with the development of the research.

By Purpose of sponsors	By eligibility of entrants	By scale and complexity of competition	By specialized projects	By awards of competitions	By communications of roles of competitions	By forms of Judgement of competitions	By prices of competitions proposals
Project Competitions	Open Competitions	One-stage Competitions	Product Competitions	Multi-winner competitions	Programme dialogue competitions	Anonymous final judgement competitions	Combined design and price competitions
Idea Competitions	Limited Competitions	Two-stage Competitions	Prototype Competitions		Interactive competitions	No anonymous final judgment Competitions	
	Student Competitions	More than Two-stage Competitions	Developer/Architect Competitions				
	Invited Competitions		Design & build competitions				
	Extended invited competitions						

Table 1: type and forms of design competitions as described by the author

2.0 Case study

International design competitions on large-scale projects^v, the case studies of new Milan fair complex and new Milan fair city complex

In this paper, we propose to analyze the design competitions of the new Milan fair complex and new Milan fair city complex in order to elaborate innovative design solutions with respect to their important role on the urban redevelopment process of Milan. Confronted with the increasing need of urban redevelopment^{vi} and competition of other European fair system, they have been considered with agreement since 1994 which included the construction of a new fair complex and redevelop the historic fairgrounds. The historic fairgrounds will be downsized from 440,000sq.m to 185,000sq.m when the New Fiera Milano complex is completed. The remaining land of 255,000 sq.m will be sold for the financial purpose of the construction of the New Milan Complex and promoting urban redevelopment as a new city centre. This particular project financing scheme turned out to be an occasion to carry out two international urban redevelopment design competitions and attracted the interest of various group such as financial real estate companies and world famous architects. The mode of design competition and its project financing scheme is unique and unprecedented in Italy.



Figure 1 the strategic plan of the area of New Milan Fair complex and city complex ,source: the official website of Fondazione Fiera Milano

The original site of new Milan fair complex at Rho- Pero was occupied by an Agip oil refinery. As an essential condition for the purchase of this area, the Fondazione Fiera Milano: the promoter signed the agreement with the Agip for the reclamation of land and water. The refinery was dismantled and environment cleaned up with the certification of the Milan Provincial Government on December 2003. Based on the agreement since 1994, the state and regions come to the common propensity of “fair trade”; this project gets its power of acceleration for transforming the original urban morphology of trades fair. The project is being promoted and self-funded by Fondazione Fiera Milano which owns and operates the Milano fair complex. Afterwards, the Fondazione Fiera Milano issued an international competition in 2002 for selecting designer and contractor for constructing the new fair Milan complex. On April 2003, the call for prequalification was announced for the international competition of the New Fair Milan city complex as part of financing scheme for the construction of New Milan Complex.

Design competition specification

Design initiatives	New Fair complex	New Fair city complex
Efficiency and functionality	It was required to guarantee a high quality of exhibition space	It was required to guarantee the emblematic nature of the project , livability of the area, architectural and environmental quality.
Mobility	Large architectural land mark	City centre
Project schedule	30 months	From 2006 to 2014
Project budget	Approximately 750 million Euros	A price bid and credentials to purchase the area.
Project orientation	Milano exhibition system transformation and territory integration	being the redevelopment of the area as a "new centre for Milan"
Service (extensive parking system, large landscape areas)	User-friendly services and easy access to the exhibition	<ul style="list-style-type: none"> ● The landscaping of 130,000 square meters (50% of the

and compatible services such as hotels, stores, café, bars , restaurants and recreational facilities)	grounds and complementary services to integrate with surrounding area	divested area), and the creation of a new city park, new squares, and new pedestrian areas. <ul style="list-style-type: none"> ● The creation of public parking spaces for 3,000 cars ● The repurposing of Vigorelli velodrome into a sports and recreational facility.
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Table 2 : design initiatives of the New Milano fair complex and city complex as described by author source: from official website of Fondazione Fiera Milano

Participated actors	New Fair complex	New Fair city Complex
Sponsor	Fondazione Fiera Milano	Fondazione Fiera Milano
Initiator	Sviluppo Sistema Fiera, the engineering and constructing company for large projects which belong to Fondazione Fiera Milano	Sviluppo Sistema Fiera, the engineering and constructing company for large projects which belong to Fondazione Fiera Milano
Supervisory Committee	Composition : President of the lombardy Regional government and representatives from all participating entities	Composition: President of the lombardy Regional government and representatives from all participating entities
Tender committee	It is responsible for guaranteeing an effective and consistent decision-making process in assigning the contract, following a resolution by the Sviluppo Sistema Fiera Board of Directors on 9 November 2001.	composed by the board of directors of Sviluppo Sistema Fiera with the co-operation of Lazard & C. Real Estate as advisor, multidisciplinary group of experts and the assistance of representatives of the Milan City Council and the Lombardy Regional Government.
Commission of experts /Professional advisers	Composition: managing director of Sviluppo Sistema Fiera, engineer Claudio Artusi; Rector of Milan Polytechnic, Adriano De Maio, president of the Milan College of Engineers and Architects, Riccardo Pellegatta, rector of Bocconi University, Carlo Secchi.	Lazard & C. Real Estate as advisor
Collaboration bodies	the Lombardy Region, the Province of Milan, the City of Milan and the Towns of Rho and Pero.	The Lombardy Region, the Province of Milan, the City of Milan, and a multidisciplinary group of experts.

Table 3: participated actors list of the New Milan Fair complex as described by author source: from

official website of Fondazione Fiera Milano

Design competition process	New fair complex : Project competitions Private negotiating procedure	New fair city complex: Developer/Architect Competitions Private negotiating procedure
	Competition phase Phase 1 : Invited design competitions ,Nov,2001 to May,2002 Phase 2: design implementation competitions, 25 Jan,2002 to 26 July,2002	Competition phase Pre-qualification Phase 1 : Call for Pre-Qualification,4 April 2003-30 June 2003 Phase 2 : Selection of candidates admitted -by September 30, 2003 Tender Procedure Phase 3 : Submission of bids-6 months from invitation Phase 4 : Award- by July 31,2004

Table 4: design competition phases as described by author source: official website of Fondazione Fiera Milano

The whole design competition process of the new Milan fair complex was generally divided into two phases: the invited competition and design implementation competition. They are held interactively to ensure the quality of design solution and the effective process of delivering the design quality. The winning contractors from design implementation competition will be fully responsible for the design, development and service. The commission experts committee examined the applications with agreement with the tender committee, selected a short list of 5 companies that were invited to the tender on Jan, 2002. Shortly after on July 2002, the general contractor was selected. The group led by Astaldi with Pizzarotti Costruzioni and Vianini Lavori was chosen to complete the project signed by Massimiliano Fuksas by spring 2005. On the other hand, the international design competition of the New Fair Milan city complex was following a different procedure in comparison to the competition process of new fair Milan complex. The role of prequalification was more emphasized during the competition specification phase in order to guarantee the design quality of the project.

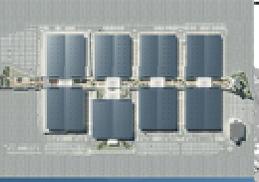
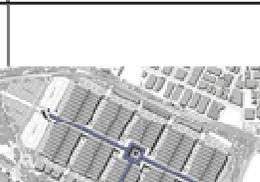
<p>Participants architect and their ideas</p>	<p>Buonifanti "The project is made of a system of pavilions that can host the greatest possible number of exhibitions at the same time, because of the flexible use of space and easy access for visitors and workers."</p>	<p>Mainelli "Our goal is better services and standards in environmental hygiene, the quality of the architecture and potential into action with visitors."</p>	<p>Volkwin Mang "The merging of the exhibition grounds with the surroundings is obtained by creating a new urban landscape as a cohesive redeveloped environment"</p>	<p>Massimiliano Fuksas winning entry "Milan Fair belongs to the family of large scale projects that includes airports, stations, ports and shopping centers. These are the cathedrals of a new society or rather places that transcend their main economic role. They are places where people meet, exchange ideas, establish contacts, and seek out new opportunities."</p>
<p>The Location of the design proposal</p>				
<p>The facade of the design proposal</p>				
<p>the exhibition space and interior views of the design proposal</p>				

Diagram 2: invited design competition of the new fair Milan complex-the winning entry: Massimiliano Fuksas, source: official website of Fondazione Fiera Milano



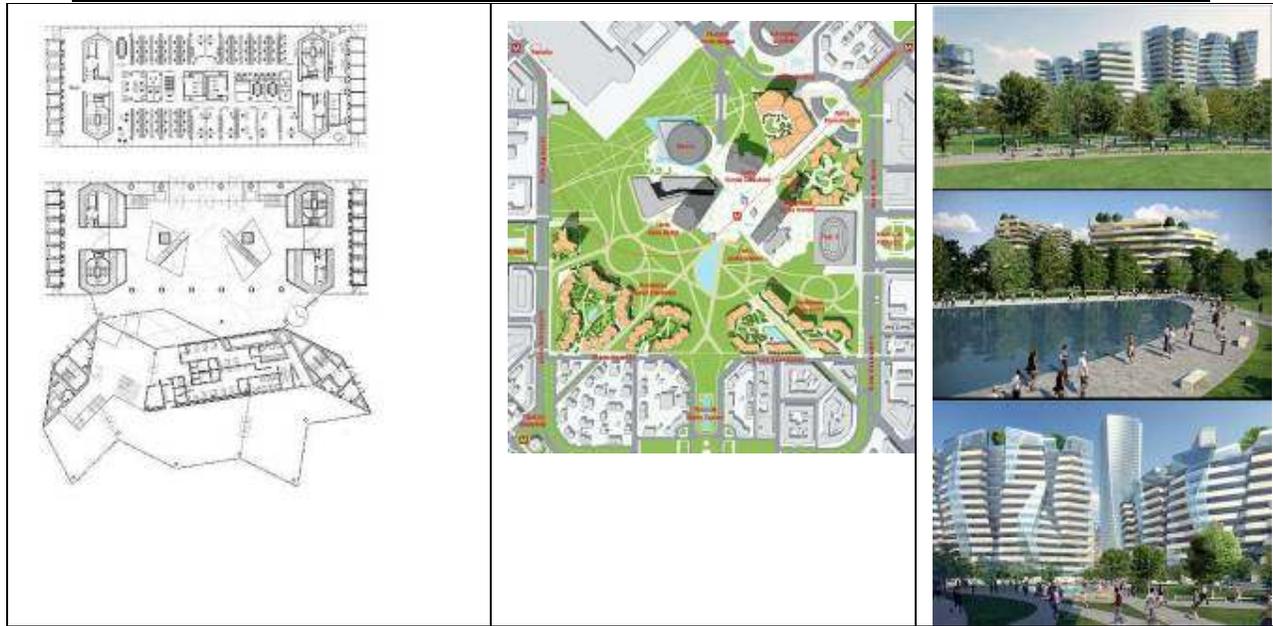


Diagram 3: the winning entry of international design competition of the new Milan fair city complex: The CityLife consortium, source: urban file Milano <http://www.urbanfile.it/index.asp>

3.0 Comparative analysis

Competition specification phase	New Fair complex	New Fair city Complex
The role of professional adviser on design competition	It is very important to test the feasibility of design initiatives of the sponsor and set up the scheme to realize the project. The invited design competition of the New Milan fair complex keep the space for the innovative ideas from the architects while the professional inputs on the implementation also ensure the technical requirement of the project implementation.	The role of Professional adviser is more emphasized in the new Milan fair city complex. Specific tender call for pre-qualification was announced and independent adviser Lazard & C. Real Estate was selected as part of the tender committee.
The role of Promoter of design competition	Clear objectives on transformation and project implementation Committed while open minded for innovative solutions	Clear objectives on transformation and project orientation(the quality of the project, the development program and the price bid).
The role of other possible actors(Technical adviser)	The role of technical adviser is important during the design implementation competitions to test the technical feasibilities of project implementation.	The role of Real Estate development adviser is important during the design evaluation process to test the feasibility of project development and possible profit.
Communications between the	Are there clearly common goals, tasks and	detailed program for realization of the project between adviser and sponsor?

sponsor and adviser	The guideline of the invited design competition leaves certain free space for new interpretation for invited architects. The sponsor is committed to the progress of design competitions with clear objectives.	The development guidelines and transformation rules of the project are explicit, the selection principle have been predefined on three elements: the quality of the project, the development program and the price bid.
Degrees of communications		
Through analysis of these two case studies, it has been shown that the higher degree of communication and interaction among stake holders of the competition specification phase are, the higher the feasibility of the design initiatives and efficiency of project implementation are. The contractual relationship among stake holders, involvement of multidisciplinary experts , institutions and networks guarantee the efficient communications.		
Space of innovation		
In these two case, it has been shown that the flexibility of design guideline to the competitors is very important during the competition specification phase in order to leave certain space for innovative design solutions. From the diagram 2 and 3, the design solutions of these two projects are unprecedented in comparison to contemporary Italian design tradition. It is closely relate with the free space of creation left by the design guideline of the sponsor.		
Clear guidelines		
It is very important for the committed sponsor to have testified objectives of design at the initial phase of design competitions in these two case. In these two cases, the sponsor provide the clear direction of the design.		
Competition selection process phase	New fair complex	New fair city complex
The role of Jury members	The profile of the Jury members was not publicly revealed. It is therefore difficult to analyze if there are common interests among the stake holders.	The profile of the Jury members in this case was publicly revealed. And it involved more experts from different disciplines in comparison with the new Milan fair complex.
Selection criterions	Selection criteria for the award of the contract: 1. Time and execution program of the work 2. Technical and aesthetic value of the solutions of the proposals 3. Price, organization and management of the project site 4. Quality assured procedures.	Bids will be evaluated on the basis of the following: 1. The quality of the technical proposal 2. The timing and planning of the work 3. The economic offer
The role of competitors and public	Public exhibitions of New Milan Fair has been hold, however, the user driven investigation and opinion is not clearly integrated into the decision making	Public exhibitions of “A New Center for Milan ” has been hold on October 2004, the student idea competition

	process. Public debate has not been hold to test the result.	entitled“Milan as I would like it. Fill a piece of the city with ideas” have been hold for the middles school students located in the fair site. Public debate has not been hold to test the result.
The role of competition documents	Only the design competition condition of project implementation is publicly announced at the official website of the sponsor. Other documents such as the design competition brief, jury reports and jury composition are not publicly published.	The document of Pre-Qualification tender for the Sale and Redevelopment of Part of the City Complex Area was published at the official website of the sponsor. Other documents such as the design competition brief and jury reports are not publicly revealed.
Competition document		
The publication of important competition information such as the jury composition and profiles, competition condition and competition brief is directly connected with the degree of fairness of the design competition. Even though the selection criteria in these two case studies have been stated in the competition conditions, exact ways of weighting and scoring on the selection criteria in order to select the winner are not clearly defined and critical steps of selecting the design solution are not recorded to avoid possible bias of application. It is suggested to improve the publicity of competition documents and therefore constitute interplay resource for professional education and scientific evaluation. It also can nurture the public awareness of project impact and improve the public participation.		
Competition result Evaluation phase	New fair complex	New fair city complex
The professional analysis, review and lay response	This project has been listed inside the top 10 creative constructs from the perspectives of rethinking of space to improve a building’s function, the use of sophisticated composite materials , digital networks and environmental sustainability by BusinessWeek ^{vii} . It is the winner project of ULI award ^{viii} by providing new approaches and best practices in real esate development from Urban Land insitute in 2006.	This project was considered as one of the most important project for the urban transformation of Milan, which is located at the heart of the city. It will help the process of urban redevelopment and be completed at the first quarter of 2014.
Post competition evaluation	Exhibitions have been held in the urban center galleria of Vittorio Emanuele II.	Exhibitions have been held in the urban center galleria and integrated game has been invented to promote public involvement.
To nurture the tradition of criticizing and rethinking on design solutions, we need independent		

media, forum and debate to criticize, rethink and evaluate the competition result as a commonly accepted model and therefore enhance public involvement.

Table 5: comparative analysis of design competition phases as described by author source: official website of Fondazione Fiera Milano

The international design competitions of new Milan fair complex and city complex were developed with clear design initiatives and committed relationships among stake holders involved in design competitions. In general, they are regarded as successful design competitions in the sense of that they fulfil the objectives of the sponsor such as effective project implementation, financing scheme, reclamation and launched urban redevelopment process. However, the competition process is not adequately transparent when confronted with the public. Some important competition processes have not been documented and published such as the Jury reports and competition brief. Moreover, the competition processes are different according to the various project objectives of the sponsor. These two international design competitions are equipped with different definition of design qualities regarding various project orientations. In short, it is important not to consider design quality in isolation and essential to integrate various factors affect design quality during the whole competition process, bring together dialogues among different roles of the stakeholders involved in design competition. Other than generic factors that are commonly accepted to affect design qualities for a competition project, the procedural factors such as the effective commitment (contractual relationship) are critical for efficient competition process, which is crucial for delivering high design quality to the posed project. Types and forms of design competition should be adapted according to heterogeneous project preconditions.

5.0 Synthesis and conclusion: design competitions as interplay resource to promote urban development

Based on above-mentioned knowledge, what can be learnt from the comparative analysis of design competitions on large-scale urban project in order to improve competitions as tools for the challenges of promoting urban development? Answers will be given as a result of the case studies.

The key to the inherent network of intelligent Design competitions: balanced interests and accessing points

The role of competition condition and brief were generally set up in contemporary design competition as the mechanisms of accepted guidelines for running the design competitions for all stake holders involved in design competitions. Through our case studies, it is revealed that during the design competition process, there are following gaps:

- Due to the difference between the lay and professional reference systems on design quality and values, there is the gap between the posed design problems and sets of competition conditions. It is extremely important to integrate the sound input of independent professional advisers to test and consolidate the objectives of the sponsor on the posed design problems. Based on this, the set up of competition conditions can appropriately define the whole scheme and rules for running successful design competitions.

- The competition brief was considered as project program which supply detailed selection criteria and rules on the selection of winning entry for jury members so as to add professional value to the design solutions. There is also gap between the design competition conditions and the competition briefs due to lack of communications among jury, professional adviser and sponsors. The appropriate appointment of Jury members at this point is important to ensure the real communications and avoid that the competition result is out of what the sponsor expected.
- The competition brief is supposed to instruct the whole selection process and evaluation criteria. However, due to different composition and preference of the jury members, there are often gaps between the exact evaluation criteria and competition brief. In some case, the final evaluation criterion is decided by the professional favour of the jury member instead of specified selection criteria in the design competition brief. At this point, it is crucial to record the competition process to prevent the bias of implementation of the competition brief.

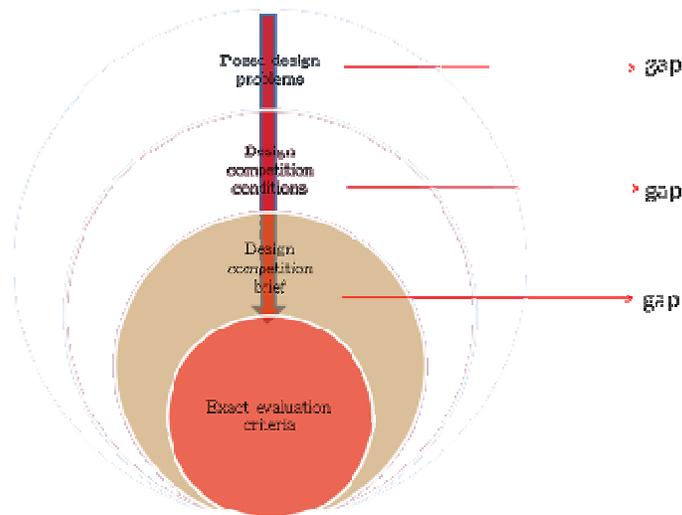


Diagram 4: The competition process as described by the author

As Lipstadt (2005) concluded that the well conceived and implemented competition is one that recognizes the inherent intelligence of the design process itself, and makes the competition an affirmation of such intelligence. Through the evaluation of case studies, design competition can be considered as a process of delivering design qualities. Ways of conceiving and implementing are understood as generic and procedural factors which affect the accomplishment of the design competitions to avoid potential gaps (see diagram 4) and deliver higher design quality. Intelligent solutions which facilitate the communication and implementation process and trigger the interests points of the participants can result in a multi-winning competition results. It is thus our goal to find those solutions as assessing points to integrate intelligent design competitions with high process quality and design quality to promote urban development. Through in-depth analysis, the generic and procedural factors such as the pre-jury evaluation, jury evaluation and post-occupancy evaluation have a major impact on process quality and design quality of a design competition. The true value of design competition exists in the balance of network of interests, that is, the overlap area of pre-jury

evaluation, jury evolution and post occupancy evaluation. Only if the design solution or procedural dynamics balanced the interests of all stake-holders, from which the process quality and design quality of design competition have been ensured.

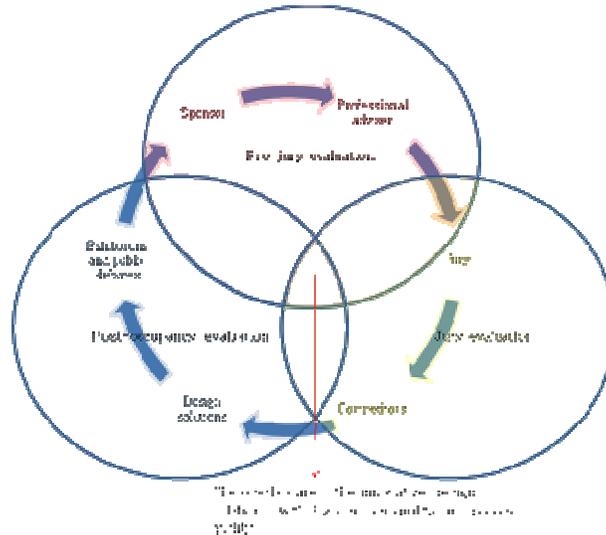


Diagram 5: The proposed framework of the innovative design solutions as described by the author

It is crucial for us to rethink of what is the accessing point to the intelligent design competitions. The ways of conducting competitions or process quality of design competition and defined design quality have a magnificent impact on the outcome of the competitions. By using elaborated innovative factors from our analysis, we can constitute appropriate design competition format according to respective context and preconditions of each project and therefore improve the efficiency of design competition regarding to urban development . Design competition can be used as platforms to spur better communications (architect, client, policymaker, developer, planner). The elaborated general models, vocabularies and innovative solutions will be used as interplay resources for restoring intelligent design solutions and therefore supply intelligent design competitions to exactly promote urban development.

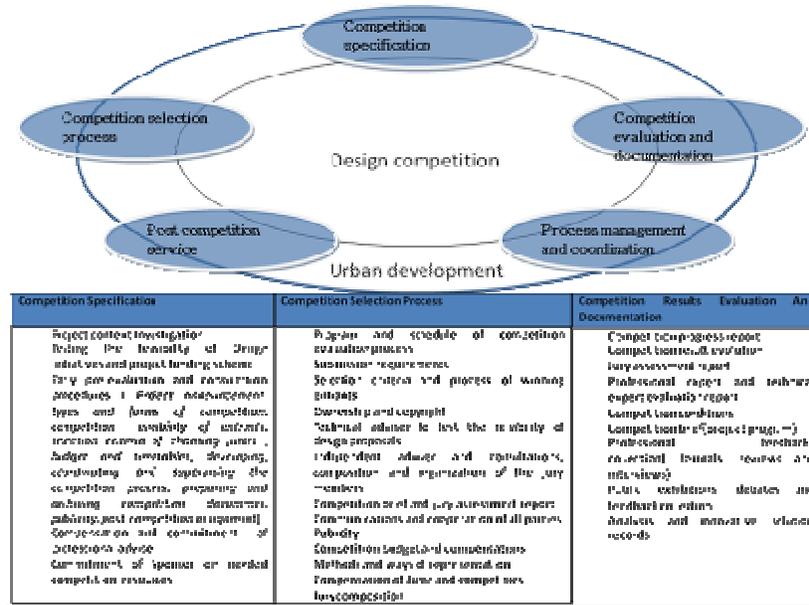


Diagram 6: Proposed use on the role of design competition as tool for promoting urban development as described by the author

Due to the increasingly important role of design competition on large-scale urban project regarding urban development, it is important to use design competitions for stimulate public awareness, nurturing unprecedented design solution and forming interplay resources for education or exchanging for our future urban development. It is not enough to reach the short-term objectives of posed design problems, we need to trace and rethink its role on urban development by carefully recording, scrutinizing and analyzing factors affecting competition results and therefore find innovative solutions which lead to successful constructions. Strong public involvement resulted in design competitions can nurture the successful competition system and spirit as part of the civilization of participation, which is extremely important for making democratic work.

Zheng Liang, researcher on design competitions, Chinese

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ⁱ Large-scale projects in this proposal refer to projects, which are commonly used as and strategic planning and development instruments for urban development. They are normally exceptional on size and scale which has substantial impacts on our built environment . They are often combined with flagship developments, such as the development of new city center and regeneration of brown field areas.

ⁱⁱ The purpose is referred to the balanced interests of all stake holders involved in design competitions.

ⁱⁱⁱ In order to obtain important knowledge on current design competitions, guidelines and rules from professional organizations, public medias and relevant researches have been carefully examined for supplying general models and vocabularies of contemporary design competitions as a basis.

^{iv} It was elaborated from the over view of contemporary large scale architectural design competitions.

^v It is one of the largest projects in Europe in these two decades.

^{vi} The original fair had been congested by traffic caused by exhibition activities and difficult to be expanded.

^{vii} Retrieved from

http://news.thomasnet.com/IMT/archives/2006/10/2006_world_wonders_of_wonders_architecture_infr_astructure_innovation.html, accessible at 25/06/2010

^{viii} Retrieved from the official website of ULI <http://casestudies.uli.org/Profile.aspx?j=7605&p=5&c=3> , at accessible at 25/06/2010