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Mediating Teaming and Design Thinking: Project Management in Architecture

Cristian BANICA^{1*}, Marina MIHAILA²

Abstract

Designing teams is quite important besides the dedication of the specialists' team to the design thinking creativity, knowing that results to achieve and reality to build are not the only weights to balance. More, selecting a team is a matter of drafting the project design and following the rules with creativity, and finally, reaching objectives and managing results for the future. Dedication to necessary (professional) specialties is a criterion for first selection. The next criteria are related to the quick understanding of design, innovation and/or customization, speed and difficulties to meet. Designing a building, a project or a research is not very different in architecture field. Each focuses on several successive phases: defining the inputs and correlated contexts; pre-designing the targets-final products and their nature; forming the best team according to best expectations; planning the design. Since planning the design and the design itself are two products that are the dedicated work of the design leader/and PM, the team has to relate to the sense of conceptual, concrete and knowledge contents. The value of the design -understood as its planning as well as drafting- resides in the nature of advanced design thinking. Also the quality of the team derives from pairing specialties/specialists, co-working and the value of collaborative added value to the initial design theme. Mediating the two -teaming and design thinking- as components of performance in Project Management could lead to best/better architectural results, by testing the partial deliverables in reformatting drafting, communication, expectations and long terms maintenance. In parallel it might lead to decreasing the conflicts and saving time in manufacturing and scheduling the processes in between by oriented common targets. The points of convergence and divergence between practice, theory and architectural inquiries will be highlighted within extended article.

Keywords: *Architecture; project design; teaming; Project Management; research by design.*

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1. Designing teams: an introduction for architecture

Designing a building, a project or a research is not quite different in field of architecture. Each process entails advanced architecture knowledge for the design leader, extended experience with similar projects, perseverance, ability to manage additional engineering specialties and team partners, but also people skills and equidistance in anticipating-managing-mediating-solving possible conflict within or outside the main design team. No less important is the ability of each member of a particular team to be focussed and preoccupied with his own professional objectives as well as with the team hierarchy and good collaboration with the other members of the team. Usually the abilities of any member of a team in the field of architecture is connected to following the professional and collaborative rules between the fields, the sequences and integrating knowledge, and if necessary and by excellence suggesting alternative solutions.

2. Statement

Every design –for a building, project or research – focuses on several successive phases: defining the inputs and correlated contexts; pre-designing the targets-final products and their nature; forming the best team according to best expectations; planning the design. Since planning the design and the design itself are two products that are the dedicated work of the design leader/and Architectural Project Manager (APM), the project team has to relate to the set sense of conceptual, concrete and knowledge contents. The value of the design - understood as its planning as well as drafting - resides in the nature of advanced design thinking. Also the quality of the team derives from pairing specialties/specialists, co-working and the value of collaborative added value to the initial design theme/brief.

3. Aims of the research

Mediating the two - teaming and design thinking- as components of performance in Architectural Project Management could lead to best/better architectural results, by testing the partial deliverables in reformatting drafting, communicating and expectations regarding the use of final result (building) including the long terms maintenance. In parallel it might lead to decreasing the conflicts and saving time in manufacturing and scheduling the processes in between by oriented common targets. The points of

convergence and divergence between practice, theory and architectural inquiries will be further highlighted in the paper.

4. Methodology and approach

The article draws from the practical experience of the authors gathered in almost 20 years of practice – in which they covered different roles related as architects: Delivering full building design – from concept to the most detailed stages of the project covering:

- architecture/ construction project management – ranging from managing the design process up to the process [7] of design, construction and site supervision
- research, research by design and architectural education
- process of delivering the building and related practical experience

Methodology follows the authors' experience in designing teams at different levels and scales, defining grades of applicability of the relation of two components of the research (*mediating teaming* and *design thinking*): from managing simple design team in architecture, to coordinating, as general designer, complex teams involving engineering specialties, experts and professionals in certain domains, and furthermore to actual development and construction supervision or a full range of project management activities related to the process of construction (project/ design implementation).

Article references are related to the specialty literature (architecture based), including several previous paper results of the authors, but also include knowledge derived from realized projects in the field of architecture. The later has been a process leading to the formation of a significant experience on how to “design the design” and also the expression of autonomous thinking, while averting inherent problems and solving complex scenarios and designs. References include sources in the field of project management in architecture - like books, papers and experts - are supporting the idea that there are no standard/typical recipe-solutions, and that every case/case study has to be solved with ingenuity, creativity, dedication and strong theoretical and practice [9] knowledge.

5. Findings

Defining actors and understanding their role in the process of design thinking (and the means to design execution) is important as a start for setting the correspondence between specialized design know-how and expected results. As a start, a point of departure, the intuition of the creativity is not

necessarily the most solid basis for best expected parameters of functioning in mediating and balancing the teaming and design thinking, but there are certain proofs within the experience of every actor which indicates that it may improve the level of skills, ingenuity, inventiveness, and easiness to deal with simple to complex problems in both theory and practice. Also the rapport between designing and consulting (in the sense of providing expert knowledge) is important for each actor in his/hers domain. Knowledge is a strong component, for each case, and this does not refer to a diploma proven qualification, but more to actual proven (practical) experience in one's own area/ field of expertise. Having skills of communication, mediation and decision, and understanding the value of intermediary and final results, are also mandatory for each team actor. As general recommendations it has been observed that whenever the beneficiary/project owner plays also an active role as a member of the project team (by implication, desire, or even factual), it is mandatory to understand the signification, scale and impact and competences of the team, such that the project objectives/targets are followed exactly or changes assumed and communicated in due time, accordingly and by procedural design.

Architectural Project Management is ranging from managing the design process itself up to the process of integration of design with construction and site supervision. As such it covers a wide area of expertise, since the architectural management in the process of design and project implementation requires the competencies and experience ranging from formulating the best project brief related to the best development scenario, to selecting and teaming-up the best co-working team – as engineering professionals or best partners further down in the implementation process – which ensures for built cases the success of the project. Here is to be mentioned that bonding a design architecture team, as well as founding an architectural practice is related to managing architecture, in general terms, but also with assumed decision on continuing a collaboration and finding the needed resources within and for the team.

Research, research by design and architectural education [1] is mainly related to directing, mentoring and guiding/leading the team together with the design process, connecting the project with previous advanced study necessary for the architectural proposal; proposing an architectural shape/space may be required for research by design and education, but not necessarily mandatory for the type of research resulting in a list of normative recommendations/ regulations or specifications – even if these are formulated in the form of a check-list (architectural/design) product questionnaire. Architectural research and education requires managing the processes of both teaming and design – obviously adapted to the specific

type of activity, noting certain complexity aspects in connection to extending the team by involving possibly needed specialists from related fields like urban design, conservation, etc.

The process of delivering the building design – challenges the project leading architect - as it requires control over two unfolding processes – the selection and the management of the design team (which may involve various engineering specialties, experts and consultants) in parallel with setting up and driving the design towards the architecturally desired outcome. Managing the architectural design/ construction team will almost always mean leading an ad-hoc team formed with selected teams of (sub) contractors (hopefully) suitable for the project purposes – a team which needs to be directed and competently supervised - a process which requires specific project management/leadership competencies. As such practical experience directs towards the idea that a discussion on project management in architecture needs to consider both team and design thinking as a rational approach to improving the overall project control. Dealing also with sustainable design for both short and long term of is important [10].

Mediating teaming and design thinking: project management in architecture should include a good comprehension of project related actors and actions, as well as their common target(s) and needed knowledge; in this respect several categories of terms and ideas have been identified or selected and further discussed as relevant to the current study:

- Design thinking, project design
- Design teaming, the actors (by definition/expectation)
- Objectives and missions
- Concepts in between: co-working, design and built, integrated design, dedicated pre-studies (different kind of expertise: engineering, history and restoration, etc.).
- Role of collaborative procedures, communication and design archives: digitalization/submittal of data, project files (management of the documents, and hidden procedures)
- Defining performance of mediating teaming and design thinking

5.1. Design thinking, project design

Design thinking and project design are at the core of project management in architecture: the architectural project management has its foundation in scripting and following a good design, not only as a matter of belief but as finding the resources leading to successful result(s). The knowledge and intelligence in the design thinking is reflected by default in the project design, and both are directed by measures of project management in architecture, which further understands the responsibilities,

questions of risks, dedication of the result, and the criteria for the success of the expected final architectural/construction product.

Different scales of designed projects might imply similar or gradual steps to follow in design thinking [2], and each good professional should have an own methodology to follow, adapted to his/hers actual experience.

5.2. Design teaming, the actors (by definition/expectation)

Understanding the specialties and the professionals' competences and skills refers to identifying actors within a design team, their permanent or sequential needed presence along the imagined process. The explanation resides in designing teams, expecting results, following the design thinking and solving issues from inputs and ongoing process of design/building the project.

5.3. Objectives and missions

Architecture and building design teams should follow local regulations and consider worldwide standards [5], fulfil the defined expectations of APM (Architectural Project Management) and check the quality [8] of the product as designed.

5.4. Concepts in between: co-working, design and built, integrated design, dedicated pre-studies (different kind of expertise: engineering, history and restoration, etc.).

Ability of the design leader/or APM to plan a best version of the project design and formatting the best team is essential. Complexity of the project design but also particularities and non-standard solutions are both factors of special communication within the design team, but also in achieving mandatory parameters of design – together with calculations, specifications [6], etc.

Still, the design thinking could include standardised solutions for parts of the project or for whole process, or a transfer of emphasis from directing the whole process of project supervision towards better integration with mediation of teaming and design thinking, considered as part of the project innovation.

5.5. Role of collaborative procedures, communication and design archives: digitalization/submittal of data, project files (management of the documents, and hidden procedures)

Procedures [11]-as a general path to follow - ensure not only the knowledge but also the design progress and communicate/demonstrate the

compliance of the project design. Archives of the design may include, besides the project/prototype, specialties reports, site/project surveys also less visible or formalized procedures marked in the correspondence communication. Dedicated software is a useful tool in managing and providing visibility for the collaborative team on terms/phases in following the schedule (marking reminders and adding questions/inputs/issues). Preserving digital copies of the project design files in a structured manner is also important.

5.6. Defining performance of mediating teaming and design thinking

The performance of team mediation – as well as the performance of the designed product – are directly connected with the level of expectation – defined applicability and parameters of work-design-function, and relate to the specific architectural involvement. Solving issues during design progress or during the implementation of design is a consequence and verification of the team(ing) performance according to the design thinking.

6. Discussions

Mediating teaming and design thinking should have a well-balanced rapport, based on the ability of the design manager to acquire both relevant knowledge and experience within the team, support best professional and innovative dialogue according with the project design and specifications, all under a good working scenario and optimized schedule.

Well managed compact project teams could provide answers for both simple as well complex scenarios, as long as the team includes best relevant experienced professionals – and while the leading architect/architectural project manager proves/delivers creative and technical innovative competences/skills. This is also the case of redesigned projects – involving a certain unforeseen level of complexity in the management of re-design, requiring: design thinking, understanding and evaluation of the revisited project, setting the best design option and an optimum working scenario, as well as a suitable design team able to adapt to required innovation and possible constraints.

Moreover conceptual architecture, which is the basis of programmatic design, should be the result of a dialogue - involving usually at least 2 architects (for the purpose of creative dialogue) and at least 2 engineers to verify the hypothesis and the proposed complex solution form concept to implementation.

Medium size teams are generally able to handle typical designs and their implementation building. These teams would involve all professional

(engineering) specialties as well as external consultants for the purposes of needed project design expertise/verification – as required in the process of project approval and implementation.

Teaming large size teams is generally determined by the requirements of big scale projects or/and long project schedules and phasing, but also by working scenarios in which certain design or management mistakes have already occurred or the project is marked by unforeseen hazards which may require specific expertise not necessarily included in the initial project team. .

Well-designed working scenarios are not mechanically built by following pre-set rules. An important role is played by including the knowledge and experience of the design/project team leader as well of every member of the team. The easiness of understanding the design process resulted from a clear and creative path of design thinking on one hand as well as apprising and mitigating risks for every phase and process of design on the other hand - prove that both teaming and project thinking, are integral part of good management and key ingredients in delivering a reliable and finalized construction product (as envisaged in the scope of the project).

6. Conclusions

Designing project teams is an important complement to the dedication of the specialists' team members to the design thinking creativity. Also knowing what results to achieve and estimating the reality to build are not the only weights to balance. Selecting a team is a matter of drafting the project design and following the rules with creativity, and finally, reaching objectives and managing results for the future. Dedication and specific proven professional competencies are key criteria for first selection of team members. The next criteria are related to the capability of promptly understanding the design, innovation and/or customization, speed and difficulties to meet in the course of the project. The architectural project manager has to consider throughout the project cycle both team and design management since, even at different scales of applicability, project management in architecture ensures the quality, sustainability and feasibility of design based on mediating teaming and design thinking.

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