Core Project Teams as an Organizational Approach for Projects and Their Management

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Abstract

Traditional options for organizing projects are well known covering solutions from pure project organizations up to functional organizations via variations of matrix organizations. Besides of these alternatives capable and clever project management professionals are continuously establishing informal structures and linkages to facilitate necessary cooperation between people and project partners. Particularly modern projects with their turbulent and dynamic nature have apparent needs that are beyond the solutions provided by traditional options. This paper shall build around the concept “core team”. We have recognized the appearance and significance of core teams in case projects the introduction of which shall form an important part of the paper. The named case projects are mainly from the building construction sector being the main focus area of the authors. Regarding this type of projects the project core team approach can be very helpful in bringing key partners more closely together. Examples of such partners are contractors, designers and clients. It seems that a core project team can play a very important role regarding efficient decision making and communication. However, the role and mandate of core teams is still rather vague in the project management discipline.

Keywords: Project; project management; organization; team; partnering; co-design, co-development

1. Introduction

Basic starting points for the organizational structuring of projects are well-established and widely applied. Mandates and responsibilities are divided according to the solutions and principles where cost,
Competitiveness, expertise and availability of desired resources are examples of factors affecting the forming of project organizations. Usually, this kind of thinking is behind of formal project organizations that are then directed and governed by contractual arrangements. Plain formal project organizations can be rigid and produce constraints that make difficult or almost impossible value-adding co-operation and communication. Typically, such activities are desired to take place between project partners horizontally, e.g. between designers and suppliers. Organizational arrangements such as partnering, integrated project delivery (IPD) and project alliances are primarily seen as enablers for such value-adding co-operation and communication (Ross, 2003; Hartmann & Bresnen, 2011). The named approaches both have their merits in the terms of facilitating co-operation but they have shortcomings as well. Project partnering is often seen as an amendment to a standard project practice. This kind of set-up can easily be a cause for inefficient collaboration and relating disappointments. On the other hand, project alliances have strong contractual starting points but, in general, project alliancing seems to be suitable only for large size projects. These are typically infrastructure development projects or even programs.

Besides of formal project organizations we need to put our attention on informal project organizations. In general, informal project organizations have been seen as chances to achieve the value-adding collaboration between project partners. At present, many organizational solutions that are aimed to facilitate collaboration between project partners fall into the category of informal organizations. We can also argue that often project partnering solutions can be seen only as informal organizational arrangements (or trials). Project teams and team building in projects have been another popular topic during last decade. Cross-functional and cross-disciplinary teams are typical examples of solutions that are targeting improved collaboration and its benefits.

This paper and research behind it is built on the concept core team. The paper shall present the emergence of core teams and discuss its potential as a solution for collaboration in projects. The authors of paper have carried out a proof-of-concept study and aim to carry out action research where acting core teams are placed in case projects.

2. Our research context

The research effort behind this paper is a part of a four year research effort entitled Indoor Environment research program 2011-2014. The main financing bodies of this research program are The Finnish Funding Agency for Technology and Innovation - TEKES and participating companies. The research consortium consists of 31 companies and 11 research institutes. The aim of the Indoor Environment program is to find solutions that promote productivity, pleasantness and health of space users in an ecologically sustainable manner. The focus areas are user-centric spaces and their energy-efficient management, revenue models for good indoor environments, and design and implementation of inspiring learning environments.

The research addressing inspiring learning environments is the part where the authors are exploring new organizational innovations that can facilitate cross-organizational and cross-disciplinary collaboration. The industrial context of research is the real estate and construction sector (REC). Main business maneuvers in this field are typically carried out as projects and therefore projects and their management play a crucial role. Nowadays, as results of the outsourcing paradigm, companies are specialized around their core businesses also in this sector. This has resulted in a considerable increase of number of partners also in building construction and renovation projects. Such projects are typical instruments for improving existing learning environments or creating new ones in university campuses. The authors’ research task is addressing university campus renovations and development projects.
3. Basic organizational structures for projects and their management

Building construction projects have their traditional ways of structuring projects. Key partners and their leading experts such as architects, project managers, client’s consultants and chief engineers have well-established roles, relating mandates, tasks, contractual obligations and payments. Decisions are typically decentralized with each actor responsible for his own tasks. Disturbing traditional set ups by new organizational trials and their structuring can easily cause problems or simply reluctance to participate. Unlearning traditional ways of work has been found to be of importance but its full benefits are not easily reached (Hartmann & Bresnen, 2011).

In the described manner the building professionals are often anchored to their traditional practices and business models. While studying closer the practical ways of organizing construction projects one can easily recognize presence of i) dedicated project teams, ii) matrix structuring of centralized services provided by main office and iii) network(s) of project partners with chained responsibilities (Table 1). Different structuring approaches can even be mixed with each other resulting in solutions that can be significantly different from each other between various projects. However, the practice of structuring and managing construction projects are still strongly anchored to the traditional practice. This practice is oriented towards verticalness where up-and-down patterns of authority and communication are the dominant ones. The horizontalness i.e. is typically achieved with amendments to the existing structures. Examples of such solutions are liaison roles, task forces and teams, project expeditors and co-ordinators, matrix managers and integrating contractors (Nicholas, 2004).

Table 1. Basic project structuring approaches and theirs strengths and weaknesses (Larson, 2004)

<table>
<thead>
<tr>
<th>Approach</th>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>Functional organization</td>
<td>• No change in the parent organization • Flexibility in the use of staff • In-depth expertise available</td>
<td>• Low commitment • Poor integration • Slow progress • Lack of ownership</td>
</tr>
<tr>
<td>Dedicated project teams</td>
<td>• Simple, independent • Speed relatively fast • Cohesion between participants • Cross-functional integration</td>
<td>• Expensive • Internal strife between project • Team and parent organisations • Limited technological expertise • Post-project assimilation of project personnel</td>
</tr>
<tr>
<td>Matrix structure</td>
<td>• Efficient resource utilization • Dual project/functional focus • Post-project assimilation of project personnel • Flexible utilization of resources and expertise</td>
<td>• Dysfunctional conflict on personal levels • Infighting of shared resources • Stress caused by distribution of command • Slow progress due to decision making process</td>
</tr>
<tr>
<td>Network organization</td>
<td>• Cost reduction through contracted services • High level of expertise • Increased flexibility</td>
<td>• Breakdowns in coordination • Loss of control • Conflict due to lack of trust</td>
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</table>
4. Project team as an organizational element

A project team is usually understood as a lowest “grass root level” organizational unit that has an important operational role. Main motivation for team building and team development is the viewpoint that the total value of an optimally working team is more than the plain sum of value of its members. In other words this means that a team can produce results that would not be possible otherwise or just in case individuals working separately.

Teams can have a formal positions and roles in a projects but this is not necessary the case. However, formally existing teams as least have a clear mandate for their existence and thus proper starting points for their work. Besides of formally existing teams the high expectations of top quality results can often mean development of informal project teams. A simple example of this kind of team building is the work by architect, structural engineer, electric engineer and building system (HVAC) engineer. In any case cooperation of these different disciplines is required but a top quality solution would require smoothly operating team work. To get best out of the performance of project teams requires particular skills from the team leader. A specific team management approaches have been developed that demonstrate the world of team management (Figure 1).

![Fig. 1. Categories of project teams (Barkley & Taylor, 1994)](image)

We see project teams as an important development of project structuring that does not have fully developed position as a part of formal project structures it can have. The manning, mandates, contractual recognitions and empowerment of project teams are the dimensions where developments should take place. Perhaps one way to go forward is the exploration of special teams which can have new kind of key roles in projects and their management. Decision making is an example of such key role. In this paper we cover a new kind of project team entitled core team. This kind of new team concept can be helpful for taking the full benefits of project teams as project structuring approaches.
5. Core teams

5.1. The concept core team and its emergence

We have recognized that project managers and other project experts tend to use the term *core team* to mean a special small group of project executives or project experts with a specific mandate. For example, this special mandate can include co-ordination of key partners or preparation of proposal for strategic decision making. Despite of being intuitive ad-hoc solutions one should acknowledge them. Emergence of such practical and practice based examples have real needs behind them. Otherwise they would not exist at all. In addition to these practical examples, core team has been mentioned in the project management literature, although only seldom, as a central unit of a project organization, e.g. by Cobb (2012), Hartman (2000), Haugen et al. (2010), Robles (2009), Wysocki (2009).

We define a core team as a central organizational unit for projects and their management. Team efficiency studies are proposing that the size of a team for maximum efficiency is 3.5 people (reference). Such team is consisted from 3-4 people having suitable skills according to the mandate of the core team.

5.2. Core teams as organizational solutions for construction projects

Construction business and its project are gradually transforming from resource orientation towards service orientation where benefits and life-cycle of the built property is put first. This means also extensive involvement of end-users such as citizens, tenants or, like in our case, students. Construction projects are therefore increasingly playgrounds of individuals and groups representing their interests and desires. Furthermore, building construction is increasingly understood as was to achieve or loose well-being and healthy living environments. Construction project need to have capacity and skills to anticipate and understand end-user experiences for meeting fully their needs.

Managerial and organizational solutions addressing the described challenge are still in their infancy. Basically, still presently construction projects are dominantly in the resource oriented mode. In simple terms, looking at cost oriented decision making versus value oriented decision making we can easily observe the dominance of cost oriented decision making where value adding and its possible benefits (also economics ones) are covered in an insufficient manner or totally ignored. Too often, important decision making is dispersed in a hierarchical manner where local optimization procedures are hindering the achievement of high-value results.

As a novel solution for the described challenge we are proposing the use of core teams in construction projects. Naturally “a construction project” can vary from a highly standardized routine project (house building) to one-of-kind mega projects, where huge building blocks are built or whole regions are to be transformed into a new high class living environment. In our research case our target is to facilitate creation and development of new university learning spaces which meet successfully certain pedagogical principles (problem based learning, interactive learning), facilitate innovation processes and provide pleasant multi-purpose environments not only for teaching but for social activities as well.

5.3. Possible core teams for university learning environment development projects

Specialized facility management companies mainly own the facilities of Finnish University. However, the universities employ personnel that take care of the rented facilities. The benefit of this system is seen that the facility management company is able to focus on facility development and the University can then focus on its own functions.
The university campus development involves several stakeholders from the University (or Universities in the same campus), the facility management company and the professionals that design, plan and execute the construction project. When the University faces a need to renovate or have new spaces in the building there is a need specification needed that is introduced to the facility company that makes the decisions to start the project. After this the more formal development process starts. The facility company wants to collaborate with the university in the very early stage of this process to make clear what are the principals of this kind of actions. For instance, the facility owner wants to decide the designers so that they can be sure of the quality of the planning process. If a department of the facility e.g. a laboratory faces a need to have a new laboratory built for them. They might not know about the possible costs of the new laboratory for the facility management company or for the University. The new laboratory is paid by higher rents paid by the university in long run.

The core team can be formulated by focusing on directive viewpoint of the University. From this viewpoint the team needs to know why the new spaces are needed and needs to be able to make decisions on the monetary effects of the project for the University. This team can be called the end user executives. For example, the team could be formed with the laboratory head and the controller representative (e.g. the facility head of the university) and dean of the department or even the principal if the project is strategically important.

The core team also can be formed from the expertise viewpoint especially if the functions of the new facility are the main issue. This kind of core team might be necessary when we are building unique type of spaces. The core team should be able to create new concepts and new ways to solve the problems of the planned spaces. In the laboratory project example the members of the expert team could be the head of the laboratory, architect, selected engineer.

The core team could also be formed from the construction execution point of view. This team would then focus on the timely and well done constructional solutions to fulfill the end user needs. The core team would then be formulated from the construction professionals so that they would be able to serve the University and Facility company in a best way. There would be, for example, the main designer, the quantity surveyor, project head.

Especially in a large project the construction project needs to take care of the timely decision making and according to earlier studies the end user representatives do not always understand the decisions they are making. Communication experts should know the functions of the university and help them to understand what kind of decision is at the moment in the hand. There should be experts both from the University and from the construction team but they should not be the main designers or project team members so that the designers could concentrate their own task and all the other parties would be able to do what they are assigned to do. However, this core team would only think who should be invited to different meetings and how to communicate the issues to each team.

Building model management experts can also act as a core team for the construction project since they can take the responsibility to think about how the knowledge of the designed building is represented in different stages of the project. As a core team the team builds and concentrates on the core information or knowledge of the designed new spaces. If the building model management team is the leading core team the representations of the current understanding is the focus of the core team functions.

Building model usage experts can also act as a core team. This team could contain the facility management and analysis experts who can use the model to analyze the model from different perspectives. This gives all the decision makers information that helps them to make informed decisions for example of the energy effects of the proposed shapes of the building.
<table>
<thead>
<tr>
<th>Core team</th>
<th>Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>1.</td>
<td>End user executives</td>
<td>Decision making of the new spaces</td>
</tr>
<tr>
<td>2.</td>
<td>Content experts</td>
<td>Solution concept, engineering</td>
</tr>
<tr>
<td>3.</td>
<td>Implementation experts</td>
<td>Serving the University and Facility company</td>
</tr>
<tr>
<td>4.</td>
<td>Communication experts</td>
<td>Takes care of timely decision making, interprets the messages between the University and construction specialist</td>
</tr>
<tr>
<td>5.</td>
<td>Building model management experts</td>
<td>Representing the current understanding of the designed spaces and aiding in decision making</td>
</tr>
<tr>
<td>6.</td>
<td>Building model usage experts</td>
<td>Aiding the informed decision making processes</td>
</tr>
</tbody>
</table>

6. Discussion

Team members in a collaborative construction project should, “…be equally committed to a common purpose, goals and a working approach for which they hold themselves mutually accountable” but also “deeply committed to one another’s personal growth and success” (Katzenbach & Smith, 1993). Project management should emphasize good performance results from clearly specified goals, knowledge sharing, and the reliance on a tightly knit and more or less constantly interacting team. The core team can help in this by setting and integrating the different viewpoints of the stakeholders.

The core team is an interesting viewpoint in campus development project. There are several possible ways to formulate the core team. Each core team type might fit for different types of project very unique spaces might need a content expert core team; end user executives might be need in strategic facility development projects where the budget is critical; implementation expert team serves the clients when the experts have knowledge on the end user needs and have been able to construct the service concept; communication expert core team is needed in complex, large projects were the stakeholder network is large; building model management experts can serve as a core team by showing the current understanding of the designed spaces; and building model usage experts can as core team analyze the model and give valuable information for the decision makers about the alternative solutions.

7. Conclusions

Despite the importance of clear decision making in construction projects, this rarely happens in reality. This paper focused on describing the role of core team. There were many different strategies to form the core team. We recognized at least six different types of core teams. The different types of core teams can support the decision making and help the project to achieve its goals. In real life there might be important to have almost all the core teams defined in a complex project but at the same time the role of each core team should be clear in order to make the decision making more clear.

Acknowledgements

The author would like to express their gratitude to the companies involved in the research effort behind this paper. Particularly we would like to mention Suomen Yliopistokiinteistöt - corporation and thank you for their interest towards research based new solutions for university campus development.
References


