Construction Maeconomics Conference 2015

Establishing owner´s strategy on the construction projects realization

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Abstract

The whole process of the construction project realization could be really complicated for the owner. Owner’s frequent main goal is to realize a project, according to his demands, according to time schedule and with reduced cost if possible. At the beginning owner needs to define his strategy for the project realization. That means to create a project organization choose a procurement system, identify project partial goals and determine possible risk and establish risk management. The whole strategy process is affected by the needs of the owner and the abilities of the potential contractors and project team. In many cases the owner is deprived of the possibility to elect the optimal way to realize project losing its potential advantages and possibly accepting more risks than necessary. Establishing the project realization strategy is very often underestimated, but it is a very useful tool for the successful project realization. The appropriate strategy should enable the owner an easier preparation and realisation of the construction project.

Keywords

Construction project; owner´s strategy; procurement systems

Introduction

Projects in civil engineering are very specific, because every project is original and affected by many subjects and situations on the construction market. There is a wide range of participants, the owner, designer, general contractor and subcontractors or the final users of the construction project. In big part of the contractor systems one or more agreements are made and these contracts define the way, the construction project will be realized.

There is not clearly defined a difference between project strategy stage and feasibility study stage. The main role of each project phase is very close to each other and activities during these two phases are nearly similar. The main reason is that both are affected mutually by partial standards and findings. These two stages go parallelly and their connection is absolutely necessary for the effective results of every stage and for the project completion as well. Feedback is the main topic in these stages, as a crucial owner’s tool for early decision making and subsequently realization of these decisions. Graphically project phases are shown below, but the sequence is not untouchable and could be different for each project, according to the project demands

 Figure 1: Phases of the project development

Research methodology

There is not only one way to pick the most suitable method. There is a possibility to choose a mixed method, combining the advantages of each individual approach while eliminating their weak points. This work only chooses to apply qualitative research that is used when the research requires a deeper understanding of the topic. This type of research can deal with the description of processes, relations, situations, assumption verification, theories or generalization.

There are possible two research methods for this work, positivist and phenomenological. The Positivist method has a more philosophical approach and the type of knowledge is based on statistical logic [1]. Interviews and surveys are used for data collecting, but if it is presented incorrectly, this method may not bring a complete and correct view. The Phenomenological method is characteristic as a study of phenomena and the assumption of empirical knowledge. Its task is to detect mistakes in phenomena, get to the core of it and get at the truth. The phenomenological research method seems more suitable for this work.

A deductive type of research is used. The deductive approach is chosen because the work goes from a broad spectrum of knowledge to much more specific conclusions. The deductive approach is about understanding the partnering process. The research aim of this work is to demonstrate advantages of suitable project strategy.

Project team

The whole project team and a project team structure are derived from the project specifics. Mostly project team is lead and controlled by the project manager and consists of the following members [2]:

* Owner’s internal team – appropriate representatives of the owner
* Project manager – as a member of the owner’s organization or external
* Designers – main architect, structural engineer, services designers, etc.
* Specialists – development experts, financing and law experts, safety experts, etc.
* Contractors and subcontractors

There are many variations of the project team structure. One of the possible ideal project team structures is shown in the image below. But real project team structure is affected by many specific project aspects, procurement system, contractual arrangements and owner’s demands. Appropriate project team structure selection is one of the project manager’s main roles on the project preparation phase.



Figure 2: Project team structure

Project team selection

Project team establishing is crucial activity during strategy phase. For each team member it is necessary to take into consideration their different abilities and proficiencies. Project manager has to obtain as many part project goals as possible. Main goal is to inspire whole project team to share project commitments and will to gain measurable project goals. Project manager

´s second step is to define teamwork win – win strategy and related financial motivation. This access could help with problems solution during the project realization. Many publications based on this topic are published by professional institutions abroad (e.g. RIC’S and RIBA in the Greta Britain)[3].

Project manager choose team members regarding to following aspects:

* Significant experiences
* Technical skills
* Project goals appreciation
* Level of availability for the supported sources
* Creativity and innovation of the team member
* Enthusiasm and loyalty
* Positive team spirit
* Communication skills

Each involved team member has to prepare data to prove his possibly contribution to the project goals. That means, especially for the contractors and designers to innovate the project to realize it in better quality, lower price, less time, etc. Financial strength and resources are also significant criterions. For the contractor selection it is better to reject bid that achieve over 20% of the contractor´s annual turnover.

The project team concept is consulted with owner and with his permission project manager determines appropriate processes and names project team. There are two basic ways to name project team [2]:

* Separated appointment of the independent provider for required services
* Single appointment of the project team or company to fulfill required services

For the project successful completion team member’s cooperation (personally and professionally) is absolutely necessary. Project team selection should be based on selection procedure and personal interviews. Especially for public works, harmony with current legislation is essential. Project manager needs all information about project team tendering and he has to cooperate with the owner.

After the project team establishing, project manager has to clearly define:

* communications processes in the project team
* each team member’s responsibilities
* superiority in the project team
* suitable location of project team members

Besides other things, he has to support working environment that endorse ideas sharing, award initiative and lead to the better project outputs. He has to provide for team members information and social meetings like teambuilding, etc. All these things support project goals at all.

Project strategy

In this process, the concept of the project realization strategy is defined and the simulations of the possible project development are made. This process and its key fragments could be – for the typical project- described and summarize graphically as a *parts of the project strategy phase*.



Figure 1: Parts of the project strategy phase

Project manager is responsible for, and mostly did, all key activities involved in this project phase. In some cases it is not necessary to realize all activities, or it is not realistic to obtain all of them, but generally there is need to comprise as many following items as possible.

* Project details controlling and consultation with the owner and project team members to fulfill all demands. Project realization final strategy should be written with all details of the project.
* Propose and establish project organization scheme and nominate project member roles and responsibilities.
* Ensure owner’s supervisor for the project, project consultants and after the procurement systems selection advice proper contractor for the project.
* Application of the value management on the project. Emphasis is on the final value of the project, not on the local savings or quality.
* Owner’s consultant for the contractor’s selection, etc. Project manager prepares and define role and responsibilities for involved parties, evaluate them and make reports for the owner about contractors.
* Prepare warranty and insurance for the project to minimize owner’s risk on the project.
* Establish risk management for the project.
* Select, prepare and agreed all significant contracts for the project.
* Protect owner’s interests on the site during the project realization.

Procurement system

In this phase of the project strategy planning, all needs and requirements for the realization phase should be determined. All companies need a strategy for procurement. The strategy of procurement tries to influence questions about the options of purchase, storing and expediting. The field of procurement is of high significance in the business of construction companies; it’s largest expenditure. A good strategy in this area makes it possible to create great savings; that seriously can increase the total profit [2].

The complexity assessments provide a consistent and structured basis to evaluate the organization and the project. When used in conjunction with the capability assessments, they provide a fuller picture of the capability of each party to deliver the chosen procurement strategy effectively. This ensures that selection of the procurement strategy is made with a full understanding of the risks and opportunities that may affect successful delivery. To assist in the selection of the appropriate delivery or procurement model, the different approaches are used (e.g. Transactional, Critical, Leveraged or Strategic). These are not definitive categories and broadly represent different approaches to the complexity and risk allocation [3].

The range of used procurement systems is very wide. In practice, many variations are possible in developing a delivery and procurement model to fit the project requirements. The ideal procurement system has to protect owner’s interest and demands. The differences in procurement systems cover different risk allocation and project member’s liability. Project manager prepares materials and pros and cons for each possible procurement system. Clear goal is to maximize owner’s profit on the project.

The possible procurement systems are:

* Traditional
* Design build system and alternatives
* PPP projects
* Project management

**Traditional system**

This system has been used for a very long time and it is also called Design - bid - build procurement system. A characteristic feature of this contractor system is the involvement of three main parts – the client, the designer and the general contractor. The relationships between these three entities are firstly between the client and the designer and secondly between the client and the general contractor [4]. The system is designed more or less for such types of contracts where the amount of changes is minimal. In case of any changes the system is not efficient and the changes can cause rising of both the price and the time of realization. The system is mostly focused on the lowest price, but it does not pay any attention to potential risks.

**Design – build system**

The Design – build system started in the US in the 80s as an alternative to the traditional systems. It is still quite new on the Czech construction market, but it has gradually been becoming more popular. Its typical characteristic is that there are just two parties involved – the client and the general contractor. Their relationship and communication are easier which brings time and cost savings. It is used especially for complex and technically difficult projects where claims and changes are expected during the realization [5]. Design – build system is longer used on the UK construction market. The Highway Agency specified when it is suitable to use this system. D&B contracts are used for substantial projects beyond the threshold of Highways Agency frameworks, where the ECI approach is not suitable. Typically, these are larger renewal schemes, or schemes where most design decisions are fixed in advance. Suppliers are expected to complete the required level of design, which must include introducing any potential savings in time, cost and/or quality gained through their previous know-how [6].

**PPP procurement systems**

It is a significant group of contractor systems which connect the public and the private sector. In this cooperation, projects situated in the public sector are financed and realized by a private client. This cooperation is mostly for a long period, not just for the realization, but also for the project operation. It’s interesting contract for both, public and private party [7]. Private - finance contract forms are considered for high value, strategic projects, in accordance with government policy. For roads under Design Build Finance and Operate contract forms, the deliverables are centred on the provision of an operating service rather than an asset. Over an extended contract, the private sector assumes responsibility for the operation and maintenance of a length of existing or new road, and can include building specified improvement schemes. Suppliers are expected to partner the Highways Agency in design, construction and operation and form a strategic part of delivering the Highways Agency’s aims to their customers [6].

**Project management**

Project management main assumption is to direct relationship between owner and specialized contractors. Project manager is part of the project team and he acts as a member of project team, not project team leader. Project manager’s main role is to manage and coordinate construction works on the project. Project team is responsible for the financial management of the project.

The project management is mostly used on the projects, where the project documentation is still developing during the project realization. For such a project, the project management is the less adversarial procurement system.

Regardless to the procurement system, main activities during project preparation and realization are similar. The activities could be divided into four stages:

* Defining of the final demands on the project
* Project documentation preparation
* Securing all resources for the project realization
* Project members managing and coordination

Contracting

Formation is final phase of the project preparation. It makes and manages relationships to project members. Main goal in contracting is to minimize barriers, support cooperation on the project and maximize mutual effort to fulfill project goals. Possible risks are involved in the contract, but they depend on procurement system very often. Essential topics for contracting are:

* Type of the contract
* Risk allocation
* Usage of the mediator
* Express goals of the project through workshop
* Project team
* Open and fair communication

Conclusion

Realization strategy for the construction projects is still very underestimated part of project development. In a fact, this phase is one of crucial phases in the project. If processes carefully, the strategy could simplify following project phases, but mainly, it should save total costs and time of the realization. Construction industry is notorious for its adversarial relationship among contracting parties. That’s the reason, why this whole process is not simple, and it is necessary to work with it carefully. Good project members and contractors selection is the main item. In order to maintain the harmony there must be a level of mutual trust and project commitment. Interpersonal relationships are reflected into business relationships and it has an impact to the project.

There is no one universal strategy or system how to select optimal procurement system and realize construction project. Every procurement system has pros and cons; every project needs individual strategy for realization. Because every project is unique, it is just possible to summarize and indicate partly advantages and disadvantages in single strategies and systems.

Generally, more complicated project needs more emphasis on procurement system selection, mutual contractual relationships and risk allocation [8].

References

1. SILVERMAN, D. *Qualitative Methodology & Sociology.* Aldershot: Gover Publishing, 1985.
2. Gustafsson J*.: Analysis of procurement in construction companies - a part of strategic planning.* KTH, Stockholm, Sweden: Economics and Management 30, 2008.
3. HM Treasury. (2013). *Sourcing Focus.* Retrieved 10 11, 2013, from Sourcing Focus the portal for the sourcing industry: <http://www.sourcingfocus.com/uploaded/documents/IUK_Procurement_Routemap_Guide.pdf>
4. Prostějovská, Z., Hačkajlová, L., Tománková, J.; Hromada, E.; Tatýrek, V. *Management výstavbových projektů. Praha*. ČVUT v Praze, 2008.
5. Dorsey R. W. *Project delivery systems for building construction*. Alexndia, USA, The associated General Contractors of America, 1997.
6. The Highways Agency, (2012). Retrieved 12 15, 2013, from The Highways Agency: tendering for projects: <https://www.gov.uk/the-highways-agency-tendering-for-projects>
7. Ostřížek, J. Public Private Partnership Příležitost a výzva. Praha: C. H. Beck, 2007.
8. The American Design/build institution, 2011