

VALUE CREATION FOR USER AND OWNER OF BUILDINGS IN THE LONG USER PHASE – STATUS SO FAR IN OSCAR-PROJECT

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ABSTRACT

The objective of the paper is to present parts of the findings from the research project “Oscar – Value for User and Owner of Buildings” which will be finished in January 2018. The main intention of Oscar is to develop competences, methods and analysis tools to ensure value creation for owner and end-user throughout the lifetime of a building. This includes how to define criterias for value strategy in the early phase and implement it in design and as a base for decisions throughout the project. We call it the OSCAR bridge from early phase design to the long user phase. This paper presents Oscar project’s findings so far regarding main pillars at both ends of the Oscar Bridge.

Both qualitative and quantitative research methods is used. Different approaches such as literature review, case studies, structured interviews, surveys and workshops has been applied for collecting data through several work groups. A number of student thesis has contributed (master -, bachelor, phd).

Focus in this research has primarily been on Hospitals -, Office - and University buildings.

The results reveal that it is of great necessity to get a stronger owner governance in order to bring value strategy and goals throughout the execution process until delivery. Outcome (effect) of the delivery has to be measured regardless which kind of execution process (-model) used. The research also shows the potential for improvements in different processes during the project like user involvement, regulations and decision-making.

The results of the studies will contribute to better understanding on how to bring project value strategy to measurable means from the delivery of the building, and hence a better quality in to user phase.

The research is important to increase the understanding of value creation from the owner’s and user’s perspective.

KEYWORDS: value creation, early design phase, owner governance, lifetime, delivery outcome

INTRODUCTION

The Oscar research project was established in 2014 and will be finished in January 2018. The main intention of Oscar is to develop competences, methods and analysis tools for optimization of building design. An important element of the initial phase is to establish design criteria which are in accordance with the project objectives and the strategy of the project owner. Those design criteria should be the guideline for the design and project development in the following phases safeguarding value creation for owner and end-user throughout lifetime and be the bridge (Oscar Bridge) bringing decision of value creation from early phase design to obtain long term outcome in use phase. From earlier research (Larssen, 2011) we know there is coherence between how we design and how we operate, maintain and enhance our buildings and what values the building (space and infrastructure, people and organization) create for those using, managing and owning the space.

Based on empirical data from strategic analyses, development planning and feasibility studies for building portfolios, both in public and private sectors BJORBERG et al. 2012 it was found that the scope of unfortunate technical solutions, detailed design and materials are remarkably large, even within new buildings. This leads to unnecessarily high operating - and maintenance cost, increased replacement rate and negative impact on core business, in terms of disruption and in the worst cases HSE (Health, Safety, Environment) related issues. A large proportion of the buildings, 31% (Larssen and BJORBERG, 2013), is evidenced as ill-suited, inefficient in use seen from an operational level (poor usability) and any refurbishment is too expensive. These factors substantially reduce the functional life of the buildings. What is the most striking fact is that this life span decrease occurs frequently in relatively new buildings. All this will influence on the value creation process throughout design and construction period, which is a short part of project total lifetime. In the long part of lifetime, the users are stuck with the project and the resulting outcome.

Value for the project owner, the client, will be a part of the project strategy and must be communicated to the stakeholders. HJELMBREKKE et al. (2015) concludes that many projects become a motherless child due to three perspectives; i) client does not manage to translate his strategy into tangible project requirements, ii) project team are torn between loyalties throughout project period and iii) user requirements rarely comes to prevail.

BJORBERG et al. (2015) concluded to ensure that the project will develop effective solutions, which delivers value in use phase, it is essential that the solutions should be based on extended knowledge of core business activities, physical environment as well as taking consideration for future changes (technical or social). In the dialogue with the client, the design team should be able to ask the right questions in terms of what are regarded as important for the value creation. Better understanding of the value principles leads us to optimize the building design to contribute to value creation through the whole Life Cycle (LC) of the building and thereof Life Cycle Cost (LCC). Cost for OSCAR is a combination of the investment cost, the facility management costs and the core business's costs relating to use of the building.

APPROACH

«A fool is a man who knows the price of everything, but the value of nothing» is a saying from Oscar Wilde. The research project "OSCAR – Value for User and Owner of

Buildings” is based on this together with intention from Norwegian Government written in White paper Stm 28 2011:2012 named “Good buildings for a better society”. The main intention for the project is to develop competences, methods and analysis tools for optimizing building design in a way to contribute to value creation for owner and end-user throughout its lifetime. The project started in June 2014 and is expected to be finished in January 2018. In addition to reports from work packages, a guideline on how to create value and a wordbook to avoid misunderstanding different words definition/content will be the main outcome. The research methodology is based on qualitative and quantitative research methods, as: literature review, case studies, questionnaire interviews, survey and workshops. As a start it was important to set up a map - and model for life cycle value contribution, see figure 1.

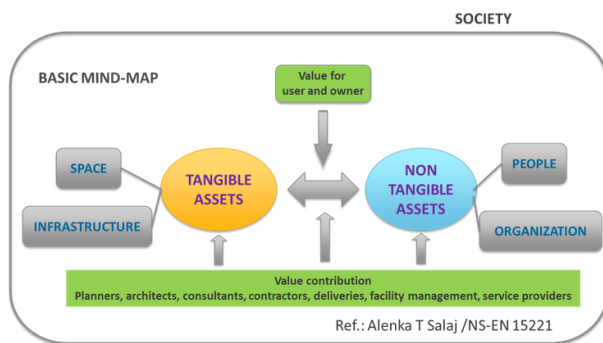


Figure1. Value contribution mind map

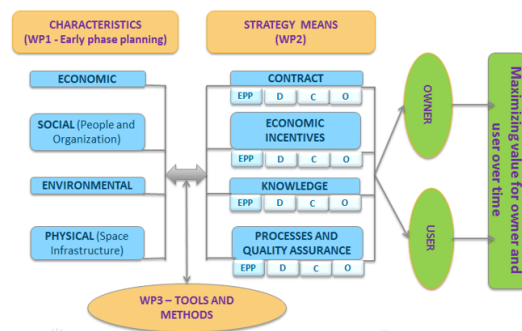
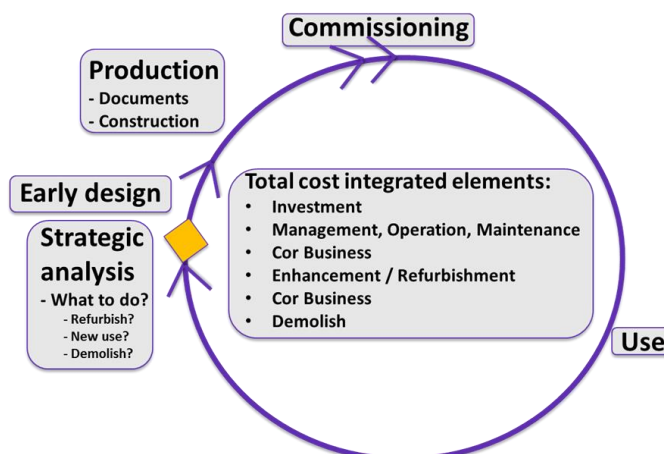


Figure 2. Value contribution model (EPP – Early Plan Phase, D – Detail Design Phase, C – Construction Phase, O – Operation (Use) Phase)

The research findings in the Oscar project are a result of cooperation with 22 project partners from three countries from academic, private and public sector, representing all stakeholder groups.

Value is often defined as function divided by cost. The best value is achieved with an increasing numerator and a decreasing denominator. For OSCAR, function refers to the building’s function for the undertaking over time. Cost for OSCAR is a combination of the investment cost, the facility management (management, operation, maintenance, service and support) costs and the core business’s costs relating to use of the building. Oscar lifetime phase plan, which is generic, including refurbishment and



demolition as a decision gate, is shown as a circular economy, also decision gates, is shown in figure 2.

Figure 2: Oscar phase plan throughout lifetime as circular economy

Oscar project contains three work packages (see figure 1):

- WP1: knowledge of needs to be addressed in the early phase to maximize the values for user and owner of building.
- WP2: identify how can existing project execution models (planning, construction and commissioning) be used to achieve the goal of value creation in all phases?
- WP3: Development of methods processes and tools to safeguard this throughout the lifetime (guideline to stakeholders).
- WP4: Networking and dissemination of results from the OSCAR project (a continuous activity from day one in the project)

Based on a literature review focusing on definitions of value in a building context, it was concluded to use the following definitions in the Oscar research project:

- Value: the project value should be a result of owner's project strategy.
- Value creation: process needed to achieve value.
- Added value: innovation and possibilities throughout the project process which can increase value outcome.

Within the first phase of the research, a list of characteristics and means of what was considered as important for value creation was derived from a literature review. The specific characteristics and means were sorted in four groups. Three groups are well known from definition of sustainability: Economy, Social (People and organization) and Environmental. Based on the definition in White Paper, Stm 28 2011:2012, of a Sustainable building as a building, which fulfils core businesses needs over time to lowest use of resources, the fourth group of characteristics were added, namely Physical (Space and Infrastructure). An unacceptable condition of the latter will affect the other three groups negatively.

Two large scale questionnaire surveys have been performed, with respondents from all stakeholder groups in the widely defined Norwegian property and building sector, including owners and tenants/users. The first survey (approx. 900 respondents) focused on the respondents opinion of importance regarding value creation for owner and user, and how it is implemented and focused in projects. The other survey with more than 1000 respondents focused on different execution models (tender-, construction- and contract model) and how value creation for owners and users were implemented.

Findings

A wide range of findings regarding the respondents experience and their characteristics of value creation is listed work package 1 and 2 (WP1 and WP2):

- Ownership and Project Management. Lessons learned of existing practice is that project owners in many cases do not define clear goals (value) that can be operationalized into (measurable) indicators that show whether owners and users reach and meet their goals.

- Implementation Model. A distinct implementation strategy must be in place and should consist of a tender-, construction- and contract model. The implementation strategy affects responsibility, risk allocation, organization, information flow, and form the framework for interaction between project participants.
- Delivery Model. The final delivery is the product that should meet the given goals / value creation objectives for the project, and should be measured against these. The ability to measure the outcome depends on the time of in use from handover. The model will ensure a process that safeguard that the client receives the quality and characteristics given as a requirement.
- Incentives. The use of incentives must be considered as a mean to improve effectiveness and productivity. Wrong incentives may be regarded as perverted as they can have a negative effect on the intended outcome. Furthermore, they must be based on measurable criteria that motivate all actors towards common goals and to prevent suboptimization. The use of monetary incentives for early phase suppliers may be counterproductive.
- Structured and proofed decision-making in the early phases is crucial for the project outcome. It is recognized that decision making in early phase of a project are most effective for long-term value creation for the owner and user. In this phase it is thus crucial to have the widest possible range of expertise in various subjects combined with a good project management with complementary process management.
- General knowledge of user and owner experiences. Experience and measurement of value for the user and owner of completed projects, are performed to a small extent (i.e. Post occupancy evaluation (POE)).
- Experience from Facility Management (FM) in the early phases. There is a great potential for improvement regarding involvement of FM in early phase in order to achieve value for both users and owners in the use phase. Experience from Public Private Partnering (PPP) projects is particularly relevant here, both with and without private funding.
- Special responsibilities of authorities and policy organizations in the industry. It can be concluded that the authorities and industry have great potential for influence by giving quality requirements and developing industry standards for the parameters that should be emphasized in the future.

From the first questionnaire regarding respondents experience from projects, the following general trends were found in projects executed the last three years in Norway:

- Investment costs are of high priority, at the expense of life cycle costs
- Investment costs are of high priority, at the expense of tenants costs in the use phase

- From environmental aspects, the most focused issues are those where there exists strict regulations in Norway, such as indoor climate and energy efficiency, whereas more voluntary measures, such as the use of environmental certification systems are more seldom, and recycling of building materials had no focus.
- From physical aspects the most focused area were assessed as accessibility and universal design, whereas planning for long term generality scored lowest.
- From social aspects, the highest focus is set on user participation in the planning process.

The questionnaire surveys conducted in WP1 shows that the respondents from the real estate and construction sector see a need for change, with greater focus being placed on value for users and owners in a life-cycle perspective. At the same time the respondents state that they know little about life-cycle planning and value-based project management.

The most important value aspects for both users and owners are found to be related to the building's adaptability where the premises facilitate efficient work processes and good logistics and fulfil various well-being criteria over time.

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Recomendations and Conclusions

Based on findings in the OSCAR research project, recommendations for adequate actions to be taken by owners and stakeholders in the building sector, political authorities, research and academia and to upcoming WP3 in the OSCAR-project. In summary, these are as follows:

- Stakeholders in the building sector. The industry must support to establish a permanent national competence center with the mandate to implement innovation and new knowledge into the building industry sector. In this case, the industry is expected to contribute to the realization of such a center. The largest stakeholders in the building sector must take the responsibility to actively contribute to the innovation and development of best practices.
- Political authorities. The government is encouraged to contribute to the establishment of a permanent national building sector competence center for the initiation of development projects, dissemination of knowledge as well as best practice. Furthermore, it is encouraged to evaluate the introduction of a minimum 5-year warranty period, so that the efficiency of the building can be measured after 5 years. This will help ensure quality over time
- Research and academia. As these educate tomorrow's expertise and resources, they have a major responsibility for the elevation of the building industry to meet future standards. It is also recommend to place emphasis in applied research and closer cooperation with building

industry. All aspects of life cycle considerations, and how to handle it, should be emphasized by research institutions and academia.

WP3 in OSCAR-project. WP3 will develop an online guideline, where the ambition is to supply the different roles in projects with relevant knowledge, methods, tools and examples on HOW to implement and secure value creation in projects. Based on results so far it will be focused on three main areas; 1): Value management, Project - and process management, 2): Life cycle aspects and 3): competence. It is concluded to use OSCAR definitions as:

- Value: the defined and planned outcome for owner and user resulting from the project. The project value should be implemented in the project strategy and goals.
- Value creation: The sum of the activities that will lead to the defined values of the owner and user
- Added value: The value for owner and user that can be added in addition to the originally defined value. This can be a result of innovation and/or improvements throughout the project process which can increase value outcome.

OSCAR finds that the design team in early phase should be strengthened with competences from facility management and core business area (user involvement), in addition to integrated architecture and technology. The goal is to ensure value for users, owners and society as a whole seen from a life-cycle perspective.

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