

Value Driven Briefing Process using ICT

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The way briefing is prepared in conjunction with building projects is crucial to the project's adherence to the client's intentions. It is through the brief that the values expected are documented and transferred. However, international research has for a long time pointed out the briefing stage as a constantly recurring problem area for the construction sector.

The aim of this research is to achieve a more value-driven building process by the use of ICT. The objective of this study is to improve the briefing phase using ICT.

To reach this objective the following questions will be addressed:

Q1: What values are defined in the briefing process?

Q2: What values were created by the use of ICT?

Q3: How could ICT be developed to further support a value-driven briefing process?

To answer these questions three case studies were used. One of the case studies concerning a building for culture and music is presented here. The ICT tool Program of Technical Standard (PTS 2012) was used to support the briefing process in the building project studied. In the case study three questions were answered:

What functionalities in PTS support the briefing process?

How did the use of PTS influence the process?

What values were created by the use of PTS?

The result of the studies shows that using ICT to support the briefing process has many valuable advantages. The use of ICT-support in the briefing process makes the process more efficient. PTS facilitates information transfer and consistency of standard.

Keywords: Client, Briefing, Values, ICT support.

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1. Introduction

A building should create value for all the parties involved, both those who ordered the building, owns it and maintain it, but also those who use the building. The building sector is mainly focused on reducing the initial (investment) costs, rather than applying any comprehensive approaches for optimizing total facility life cycle values for the benefit of owners, users, the environment and the society. This is partly due to lack of models, methods and tools for total life cycle value management. The client, in his role as manager for the product development process should gather and transfer information about all requirements and values of the product, the building, and manage the development process toward fulfilling these requirements and receiving the values. This process is often called briefing. Briefing can be considered almost synonymous with concepts of “Architectural Programming” as used in North America (Kelly and Duerk 2002) and “Scope Management” as used in Australia (Peakman 2008). Presently, the terminology describing various types of briefing is inconsistent and different terms are used by different professions and for different project types in construction (Chung et al. 2009).

In order to achieve premises the client can chose between different briefing methods when a new building are planned. Regardless of the method chosen, one success factor of a building project is the way that requirements from the client is transformed and communicated to the contractor (Ryd 2004; Pemsel et al 2010). This process can be supported by ICT tools.

The briefing process is an iterative process in which the client’s requirements and values will be absorbed into both the brief and the design phase. One success factor of a building project is the understanding of end-users needs and the communication of the clients requirements to the contractor (Kelly et al. 2005). Understanding the requirements and the ability to communicate them are a success factor for the building project and leads to more satisfied and less critical clients and end-users (Pemsel et al. 2010). There are many different methods to understand and communicate the requirements of the end-user (Malmqvist and Ryd 2006), some of which are supported by ICT. There have been some reviews of ICT applications in briefing, e.g. (Ryd 2003, Chung et al. 2009) but these reviews have been focused on research prototypes more that the software’s used in practice. There is a lack in the literature of how ICT-support is used for briefing in practice and the values coming from this use. This knowledge is vital as a foundation for further development of ICT-support for briefing. In Sweden there are two systems that are widely used in practice: dRofus (Nosyko 2012) and Program of Technical Standard (PTS 2012). PTS is used by more than half of the Real Estate organisations of County Council in Sweden in the early stages of the building process, and therefore chosen as a case study in this study.

2. Aim and Research questions

The **aim** of the research project, where the study presented here is a part, is to achieve a more value-driven building process by the use of ICT.

To fulfill this aim three main **research questions** were formulated:

Q1: How is ICT used today in a value-driven briefing process?

Q2: What values are given by using ICT-support in the briefing process?

Q3: How could ICT be developed to further support a value-driven process?

In this paper question Q1 and Q2 will be in focus but answering these two questions will also bring forth some information concerning Q3.

To answer the questions above three case studies were used. Three ongoing building project were studied; two healthcare buildings and one building for culture and music. These case-studies were performed as a part of the Eracobuild project "Value Driven Procurement in Building and Real Estate" (ValPro 2012) to develop a holistic value model for the facility life cycle.

In this paper we focus on one of the case studies concerning the planning and production of a building for culture and music. The ICT tool PTS (2012) was used to support the briefing process in this project.

3. Case study: Spira, the Culture centre in Jönköping

Spira, the Culture centre in Jönköping has a total area of 14 000 square meters and the client is Landstingsfastigheter in Jönköping (The Real Estate Organisation of the County Council). The type of contract that has been used is a turnkey contract and the contractor was PEAB. The budget was 34 million Euro and the final bill ended up at 48,5 million Euro (41,2 million Euro for the land and the construction of the building, and 7,3 million for interior, equipment, and artistic decoration). The construction process started in June 2008 and the opening was on 11 November 2011. When constructing this new building, the ICT tool PTS(2012) was used to support the briefing process.

3.1 Case owner

The County Councils most important task is health care. But the County Council in Jönköping is also responsible for theatre and culture activities, called Smålands Musik & Teater. The working environment for the staff of Smålands Musik & Teater was condemned by the Work Environment Authority in Sweden and therefore a new building was planned.

3.2 Objectives and research questions for the case study

The objective of this case study is to investigate the use of PTS in the building process concerning a building used for activities other than medical service. This case study creates an opportunity to gather valuable knowledge for the development of PTS in a general manner. Medical premises have until now been the main focus for PTS but in this case the ICT support has been used during the construction of a culture centre.

To reach the objective the following questions were focused in the case study:

CSQ1) What functionalities in PTS support the briefing process?

CSQ2) How did the use of PTS influence the process?

CSQ3) What values were created by the use of PTS?

The two first questions, CSQ1 and CSQ2, will mainly answer research question Q1.

The third question, CSQ3, will mainly answer research question Q2.

3.3 Method and research realization

An illustrative case study, is primarily descriptive (Hyvärinen and Mäkeläinen 2010), and seemed the right choice for this case study, which seeks to identify and describe how PTS was used in the building process of a hospital building.

Three different techniques for collecting data were used in this case study:

- 1) Workshops
- 2) Document study
- 3) Semi-structured interviews

A summary of techniques used for collecting data and how they are related to the research questions are presented in Table 1.

Table 1: Techniques used for collecting data related to the research questions.

Research question	Technique	Analyse Method
CSQ1 What functionalities in PTS support the briefing process?	Workshops, Document study	Descriptive
CSQ2. How did the use of PTS influence the process?	Workshops Semi-structured interviews	Descriptive Content analysis
CSQ3. What values were created by the use of PTS?	Workshops Semi-structured interviews	Descriptive Content analysis

3.3.1 Workshops

The workshops were carried out with staff from Landstingsfastigheter, acting in a double role as both client and case owner. In the group there were professionals that have a decision-making role at Landstingsfastigheter and people who use PTS on a daily basis.

Two workshop-series were carried out in this research and the aims of the workshops were to:

1. identify the briefing process and establish a description of how and when PTS was used during the early stages in the building process. This should give data to answer research question CSQ1 and CSQ2.
2. establish a description on the values of using PTS. This should give data to answer research question CSQ3.

3.3.2 Document study

Written sources such as administrative documents, newspapers, websites, letters and other internal documents can be used and be relevant to a case study (Yin 2009). However, one should be aware that these types of documents and information are not always correct and they can also contain some bias, and therefore should be used with caution.

In this case study websites and internal reports were used for collecting information about ICT tools, project description etc.

3.3.3 Interviews

Personal and semi-structured interviews were conducted with selected respondents, to study their experiences, thoughts and expectations or perceived effects and problems associated with the use of ICT support in the process.

Responses from those who work for the client (those who purchase the building project) will be compared with the replies from those who carry out (develop) the building project. Therefore project participants from both the client and the current contractor were asked to participate in the study.

The project manager was given opportunity to recommend which representatives from the tenant could participate in the interviews because they had the knowledge on who participated in the early stages.

4. Results

A summary of the results from the document study, workshops-series and interviews is presented below. The result is presented divided by the research questions. The citations used from the interviews below are translated from Swedish into English by the first author.

4.1 What functionalities in PTS support the briefing process? (CSQ1)

As a result of the document study a description of the ICT support PTS was made.

Landstingsfastigheter has developed PTS as an ICT-based management system for controlling and supporting its building process. PTS is a knowledge database containing best practice and specific knowledge about how the building of premises for healthcare should be carried out.

“Program of Technical Standard aims to strengthen the client’s role through active assumption of responsibility, acting correctly from the start, involving clear instructions, good solutions that can be reused and guidelines that set value related goals.”
(Landstingsfastigheter i Jönköping 2010)

PTS was developed back in the early seventies when two of the County council’s hospitals were planned. Today it is a web-based software that can be used if a computer has a connection to the Internet.

Ten of the twenty Real Estate organisations of County Councils in Sweden use and are part-owners of PTS. Each part-owner has one representative person on the PTS board (Landstingsfastigheter i Jönköping 2011). The PTS board makes the overall strategic decisions about the ICT software e.g. how and when the IT-system should be developed. Program of Technical Standard is regularly updated e.g. after collecting experience from the client, contractor and tenants when a construction projects has ended (Landstingsfastigheter i Jönköping 2010). The requirements and information in PTS are also updated if the healthcare providers (the tenants) change their workflows or introduce a new treatment method that affects the requirements of the premises.

4.1.1 Use of Guidelines, Technical Program and Standard rooms

PTS contains guidelines which set the overall values and requirements for standards in premises for healthcare. Guidelines such as acoustics, fire prevention, environmental requirements, hygiene and accessibility (disability) are specified in PTS (Landstingsfastigheter i Jönköping 2010).



Figure 1: Snapshot of guidelines in PTS.

4.2 How did the use of PTS influence the process? (CSQ2)

During two workshops-series the early stages in the process was identified and a description was conducted on how the software PTS was used in these steps.

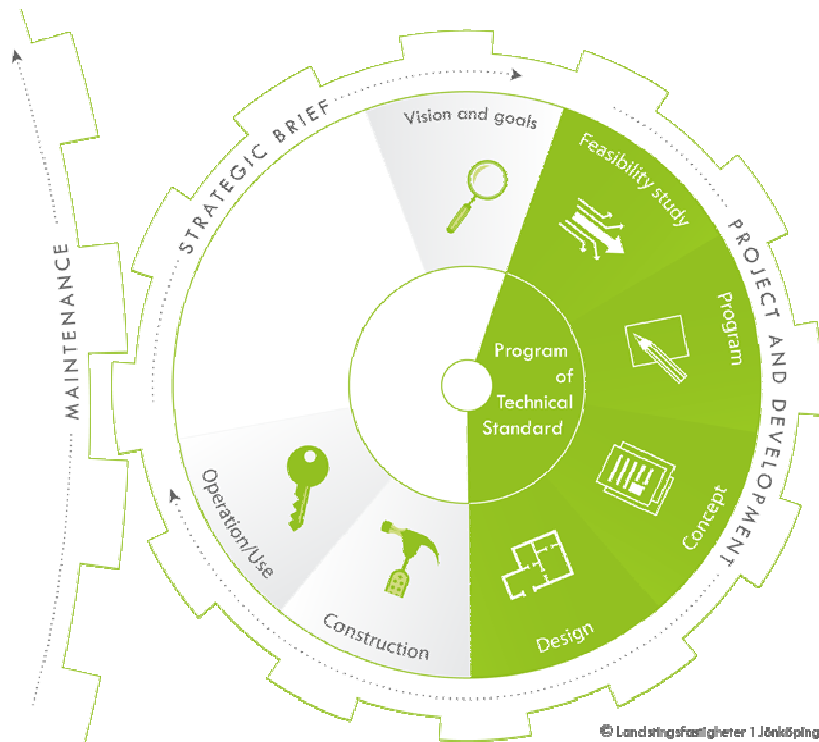


Figure 4: The building process and the use of Program of Technical Standard.

PTS is used during the feasibility study, the program, the concept and the design phase in the building process (figure 5). The use of the software in the different stages is presented below.

The first phase when PTS is used, is in the **feasibility study**. The standard rooms in PTS are studied and discussed during workshops with the tenants, e.g. when discussing the tenants processes and workflows, function and size of the room etc. PTS also supports an early calculation of area, costs and the establishing of the technical brief. In this phase PTS is used by the client (facility planner, project manager) and by the architect/developer.

In the **program** phase, PTS supports a careful planning of the new premises. The FP module (FunktionsProgrammet) in PTS is being used to develop the functional brief of the premises. The brief contains a list of all needed rooms and the requirements for each room. This information is documented in room data sheets (East and Nisbet 2011), in Swedish called RumsFunktionsProgram, RFP. The RFP contains detailed information on interior requirements such as equipment and what functions the rooms should possess. To establish the RFP the standard rooms in PTS are being used and discussions are held in workshops with the tenants. The results from the earlier phase (feasibility study) support this phase and PTS is used by the client (facility planner, project manager) and by the architect in this phase.

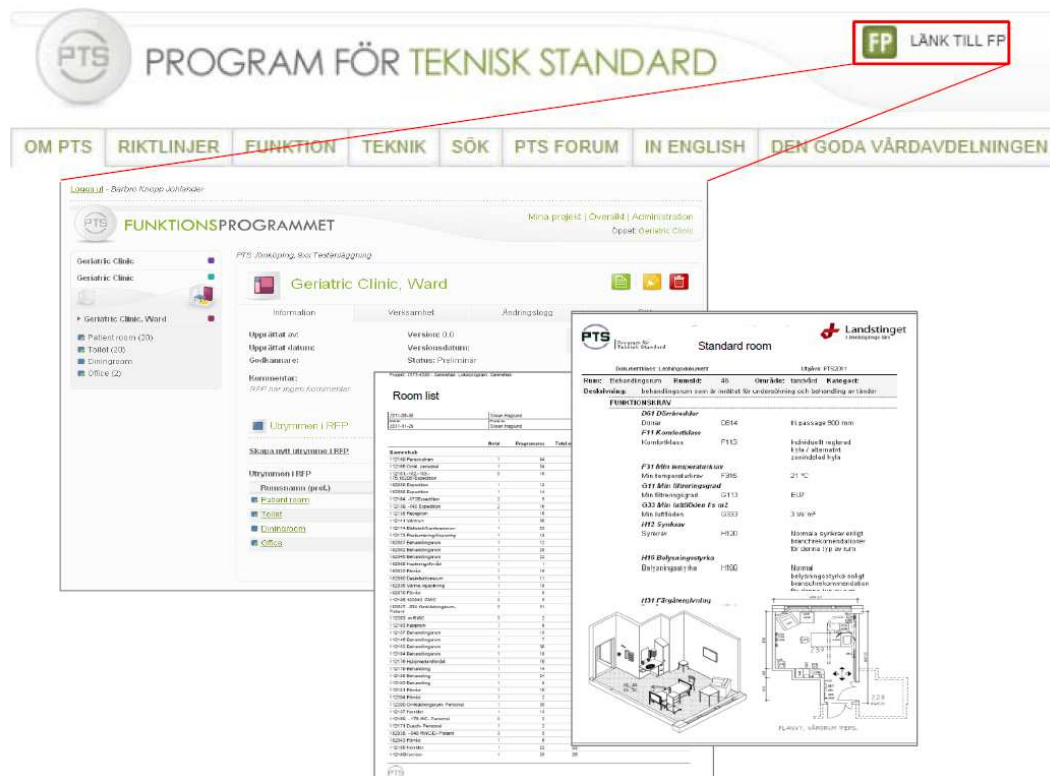


Figure 5: The use of PTS in the program phase developing Room list with connection to the standard rooms.

The TP module in PTS is used in the **concept phase**. TP is used for developing specifications for the technical brief, such as the frame system, materials, building systems etc. Users of this module are staff from the client when they are conducting tendering. But the contractor and entrepreneurs also use this module when procuring materials for the building project.

The project of building 36 is a hospital building and an ordinary building project for this client. The result from the case study shows that PTS has been used according to recommended use

4.3 What values were created by the use of PTS? (CSQ3)

During the workshops held with the client organization Landstingsfastigheter, discussions were held on what values the use of PTS gives. Thirteen (13) values were identified. For more information about these values see (Bruun at al. 2012).

When comparing these thirteen values of using PTS, with the result from the interviews, the results showed similarities. Three expected values could be connected to answers from respondents from the interviews:

Using PTS facilitates communication and information transfer

Using PTS an enables efficient process.

Using PTS enables getting consistency of standard

Those combined values of using PTS are described below.

4.3.1 Using PTS facilitates communicating and information transfer

The developer can benefit from using PTS especially when communicating and transferring information about the requirement of interior and the function of the premises.

"I think it's very important that there is a brief, that is, a RFP that you can follow. There are projects where there isn't always a room program, and the house will be a little bit like what the discussions decide. And that's fine, as long as everyone is in the process. But we work with quite a long process, so people disappear and you stop and .. . all of a sudden, someone is wondering why it is like this, or why that room or that function disappeared... It's difficult; it is not everybody that... it is difficult to get the answer back then, therefore it is good that there is a direct room program. " (Architect, 2011-09-27)

To get essential information about the requirements specified in a structured and easy way to follow, is important for the developer and the final outcome.

"The more information we get, the easier it is for the architect to carry out the work well." (Architect, 2011-09-27)

PTS is also supporting the way in which fear and negative attitudes from e.g. the tenant can be handled.

"The tenants are terrified that their workspace won't be perfect when they move in. They all want much bigger rooms because they are so cramped where they are now. Then you try to tell them that they won't necessarily be so cramped with different planning and different furniture. So I think that this is another fear of theirs and I think the standard room in PTS is a very good tool which you can use to show them what their space will be like." (Facility Planner, 2011-08-18)

4.3.2 Using PTS enables an efficient process

The result from the interviews shows that using PTS enables an efficient process i.e. less time will be spent for the client in the briefing process when using PTS.

"Normally using PTS ensures that we will arrive at a solution faster - we don't discuss things back and forth over a long period of time." (Project Manager, 2011-08-16)

Although it was a different building to construct and the requirements were more specific than the client was used to, the project manager believes that the use of PTS did add value to the process, especially in the contact and discussions with the tenant about their needs and requirements.

"The advantage of using PTS is that we have defined specifications and requirements and we know how our premises should be built and equipped. It is also an advantage to use PTS when dealing with tenants from another organization than the healthcare. This tenant is a very special type of tenant with very special requirements. PTS has helped the facility planners to guide them towards the standards already defined in PTS... as much as they could anyway." (Project Manager, 2011-08-16).

4.3.3 Using PTS enables getting consistency of standard

The results show that using PTS will have some benefits, even if the ICT tool is developed for health care premises and not for premises such as, in this case, music and theatre. Using the software and its requirements enables control and the possibility of achieving a level of standards in the county's premises.

"Actually, PTS is a base to build on ... we avoid having to investigate things for each new project, and we have a standard for how the county council wants to build. PTS is in fact a standard. It helps us to avoid discussions for each project: how big must the rooms be? What should they contain? And already in the early stages you know where the technology in the house must be. [...] And you don't need to go out to each workgroup with the tenant and discuss how big the room must be, because it is a template, a standard. I think it helps me tremendously." (Facility Planner, 2011-09-05)

5. Conclusion

In this paper we focus on how ICT-support is used for briefing in practice. The use of the ICT tool Program of Technical Standard (PTS) has been studied. PTS is used in the early stages of the building process to support the briefing process by more than half of the Real Estate organisations of County Councils in Sweden. The findings in this paper are based on a case study concerning the planning and production of a healthcare building.

PTS is a knowledge database containing best practice and specific knowledge and the ICT support is valuable to use in the feasibility, concept and design process. It is valuable for all parties involved in the process. The case study gave the following values using PTS:

- Enabling the capturing of requirements.
- Facilitating communication and information transfer.
- Enabling consistency of standard.

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