The Soft Factors in Design Management: a Hidden Success Factor?

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Abstract

Purpose – This paper aims to highlight the need to place focus on ensuring soft factors in construction projects' design management and to discuss whether soft factors are hidden success factors.

Design/Methodology/Approach – The presented data is a result of findings from two master theses. The approach is qualitative research and consists of nine semi-structured interviews with design managers and two case studies involving document analyses, meeting observations and descriptions of seven interviews.

Findings – This empirical study demonstrates that soft factors are considered important for design managers' achievement of a successful design process. Focus on soft factors promotes good communication and will improve team performances. Factors are hidden because they are invisible and immeasurable. Furthermore, soft factors are not defined as assigned tasks and are, therefore, easily neglected. Designers are hesitant to explore the possibilities of new technology owing to the fear that they will forfeit human interaction.

Research Limitations/Implications – This paper is limited to the presentation of empirical findings. Therefore, theory is not a basis for the study but rather a framework for the discussion.

Practical Implications – The results in this paper broaden the understanding of human behaviour during the design phase. This knowledge should be considered when the project's delivery model is designed as it will safeguard actor concerns during the ongoing technological transformation.

Originality/Value – This paper contributes knowledge of the view regarding soft factors among project actors. It expands the traditional understanding of value by adding soft factors to the traditional success measures of time, quality and cost.

Keywords Design process, Design management, Soft factors, Success factors, Human interaction, Facilitation, Communication, Digitalization

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1. Introduction

The issue that customers in the Norwegian construction industry are not receiving sufficient value from building projects has been extensively studied in recent years (Knotten, 2009). The significant changes the industry has undergone during the last decade have led to criticism from researchers towards their understanding of the design process (Østby-Deglum *et al.*, 2013). A related ongoing discussion involves how the concept BIM (a working process, modelling tool and management strategy) will change the management of the design process.

Knowledge of the concept value in building processes is greatly important in regard to the focus of project management. Value in construction projects is traditionally measured in time, quality and cost, as assessed from the customers' perspective (Eikeland, 2001). Østby-Deglum *et al.* (2013) describe these as measurable factors that state the success associated with building projects. A central issue with the definition of value is that the importance of managing people and understanding the activities of the process is neglected.

Although considerable research has been devoted to measurable factors of design management, significantly less attention has been paid to the soft factors, which exist as a result of the presence of people (ManagementMania, 2017). Ørstavik and Røsdal (2011) connect Hargie's (2006) theory about communication as a social skill that involves effective interaction between people for the successful building of projects to be achieved. According to this definition, soft factors should be held in high regard to achieve successful communication. Literature indicates an absence of documentation regarding the impact soft factors have on design management today and explores how the factors can be measured in value. In addition, with the technological transformation, it remains unclear whether soft factors will be ensured when there is no longer a need for a group of 30 to 40 designers.

The purpose of this paper is to highlight the need to place focus on ensuring soft factors in design management. As a result of the findings from a previous study, this article was designed to discuss whether soft factors are hidden success factors. The basis for the article is formed by the following three research questions:

(1) *Are soft factors success factors?*

(2) *Are soft factors hidden?*

(3) *Will more technology in construction increase the need to focus on soft factors?*

2. Research Method

The present study is a result of unforeseen findings regarding soft factors from two master theses written in 2018 for the Department of Civil and Environmental Engineering at NTNU, Trondheim. The theses report on qualitative research from an interpretive, epistemological position and the data collection has been limited to the construction engineering company Sweco Norge AS.

The collected data consists of nine semi-structured interviews with design managers, which were validated through two case studies. Selection criteria for the cases were turnkey projects for which Sweco was contracted to assist in the design management. The case studies were conducted through triangulation and consisted of document analyses, meeting observations and descriptions of seven interviews. The interviews were recorded, transcribed and analysed based on the recommendations given by Kvale and Brinkman (2015). For further descriptions regarding the design of the research methods, see Dyb (2018) and Tvedt (2018).

This paper presents empirical findings on the understanding of soft factors. Therefore, theory is not a basis for the study but rather a framework for the discussion. Consequently, the conclusion presents qualitative knowledge – *not* solutions – limited to the setting of the study.

3. Theoretical Framework

3.1. Digital design process

Ballard (2000) defines the design process in building projects as a learning process that cannot be standardised. According to Ballard (2000) and Koskela (2000), design management is not only a decision-making process, but also calls for an understanding of criteria and alternatives. Therefore, adjustments and evaluations of alternatives are necessary for the creation of value during the design process.

In a digital design process, the planning and decision-making are digitalised (Azhar *et al.*, 2012). For example, communication differs from traditional processes as the information flow is based on one joint communication platform (Chen *et al.*, 2005). This transparency increases the need for trust among designers. This theoretical area is not further studied in this paper.

3.2. Soft factors' impact on communication

Communication between actors has a significant impact on the project process in regard to what and how achievements are realised (Ørstavik & Røsdal, 2011). When human relationships are positively influenced by trust and solidarity, they experience more transparency and effective information sharing. Furthermore, communication between people is considered value-related and subjective because it usually involves a transfer of facts, opinions, emotions and values. Communication in a project-based environment presents special challenges, especially in the construction industry, in which projects are interdisciplinary and temporary (Dainty, 2006). Otter and Emmitt (2008) argue that information flow should occur directly between two or more parties through vision, speech or hearing – whichever fits best for the process.

Another view of soft factors' impact on communication is Long and Arroyo's (2018) study on the relationship between linguistic action, positive moods and team performance. They claim team performance can be improved by promoting positive moods in the work environment. Flores (2016, as cited in Long and Arroyo, 2018) distinguishes between unproductive moods (e.g. arrogance, confusion and distrust) and moods that contribute to learning (e.g. curiosity, confidence and trust). Furthermore, moods are invisible, contagious and can be cultivated. In addition, a mood exists in the background and is not a feeling or a specific event.

3.3. Process management focuses on soft factors

Leadership and facilitation are among the main tasks associated with design management. Leadership implies responsibility for processes and results, while facilitation enables positive processes and productive decision-making (Østby-Deglum *et al.*, 2013); the design manager's challenge is to balance the two. Therefore, an important aspect of design management is relational work skills. According to R. Habostad (2014), success is associated with relationships within the team. Trust, feedback and coaching are soft factors that characterise process management during the design process (Østby-Deglum *et al.*, 2013).

Meeting routines are also important tasks to maintain during the design process. Sebastian and Prins (2009) claim design management is too formal. They state that meetings are governed by decisions and are structured by formal planning techniques. Ballard (2000) and Eikeland (2001) describe the design process as a social process in which success relies on trust and a common project understanding. Hence, the conducting of valuable meetings requires both technical and social understanding from the design manager.

4. Results

4.1. The design managers' points of view

The overall impression from the interviews reveals that soft factors require as much attention as the structuring and understanding of the design process. According to a majority of the interviewees, tasks that maintain soft factors constitute the foundation for achieving successful design processes. It was mentioned that the design manager must ensure an understanding between group members. One informant described trust as being the basis for understanding and gaining a necessary information flow: "...openness, honesty and trust must be established. That is how you create a team". Informants mentioned related tasks, such as organising meetings and facilitating workshops, in which the participants met and solve challenges together. "I think the most important thing I can do is to create dedication, be explicit, and remove distracting factors. My job is to make sure people get their job done", another participant stated. Also, one construction manager emphasised the importance of soft factors and mentioned it in relation to problem solving. The informant stated that humour can improve chemistry and make people feel more relaxed.

All nine design managers mentioned coordination as one of the most important tasks necessary to achieve a successful design process. The meaning of coordination varied among the informants and was described as the face-to-face communication and facilitation of customers for the coordination of information flow. One informant emphasised that it is important for the design manager to "...collaborate with the customer to collect and forward information". Another informant added, "Often there are expectations in the team and the user group that do not match the customer's order". The results demonstrate that, even if the design manager wants to provide the customers with what they want, there are contracts that limit his opportunity to do so. In these cases, informants point out the facilitator role as being important. This involves helping customers describe the product they want in such a way that the designers can interpret and produce that product. Furthermore, the facilitation of the customer was described vaguely.

Additionally, the results indicate that communication is regarded as important among informants. Success in the design process depends, among other things, on productive dialogue with customers. A designer must comprehend the customer's needs, business goals and project requirements. "A design manager's work is often to talk to the internal designers, push, follow up, and make sure that they deliver", described one informant. This entails "...knowing the weaknesses and strengths of the team. This requires face-to-face communication. Sending e-mails is not always enough", another informant argued. Furthermore, yet another informant confirmed: "...the social responsibility of a design manager takes time. This includes talking to people, answering the phone, and making sure that everyone understands the delivery".

4.2. Soft factors and technology

The interview results imply that there is currently little initiative for exploiting the potential of digital processes. According to one informant, if the potential is to be exploited, more time and resources must be spent on the design phase. This implies investment in facilitators and design managers of modern character. At the same time, one informant claimed the construction industry excessively believes that BIM tools are the solution to design management. This was confirmed by another informant who believes that some communication must occur through personal contact. Yet another informant argued that BIM is primarily a tool and is not intended to serve as a substitute for communication. In addition, another informant described digital communication arenas as being unsuitable for

the collecting of detailed information. Messages are simplified and too short, and information becomes lost. The impression from the interviews is that the design managers feel they lose grip of the soft factors when using technology to plan.

5. Discussion

5.1. Are soft factors success factors?

Results indicate that soft factors are regarded as important but are neglected as success factors in the construction industry. Initially, this paper presented today's criticism towards design management. Theorists such as Ballard (2000) and Koskela (2000) describe the design process as a learning process in which the adjustments and evaluations of alternatives are necessary to create value. Learning depends on soft factors such as trust, curiosity and confidence, according to Flores (2016, as cited in Long and Arroyo, 2018). Without the knowledge necessary to identify processes that facilitate positive moods, the literature argues that projects will not reach high levels of performance. The interview results confirm that the maintenance of soft factors is the basis for achieving a successful design process. This study clearly demonstrates that soft factors are success factors and should be evaluated at the same level as are time, quality and cost.

5.2. Are soft factors hidden?

Soft factors are hidden in descriptions, measurements, etc., but they are easy to spot during observations of the designers at work and are easily addressed in interviews. Firstly, according to Flores (2016, as cited in Long and Arroyo, 2018), soft factors are invisible because moods lie in the background and are difficult to identify and change. Østby-Deglum *et al.* (2013) point out the design manager's relationship skills as being an important aspect of the responsibility associated with facilitation. An example of these skills was described in interviews as "creating dedication". Therefore, our perception is that dedication among the designers must be a consequent mood.

Secondly, the results reveal that the effect of trust, feedback and coaching during the design process are not easily measured. These factors are highlighted in theory as part of the facilitation that contributes towards the development of good design processes. Our perception is that informants consider facilitation as being important, but they cannot specify the benefits from the safeguarding of soft factors. When discussing communication, the results indicate that *follow-up, good dialogue* and *face-to-face dialogue* are tasks informants associate with facilitation. The question regarding how these factors can be evaluated as contributors to a positive mood remains unanswered.

This study does not identify a specific method that describes how the design manager should handle soft factors. Compared to the production phase, the uncertain nature of the design process requires facilitation from the design manager, according to Østby-Deglum *et al.* (2013). Informants emphasise that the design manager must ensure the designers understand one another. This is not a clear and straightforward task and cannot be standardised as the team of designers is founded upon personalities and experiences. Interviews show that this leads to confusion and misunderstood expectations between the team and the customer. Therefore, the design manager needs processes to identify and control invisible moods. If not, soft factors remain vague tasks.

5.3. Will more technology in construction increase the need for focus on soft factors?

Chen *et al.* (2005) state that digitalisation changes the way we communicate. Findings from the interviews indicate that the construction industry excessively believes that digitalisation is the solution to design management. Several informants voiced their concern regarding the

focus on digitalisation in that it might overshadow the soft factors. This study presents the concern that human contact may be reduced as a consequence of technological development. Human interaction should not be replaced with BIM tools and requires a more concentrated focus on soft factors in regard to digital development.

The results indicate that to exploit the technological benefits, soft factors such as trust and cooperation must be developed. According to Chen *et al.* (2005), digital design processes require trust. The interview results emphasise trust as being a basis for understanding and gaining a necessary information flow. Ørstavik and Røsdal (2011) point out the importance of trust and state that relationships based on this soft factor lead to more effective communication. In addition, Ballard (2000) and Eikeland (2001) connect trust to a successful design process. From this, one may question whether there exists a need for more focus on trust in the event that digitalisation contributes to more efficient project execution.

To build trust in digitalisation processes, arenas for human contact must exist. Meetings are a forum in which design managers can facilitate and arrange for more effective communication. According to Otter and Emmitt (2008), it is assumed that direct communication fits most closely for the design process and requires face-to-face communication. This has been confirmed by the interview results, which underline the importance of human contact in regard to successful communication.

6. Conclusions

The design process in construction is being increasingly digitalised, and project team members are concerned that this digitalisation will overshadow the human aspect. Human contact is reduced when communication occurs through digital platforms. This empirical study has revealed that soft factors are considered important for design managers to achieve a successful design process. Focus on soft factors promotes good communication and will improve team performance. Factors are hidden because they are invisible and immeasurable. Furthermore, soft factors are not defined as assigned tasks and are, therefore, easily neglected. If BIM is to contribute to a more efficient design process, the results dictate that trust and cooperation are required. The conclusion is that the safeguarding of soft factors will be more important as technology continues to develop. There is a pressing need for documentation on how the soft factors are safeguarded in a digitalised design process.

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