

STRATEGIC PARTNERSHIPS – BEST PRACTICE ACROSS NORWAY AND DENMARK

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ABSTRACT

In recent years, the concept of strategic partnerships has gained attention in the Norwegian and Danish construction industry. As a project delivery method, strategic partnerships share similarities with the Lean project delivery perspective and Integrated Project Delivery (IPD) as they all seek to achieve more collaborative projects. In this paper we will compare strategic partnerships, strategic partnering and IPD based on literature reviews and experiences from recent strategic partnerships and strategic partnering in Norway and Denmark. The paper explains strategic partnerships and partnering by structuring it according to three essential Lean Construction (LC) elements: Commercial, organizational, and operating system.

A combination of literature review and document study was used for data collection. Also, online meetings with all authors participating were completed to discuss and analyse data.

Experiences from a Norwegian case study and Denmark points to several success criteria that are crucial for the success of long-term collaboration, such as multi-project framework agreement, keeping the same people, and support from the management. Some of the success criteria stem from IPD and others might also be a positive application for IPD.

KEYWORDS

Strategic partnerships, Strategic partnering, IPD, lean construction, collaboration.

INTRODUCTION

Bennett and Jayes (1995) defined partnering as a management methodology used to achieve increased value and productivity in the construction industry. The concept of partnering focuses on improving cooperation between the parties involved (Lahdenperä, 2012). This paper divides partnering into three categories: Project partnering, strategic partnering and strategic partnerships. The former is a collaboration between a client and a delivery team (Architects, designers and main contractor) that are specific to a particular project (Lahdenperä, 2012). With strategic partnering, a delivery team collaborate on more than one project, but a separate contract for each specific project (Paulsen et al., 2022). However, with a strategic partnership, a client offers a portfolio of upcoming projects over several years in a single package to a delivery team (Værdibyg and Rebus 2021a). Research from Denmark and Norway shows great potential when implementing strategic partnering and strategic partnerships in the construction industry (Gottlieb et al. 2020; Paulsen et al. 2022; Værdibyg and Rebus 2021a; b). In Denmark, they have moved from project partnering to a focus on strategic partnerships with long-term

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contracts whereas in Norway the recent focus has been on strategic partnering. Thus, the Danish approach goes more in the direction of a programme perspective where a group of related projects are aligned and coordinated to achieve benefits that are not possible when projects are managed individually (Shehu and Akintoye 2009).

This paper has structured strategic partnership into three elements: Commercial, organizational, and operating system, based on the LC triangle described by Ballard (2012). All three elements in the LC triangle are crucial to achieving a successful strategic partnership. Partnering as a project delivery method shares similarities with the Lean perspective as they both use contractual-, organisational-, and cultural elements to achieve a collaborative project (Falch et al., 2020). Since strategic partnering is an extension of traditional partnering, the similarities with the Lean perspective are even higher for strategic partnering (Paulsen et al. 2022). The reason is that, over a more extended period, companies can eliminate problems and ensure ongoing improvement through a more open and frequent exchange of information (Shimizu and Cardoso, 2002). Thus, strategic partnerships and strategic partnering can reduce waste and increase value in construction projects. Also, strategic partnering shares similarities with IPD as they accommodate the construction industry's need for more efficient collaboration between project participants (Lahdenperä, 2012).

This study aims to identify improvements in current strategic partnering and strategic partnerships. The target group for this study is researchers and construction practitioners who want to develop strategic partnerships. Previous research shows positive effects from strategic partnering in Norway (Paulsen et al. 2022), strategic partnerships in Denmark, (Værdibyg and Rebus 2021a; b) and IPD (AIA 2007; Fischer et al. 2017). However, no one has yet compared the similarities, the differences, or whether the different approaches can learn something from each other. Therefore, this paper seeks to answer the following research questions:

1. What can be learned from the different approaches to strategic partnerships in Norway and Denmark?
2. What is needed to achieve a successful strategic partnership?

METHODOLOGY

This paper reports our exploratory approach towards creating a more coherent view of the concept of strategic partnerships from a lean construction perspective and in the context of the Norwegian and Danish AEC industry. The research idea stemmed from a case study by Paulsen et al. (2022) presented at IGLC 2022, which to the authors' knowledge is the only case study of strategic partnering from Norway. The case study included four school building projects where the same contractor and design company had partnered up four times from 2014 to 2022. Fifteen interviews were conducted and supplemented by a document study of the respective tendering documents, the contracts and meeting minutes from the four projects. The interviews were semi-structured, meaning that they followed a standardized interview guide (Blumberg et al. 2014). The informants all had key roles in the projects. For example, the project manager, design manager and Processing supervisor were interviewed. These people were involved in all four projects. The study design followed the prescriptions of Yin's (2014) case study approach.

To anchor the empirical insight and to ensure relevance to lean construction, a literature review was conducted. The initial review was carried out primo 2022 by searching in the databases Scopus, Google Scholar and Oria. The latter is the Norwegian universities' library database. The literature survey was supplemented with new searches ultimo 2022, to clarify improvements to strategic partnering. The existing documentation from studies on strategic partnering is scarce, especially in the context of lean construction theory and IPD. However, qualitative methods are well-suited for explorative purposes (Thagaard, 2018). Consequently, it was decided to carry out a continuation of the initial research work based on feedback gained

at IGLC 2022. Particularly, contact was made with the Danish NGO “Værdibyg” (The Value Creating Construction Process). Strategic Partnership has gained a foothold in Denmark. Empirical experiences are well documented in guidelines and research reports. A natural continuation of our work on the theme was therefore to compare Norwegian and Danish experiences and then draw the lines to the principles of IPD and Lean philosophy.

To corroborate the findings from the Norwegian case study documented by Paulsen et al. (2022) it was decided to carry out an in-depth document study as data collection methodology. Through Værdibyg the following documents for the in-depth document study were identified:

- Strategic Partnerships - From Idea to Contract.
- Strategic Partnerships - Implementation of the Collaboration.
- Long-term strategic collaboration in the construction industry.
- Strategic Partnerships in the Municipality of Copenhagen.
- Experiences and Facts about Strategic Partnerships.

The documents were analyzed using a qualitative approach where the findings from the selected documents were categorized according to the LC Triangle. According to Bowen (2009), this form of document analysis could be defined as a systematic procedure for reviewing or evaluating documents to create or obtain empirical data. The use of the predetermined categories given by the LC triangle made the analysis an iterative process.

In sum, we report from an exploratory comparison between how strategic partnering/partnership is practised and perceived in Norway and Denmark through the lens of lean construction theory. The study is limited to a single Norwegian case whose empirical findings are compared to the Danish practice described in selected guidelines and research reports. Although the study is limited to this geographical location, we believe that there are general learning points here that are interesting for Lean Practitioners.

THEORETICAL FRAMEWORK

A core principle for Lean project delivery is described using the LC triangle, which describes the three fundamental elements in all project delivery methods: Commercial, organizational and operating system (Ballard, 2012; Howell, 2011; Thomsen et al., 2010). Lean project delivery seeks to align all project parties to achieve a collaborative project organization with available contractual elements and create a project culture for delivering value (Falch et al., 2020).

Construction projects can be delivered through various delivery methods, ranging from traditional design–bid–build (DBB) to more integrated forms such as partnering, Lean Project Delivery System (LPDS) and IPD. The project delivery method dictates how the project team engages, how different parties get involved, and the means used (Engebø et al., 2021). Other examples of project delivery methods for single collaborative processes are Partnering, Integrated Project Delivery, Alliancing, Relational contracting, and Relationship-based procurement (e.g., Engebø et al. 2020). These methods have both similarities and differences. Nyström (2005) applied Ludwig Wittgenstein’s idea of family resemblance to conclude that trust and mutual understanding are necessary components in every partnering project (similarities), while there are components that vary from project to project (differences). However, this paper focuses on so-called collaborative project delivery methods across several projects that seek to integrate and align the parties early, i.e., already in the planning phase.

LPDS AND IPD

The LPDS is a delivery system in which the project team helps clients and customers (beneficiaries) to decide what they want (Ballard 2000; Khanzode et al. 2005). Ballard (2000) describes LPDS as a “project-based production system” because it is a temporary production

system. LPDS contains five project phases: Project definition, lean design, lean supply, lean assembly, and use. Each phase also contains three project steps. The phases are interconnected to the next one through a common project step. Therefore, each project phase is influenced by the previous phase and has an impact on the following phase (Ballard 2000). In contrast to traditional project delivery systems, LPDS questions at the very beginning of the project what needs to be done and who is responsible for the task. Compared to traditional project delivery like DBB, LPDS explicitly shows the relations and dependencies between the different phases through a construction project, which are often ignored (Ballard 2000; Nguyen et al. 2008).

IPD (as described by i.e., Fischer et al. (2017)) is a project delivery method that integrates people, systems, organizations, and practices into a single collaborative process. The aim is to optimize results and value to the owner, reduce waste and maximize efficiency through all phases of the project (AIA 2007; Dargham et al. 2019). Lahdenperä (2012) describes that an IPD contract is a multi-party contract between several actors, and for example not only between the client and the contractor. Multiparty contracts are not common within what has traditionally been called partnering (Lahdenperä, 2012). Contractually, IPD differs from strategic partnership. Collaboration with the client and application of Lean tools is also common in IPD projects (Fischer et al., 2017). Research on the IPD shows benefits linked to risk sharing, improved productivity, and increased quality of work (AIA, 2007).

STRATEGIC PARTNERSHIPS/ PARTNERING IN A LEAN PERSPECTIVE

Partnering as a project delivery method shares similarities with the Lean perspective as they both use contractual-, organisational-, and cultural elements to achieve a collaborative project (Falch et al., 2020). Since strategic partnering and strategic partnerships in several ways are an extension of project partnering, the similarities with the Lean perspective are even higher (Paulsen et al. 2022). The reason is that companies in the long run can eliminate many of their problems and ensure ongoing improvement through a more open, frequent, and accurate exchange of information (Shimizu and Cardoso, 2002). Thus, strategic partnering as a project delivery method can both reduce waste and increase value in construction projects. Even if the Lean Construction concepts are more related to firms, they can be extended to the organization level (Shimizu and Cardoso, 2002), as in this paper.

Sundquist et al. (2018)'s study points out research gaps regarding the actual features of strategic partnering. From a Lean perspective, IPD has, in recent years, been given more attention than strategic partnering (see for example, Dargham et al. 2019; Simonsen et al. 2019). Part of the explanation probably lies in the fact that IPD projects are more linked to the use of LC tools and BIM, compared to partnering (Lahdenperä 2012). However, IPD shares similarities with strategic partnering as they accommodate the construction industry's need for more efficient collaboration between project participants (Lahdenperä, 2012). Therefore, this paper is placing strategic partnering in a setting of IPD's basic structure. Howell (1999) has said that "Partnering can be a solution to the failure of central control to manage production in conditions of high uncertainty and complexity". If this is true, strategic partnering can be a way to get Lean issues effectively into companies.

FINDINGS

This section presents results related to the research questions and the LC triangle.

STRATEGIC PARTNERING IN THE NORWEGIAN CASE STUDY

Commercial

In this particular case, the contractor entered a contract with the client, and the contractor had contracts with a design company and an architect company. The delivery team implemented strategic partnering as an informal agreement and separate contracts were signed for each

project. The client is not included in the partnering collaboration. Because of the informal agreement and separate contracts, the Norwegian case study showed that such long-term collaborations entail a degree of uncertainty. First, it is difficult to predict which future projects will be put out to tender, and second, there will always be uncertainty about whether the tendering competition will be won. Also, it was found that several partnering elements were stipulated in the contracts to improve the collaboration from project to project. The most important were start-up seminars, team-building activities, open book, and joint meetings with the client and users. However, no contractual incentives were used between the parties (Paulsen et al., 2022). A fixed-price contract is most common, which means that the client relinquished the risk related to the cost of the projects to the delivery team.

Organizational

Full delivery team (architects, designers, and main contractor) are included. The parties use a collaborative project delivery method with early contractor involvement, project hotels and BIM as digital collaboration tools. The interviews showed that keeping the same key personnel was a strategic aim from the beginning of the strategic partnership. For example, the project manager and the design manager were the same person in all four projects (Paulsen et al., 2022).

The delivery team focused on becoming more productive, and results from the case study showed that they managed to increase productivity and recurring effects from project to project. However, the recurring effects were not as significant as hoped because keeping the same people from project to project is challenging. External factors such as the client were one of the reasons why it was challenging to keep the same people through the strategic partnership, among other things due to political decisions which led to postponements. Also, the client's indecision negatively affects the strategic partnership. Therefore, an insight from the Norwegian case study, showed that external factors such as the client could significantly influence the relationship between the parties in the delivery team (Paulsen et al., 2022).

Operating system

There were three main reasons why the delivery team implemented strategic partnering: 1) They had some prior positive partnering experiences from other projects, 2) together, they believed they could form a competitive team that would stand a better chance at winning tendering competitions, and 3) the desire to achieve a repetition effect. The informants from the case study describe that the relations at the individual level developed well and that people have built close ties across the companies. The professional collaboration also led to improved productivity and increased quality of the work. Another positive effect documented was the delivery team's strong performance in the tender competitions. Their strategic partnering collaboration was crucial to the team winning four school projects in a row, the informants said. However, the case study showed that sustained strategic partnering over time creates tension between the organizations, due to economic conflicts (Paulsen et al., 2022).

The case study showed that the delivery team agreed that they should have been better at continuously evaluating the collaboration during the strategic partnership. They also acknowledge that they failed to eliminate problems. As a result, the same problems recur in all four projects. Another characteristic worth noting was that no formal organizational agreement was drawn, making the intention and commitment purely relational (Paulsen et al., 2022).

STRATEGIC PARTNERSHIPS IN DENMARK

The first strategic partnerships in Denmark were established in 2016. The earliest strategic partnerships were inspired by cases from UK and Sweden (Kadefors et al., 2013), and alliancing in Finland (Lahdenperä, 2012). There are currently nine active strategic partnerships with a combined expected value of approximately three billion euro (Frederiksen and Johansen, 2022).

Commercial

In the Danish construction sector, a strategic partnership is defined as a long-term collaboration between a client and a delivery team on a collective project portfolio (Værdibyg and Rebus, 2021a). The clients from the nine active strategic partnerships are four municipalities, three social housing companies, one region and one governmental. The type of projects are schools, daycare centers and social housing. All the nine active delivery teams include at least one contractor as well as an architect and the designers. The partnership agreement between the client and the delivery team is typically based on a framework agreement, where the contractor is fronting a consortium. That means that new contracts can be assigned to the partnership without separate tenders on an ongoing basis over the contract period. The long-term aim of the collaboration is to provide the opportunity for the client and the delivery team to build an organization across the companies involved and to work with the development, innovation and optimization of solutions and processes.

For previous strategic partnerships, the contract period has been four years, but projects initiated within the four years can be carried out and completed subsequently so that the partnerships' tasks extend beyond four years. In most of the Danish strategic partnerships, there has been no guarantee of a minimum volume of tasks and in their set-up, they have chosen that both the client and the delivery team can stop the collaboration at any time. None of the nine partnerships has used this opportunity yet. The tender documentation has often contained a risk model that defines the distribution of risk between the parties. For delivery teams, it has been a challenge to create a common business model and to share responsibilities and risks in a collective setup. Many of the Danish partnerships have a risk pool for unforeseen expenses and improvements. A partnership is about having an interest and insight into each other's basis for decision-making and risk elements, and thus it is appropriate that people do not try to place responsibility on one party alone. Often in the partnerships, everyone is willing to jointly manage the risks of the projects and discuss how to handle matters when faced with an incident or uncertainty. It can be risks regarding quantities, design errors or execution risks, where the parties can agree on how to best solve it overall (Værdibyg and Rebus, 2021a; b).

Organizational

The tender process has primarily been based on qualitative evaluation criteria. Often, the client has conducted a market dialogue in advance to ensure that there is a market for a partnership. This has also been an early warning to the companies, who then began teaming up with collaborators they would submit a bid with. The tender documentation often contains a description of the client's organisation, decision-making processes, and business processes. The partnerships have in most cases used the standard documents and agreements of the Danish construction industry as a basis for the projects. The experiences show that it is important that each company are willing to enter a value-based collaboration. All parties must have strong managerial support for entering a strategic collaboration.

In strategic partnerships, the delivery team has close collaboration with the client. In the contractual agreements, there are defined common goals and values as well as the team uses "open books" for pricing the construction costs of the projects. Furthermore, the experience is, that keeping the same personnel for several projects produces positive effects, such as repetition effect and better cooperation (Frederiksen and Johansen, 2022; Værdibyg and Rebus, 2021b). Also, many of the strategic partnerships become so close, that they begin to work as a uniform company with people being employed (and laid off) directly to the strategic partnership.

Operating System

Once the strategic partnership has been formalized between the client and the delivery team, there has been a great deal of work in establishing the collaboration and getting the many

organizations involved into a position to act as a single partnership. Most of the strategic partnerships have a joint project office to support the common culture. To ensure the necessary managerial attention and decision-making power in the strategic partnership, a joint organization has been established in all strategic partnerships between the client and the delivery team. Often as a three-part management structure: 1) steering committee, 2) operational management, and 3) project management. The steering committee handles the strategic management of the partnership and can be compared to the board in a large corporation. The operational management handles the day-to-day management of the partnership and can be compared to an executive board. The strategic partnerships consist of key persons from 3-5 of the central actors in the partnership. The specific work of developing and implementing the individual projects in the portfolio takes place at the project management level.

The project portfolio is planned to suit both the client and the delivery team. The client has the primary responsibility for the management of the project pipeline, while the responsibility for the management of the ongoing project portfolio lies jointly with the operational management. The projects that are chosen to be completed in the partnership are implemented in several phases that often are divided into the following steps: 0) Clarification of needs, 1) planning, 2) project proposals and pricing, and 3) design, execution and handover. The long-term collaboration and repetition in projects and processes have given greater budgetary security, fewer conflicts, no expenses for lawyers, better delivery on time, and better quality for both the client and the delivery team. With many projects in the portfolio, there has been an improvement in processes and cooperation and the parties have gained a closer relationship and a deeper understanding of each other. This is, among other aspects, caused by keeping the same personnel for several projects with ongoing relations and collaboration between persons from different companies (Gottlieb et al., 2020). In the next phase of strategic partnerships in Denmark, there has been a much larger focus on sustainability and the delivery team's ability to prove the construction project to be cheaper than "traditional" projects.

Figure 1 summarizes the similarities and differences between IPD, Norwegian strategic partnering and Danish strategic partnerships in a Wittgenstein family-resemblance sunflower model. The figure is inspired by Nyström (2005).



Figure 1: IPD (blue), Norwegian strategic partnering (green) and Danish strategic partnerships (red) in a Wittgenstein family-resemblance sunflower model (inspired by Nyström, 2005).

DISCUSSION

In this section, the authors will discuss similarities, differences, or whether the different approaches can learn something from each other. The discussion is based on the findings presented in the results section. Table 1 shows a summary of the key findings of this study.

Table 1: Key findings. Strategic partnering and strategic partnerships in a setting of IPD.

Elements	Norway	Denmark	IPD
Commercial:			
Design-build	x	x	
Multi-party contract			x
Framework agreement		x	
Ability to win projects	x		
Risk Sharing		x	x
Organizational:			
Full delivery team	x	x	x
Same people for several projects	x	x	
Repetition effect over projects	x	x	
Support from the management		x	x
Operating system:			
Improved productivity	x	x	x
Increased quality of the work	x	x	x
Collaboration with the client		x	x
Application of Lean tools			x

DIFFERENT APPROACHES TO STRATEGIC PARTNERSHIPS

Commercial

Both in Norway and Denmark, the client entered a design-build contract with the contractor, while the contractor had contracts with designers and architects. Since the client was not part of the strategic partnership, a multi-party contract was not entered into as in IPD projects. In Denmark, the legal basis for the partnership agreement between the client and the delivery team is typically based on a framework agreement. With the Danish approach, the delivery team doesn't need to worry about which future projects. However, with the Norwegian approach, the delivery team depends on the local business environment, local economy, and government regulations to get new projects. In the public domain, it seems like the biggest barriers to strategic partnering lie in the lack of opportunity to manage projects at a portfolio level. This is mainly because public clients are given a mandate and funding for individual projects. The second barrier is the law on public procurement, which sets requirements for the contracting process. Thus, most strategic partnering will take place in the value chain under the client. The Danish model facilitates continuous evaluation of the collaboration during the strategic partnership. With the Norwegian approach, it is uncertain whether the parties will collaborate on future projects. Nevertheless, the results show that strategic partnering in Norway gives a competitive advantage when it comes to winning projects, while it is still unclear whether strategic partnerships in Denmark do the same. In some of the strategic partnerships in Denmark, there are internal agreements of shared risk between the companies in the partnership. This allows the delivery team to focus their energy on quick solutions rather than on placing risk, blame and responsibility for errors. This approach is also highlighted as part of the simple framework of IPD projects (Fischer et al., 2014).

Organizational

In all collaborative project delivery methods included in this paper, there is a predetermined delivery team who tries to win projects together. An advantage of strategic partnership and strategic partnering, which IPD does not necessarily have, is that the delivery team can use the

same people in several projects. Both results from Norway and Denmark show that keeping the same personnel for several projects produces positive effects, such as the repetition effect. However, In the Norwegian case projects, the repetition effects were not as significant as hoped because keeping the same people from project to project is challenging. External factors such as the client were one of the reasons why it was challenging to keep the same people. The chance of this happening is perhaps less with strategic partnerships in Denmark, since the client has a larger share of the risk, compared with the Norwegian approach. Also, Fischer (2017) has pointed out that keeping the same people is a challenge for IPD projects, but on a project level.

As the strategic partnerships in Denmark are rather large contracts all the companies in the partnership have a special focus on the work they do within the partnership. Therefore, there is also a willingness from top management to get the partnership to work as an efficient entity as this is the best way to get profits and to get more work within the framework agreement. However, in the Norwegian case projects, it was identified lack of support from the management. The consequence was that the delivery team did not continuously evaluate the collaboration during the strategic partnership and the same problems recur in all projects.

Operating system

Results from Norway and Denmark show that the relational collaboration between the people within the delivery team has positive effects on the professional collaboration. Research and experiences suggest that strategic partnerships and strategic partnering lead to improved productivity and increased quality of work. From the Norwegian case study, the informants describe that there has been a good development of relationships at the individual level across the companies. However, at the company level, the Norwegian case study showed that a negative relationship was developed due to financial and contractual conditions. In Denmark, on the other hand, such problems have been avoided because the strategic partnerships have a joint project office to support the common culture. Also, to ensure the necessary managerial attention and decision-making power, it is common to establish a joint organization. With IPD, such problems are also less likely because it is a multi-party contract which means that all parties are more dependent on each other to achieve the project goals. Therefore, the overall assessment shows that the Danish approach and IPD makes the parties work more towards the same goals, while the parties in Norway are more concerned with their profits.

SUCCESS CRITERIA FOR STRATEGIC PARTNERSHIPS

Our comparisons across both existing research and the experiences from Norway and Denmark point to several key activities or criteria that are crucial for the success of long-term collaboration in either strategic partnering or strategic partnerships. Some of these stems from IPD and others might also be a positive application for IPD projects.

Opportunity to win more contracts

The setup of a strategic partnership or an ongoing strategic partnering across several projects helps optimise the internal processes and this will make the partnership able to give better bids to other construction jobs with other clients offering an experienced and united team with optimised delivery processes. This will most often result in both better quality and lower prices (or more accurate prices) in new tenders.

Long-term, multi-project framework agreement

A portfolio of projects as opposed to single project contracts gives the possibility and project volume to invest in the shared organizational setup as well as benefitting from both the repetition of processes and the long-term relations across the participating companies and employees. This also provides the foundation for a shared learning organization with a solid basis for the application of Lean tools across different projects. The learning and application of

Lean tools result in better project delivery and productivity. Based on our research we cannot say how long the contracts should be. Four years may be a suitable length with the opportunity to renew the contract if all parties are interested in continuing.

Keeping the same people across projects

The multi-project contracts of strategic partnerships allow keeping the same people from different companies together for several projects, something which both enriches the projects as well as employee satisfaction and long-time employment.

Risk sharing

By sharing risk between the companies, the focus is on solving problems rather than placing or avoiding blame. This keeps participants aligned in the shared goals of delivering good projects.

Support from the management

Larger contracts seem to attract more attention from top management which also gives the benefit of easier access to company support in case of problems within the strategic partnership.

Collaboration with the client

For multi-project contracts it is possible to have a closer collaboration with the client to solve the projects in unison as they come. This also calls for an engaged and active client that can be part of the partnership and assign managerial resources permanently to the partnership projects to make good and quick decisions that keep the projects running and on target.

CONCLUSIONS

In this paper, a study was conducted to research different approaches to strategic partnerships. A comparison between IPD and Lean construction was also made to examine the differences. Therefore, this paper has placed strategic partnerships in a setting of Lean philosophy to see if strategic partnership can be a solution to the failure of central control to manage production in conditions of high uncertainty and complexity. As the study only emphasized strategic partnerships in Norway and Denmark, the results should not be viewed as a generalization of the phenomena. Instead, this study may provide deeper insight into the phenomena and be of value to those considering strategic partnership. In addition, this paper can contribute to the theory of strategic partnership, especially from a lean perspective.

Figure 1 summarized the differences between IPD, Norwegian strategic partnering and Danish strategic partnerships. The Danish approach facilitates continuous evaluation of collaboration during the strategic partnership to a larger extent than in Norwegian strategic partnering projects. The risk sharing between companies and support from the management in the strategic partnerships in Denmark gives advantages to the delivery team related to finding quick solution rather than on placing risks and continuously evaluating the collaboration. Also, if the client is more involved in the collaboration, results from Denmark and IPD shows that the parties work more towards the same goals, compared with Norwegian strategic partnering.

Experiences from Norway and Denmark point to several success criteria that are crucial for the success of long-term collaboration, such as multi-project framework agreement, keeping the same people, and support from the management. Some of the success criteria stem from IPD and others might also be a positive application for IPD projects, like the opportunity to win more contracts and get people to collaborate on multiple projects.

There is still a lack of proof of how well strategic partnership is working in practice. For example, more quantitative research is needed to measure quantifiable performance data such as productivity and quality. Therefore, more case studies and interdisciplinary research are needed to further clarify improvements.

REFERENCES

- AIA. 2007. "Integrated Project Delivery: A Guide." The American Institute of Architects.
- Ballard, G. 2000. "Lean Project Delivery System." White Paper 8, Lean Const. Inst. 1-7.
- Ballard, G. (2012). "Should Project Budgets Be Based on Worth or Cost?" In: Tommelein, I. D. & Pasquire, C. L., 20th Annual Conference of the International Group for Lean Construction. San Diego, California, USA, 18-20 Jul 2012.
- Blumberg, B., D. Cooper, and P. Schindler. 2014. EBOOK: Business Research Methods. McGraw Hill.
- Bowen, G. A. 2009. "Document Analysis as a Qualitative Research Method." Qual. Res. J., 9 (2): 27-40. <https://doi.org/10.3316/QRJ0902027>.
- Dargham, S. A. , Hatoum, M. B. , Tohme, M. & Hamzeh, F. (2019). "Implementation of Integrated Project Delivery in Lebanon: Overcoming the Challenges" In: Proc. 27th Annual Conference of the International Group for Lean Construction (IGLC). Dublin, Ireland, 3-5 Jul 2019. pp 917-928.
- Engbø, A., Torp, O. & Lædre, O. (2021). "Development of Target Cost for a High-Performance Building" In: Proc. 29th Annual Conference of the International Group for Lean Construction (IGLC). Lima, Peru, 14-16 Jul 2021. pp 3-12.
- Falch, M. R., Engebø, A. & Lædre, O. (2020). "Effects of Partnering Elements: An Exploratory Case Study" In: Proc. 28th Annual Conference of the International Group for Lean Construction (IGLC). Berkeley, California, USA, 6-10 Jul 2020. pp 757-768.
- Fischer, M., H. W. Ashcraft, D. Reed, and A. Khanzode. 2014. A Simple Framework for Integrated Project Delivery.
- Fischer, M., H. W. Ashcraft, D. Reed, and A. Khanzode. 2017. Integrating Project Delivery. John Wiley & Sons.
- Frederiksen, N., and P. Johansen (Eds.). 2022. Erfaringer og fakta om strategiske partnerskaber: fortalt af praktikerne. Institut for Byggeri, By og Miljø, Aalborg Universitet.
- Gottlieb, S. C., C. Thuesen, and N. Frederiksen. 2020. Strategiske partnerskaber i Københavns Kommune: erfaringer og resultater 2017-2019. Institut for Byggeri, By og Miljø, Aalborg Universitet.
- Howell, G. A. (1999). "What Is Lean Construction – 1999" In: 7th Annual Conference of the International Group for Lean Construction. Berkeley, California, USA, 26-28 Jul 1999.
- Howell, G. A. (2011). "Where LCI and DBIA agree and where we differ." meeting of DBIA NorCal, Oakland, CA.
- Kadefors, A., M. Thomassen, and M. N. Jørgensen. 2013. "Long term strategic collaboration in the construction industry -Case studies from Denmark and Sweden A pre-study."
- Khanzode, A., Fischer, M. & Reed, D. 2005, 'Case Study of the Implementation of the Lean Project Delivery System (LPDS) Using Virtual Building Technologies on a Large Healthcare Project' In: 13th Annual Conference of the International Group for Lean Construction. Sydney, Australia, 19-21 Jul 2005. pp 153-160
- Lahdenperä, P. 2012. "Making sense of the multi-party contractual arrangements of project partnering, project alliancing and integrated project delivery." Constr. Manag. Econ., 30 (1): 57-79. <https://doi.org/10.1080/01446193.2011.648947>.
- Nguyen, H. V. , Tommelein, I. D. & Ballard, G. 2008, 'Process-Based Cost Modeling to Support Lean Project Delivery' In: Tzortzopoulos, P. & Kagioglou, M., 16th Annual Conference of the International Group for Lean Construction. Manchester, UK, 16-18 Jul 2008. pp 577-588.
- Nyström, J. 2005. "The definition of partnering as a Wittgenstein family-resemblance concept". Construction Management and Economics, 23(5), 473-481.

- Paulsen, S. B. , Engebø, A. & Lædre, O. 2022, 'Strategic Partnering Between Contractors and Designers' In:, Proc. 30th Annual Conference of the International Group for Lean Construction (IGLC). Edmonton, Canada, 27-29 Jul 2022. pp 330-341.
- Shehu, Z., & Akintoye, A. (2009). Construction programme management theory and practice: Contextual and pragmatic approach. *International Journal of Project Management*, 27(7), 703-716. <https://doi.org/10.1016/j.ijproman.2009.02.005>.
- Shimizu, J. Y. & Cardoso, F. F. (2002). “Subcontracting and Cooperation Network in Building Construction - A Literature Review” In:, Formoso, C. T. & Ballard, G., 10th Annual Conference of the International Group for Lean Construction. Gramado, Brazil, 6-8 Aug 2002.
- Simonsen, S. H. F. , Skoglund, M. H. , Engebø, A. , Varegg, B. E. & Lædre, O. (2019). “Effects of IPD in Norway – A Case Study of the Tønsberg Project” In:, Proc. 27th Annual Conference of the International Group for Lean Construction (IGLC). Dublin, Ireland, 3-5 Jul 2019. pp 251-262.
- Sundquist, V., K. Hulthén, and L. E. Gadde. (2018). “From project partnering towards strategic supplier partnering.” *Eng. Constr. Archit. Manag.*, 25 (3): 358–373. <https://doi.org/10.1108/ECAM-08-2016-0177>.
- Thagaard, T. 2018. Systematikk og innlevelse: en innføring i kvalitative metoder. Trondheim: Fagbokforl.
- Thomsen, Ch., Ch. Darrington, D. Dunne, and W. Lichtig,. 2010. Managing Integrated Project Delivery. Construction Management Association of America.
- Værdibyg, and Rebus. 2021a. “Strategic Partnerships – From idea to contract.” Værdibyg and REBUS.
- Værdibyg, and Rebus. 2021b. “Strategic Partnerships – Implementation of the Collaboration.” Værdibyg and REBUS.
- Yin, R. K. 2014. Case study research: design and methods. Trondheim: SAGE.