

TETE A TETE? NEARSHORING IN EUROPE OF CONSULTING ENGINEERING

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Abstract

Global sourcing of engineering is becoming a more common way to increase a company's competitiveness and includes the nearshoring and offshoring strategies of relocating engineering services and activities across national borders. The driving force of why nearshoring and offshoring can often lead to competitive advantage is the combination of cost reduction and the opportunity of exploiting competent resources. Several emerging countries in Europe offer high quality engineering at a lower cost than the Scandinavian market. These countries are located within an acceptable travel distance from Scandinavia and due to similar standards and eurocodes the differences between countries' engineering procedures have decreased. The aim of this contribution is, first, to investigate a Scandinavian based consulting engineering company's experiences using nearshoring and, second, why standards and eurocodes can open the European engineering market and consequently how consultancy companies within engineering in Scandinavia can take advantage. This paper is based on international business theories regarding strategies and incentives with global sourcing, nearshoring and offshoring. The empirical research is built on a case study where interviews have been conducted with engineering consultants working in different locations. The case study is a nearshored large infrastructure project and involves collaboration between two companies with multiple locations. Engineers working in the project are distributed geographically in several European countries. The case firm strategy followed is multiple: sourcing of engineering services is done in-house, outsourced, offshored, using competing companies and using captive local investment. Even within the project frame, trust, communication and proper (soft) management are important. The results show that a transactional approach to collaboration is insufficient and that the nearshoring firm can be seriously challenged in its strategy when trying to enable knowledge integration. Standardisation through eurocodes lowers the barriers for the cross national collaboration, even if concepts such as functional roads are still interpreted in different ways.

Keywords: nearshoring, consulting engineering, infrastructure, project collaboration

Introduction

Professional engineering service companies of medium size are currently the most aggressive in pursuing global sourcing, including offshoring of engineering knowledge work (Lewin 2012a, b). A variant of global sourcing is nearsourcing, or nearshoring, which can be understood as sourcing services to a foreign, lower-cost country that is relatively close in distance (Carmel and Abbott 2007). The nearshoring company thereby tries to balance the advantage of lower costs, principally lower wages, with the advantages derived from geographic, technical, cultural and linguistic proximity (Carmel and Abbott 2007).

For US global sourcing firms, nearshoring arrangements are most often seen in Canada and Mexico (Gray 2010), whereas Eastern Europe is important for Western European nearshoring (Cagliano et al 2012, Thelen et al 2010). The third cluster of nearshoring is in East Asia, e.g. Japan nearshoring to China (Carmel & Abbott 2007).

Scandinavian consulting engineers are globally of medium size with fewer than 10,000 employees, and are now increasingly considering global sourcing of engineering work (Hammarström et al 2013, Jensen 2009, Koch and Bennett 2013). In this sense they are latecomers compared to the largest consulting engineering companies, which for long have operated a range of global sourcing arrangements (COE 2008, Lewin 2012a, Messner 2008). Engineering outsourcing is expected to be a business worth US\$150 billion a year by 2020, which is 500% growth compared to 2010 (Sehgal et al 2010). It is common to assume that companies are seeking to cut the costs of an expensive activity, i.e. engineering a new product by placing it in a low cost country (Sehgal et al 2010). The aim of this paper is, first, to investigate a Scandinavian based consulting engineering company's experiences using nearshoring and, second, how standards and eurocodes can contribute to opening the European civil engineering market and thereby how consultancy companies within engineering in Scandinavia can take advantage of this.

The paper starts with a method section. It develops a frame of understanding drawing on international business and strategic management theory. The results from this strand of research are reviewed and drawn upon. The empirical section presents a qualitative case study combining interviews, observations in the company and desk research. The empirical findings are discussed, mobilising the frame of understanding, and thereby arriving at a set of conclusions and implications.

Method

The overall approach is interpretivist and multidisciplinary, but with a basis in the Knowledge Based and Resource Based View (RBV) of the firm (Bunyaratavej et al. 2011, Grant, 1996, Vivek et al., 2009). An abductive epistemology is used (Dubois & Gadde, 2002).

The theoretical framework combines contributions on global sourcing, nearshoring and offshoring. A literature review on offshoring was carried out following Hart (2009) and Webster & Watson (2002). The aim was to assess the knowledge contained in leading journals about offshoring companies' longer-term development and their internal and external organization. The delimitation of the search – following Hart (2009) – was guided by previous literature reviews of the area (Bunyaratavej et al., 2011; Hätönen & Eriksson, 2009). These suggest that international business, strategic management, operations management (supply chain management), industrial marketing and purchasing would be important research strands to pursue, while not giving construction, civil or consulting engineering special attention. The three search engines used were Science Direct, ABI/Inform and Business Source Complete. The timeframe selected was 2007 and on, focusing on the most mature offshoring setups. Articles and journals oriented toward IT technology were disregarded (but not business studies of IT sector firms). Several consecutive searches provided a focused sample of longitudinal studies related to offshoring. This sample includes four articles from *Journal of World Business* (Jensen, 2012; Lampel & Bhalla, 2011; Pereira & Andersson, 2012; Vivek et al., 2009), one article from *Journal of International Management* (Jensen, 2009), one from *European Management Journal* (Hutzschenreuter et al., 2011), no articles from *Journal of Operations Management* nor many other journals were included in the first search.

Second, another literature search was done on engineering offshoring in the global construction industry, providing some supplementary references (Jarvenpaa and Keating 2012, Messner 2008) as well as broader studies of engineering offshoring (CEO 2008, Lewin et al 2009). A Science Direct search in the two areas revealed very few relevant sources, with Jensen (2009) being one exception.

Third, a further literature search on engineering nearshoring was undertaken finding limited material, yet providing a few more such as Carmel and Abbott (2007), Gray (2010) and Cagliano et al (2012).

The case study is based on the master thesis of Matvinska and Pernbom (2012) which analysed engineering offshoring. The case focus is on an infrastructure project carried out by a Swedish based medium sized consulting engineering company (named CESE for anonymity reasons). A total of 12 interviews were carried out at CESE's offices in Stockholm and Göteborg and in two different locations in United Kingdom. Six were conducted at the Swedish CESE, five at the British CUK and one at the client. Two of the interviews focused on offshoring strategies and were undertaken with high level managers and ten on communication with high middle and low level managers.

The limitations of the research work are, first, the small empirical basis and, second, the reuse of material collected under the auspices of offshoring reinterpreted as nearshoring. This is justified since the Swedish company collaborates with the UK and Poland. In the project offshoring case, the Polish part of the project team was not interviewed. Moreover no studies of long-term nearshoring arrangements were found, so making it necessary to use offshore and outsourcing studies. Finally a theoretical contribution is made by developing a framework for understanding project based companies doing offshoring and its longer term impacts.

Theoretical framework

Global sourcing is understood to involve worldwide purchasing, engineering, and operating locations proactively integrating and coordinating with suppliers of materials, processes, technologies, and design (Trent and Monczka, 2003). Theories mobilized for understanding such arrangements are mostly Transaction Cost Economics (TCE) and the Resource Based View of the firm or RBV) (Bunyaratavej et al 2011, Hätönen & Eriksson, 2009), occasionally supplemented with organisation theory (Hätönen & Eriksson, 2009)

Sourcing of engineering competences can typically be found in three main ideal versions (Bunyaratavej et al 2011, Contractor et al 2010):

- Home captive or partner/supplier
- Nearshoring captive or partner/supplier
- Offshoring captive or partner/supplier

The main characteristics are outlined in Table 1 below

Table 1: Three main global sourcing arrangements

Type	Captive	Supplier/partner
Domestic	Management and control as internal unit long term competence base	Contractual governance Co-local coordination
Nearshoring	Control geographical proximity , medium cost Technical common base	Contractual governance Co-local coordination
Offshoring	Management, control and coordination challenges. Low cost, geographical distance, technical differences	Contractual governance Specification of design Low cost Technical differences

The focus here is on nearshoring. Carmel and Abbott (2007) define this in the following way:

“ Nearshoring: sourcing service work to a foreign, lower-wage country that is relatively close in distance or time zone (or both). The customer expects to benefit from one or more of the following constructs of proximity: geographic, temporal, cultural, linguistic, economic, political, and historical linkages. “

The distinguishing elements are the notion of sourcing from a “relatively close” location and the assumptions of a range of proximities. This becomes clearer when compared with definitions of offshoring and outsourcing. Bunyaratavej et al. (2011) thus define offshoring as a global sourcing strategy of transferring activities across national borders, which may occur through using external resources (outsourcing) or through relocating internal production activities (direct foreign investment, captive arrangement). Hätönen & Eriksson (2009) define outsourcing in an overlapping manner.

Nearshoring is thus characterized by proximity, yet also by a cost gap where geographical proximity is accompanied by distance in wages and other labour costs (Gray 2010). Carmel and Abbott (2007) in their broad text analysis find (in this priority) geographic, temporal, cultural, linguistic, political/ economic, and historical elements in their understanding of nearshoring. However, while Carmel and Abbott (2007) find geographical and temporal proximity to be the most important factor, technical and cultural proximity are also quite important (Cagliano et al 2012), and often with medium cost in contrast to “far offshoring” where low cost might be such a strong location factor that distance, technical and cultural differences can be overcome. The notion of “near sourcing” is understood here to be the same as nearshoring. According to Cagliano et al (2012) “Near sourcing” is defined as manufacturing or procuring products and services from foreign suppliers located in continental regions, relatively close to the company’s own facilities and customers, for the purpose of ensuring more responsiveness at what are still relatively low prices. Cagliano et al (2012) claim that nearshoring is motivated also through transportation costs derived from increased price of oil that exacerbates the already expensive nature of transportation costs, for industries with finished products such as furniture, apparel, footwear and steel. By 2014 any function in companies can be considered as subject to nearshoring (Gray 2010). According to the reviewed *offshoring* studies almost any part of a classical hierarchical organization can be subjected to offshoring even long-term. Such long-term offshoring occurs in the service sectors, i.e. Finance, IT and engineering (Hutzschenreuter et al., 2011) and they cover R&D, Engineering, IT development, HR support functions and more (Bengtsson and Berggren 2008, Berggren et al 2011, Koch and Jørgensen 2012, Jensen, 2009, 2012; Lampel & Bhalla, 2011).

Engineering and Construction

Within engineering and construction a similar differentiation between companies can be found to the one outlined above that continues to focus on local sourcing, doing single project outsourcing, nearshoring and offshoring involving collaboration with domestic and global partners, and even down to hiring a single engineer at a time (Barley and Kunda 2004). This similarity also implies that some companies have embarked on nearshoring and offshoring more recently following contemporary trends of manufacturing and IT companies (COE 2008, Hammerström et al 2012, Gray 2010). Also some have changed their business strategy and enter a transformative and developmental mode (COE 2008, Jensen 2009, 2012, Messner 2008). These strategies prolong well known ways of organizing and managing project-oriented knowledge-intensive companies (Jemelniak 2012, Koch and Bendixen 2005, Løwendahl 2005).

The US committee of offshoring engineering, (COE 2008) distinguishes between Engineering, Procurement and Construction (EPC) and Architecture, Engineering and Construction (AEC). EPC have considerable experience and practice with offshoring, in their delivery of civil engineering, infrastructure and large plant facilities. AEC is focused on dwellings and residential housing. 62% of the EPC companies were using offshoring for numerous projects in 2004 (COE 2008). Some AEC companies consider offshoring, although to a far lesser degree than EPC companies (Messner 2008). EPC projects often require many hours of engineering work, in particular detailed engineering such as sizing and routing of piping, design and location of electrical conduits and wiring and detailing of structural elements (Messner 2008). Repetitive, detailed engineering work makes offshoring more attractive than other design practices, because it appears possible to systematize this type of work and it requires less direct communication.

Most EPC companies need to have international offices and are participating in multi-office execution strategies for the delivery of projects (Messner 2008). Many US EPC companies have offices in low-cost engineering locations, such as India, China, Czech Republic, Russia, Romania, Poland, Mexico, and Taiwan (Messner 2008), whereas Mexico can be considered a nearshore destination for US companies (Gray 2010). Some of these offices were established to provide low-cost engineering services for company projects. Others were developed to perform specific design tasks for domestic projects. However, Gray (2010) somewhat contradicts Messner (2008) by arguing that neither domestic nor global outsourcing delivers perceived cost savings and that both global and domestic outsourcing have a negative impact on the perceived quality of the engineering designs. Global outsourcing also had a negative effect on the perceived project completion time. The (negative) results of global outsourcing of perceived cost, quality, and project completion time was independent of which type of engineering that was outsourced. However, STD (2012) points out that business models of consultancy firms in Europe encompass many aspects that cut across EPC and AEC. One group of companies is multidisciplinary while others are more specialized (STD 2012). The largest companies exhibit a multidisciplinary regional profile in Scandinavia and a more narrow profile globally. Examples are Norconsult within hydropower or COWI within large bridges. These companies thus combine multidisciplinary and multinationality (Koch 2004).

Offshoring done on the basis of single projects creates different conditions than in longer term alliances or in captive subsidiary arrangements. Jarvenpaa and Keating (2012) studied project based collaboration between a US engineering company and its Indian collaborator,

occurring first as several consecutive projects and then as a captive arrangement realised through the US company acquiring its Indian partners. The suggested pattern by Hätonen and Erikson (2009) was in this respect rediscovered. On the other hand, the engineering firm sourcing also included a Romanian company which recurrently had projects with the US company, yet remained independent.

Collaborative design of parts for a processing plant was carried out including components such as piping, pumps, foundations, and meters, requiring coordination of multiple engineering disciplines (e.g. piping, structural, instrumentation, and electrical, Jarvenpaa and Keating 2012). 30-60% of the detailed design was completed while engineers were geographically separated. The coordination demands were highest in relation to the operations in India and Romania, because the company had to rely on technology mediated communication. Expatriate engineers either were not used on the project team, or were used only for brief periods. Although co-location of the onshore and offshore engineers happened at the beginning of the project through kickoff meetings, only occasional and brief travel occurred between the sites.

Jarvenpaa and Keating (2012) find outspoken project member support for more communication. Project plans and task allocation between onshore and offshore engineering work are frequently changed during the project. This triggered overwork at the Indian operation and formalisation at the Romanian operation. The US operation appears to lag behind in terms of additional follow up planning. The arrangement comes to exhibit asymmetric trust where the offshore teams are forced to trust the onshore team, whereas the opposite is not quite the case (Jarvenpaa and Keating 2012). The use of technology mediated communication pushes from informal and decentralised to formalised and centralised. It is difficult for the teams to use formalised roles and rules as unrecognised hierarchies of the participating organisations “intervene”. The project managers exercise everything from dominance to coaching, where Jarvenpaa and Keating (2012) observe that the coaching oriented management role appears most effective.

It should be noted that both EPC and AEC frequently uses constellations of new team members where swift trust and occupational stereotypes are important (Koch and Thuesen 2013) and where mechanisms like the ones found by Jarvenpaa and Keating occur. Even if offshoring scholars like Bunyaratavej et al. (2011), Hutzschenreuter et al. (2011) and Hätonen & Eriksson (2009) expect offshoring relations to mature, the construction industry is “used” to excessive transactions and project based offshoring might therefore prevail.

Long term tendencies

Longer term trends of international arrangements are emerging and even though the EPC industry has very long-term experience its arrangements are still evolving. Hutzschenreuter et al. (2011) study the development of white collar offshoring and Hätonen & Eriksson (2009) the practical and theoretical development of outsourcing in a systematic manner. The two studies are similar and appear to also cover nearshoring. Hätonen and Eriksson’s model is therefore used here to propose a framework for understanding long term nearshoring. Although the framework is tentative and ex-post, it can be used as a systematic attempt to conceptualize longer-term developments. The framework consists of four phases:

- Transactional
- Resource seeking
- Transformational
- Developmental

Following this proposal the first phase of nearshoring is viewing it as a transaction. Hätönen & Ericsson (2009) characterize it as a “big bang”, where the make or buy dilemma seriously tilts toward buy. Activities are turned over to outside vendors in the belief that market mechanisms of distant markets result in lower transactions costs. The second phase of nearshoring would then be resource seeking. Here, companies rely on external sources to provide production components and services (Cagliano et al 2012). The main theory becomes the Resource Based View (RBV) (Hätönen & Eriksson, 2009). The third phase is transformational. In this phase, all parts of an organization can, in principle, be turned over to outside vendors (Hätönen & Eriksson, 2009: 152). And as nearshoring, offshoring and outsourcing become integrated legitimate tools in the management repertoire, the concerns turn to the timing of a new set up. The fourth phase is developmental. Here, the organization becomes increasingly without boundaries and managing business development and continuous improvement of internal activities can even become part of nearshoring/offshoring/outsourcing arrangements (Hätönen & Eriksson, 2009: 152). Management takes the form of portfolio management, as many internal activities are project-oriented. Yet, longer-term perspectives of external sourcing are employed, even as a ‘lifecycle’ perspective according to Hätönen & Eriksson (2009). This implies that the main theory applicable is RBV.

The framework should be understood as more of a tentative interpretation of possible development paths for nearshoring. As the longitudinal studies of offshoring underline, they do not unequivocally comply with Hätönen & Eriksson’s (2009) framework. Firms offering low-cost service products continually use offshoring with a strong cost focus (Lampel & Bhalla, 2011). Even when the companies achieve high-value core activities, they may be forced to continue outsourcing, offshoring and nearshoring to stay in their market segment and keep their overall costs low. Lampel & Bhalla (2011) offer an offshoring case of this type in telecommunications. Over a six-year study period, the company offshored more and more and struggles with increasing coordination (employees travelling back and forth) to handle this. Activities offshored include customer services, software development of an internet order portal, a billing system and a triple-play system (offering customers TV, broadband and telephone). Offshored core value-creating activities have to be tightly coupled to the main firm. In contrast Jensen (2009, 2012) combines RBV, activity-based and international business in his study of three cases, two financial and one engineering consulting firm. All three cases show a high level of interconnectedness between the Danish firms and their Indian offshoring partners. They use project organization as the first organizational instrument, in the collaboration with the Indian software providers. The company emerges into viewing offshoring as a new strategic opportunity (Jensen 2012). One firm realizes a quick expansion of the first offshored project, and soon several hundred Indian consultants are involved, 30% of them at the Danish site. After the transfer of a first project, another firm even experiences a rather quick development through project expansion (resource seeking) to a transformation of strategy (Jensen, 2009), due to the Indian partner’s European customer portfolio, which provides a strategic expansion option for the Danish firm to the European market. Both longer-term case companies establish IT development centres at their Indian

partners' facilities and station expatriate managers there. These expatriate managers facilitate coordination and communication between the Danish and Indian partners. The longer term offshoring development thus reveals varying responses. Some find a shift from transactional relations to relation-based approach and complementarity and others find continued focus on transactions and low cost (Koch et al 2013). It is straightforward to assume that nearshoring is a parallel case in point.

Case

The case company, CES, is a multidisciplinary consulting engineering company, operating a combination of EPC and AEC (Messner 2008, STD 2012). It has a strong and local presence throughout Sweden, with more than fifty offices, organized in four overall business units, where civil engineering is one.

The civil engineering business unit encompasses competences and undertakes projects within rail, roads, water, rock and land. Similarly bridge, tunnel and harbour competences are present. Most of the business unit for civil engineering is located in Stockholm, Göteborg and Malmö.

CES sought and found an internationally operating medium sized consulting engineering company with basis in UK and with operations in Poland (called CUK here), which would fit for a tender on large civil engineering project for the Swedish state. The resulting bid was handled in using this partner. The bid had a significant cost reduction of almost 25% compared to "normal" Swedish costs and the bid won the contract. The project is ongoing and will continue for several years.

The sourcing of engineering in CES occurs when typically project managers establish a project organisation to prepare a bid for a tender or when in charge of newly won projects need to recruit people to carry out the task. Civil engineering projects are often large and are run over a long time, which was also the situation with the project studied, involving design of a motorway and accompanying tunnels and bridging. In such a situation the project management team in the company views such a situation as having to draw on a range of possible sourcing options, internally across the offices of the company, and at other Swedish civil engineering design companies, which the company recurrently cooperate with, even if in "official" competition with them. They also source from abroad, through establishing project alliances with international players. During the interviews two main offshoring strategies were described. The first is when companies abroad are hired to design a large amount of simpler parts of a project and this strategy is associated with cost reduction. All interviewees mentioned the reduction of costs as an incentive for starting to offshore projects. It was further discussed that even if an offshore project is done with the aim of reducing labour costs, it needs to be compensated with something else. This could be an input of time and money in the beginning of a project and a high level of management throughout the whole project. The second strategy is competence seeking, which focuses on what qualifications are missing in-house and are therefore sought abroad. The aim is to use the right competence for the right task and project:

“We use the word *workshare* because that is what this is. This is a way of using knowledge from all over the world. The right competence for the right work”.

(Corporate manager CES)

One of the most advantageous approaches with nearshoring is when combining these two different strategies, which has been done in the case study project. Namely, when a certain part of the project is taken abroad and designed with lower labour costs and competent management is at the same time hired with similar (normal) cost level as the home country. This approach aims to balance the total cost and at the same time make the project successful. It was further stated that this is a trend that the technical engineering industry aims to follow, just like other businesses before, such as IT and manufacturing. It was also observed that the construction industry in Sweden seems to have become more international after the 2008 financial crisis. In order for this strategy to succeed a number of things need to be in place however. For example the importance of clearly defined descriptions of what to offshore was stressed by all interviewees.

“Everybody agrees that you can buy services from India and China and get a very high quality, but it requires that that you have packaged the tasks extremely clearly. It is not possible to do the same as in our [the Swedish] culture when you take on a partner and it just runs smoothly. That’s not possible in this case” (Corporate manager CES)

An offshore/nearshore project is assumed to require more coordination. The involved parties need to be aware of what this type of collaboration means and what will be demanded, but most important is to be aware of that it will not be easy. If a lot of effort is put into the project in the beginning it can be a good way of working. Especially for certain types of projects where routines are developed and you learn from each other. Moreover, the start-up phase of a project was stressed to be crucial in order to generate a relationship and understanding between the partners in an offshore project.

“They got to know who is working here, how we work, what is important, meet the client and everything. To get this soft knowledge which is really complicated to write down and explain. It is a huge difference if you interact and live with these people for a while.”

(CES Corporate manager)

Co-located coordination

The cooperation and coordination in the project became quite intensive across multiple sites in Sweden, United Kingdom and Poland. E-mail correspondence, telephone, and video conferences play important roles in three out of four weeks a month. Once a month an entire week is used for co-located meetings with representatives from the geographically spread teams participating in the projects. The face to face meetings have taken place in Stockholm. The participants are managers from the project teams (from Poland and UK), representatives of the client and CES representatives from different locations in Sweden. Meetings were scheduled during the whole week in Stockholm. During the meeting weeks in Stockholm there was a close collaboration between the different actors. At the meetings questions from the offshore teams could be raised, misunderstandings sorted out and new changes and conditions discussed face to face. The managers could later when arriving to their home

country pass the information to the rest of the team. The travel costs of this extensive coordination were justified by the reduced risks of mistakes:

“Many people think that it is costly to travel but a mistake is much more expensive than a travel.” (CUK corporate manager)

In the remaining three weeks of a work month, the video conferences held were described by interviewees as well functioning, yet less effective than direct meetings. Moreover technical problems occurred in connecting to certain participating departments of the UK partner.

E-mail is the most used communication channel, due the employees in the project being dispersed geographically. E-mails are perceived as the easiest way to share information. E-mails were often preferred over telephone calls since e-mails gave a written proof of what had been discussed and decided:

“If you need an urgent answer you pick up the phone, but the problem with telephone calls is that there is no record of the conversation. That is why we prefer e-mail, and then you got a trail back”. (CUK, middle manager)

Technical standards

National standards of infrastructure such as motorways and railways have traditionally created entry barriers for engineering consulting companies and others engaging in such projects (Leiringer 2003). Technical engineering issues and standards cannot be assumed as being global.

Also in the case this proved an issue. Even though eurocodes were implemented at both the companies different standards are used in each country, and since the client is Swedish, design is finalized within the required Swedish standards. To implement Swedish procedures in CUK was a challenge in the beginning since working procedures and standards are different to the ones that are normally used there. The way work is done is influenced by culture, and when trying to cooperate clashes sometimes occur:

“We have functional roads in both UK and Sweden but the way we get to the end result is different from country to country.” (CUK, high level manager)

When guidelines and technicalities for Sweden were explained to the CUK teams it was clear that some things were different but much was similar. It appears that the slow but persistent penetration of national building codes by European standards such as standard for bridges bearing capability (Highway Authority 2014, Trafikverket 2011) has meant that the design of roads are far less different than what was previously (Vägverket 2004).

Discussion: tete a tete

The strategy that has been adopted by the consultancy company consists of a mix between a cost oriented and a competent resources seeking approach (relating to the long term strategies outlined by Hutzschenreuter et al 2011 and Hätönen and Eriksson 2009). In the company representatives' view this is a successful combination for engineering consultancies within

the construction industry, and for this company it is due to the company's variety of expertise areas, complexity of tasks and large size of projects. When adapting a cost oriented and offshoring bulk design to countries with lower wages there is a need for specified and clear descriptions of the design. However, the location in this case is not important, although it is the opposite when adapting a competence resource approach, where a relatively close location is advantageous. The nearshore arrangement chosen for this particular project strikes a balance between these two concerns. The awareness of how to work within nearshore and offshore projects and the ability to cooperate over national borders is vital for such projects to be successful. In this case the consultancy company has learned along the way that it can be questioned if this will affect the degree of success for the project. The country that the nearshore or offshore company is located in influences the business climate, culture and values. It can therefore be suggested that in order to facilitate the collaboration and minimize the risk of misunderstandings, it is important to consider aspects such as corporate culture, education level, political system and business environment (Carmel and Abbott 2007). Capability and competence of the employees working in a nearshore or offshore project are the keys to success. Yet as cost declines, extra coordination, governance and formal specification expenses can be profitable wherever the offshore company is located and it is even less important whether the employees have the right attitude as well as the right expertise and experiences as buffers for rework and learning can be embodied in the project budget.

The case shows how the nearshoring arrangement enables an element of emergent coordination. When it becomes necessary the project organisation can opt for holding these long meetings in Stockholm. And this enables the project organisation to handle a large number of changes in the design. This would have been far more difficult in an offshoring or outsourcing set up, as the management, control issues, distances and language differences would have been too much of a barrier.

The gradual development of and implementation of common EU standards for road, tunnel and bridge building in eurocodes have indeed enabled the collaboration., Even though the lack of harmonization is still resulting in different approaches to building roads, the UK and Polish engineers have less of a task to understand the Swedish standards than previously.

As seen with offshoring and outsourcing, nearshoring arrangement of the project type carry the possibility of a more long term strategic reorientation of the firm. In this case this implies the option of incorporating nearshore units in the overall business preparing for handling further tasks, even globally within civil engineering. However as the company interviewees pointed out nearshoring is at present "just another competence sourcing tool" and it might continue to be so.

Conclusion

The first aim of this paper was to investigate a Scandinavian based consulting engineering company's experiences using nearshoring. The case study showed that the Swedish company was able to mobilise a substantial face to face coordination when it was felt necessary to handle the emergence of the project. Nearshoring thereby proved resilient towards project changes and unforeseen collaboration issues as travel costs did not hamper the overall project

economy. Moreover well-known virtual teamworking issues such as trust and communication issues could be solved in a combination of face to face and telecommunication.

The second aim was to look at how standards and eurocodes can contribute to opening the European civil engineering market and how consultancy companies within engineering in Scandinavia can take advantage of this. Both the case and document analysis indicated a trend of convergence in road design, which implies that nearshoring civil engineering projects will be an attractive strategy, at least in a time window into the future where engineering skills converge, while significant wage difference between neighbouring locations persist. The window is likely to close if it mainly gets based on low-cost arguments, whereas it might lead the civil engineering companies in Western Europe into a transformational development involving permanent presence in Eastern Europe, if and when civil engineering competences and other factors prove continually attractive.

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