Experiential Learning from Private Finance Initiative (PFI) Road Projects in the UK

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Abstract

The Private Finance Initiative (PFI) is a relatively new procurement mechanism. However it has a significant historical pedigree (Eaton & Akbiyikli, 2005). Although it started officially in 1992 its most significant use in the UK is in the last decade. PFI procurement is defined by Akbiyikli (2005) as:

"The process of obtaining construction works and services through a concession contract spanning the whole life-cycle of the constructed asset".

In a PFI both parties move into a long-term relationship creating a web of organisational structures which provide a framework for the establishment of mutual objectives among the public and private parties. The private sector moves into a new and pluralistic 'services culture' in a consortium which has different project objectives, experiences and learning. These are experienced at different organisational levels. These levels: corporate strategic; company implementation; and project levels; are interrelated and influence both the learning and decision making in a PFI road project.

This paper will concentrate on the project level learning since the interaction and organisational change is most dynamically displayed at this level; and there is no intention to theorize or discuss neither constructivism nor experiential learning theory. This interaction and change is then dispersed amongst the separate consortia partners. This dispersion is not examined within this paper, however, it is recognised that this dispersal mechanism is an important feature of the experiential learning at the organisational level. Takeuchi and Nonaka's (Henry, 2001) two dimensions and four modes of knowledge creation are recognised, yet the predominant learning mechanism within PFI roads appears to be internalisation rather than externalisation. This is recognised as a potential difficulty within PFI knowledge creation. This paper adopts a constructivist philosophy in presenting subsequent findings.

Keywords: Competitive Advantage, Experiential Learning, Innovation, PFI, Risk Management, Value for Money.

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Birleşik Krallıktaki Özel Sektör Finansman Girişimi (ÖSFG) Yol Projelerinde Tecrübeye Dayalı (Yaşantısal) Öğrenme

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Özet

Özel Sektör Finansman Girişimi (ÖSFG) oldukça yeni bir ihale elde etme mekanizmasıdır. Yeni olmasına rağmen bu mekanizmanın tarihi olarak önemli bir geçmişi vardır (Eaton and Akbıyıklı, 2005). Her ne kadar resmi olarak Büyük Britanya'da 1992'de başlamış olsa da uygulaması en çok son on yılda olmuştur. ÖSFG ihale elde edilmesi Akbıyıklı (2005) tarafından şöyle tanımlanmıştır:

> *"İnşa edilmiş tesisin bütün yaşam döngüsü boyuncu bir imtiyaz sözleşmesi vasıtası ile inşaat işleri ve hizmetleri elde edilme prosesidir".*

Bir ÖSFG projesinde kamu ve özel sektör tarafları arasında karşılıklı amaçların kurulmasında bir çerçeve oluşturulması için örgütsel yapılar ortaya çıkararak uzun süreli bir işbirliğine girmektedir. Özel sektör, farklı proje hedef ve amaçları ile tecrübe ve kazanımları olan değişik, yeni ve çoklu hizmet verme kültürü olan bir konsorsiyum kültürüne girmektir. Bu hususlar farklı örgütsel seviyelerde kendini göstermektedir. Bu seviyeler; kurumsal stratejisi, şirket uygulaması ve proje seviyesi hepsi birbiri ile ilintili olup ÖSFG yol projelerinde hem öğrenmeyi ve hem de karar almayı etkilemektedir.

Bu bildiri, hem karşılıklı ilişki ve örgütsel değişimin en dinamik olduğu proje seviyesindeki öğrenmeye odaklanmakta ve ne yapısalcı kuramı ve ne de tecrübeye dayalı öğrenmeyi tartışmak ve teorisini kurmak gibi bir niyeti yoktur. Bu karşılıklı ilişki ve değişim olguları daha sonra farklı konsorsiyum tarafları arasında kurularak paylaşılmaktadır. Bu tür paylaşımlar bu bildiride dikkate alınmamıştır ancak bu tür paylaşım ve dağıtma mekanizmasının örgütsel seviyede yaparak öğrenmenin önemli bir parametresi olduğu kabul edilmektedir.,

Takeuchi ve Nonaka'nın (Henry, 2001) iki boyutlu ve dört yöntemli bilgi yaratılmasının varlığı kabul edilmiş olmasına rağmen ÖSFG yol projelerinde en etkili olan öğrenme mekanizmasının kişisel öğrenmeye dayalı olduğu ve organizasyonun öğrenmesinin halen gerçekleşemediği şeklindedir. Bu durumun varlığı, ÖSFG'de bilgi yaratılmasında potansiyel bir zorluk olduğu kabul edilmiştir. Bu bildiri, bulguları yapısalcı kuram felsefesi ile izah etmeyi benimsemiştir.

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ÖSFG yaratıcı bir süreç ve yaratıcı bir üründür. Bir ÖSFG sözleşmesi Kamu ve Özel Amaçlı Araç (ÖAA) arasındaki uzun süreli işletme ve yönetsel ilişkilerin esaslarını tanımlaması gerekmektedir. Bu ilişkinin genel amacı, işbirliği ve ortaklık anlayışı içerisinde birlikte çalışmaktır. Temel olarak ÖSFG işbirliğinin amacı, başarılı bir sonuç elde edebilmek için dâhili ortaklık fonksiyonunun önemini vurgulayarak takım kurmaktır. Bu ortaklık süreçleri sonucun kendisi olarak görülmemeli, sonucu elde edecek araçlar olarak görülmelidir. ÖSFG ortaklık süreci, karşılıklı olarak geliştirilmiş resmi bir adanmışlık stratejisi ve iletişimi aracı ile paydaşlar arasında bir çalışma işbirliği ortaya koymaktır.

İnşaat Projeleri, proje yaşam döngüsü boyunca teknik ve kişisel becerilerden fayda elde ederek geçici örgütsel yapılardan meydana gelir. Bu yapılar esas itibarı ile gizli ve kişilere özgü bilgi ve beceriler kullanır. Bir ÖSFG Projesindeki geçici organizasyonlar – işverenler, finansörler, ÖAA ve yüklenici organizasyonları – bir bütün olarak nasıl öğrendiklerini ve bu bilginin nasıl birikip çoğaldığı açık ve net değildir. Fakat bu bilgi tabanı potansiyel olarak başka projelerde kullanılmak için bulunmaktadır.

Detaylı Vaka Analizleri bu bilgi tabanının çok geniş bir şekilde kullanılmadığını ortaya koymaktadır. Öğrenme ile ilgili bir oluşturmacı yaklaşım, birinin bildiğini ne kadar çok yolla geliştirebileceğini ve yapabileceğini öngörmekte ve yapısalcı teori de tecrübeye dayalı öğrenme teorisinin temelini sağlamaktadır (Lyons, 2004). Walker (2009)'a göre Oluşturmacılık Kuramı'nın en kolay hatırda kalınabilmesinin Oluşturmacılığı inşaat sektörü ile ilişkilendirmekle olabileceği şeklindedir. Bu teoride esas olarak biz bilgi yapılandırarak, soru sorarak, cevap bularak ve çevre ile ilişki kurarak ve onu yorumlamaktayız. Bunların yapılmasıyla bilgi beyinle birleştirilmektedir. Tecrübeye dayalı öğrenmenin belki de en iyi ihdas edilip kabul görmüş modeli Kolb Modelidir, Kolb (1984). Bu modelde öğrenme süreci bir somut tecrübe (yaparak) ile başlar ve bunu yansıtıcı gözlem (izleyerek) takip eder.

Kolb (1984) tarafından izah edilen tecrübeye dayalı öğrenme, her insanın kendine özgü tecrübesine dayalı öğrenme tarzının olduğunu ve bunun da yeni anlayışlar getirerek daha fazla öğrenme ve değişim ihtiyacı doğuracağı varsayımı üzerine dayanmaktadır.

Anahtar kelimeler: Rekabet Avantajı, Tecrübeye dayalı öğrenme, inovasyon, ÖSFG, Risk Yönetimi, Para Değeri

Introduction

PFI is a creative process and a creative product. The structure of the PFI contract has to define the basis for the future long-term operational and managerial relationship between the Authority and the SPV. The overall aim of this relationship is to work in collaboration and partnering. Fundamentally the PFI partnering process is about team building, which is why the function of internal partnering is so important in achieving a successful outcome. The processes of partnering must be seen as a means to an end and must not be seen as an end in itself. The PFI partnering process attempts to establish working relationships amongst the stakeholders through a mutually developed, formal strategy of commitment and communication.

Construction projects are composed of temporary organisations benefiting from technical and interpersonal skills throughout the project life-cycle. They utilise broad knowledge and skill attributes that are mainly tacit and individually oriented. How within a PFI project the temporary project organisations – Sponsor, Financiers, SPV, and Contractor Organisations - learn as a whole and this knowledge is accumulated is not clear. But this knowledge base is potentially available to be utilised on other projects. The detailed case study analysis reveals that this knowledge base is not widely utilised.

A constructivist approach to learning suggests that there are many ways in which to enhance what one knows and what one is able to do; and the constructivist theory has provided the foundation for experiential learning theory (Lyons, 2004). According to Walker (2009) an easy way to remember constructionist theory is to relate constructivism with construction. In essence, according to this theory, we are constructing knowledge, we ask questions, develop answers and interact and interpret the environment. By doing these things we incorporate knowledge into the mind. Possibly the most established model of experiential learning is that of Kolb (1984). In this, the process of learning starts with an experience and is followed by reflection.

Experiential learning as described by Kolb (1984) is based on the assumption that every person has his or her own learning style from their own experience bringing new insights and the need for further learning and change. So, the role of experience in the process of learning is crucial.

Experiential Learning at the Project Level

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Experiential Learning

Experiential learning theory offers a completely different view of the learning process from that of behavioural learning theories and can be used by different disciplines to understand the knowledge creation processes (Ammar and Wright, 1999; Reeve et al., 2004). Learning can be called 'experiential' for two reasons. The first is to connect it to its intellectual origins in the work of Dewey, Lewin and Piaget. The second is to stress the central role that experience plays in the learning process (Nembhard and Uzumeri, 2000; Wilson and Beard, 2003).

Jeffries et al. (1990) give 'experiential learning' a broader two-part meaning: (a) learning results from doing, finding out and practising without a formal intention to learn and (b) learning through the simulation of, or exposure to, real life experience.

In addition to the traditions of experiential learning, emanating from Dewey and Lewin, another important contribution, coming from the cognitive development perspective, is that of Piaget. To state it in its simplest form, Piaget's theory describes how intelligence is shaped by experience. Intelligence is not a hereditary internal characteristic of the individual but arises as a result of the interaction between the person and the environment. For Piaget, the dimensions of experience and concept, reflection and action form the basic circle for the development of adult thought and development from infancy to adulthood, from a concrete view of the world to a more abstract view. Piaget (1970) noted that these have been the major directions of development in scientific knowledge. The learning process whereby this development takes place is a cycle of interaction between the individual and the environment.

Although in practice the Dewey, Lewinian and Piagetian traditions appear to be very different, there is an underlying unity in the nature of the learning process on which they are based and they certainly have had a remarkable impact on the issue of experiential learning.

Project-based Learning

Project based learning contributes to the evolution of a culture where project members engage in understanding the underlying system dynamics and unintended consequences of 'fire-fighting' that project work may require (Ayas and Zeniuk, 2001). This lays the foundation for reflective practitioners (Schön, 1983 in Ayas and Zeniuk, 2001). According to Argyris and Schön (1978) reflective practitioners have a deeper understanding of the underlying causes of action, and they can discern the discrepancies between theory-in-use and espoused theory. Ayas and Zeniuk (2001) note that organisations seek to have flexibility and adapt to the demanding environment through projects; but knowledge created within a project is not always diffused, and lessons learned may not be shared across projects. The systematic retention of project experiences would enable comparison between projects more systematic and documented problem solving mechanisms (Schindler and Eppler, 2003).

From a long term perspective – [as required for PFI] - systematic project learning enables the development of project competencies leading to a sustainable competitive advantage (ibid). A sustainable work system supports the innovation and implementation of change required for organisational renewal over the long-term. PFI projects are examples of such systems which integrate all the stakeholders in the procurement system in a long-term relational contract. Teamwork, partnering, co-operation, creativity, commitment and the use of knowledge across project life-cycles create a sustainable project and working environment. This creates a more participative approach to management, strengthens trust and collaboration and commitment among the project work-teams and stakeholders in the project. A participative management style in operational PFI projects maximises skills, creativity and creates and fosters a project climate that increases and encourages continual learning and development of human resources by creating a knowledge base from the project. PFI road project organisational issues are discussed in detail in Akbiyikli and Eaton (2006). Project-based organisations offer an excellent opportunity to engage in learning and reflective habits that transcend the boundaries of projects; it is not only the nature of single projects that supports learning but also the web of relationships that are created in organisations that manage the projects (ibid).

Project Knowledge and Management of Knowledge

Drucker (1993) has described knowledge as 'the meaningful economic resource', and Seng (1990) has noted that many organisations are unable to function as knowledge based organisations because of suffering from learning disabilities. It is the authors' contention that the temporariness both in time and organisation and the changing teams in the projects are the main sources and reasons of learning disabilities.

Tacit knowledge represents ideas in someone's head and explicit knowledge is embedded in procedures or represented in documents and databases and transferred to others (Seng *et al*, 2002). According to Polayni (1958) tacit knowledge can be generally understood as the form of knowledge that exists within an individual, and is intuitive and unarticulated. Duffy (2000) argues that explicit knowledge describes the type of

knowledge that is documented and public, structured, fixed-content, externalised and conscious. Nonaka and Takeuchi (1995) note that interaction between tacit knowledge and explicit knowledge is 'knowledge conversion' and both tacit and explicit knowledge interact and interchange with each other in the creative activities of human beings. They discuss "knowledge-creating" suggesting that individuals within a field typically have the knowledge needed for innovation, but their knowledge exists in a tacit form. The main issue is how to transform personal, tacit knowledge into organisational knowledge.

Project Knowledge is therefore the array of knowledge dimensions and modes combined and applied to individual and specific projects. Figure 1 demonstrates the iterative and cyclic nature of knowledge conversion.

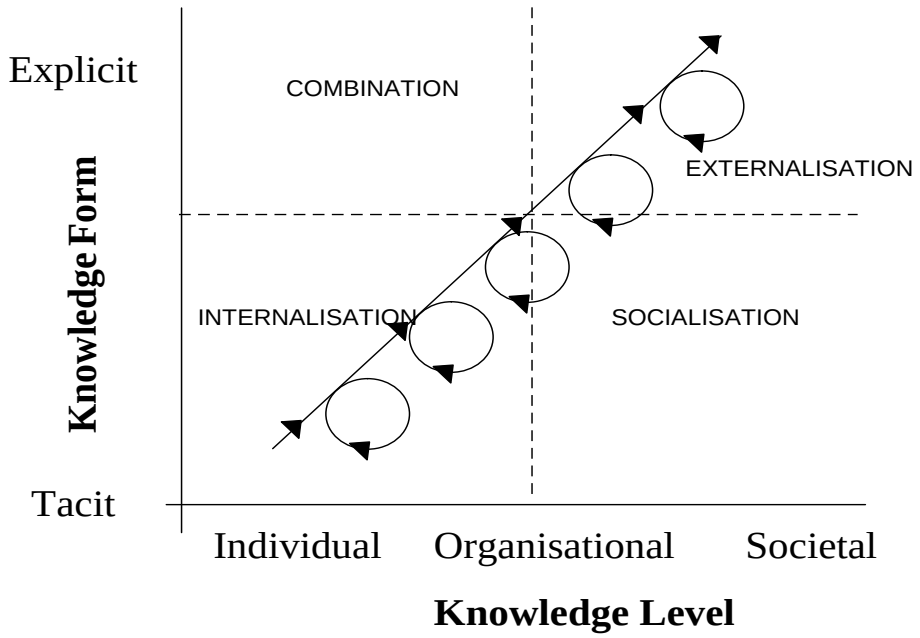

Fig. 1. *Iteration and Conversion of the Knowledge Cycle.*
(Adapted from Takeuchi and Nonaka in Henry, 2001)

Construction projects necessitate how to deal with the construction process, how to execute the work and how to produce the specified constructed asset, within time, cost, quality and certainty parameters, to the satisfaction of the client and end users. The time, cost, quality and certainty parameters for PFI projects are explained in detail in Akbiyikli (2005) and Eaton and Akbiyikli (2005).

PFI projects are dynamic and iterative processes where the gained experiential knowledge in different phases of the project is incorporated into the decision-making. The experiential learning fosters collaboration and knowledge sharing and improves decision-making.

PFI road projects can be considered as network-based, consisting of a variety of stakeholders and actors with different expertise, in different phases of the procurement and construction process, improving the intellectual asset of the whole project organization by placing great demands on communication and co-operation and calling for joint learning.

Case Study Investigations

The case study investigations (Eaton & Akbiyikli, 2005) confirmed that individuals perform the translation between tacit and explicit knowledge, not the organisation. The explicit knowledge captured is a highly sanitised, filtered and pruned version of reality. This knowledge distortion is affected by the overarching organisational culture, which has been cited as 'Blame Culture'. This paper excludes any further exploration of this issue. In order to ensure that project knowledge is as useful as possible the 'real' version has to be fully available to be shared. It has to be shared without the originator being under any form of threat. This 'No- Blame' Organisational learning is a key mechanism for achieving such learning and is an essential mechanism to adapting to the changes in the environment and hence providing opportunities for innovation, sharing knowledge and use of intellectual assets in other projects. This is especially important for PFI because of its longevity in service delivery. The ability to develop capacities and competitive advantage over such a long time span is strength and a weakness. If done properly knowledge transfer and sharing is a major source of competitive advantage. If done poorly it can be a source of poor financial performance, and threatens the whole project. Therefore it is absolutely necessary to create a culture in PFI construction projects that:

- Identifies, formalises and shares best practices;
- Acquires new knowledge and develops knowledge data bases in its organisational memories for future use.

Keegan and Turner (2001) in their analysis of 19 project-based organisation analyses recommended the following procedures to maximise the retention of lessons learned from projects:

- Lessons learned databases;
- Project end reviews;
- After action reviews;
- Learning resource centres;
- Client procedures and standards;

- Centres of excellence.

The next section details the analysis for two major PFI Road projects in the UK. It summarises the lessons learnt between Inception and Permit to Use.

Lessons Learned from Two PFI Road Projects in the UK

Lessons learned are defined as key project experiences having general business relevance for future projects' (Schindler and Eppler, 2003). The term 'lessons learned' can also be found in the glossary of the Project Management Body of Knowledge, PMBOK (2000).

Lessons learned from PFI project knowledge must be integrated into all the stakeholders' business strategies and organisational culture. Otherwise the person based project knowledge will disappear with the person when he/she disappears from the project and when the project ends.

The 'lessons learned' collate project experiences that in the opinion of the project participants – interviewed during the project case studies – are so important that they should be 'remembered by the organisations for future reference'.

No research has yet been conducted by the authors to study the transfer of project learning, level of learning, and knowledge transfer mechanisms of the different stakeholder organisations for incorporation on other PFI projects. Nor on how the ideas, accumulated knowledge and know-how of different stakeholders are shared within a PFI road project for a common project goal. The authors are aware that the formalisation of total organisational learning by all the stakeholders is not an easy task, but is viewed as a prerequisite for PFI aggregated knowledge and for the creation of best practice guidance for later projects. The availability of lessons learned documentation and detailed case study analysis is a first step.

The PFI lessons learned can be divided into three phases: firstly the *'negotiation phase'* which starts with Business Case (Public Sponsor's Requirements are decided) and continues with Concessionaire Selection to Financial Close and Contract Award. This phase on average takes 1.5 - 2 years. Secondly the *'design and build phase'* where the asset is produced by the Private Sector with private finance as per the Public Sponsor's Requirements and Project Agreement. The final phase is the *'operation and maintenance phase'* or *'service provision phase'* by the Private Sector as per the Operation and Maintenance Agreement. There are lessons learned within each phase which are frequently iterated within a phase and may also be reiterated into previous phases for subsequent PFI projects.

The lessons learned can be divided into two broad categories: namely *'soft issues'* and *'hard issues'.* The two case study projects; one in Scotland (A92 – Upgrading between Dundee and Arbroath) and the other in Wales (NSDR – Newport Southern Distributor Road) are a rural 2x2 lane carriageway approximately 20 km long and an urban 2x2

lane project approximately 10 km long, respectively. The new works construction contractor in both projects is the same company; the Concession Company – Special Purpose Vehicle (SPV) and Lenders are different. Both projects have Local Authorities (LA) as Public Sponsors. The project in Scotland has a 30 years concession period and the other in Wales 40 years.

The A92 research was conducted by the first author using two reviews with the structures team and the road works team and a design phase review with the designer in January 2004. The same author also participated in a pre-surfacing workshop in March 2004 for the Construction Company in order to:

- Raise awareness of how to work and support others in working within integrated cross company teams;
- Support efforts made to integrate with and get the most value and support from site management;
- Support teams to identify and be aware of good team working practices and reinforcing these attitudes and behaviours.

In the other case study project, NSDR, the first author conducted staff surveys and interviews with a cross section of staff on the project in January 2004 and participated in a workshop in March 2004, initiated by contracts and project managers of the Construction Company and supported by the director of a Partnering Facilitator Consultancy appointed to the project in order to understand different:

- Perceptions of partnering;
- Approaches to problem solving and learning;
- Ways of dealing with complex problems;
- Relationships for good team working;
- Effects of project culture change and working practices in the project.

The paper will concentrate on soft issues in the studied PFI road projects.

Soft Issues

The findings from reviews with the structures team and the road works team and a design phase review with the designer and a pre-surfacing workshop from A92 (in Scotland) and staff surveys and interviews with a cross section of staff on the project in NSDR (in Wales) PFI road projects are summarised in the following tables.

Table 1: Negotiation Phase 'Soft issues'

POSITIVE:	NEGATIVE:
• Well developed line of communication; • Good relationships; • Recognition of the need to work together; • Keenness for problem solving together; • Working towards a common goal; • Flexibility to take on different ideas; • No hot heads; • Pre-award enabled considered decisions and six months advanced work; • Openness; • Excellence in management identified problem solving approach, common goal, commitment, responsiveness, wide perspective (taking on board different factors such as commercial and programme); • Good decision making.	• Cultural confrontations between some design members; • Lack of appreciation of PFI design process; • Under-estimation of design risk.

Table 2: Design and Build Phase 'Soft Issues'

POSITIVE:	NEGATIVE:
• Open and honest teamwork; • Committed people; • Supportive and helpful management – no closed doors; • Early Solutions Together (EST): Organising before doing (pre-emptive), reducing risk (right first time, reducing costs, company reputation), getting ahead as early as possible, solutions from people made them feel good to contribute, focus on end product, alignment of efforts with diversity of ideas in team working and supporting; • Whole picture of Client, safety, time, cost; • Collective Gain – Common Incentive.	• Team-working involving many more people; • Lack of awareness and understanding of risks; • More personal effort required in making communications and feedback happen; • Pre-empt problems; • Review priorities; • Potential clashes can happen that can hamper team-working

The Key learning points:

- An iterative design process gave awareness for programming and planning;
- Early identification of Public Sector issues;
- Common incentives to enable people to pull in same direction with common goals;
- Time spent together was considered very valuable in relationship building.
- Poor understanding of partnering (lack of understanding and skill to operate within a partnering environment at all levels, not appropriately engaging stakeholders, lack of development of team culture between different stakeholders, inappropriate corporate support for the project team in partnering, many organisations and management styles and company cultures, lack of managerial skills for partnering in all stakeholders);
- Lack of skills to differentiate task from process in complex and collaborative projects. There was an overwhelmingly heavy task focus and a limited focus on relationships or process;
- Lack of skills to identify approaches to support the organisation in dealing with effects of culture change;
- Misperception and lack of commonly held views of what constituted partnering (partnering is about challenging everything, not participating in a nice comfortable arrangement);
- Reluctance to invest time and money in developing the process (this is a key challenge within the industry);
- The early partnering workshops were of limited success, because there was no follow through process;
- There has not been a whole view of the project, just construction;
- There has been a failure to recognise and learn from mistakes at numerous levels, there has been no formal process of learning;
- There was little collective understanding, responsibility and ownership to manage the risks;
- Too much time and money on establishing the contract, without enough time thinking about working together, the objectives and operational issues (anomalies in developing the right team balance between structure, skills and awareness to effectively deliver the project);
- Unresolved issues between CJV (Construction Joint Venture) and SPV (Special Purpose Vehicle). A whole series of agendas where played out, not aligned with each other;

- The Public Sponsor (Client) established an approach not properly supporting or enabling effective project partnering;
- Lack of recognition and understanding of the limitations of the existing company culture and how this needs to adopt to better operate within the challenges of a new working environment;
- The Project Board members suffered from a lack of skills and awareness of working as a collective Project Board (knowing how to behave, think, appropriate attitudes and how to challenge);
- Relationship issues, internally and cross companies limited the effectiveness of collaborative working;
- A complex contract established by the Public Sponsor, which has been ineffective at developing a proper project partnering culture;
- There was lots of covering the interests of 'my own company'; little consideration of the whole project interest;
- Risk was almost always passed to CJV (Construction Joint Venture);
- During Board Meetings there was rarely anything about problems – this may have been because the Public Sponsor expected a nice convivial environment.

Conclusions

The case studies clearly demonstrated that the 'soft issues' go far beyond the expectations of a partnering philosophy and collaborative working, and these are not yet fully understood in PFI road projects. Although the construction industry has been experiencing significant cultural changes in working practices there is still much to do in filling the gap in the lack of skills and awareness of how to learn and behave in collaborative working project environments. This research has demonstrated that people are experiencing difficulty in understanding and operating effectively within a team working culture and lacking communication and co-operation skills at all levels of the organisation of all the stakeholders.

The lesser claim of non-adversarial intention of PFI have been accepted and well applied by the stakeholders. However the partnering philosophy between the private and public sectors is yet to fulfil expectations. But there is a positive tendency in project and strategic partnering among private sector contractors and their supply chain.

Through these two projects we can conclude that problems and issues inevitably arise when procurement route and contract conditions change and elements of the conventional procurement route culture are asynchronous with the needs of a new working environment that needs honesty, openness, trust, communication, team working, sound inter-group relations and common objectives. We believe that project-based learning from PFI projects can create genuine value by capturing and sharing

learning experience more so than the other procurement paths. This can lead to the improvement of processes and end-products and services for the clients and hence for the wider society.

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