Culture Impact in Construction Supply Chain Management

By Eleni Penelope Tzortzatou

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Abstract

Awareness of cultural differences in construction supply chains is of fundamental importance because only through a thorough understanding of the manifestations of culture can fragmented supply chains be appropriately integrated into cohesive and collaborating teams which enhance project performance. Hence the concept of cultural alignment with the project supply chain is introduced in order for long-term collaborative relationships based on trust, co-ordination and mutual benefit to be established. Therefore, the principles of Partnering and Supply Chain Management must be adopted in order for the opportunistic and adversarial culture of the construction industry to be eliminated. The extent to which supply chain participants with different goals, needs and cultures are culturally aligned with the project's values and objectives and are properly integrated into a cohesive and mutually supporting unit is investigated. This thesis presents the findings of semi-structured interviews which examined the cultural impact in the supply chain management of two construction companies, i.e. Greek INTRAKAT and UK Taylor Woodrow. Furthermore, this study has uncovered serious concerns among the Greek Contractors that point towards the establishment of an aligned culture with their clients rather than with the whole supply chain. In contrast, the UK Contractors are investing very heavily in their relationships with the entire supply chain and hence they seem to be embracing with success the partnering ideal further down the supply chain. A range of attitudinal change requirements for overcoming the cultural and organisational barriers to change is identified for both the contactor's companies. It is suggested that training practices should be implemented more intensively in both the contractor's organisations supported by intensive management activity from the senior management if further performance improvements are to be realized throughout the supplier networks.

Keywords: Cultural alignment, Supply Chain Management, Partnering, Behavioural aspects, Project performance improvement

List of Figures and Tables

The construction industry has been prey to a continuous culture of fragmented and opportunistic approaches to project delivery that have persistently plagued the industry and affected project performance, with project teams being characterised by adversarial relationships, a lack of transparency and mistrust. Poor performance, low profit margins, project costs and schedule overruns have been attributed to the continued use of procurement practices that do not encourage integration of the parties involved (Morris *et al*, 2004). Thus, there is an urgent need for cultural change within the construction industry, for performance to be improved and conflicts to be minimised. Fundamental to such change is the need to fully investigate and understand the manifestations of culture within a project coalition. However, little research has been conducted that specifically addresses cultural issues in the construction industry due to the complexity of the matter and subjective nature. Research on project performance has mainly been focused on the impact of construction methods; partnering arrangements aimed at encouraging team formation and collaborative working as well as innovative management techniques on performance, such as Supply Chain Management (SCM) and lean construction (Baiden *et al*, 2005). This dissertation will attempt to address these issues in order to fill this gap.

In addition, the adoption of innovative procurement and business practices like partnering and supply chain management require the embracing of non-confrontational attitudes, a collaborative spirit and trust, which in turn highlight the importance of social, human and cultural factors in the management of construction supply networks (Nicolini, 2002). The larger and more complex the project, the greater is the diversity of construction project members and stakeholders. The interaction of the various members of the supply chain leads to further complexity of appreciating the behavioural imperatives of the supply processes in order to secure successful project performance. It is only through the appreciation of the manifestations of culture (one's own and others) and the determining variables that construct them ,that fragmented supply chains can be appropriately integrated to secure both individual and holistic successful performance of the project management processes (Fellows, 2008). The impact of relational and cultural attributes between organisations in the project coalition and the extent to which they may lead to successful performance of the project management processes will be investigated in depth in this thesis. Hence, the context within which the behaviour of the project participants is developed and the motives that drive such behaviour can be assessed and understood.

2.1 CULTURE

Cameron and Quinn (2005, cited in Dainty *et al*, 2007) agreed on the following six aspects of culture:

1. Cultures are a property of groups of people and not individuals
2. Cultures engage the emotions as well as intellect
3. Cultures are based on shared experiences and thus on the histories of groups of people: a development of culture is time-consuming
4. Cultures are infused with symbols and artefacts
5. Cultures continually change according to the circumstances that the individuals are in
6. Cultures are inherently fuzzy in that they incorporate contradictions, ambiguities and confusion.

Cameron and Quinn (2005) continue by suggesting that culture acts as *"glue"* that binds people into social groups.

Intracultural awareness is a precursor to intercultural sensitivity, understanding and management. Hence awareness and accommodation of culturally based differences is important for successful performance because success can be judged by culturally-determined performance metrics (Fellows, 2006).

Hofstede defined **culture** as: *"the collective programming of the mind which distinguishes the members of one group or category of people from another"* (Hofstede *et al*, 2005). This definition encompasses the aspects of culture identified by Cameron and Quinn (2005) and also indicates that culture is learned rather than something which is innate in the individual or is inherited genetically; it is certainty inherited behaviourally through replicating and responding to the behaviour of other individuals (Fellows, 2006).
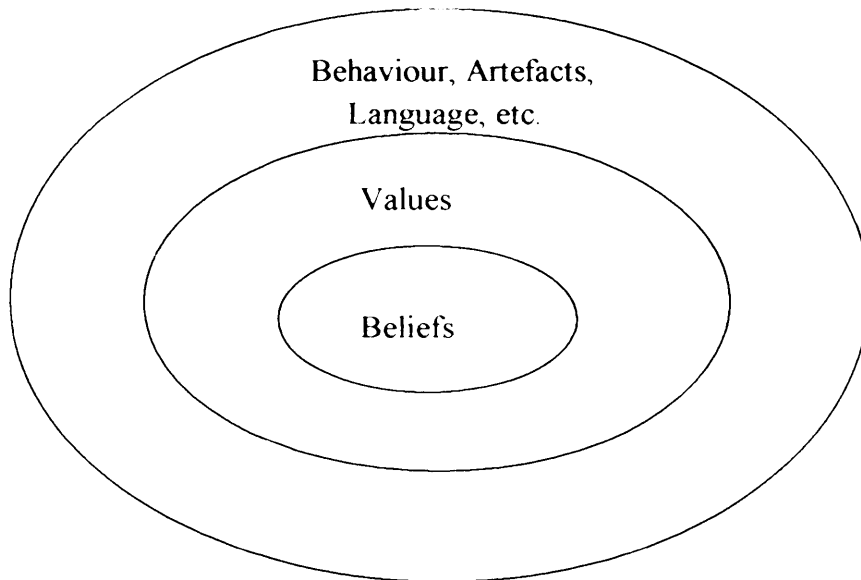
Figure 1: "Layers of Culture", (Vertical analyses of Culture) adapted from Fellows, 2006.

Kroeber and Kluckhohn (1952, cited in Fellows, 2006) define **culture** as "*...patterns, explicit and implicit of and for human behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups , indicating the embodiment in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems, may on the one hand, be considered as products of action, on the other hand as conditioning elements of future action*" .Thus, culture constitutes of the socialization of human groups; culture shapes the behaviour of people and in turn the behaviour of people shapes culture. Besides, behaviour is dependent upon values and beliefs of the individuals, which lead to models of culture which employ vertical analyses: physiological instincts and *beliefs* are at the core (survival mechanisms, religion, ethics etc), *values* are at the intermediate layer (the hierarchical ordering of people's beliefs) and *behaviour* is at the outer layer (languages, symbols and artefacts) as we can see from *Figure 1* above. Therefore, it is behavior at the outer layer that can be observed if measurements indicative of culture are to be employed (Fellows, 2006).

Moreover, as culture is constructed through the need of individuals to socialize and interact, categorization of people can be in terms of their nationality, organisation, religious and political beliefs etc. Hence, culture can employ horizontal analyses which yield categories of national culture; behaviour modification; organisational culture and organisation climate (see *Figure 2* below). Boundaries between cultures, climates and behaviour modifications are fussy due to the interrelationships of the individuals fulfilling different roles. For the purpose of this thesis, the principles of the organisational culture and organisational climate are stated briefly so that the differing aspects of culture which are likely to be present within a project coalition are better understood (Fellows, 2006).

ORGANISATIONAL

◄─────────────────────   ─────────────────────►

CLIMATE

ORGANISATIONAL

◄──────────────────   ───────────────────────►

CULTURE

"National" CULTURE─────────────────────────────► BEHAVIOUR

◄─────────────────── MODIFICATION

◄──►

Deep   Surface

Long-term   Short-term
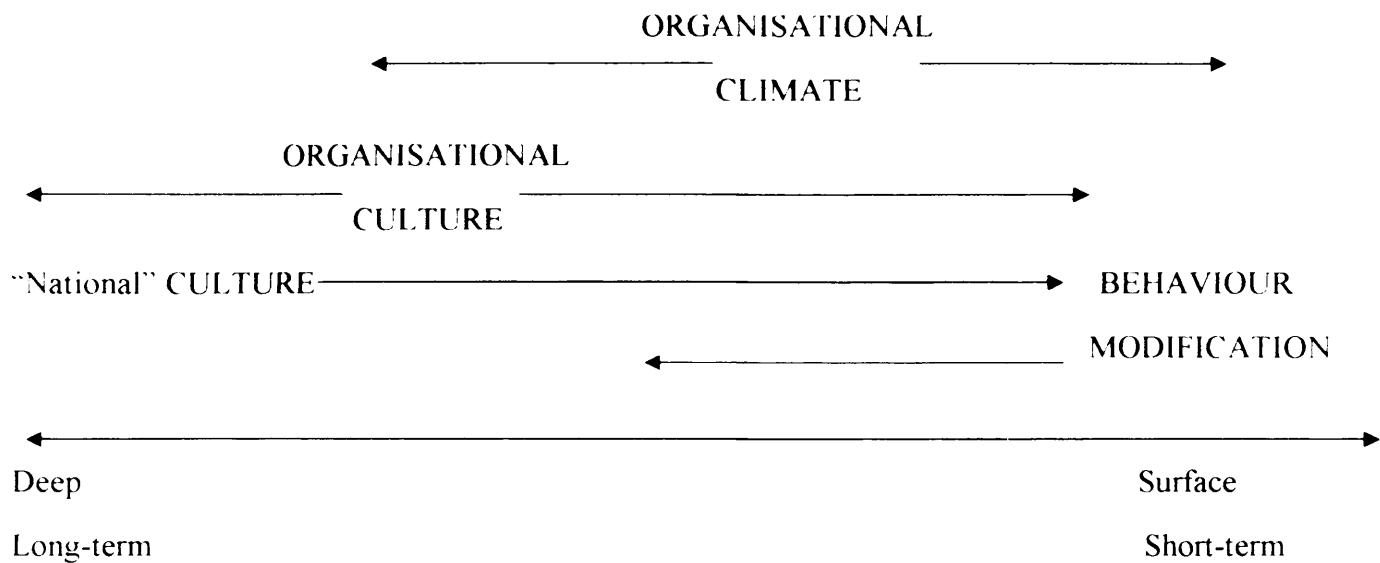
Figure 2: Change Spectrum, (Horizontal analyses of Culture), adapted from Fellows, 2008.

It is of essential importance to consider what constitutes organisational culture, in order to be able to understand what goes on in the organisations, how to run them and how to improve them. Therefore, the concepts that underpin the evaluation of organisational culture will be analyzed. Meanwhile, organisational culture is a system of shared meaning held by members that distinguishes the organisation from other organisations (Robbins, 2003).

Further, according to Schein (1990, cited in Ankrah *et al*, 2005) **organisational culture** is defined as *"a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and therefore, to be taught to new members as the correct way you perceive, think and feel in relation to those problems"* He determines two types of organisational culture: the free flowing organisation, which is an egalitarian organisation without any formal structure, where internal competition is encouraged and the structured organisation, which is a rigid organisation with clear rules and requirements (Fellows, 2006).

Moreover, Handy (1985) suggested four primary forms of organisational culture:

.·   *Power*, which is configured as a web where the main power source is at the centre ;control is exercised by the centre through the selection of key individuals; the organisation depends on trust, empathy and communication for its effectiveness;

·   *Role*, which is configured as a Greek temple, where the organisation rests its strength in its pillars, its functions and professions; the pillars are providing support at the senior management, the pediment; emphasis is on procedures and rules which are the major methods of influence; the

efficiency of the role culture depends on rationality, legitimacy and responsibility – duties and contractual rights-;.

    ○   *Task*, which is job or project orientated; its structure is represented as an organisational net, where power and influence lies at the interstices of the net: the matrix organisation; it is a team culture which utilizes the mutual objectives of the organisation to improve efficiency.

    ○   *Person*, in which the individual is the central point; people interact and cluster as they like; the organisation is subordinate to the individual and depends on the individual for its existence; management hierarchies and control mechanisms have no existence within the person culture.

(Handy, 1985)

In addition, Handy suggests that the factors that influence organisational culture are: size, technology, history and ownership, individuals and environment, goals and objectives.

Cameron and Quinn (1999, cited in Fellows, 2006) employ a competing values model, as shown in *Figure 3*, where two major dimensions emerged that split indicators into four quadrants. The first dimension distinguishes effectiveness criteria that emphasize flexibility, discretion and dynamism from those that emphasize stability, order and control. The second dimension distinguishes effectiveness criteria that emphasize an internal orientation and integration from criteria that emphasize an external orientation, differentiation and rivalry. Hence, the four clusters of effectiveness represent what individuals' value about an organisation's performance, defining what is right and appropriate, and each denoting a type of organisational culture: **Clan, Hierarchy, Adhocracy** and **Market**. The four types of organisational culture made by Cameron and Quinn is described in detail in *Table 1* below (Dainty *et al*, 2007).

The Hierarchy Culture:

Formalised and structured place to work. Procedures govern what people do. Effective leaders are good coordinators. Formal rules and policies hold the organisation together. The long term concern is on stability and performance with efficient smooth operations. The management of employees is concerned with secure employment and predictability.

The Adhocracy Culture:

A dynamic entrepreneurial and creative organisation. Leaders are considered innovators and risk takers. The glue that holds together the organisation is commitment to experimentation and innovation. The emphasis is on being at the leading edge of knowledge and acquiring new resources,. Success means gaining unique products and services. The organisation encourages individual initiative and freedom.

The Market Culture:

Transactions are conducted with other organisations to create competitive advantage. People are competitive and goal oriented. Leaders are tough; producers; competitors. What glues the organisation together is an emphasis on winning. The long-term focus is on competitive actions and achievement of measurable goals and targets. Success is defined in terms of market share and penetration. The organisational style is hard-driving competiveness.

Table 1: The four types of organisational culture, adapted from Cameron and Quinn (2005, cited in Dainty *et al*, 2007).

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┌─────────────────────────┐
│     FLEXIBILITY         │
│   AND DISCRETION        │
└─────────────────────────┘
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CLAN CULTURE

Leader:
Facilitator; Mentor;
Parent

Effectiveness Criteria:
Cohesion; Morale;
Development of HR

Organisation Theory Basis:
Participation fosters
commitment

ADHOCRACY CULTURE

Leader:
Innovator; Entepreneur;
Visionary

Effectiveness Criteria:
Cutting-edge output;
Creativity; Growth

Organisation Theory Basis:
Innovation fosters
new resources

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┌──────────────┐          ┌──────────────┐
│INTERNAL FOCUS│          │EXTERNAL FOCUS│
│    AND       │          │    AND       │
│ INTEGRATION  │          │DIFFERENTIATION│
└──────────────┘          └──────────────┘
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HIERARCHY CULTURE

Leader:
Coordninator; Monitor;
Organiser;

Effective Criteria:
Efficiency; Timiliness
Smooth functioning;

Organisation Theory Basis:
Control fosters efficiency;

MARKET CULTURE

Leader:
Hard-driver; Competitor;
Producer;

Effective Criteria:
Market Share; Goal
acheivement; Beating
competitors;

Organisation Theory Basis:
Competing fosters
productivity;

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┌─────────────────────────┐
│      STABILITY          │
│   AND CONTROL           │
└─────────────────────────┘
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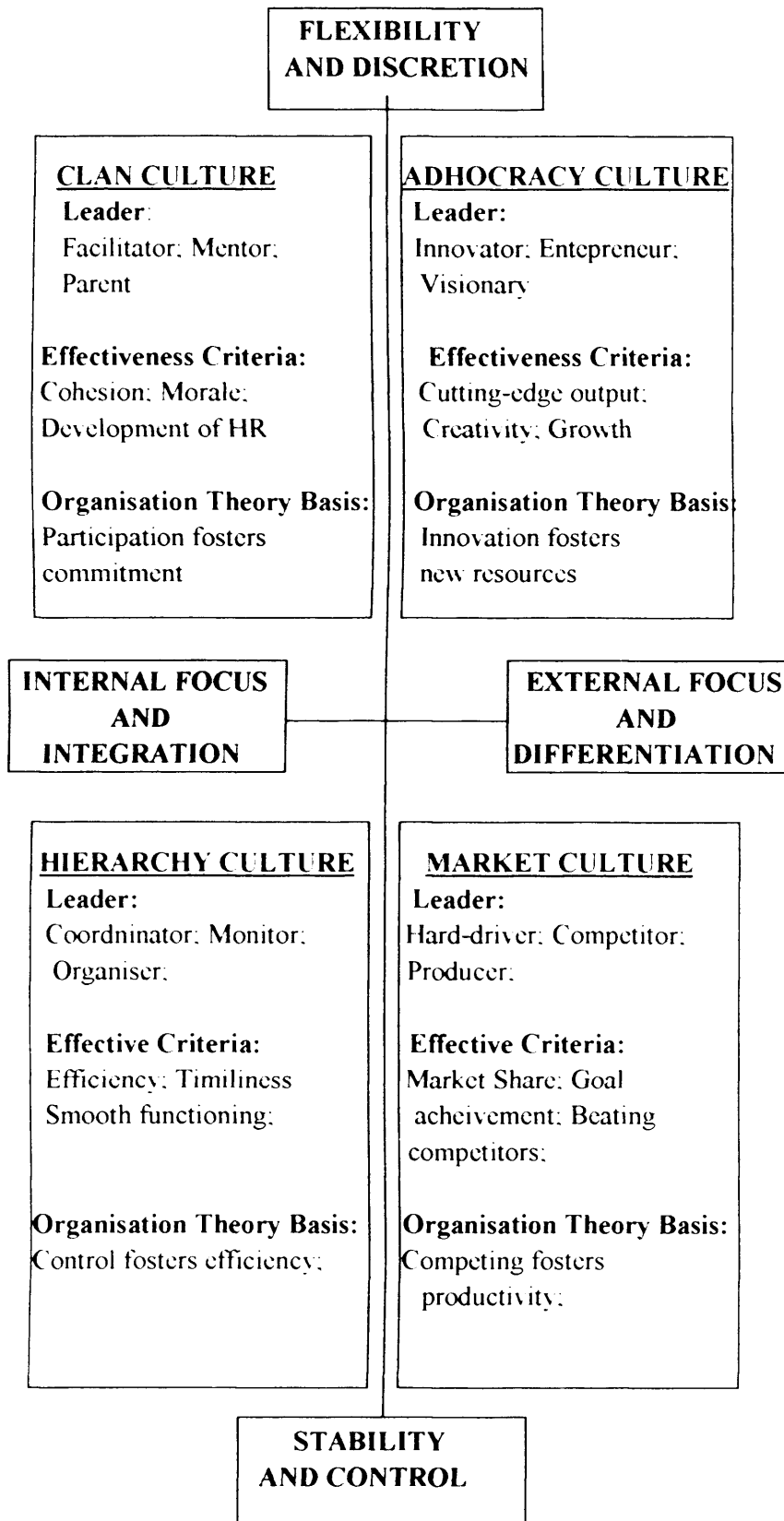
Figure 3: Competing Values and Organisational Cultures Model, adapted from Cameron and Quinn (2005, cited in Dainty et al, 2007).

An investigation into **corporate cultures** therefore involves looking at how people in an organisation behave; what motivates their behaviour and what bonds the organisation together. A corporate culture governs the way that a company processes information, its internal relations and its values (Hampden-Turner, 1990). Further, a corporate culture replaces the need to enforce rigid procedures through explicit supervision because "*a corporate culture functions as an informal control mechanism that coordinates employee efforts*" (Dainty *et al*, 2007). The influence of organisational culture is obvious with the growing awareness of the nature of the construction industry, with its project-based environment, contractual arrangements, internationalization of procurement methods and requirements of the myriad project participants. Kotter and Heskett (1992, cited in Fellows, 2006) on their research between high performing and lower performing organisations they found out that cultural type, strength and congruence are the major factors differentiating the performances achieved.

There is a difference between organisational culture and organisational climate. According to Mullins (2002, cited in Fellows, 2006), **organisational climate** is: "*relating to the prevailing atmosphere surrounding the organisation, to the level of morale, and to the strength of feeling of belonging, care and goodwill among members. Organisational climate is based on perceptions of members towards the organisation with respect to such dimensions as autonomy, cohesiveness, support, recognition, innovation and fairness*". Further, organisational climate is produced by member's interaction, acts as an influence for shaping behaviour and more importantly reflects the norms, values and attitudes of the organisation's culture. Thus we can conclude organisational climate as a tool which managers can manipulate accordingly to their desire in order to obtain changes in performance. Therefore, the role of leadership is essential in shaping the organisational climate through the organisational structure they set up, their reward, recruitment and promotion mechanisms (Nicolini, 2002).

But let as look closely at the factors that constitute to the creation of an *aligned culture* within a project organisation or team. Most construction supply chains comprise of participants from different organisations that come together to form temporary organisations aimed at achieving the common objective of delivering a project. Hence, the process of integrating the different supply network members and the various organisations with different goals, needs and cultures into a cohesive and mutually supporting unit is critical if the various supply chain participants are to work together effectively. Thus, an aligned culture exists when individuals and organisations within a project coalition are working together in a spirit of *trust, coordination* and *collaboration*. This means that different organisation processes and cultures have to align in a collaborative manner, so that integration of the total supply chain is achieved with the objective of improving team culture and professional attitudes (Nicolini, 2002).

From the above we may consider that a construction supply chain has a *strong aligned culture* when it has the following:

- ➤ Aligned goals and objectives;
- ➤ Operates without boundaries among the project's participants;
- ➤ Motivates the supply chain members for an effective accomplishment of the project;
- ➤ Uses in full the diverse skills, knowledge and experiences of all parties;

➤ Operates in an atmosphere where relationships of collaboration ,cohesiveness and transparency are cultivated;

➤ Information is shared freely among its members; open communication is promoted throughout the project's life;

➤ Conflicts are resolved wisely and jointly by all members of the supply chain; hence adversarial attitudes are reduced;

➤ Group composition processes, management style and practices, reward and recognition principles, communication mechanisms and systems are all aligned;

2.2   SUPPLY CHAIN MANAGEMENT (SCM)

The discipline of **Supply Chain Management** (SCM) has been thoroughly investigated by many academics; its study is engaged with how firms utilise their supplier's processes, technology and capability to enhance competitive advantage. Thus it has a wide range of definitions. The concept of SCM must be introduced in order to improve profit margins; optimize value for clients and stakeholders; reduce waste and inefficiencies; perform shorter lead times; achieve greater customer loyalty and move towards continuous improvement and innovation (Pryke, 2008). One definition is offered by Venkataraman as: *"Supply chain management is a set of approaches utilized to efficiently and fully integrate the network of all organisations and their related activities in completing and delivering a project so that production costs are minimised while maintaining or exceeding customer service level requirements"* (Morris et al, 2004). Consequently, SCM prescribes organisational restructuring, extended to the achievement of a company-wide collaborative culture, which embraces a strong sense of integration of all activities involved in a construction project (Akintoye et al, 2000).

Organisations in the past where focused only on performance and success criteria of their businesses. However, in order to survive the pressures of globalisation of the industry, organisations realised that they must adopt more relational approaches, based on teamwork, co-operation and effective co-ordination. Thus companies need to better manage their supply chains to remain viable, because competition is no longer between individual firms but between supply chains (Morris et al, 2004). Moreover, following two UK Government sponsored reports, both the Latham (1994) and Egan (1998) reports referred to the importance of SCM and partnering in reforming the construction industry. They suggest that the procurement methods are moving from the traditional modus operanti towards more collaborative and integrated supply chains where the parties in the supply chain have a long objective to work together to deliver added value to the client.

In particular, the Egan Report (1998) recommends the adoption of the following features of SCM:

o   Acquisition of new suppliers though value based sourcing

o   Management of the supply chain to maximise innovation, learning and efficiency

o   Supplier development and measurement of supplier's performance

○ Managing workload to match capacity and to incentivise suppliers to improve performance

○ Capturing supplier's innovation in components and systems

SOCIAL NETWORK BOUNDARY
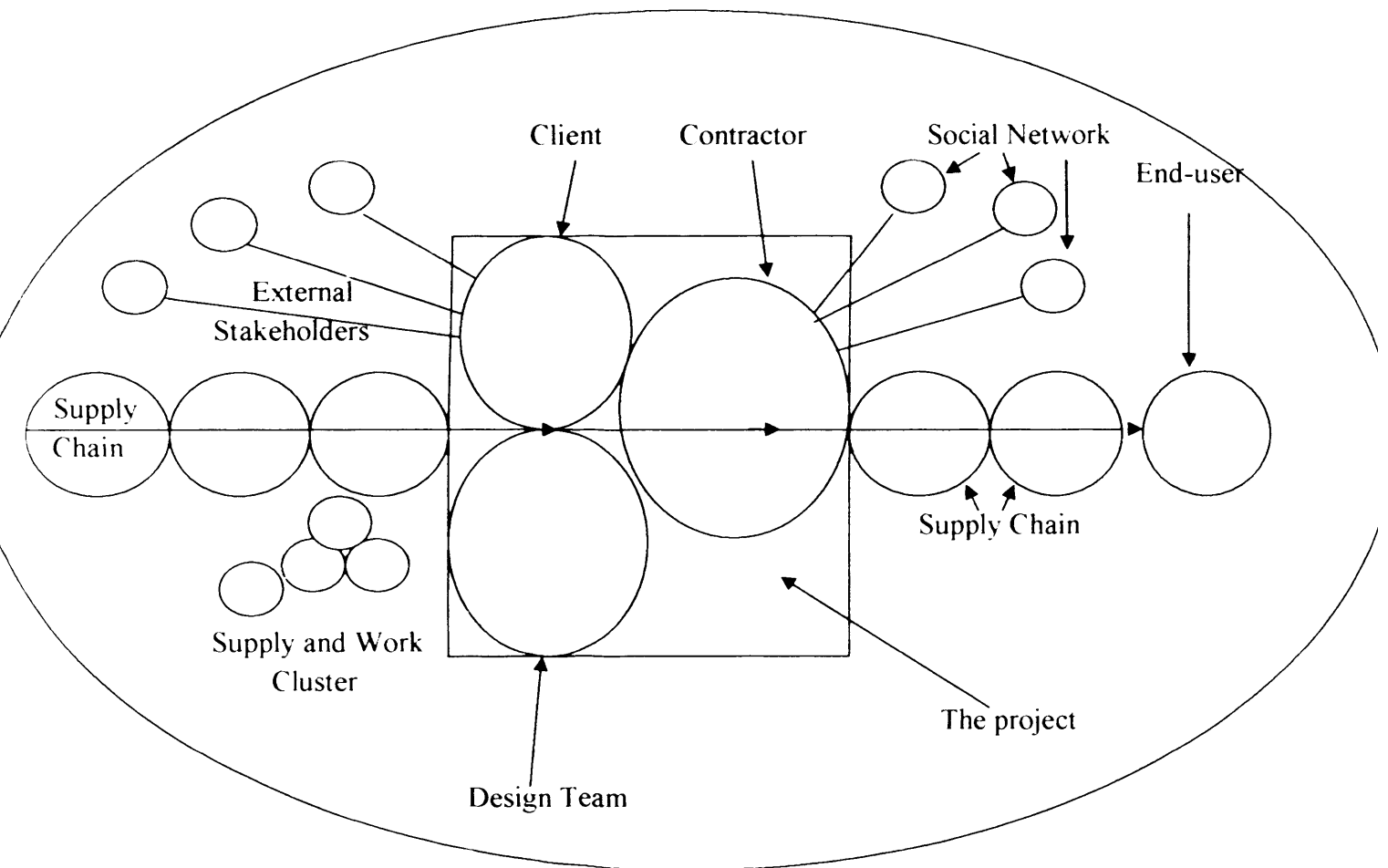
As seen in *Figure 4* above, there is a variety of participants in a construction project: clients, contractors, designers, suppliers and stakeholders who are represented as nodes connected by linkages (upstream and downstream) which comprise knowledge transfer, information exchange, financial and contractual relationships. These networks are transitory and the nodes are continually linking and disconnecting depending on the project function that needs to be performed (Pryke and Smyth, 2006). Particularly, the *downstream* linkages consist of the tasks and activities leading to the preparation of the project on site, involving the clients, consultants and the design team, whereas, the *upstream* linkages consist of tasks and activities in the delivery of the construction project involving suppliers, subcontractors and special contractors, both in relation to the main

contractor (Akintoye *et al*, 2000). Hence supply chains can be conceived as a series of value chains, delivering all raw materials, tasks and processes, human resources, and information required for the successful completion of quality construction projects, where projects are configured through changing interfaces and relationships between organisations. As seen from *Figure 4*, the supply chain and supply clusters are far more fluid in structure (Pryke and Smyth, 2006).

Continually, an organisation engaged in the construction industry often acts as a "*purchaser*" as well as a "*supplier*". For instance, the contractor is a supplier of construction services to clients whereas at the same time he is a purchaser of subcontracted services. Similarly, a subcontractor, in providing certain services to the contractor, is being provided with raw materials by various manufacturers and importers. Hence, the network of purchaser-supplier interaction is illustrated further in *Figure 5* where the relationships of the principal with his *Tier 1*, *Tier 2*, *Tier 3* and *Tier 4* suppliers are apparent.

It is recognised that the significance of SCM principles to construction lie not in the actual existence of supply chains *but on heir exploitations*. Thus, exploiting the supply chain involves communication and integration with individuals that have been otherwise disconnected through inhibiting contractual conditions. Consequently, partnering agreements enable the power of SCM to be fully realised and thus prevail over the traditional contractual arrangements, due to the improved appreciation arising out of cross-disciplinary communications and cross-business unit cooperation (Pryke, 2008).

Moreover, SCM originated from the *automotive industry*, where manufactures and suppliers worked closer together to create business plans in order to eliminate the source of wasteful practices across the entire supply chain. (Akintoye *et al*, 2005). Therefore, SCM is a primary tool for implementing cost reduction and provides the opportunity for significant improvements in clients and stakeholders' value. The work of Womack *et al* (1990) proved to be influential in this respect, by taking lessons from Japanese motor manufacturing industry and applying them to America and Europe in the early 1990's. The concept of *lean thinking* was embraced, where long term supplier relationships were developed through strategic business value re-engineering techniques and processes (Womack *et al*, 1990). These business re-engineering processes have been applied to construction supply chains through the successful implementation of SCM. Standard and semi-standard components, assembled on site, enabled the principles of lean production found in manufacturing to be simply applied to the design and production phase of the construction process. Hence, as a result of the lean production concept, the location of the leadership in design was moved from the relevant consultant to the most appropriate subcontractor or supplier, who possessed the specialist knowledge and technology (Pryke, 2008).

urchaser

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                              ┌─────────────────────┐
                              │      PRINCIPAL      │
                              └─────────────────────┘
                           C      C    C  C
                        S         S        S           S
ier 1 Suppliers  ┌──────────┐ ┌────────┐ ┌──────────────┐ ┌──────────────────┐
                 │ Architect│ │   QS   │ │Civil Engineers│ │ Main Contractor  │
                 └──────────┘ └────────┘ └──────────────┘ └──────────────────┘
                      C                                  C   C   C   C
                      S         S          S          S          S
ier 2 Suppliers ┌───────────┐┌───────────┐┌───────────┐┌───────────┐┌───────────┐
                │Mech/ Elec.││Foundation ││Formwork   ││Concrete   ││Services   │
                │Structural ││subcontractor││subcontractor││subcontractor││subcontractor│
                │Engineers  ││           ││           ││           ││           │
                └───────────┘└───────────┘└───────────┘└───────────┘└───────────┘
                      C          C                        C            C
                      S          S                        S            S
ier 3 Suppliers ┌───────────┐┌───────────┐          ┌───────────┐┌───────────┐
                │Drafting   ││Excavation ││          ││Pre-mix    ││Equipment  │
                │services   ││Subcontractor│         ││concrete   ││manufacturer│
                │           ││           ││          ││supplier   ││           │
                └───────────┘└───────────┘          └───────────┘└───────────┘
                                                     C   C           C
                                          S              S           S
ier 4 Suppliers                      ┌───────────┐┌────────────┐┌─────────────────┐
                                     │Aggregate  ││Cement      ││Component supplier│
                                     │supplier   ││supplier    ││                 │
                                     └───────────┘└────────────┘└─────────────────┘
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LEGENT:
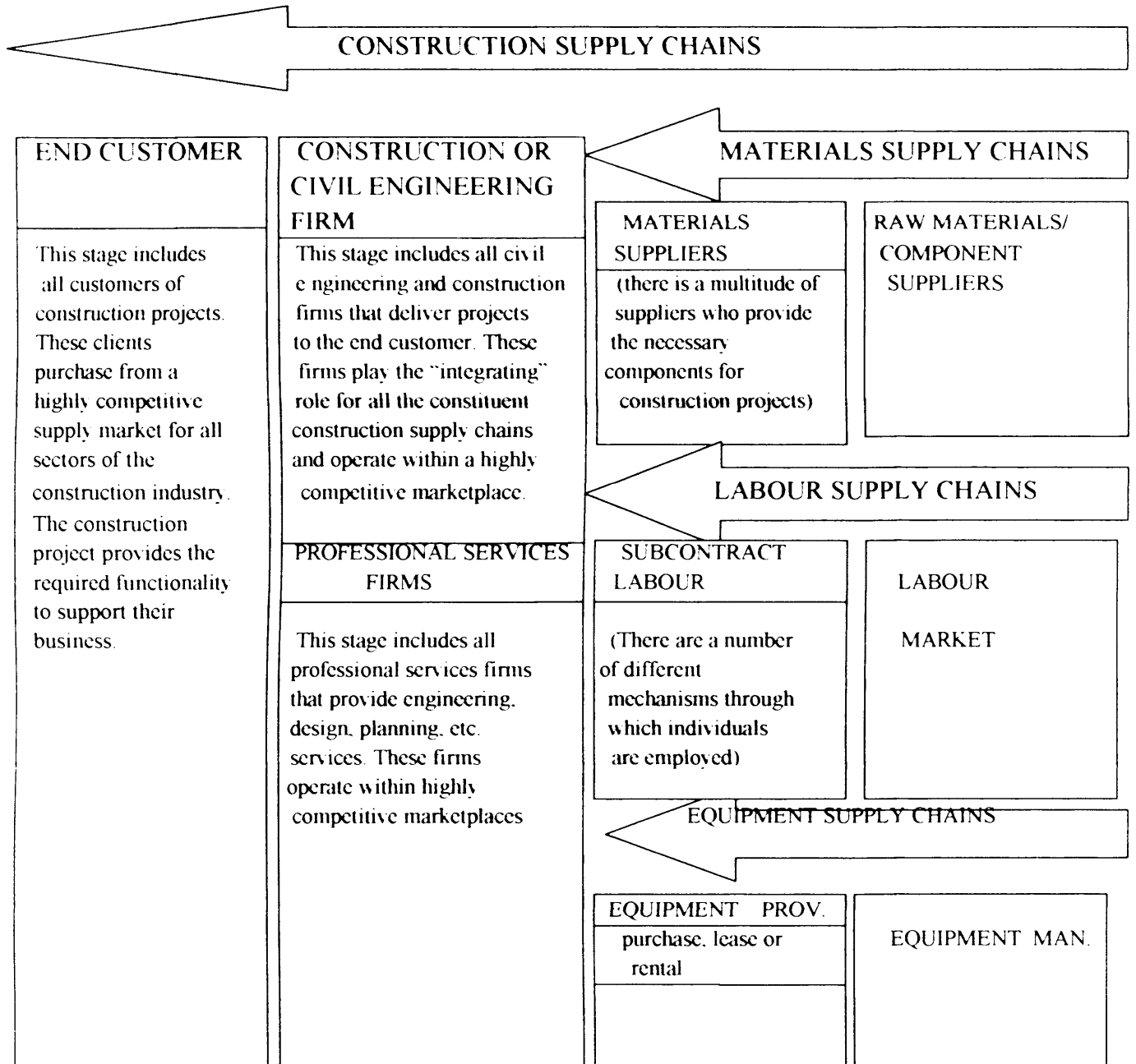C= Customer (Purchaser)
S= Supplier (Contractor/ Subcontractor)

2.3   LIMITATIONS OF SCM

Several limitations are imposed on the applications of SCM concept by the nature of the construction industry. Subcontractors are concerned with the prevailing *mistrust* and *scepticism* around existing supply chain relationships. Such luck of trust among supply chain partners will have a detrimental effect on the project delivery process. In order for the benefits of supply chain partnering and integration to be fully realised, the active involvement of small-to-medium supplier companies to the construction process improvement agenda is essential (Dainty *et al*, 2001). The key issue here is *how to foster the necessary attitudinal changes throughout the entire supply chain network in order to improve project performance*.

Construction supply chains and markets comprise of unique demand and supply characteristics that generate different power structures and alternative relationship management choices for clients and suppliers. Thus, the construction industry is governed by one-off, short-term, ad hoc and highly differentiated project demand rather than serial process demand, with highly adversarial supply chains, often with low barriers to entry and a limited possibility for suppliers to create differentiation (Cox *et al*, 2006).This had as a result the development of a myriad construction supply chains with complicated structures of power and leverage in the materials, labour, equipment and professional services firms. As we can see from *Figure 6* below, construction supply chains must be integrated by a construction firm in order to deliver the desired solution to the client. The *first-tier contractor* plays the role of the "integrator" for all the upstream and downstream supply chains, while he appoints *second-tier subcontracting* companies to deliver a series of packages in order to provide an integrated solution to the client. Thus, the main contractor is responsible for the development of any relationship management and performance optimisation approaches desired by either downstream clients or upstream suppliers. (Cox *et al*, 2006).

Moreover, Cox and Ireland (2006) when arguing about integrated supply chain management state that "*while this approach can be made to work successfully in some circumstances, it cannot be made to work successfully in all*" and that a " *best practice*" approach is rather incorporated (Walker, 2007). This statement is demonstrated by the fact that although long-term, trusting and transparent collaborative relationships are available in construction supply chains, it does not mean that all project actors will be equally committed to their implementation; hence induce the necessary investments in time, money and resources. Therefore, in order for such a commitment to take place, the commercial returns for all the parties that are involved in the supply chain must outweigh the performance outcomes by using any alternative and more opportunistic short-term relationship management approaches that are currently feasible. Unfortunately, unless there is a regular and standardised demand from the client, or a chance for improvement in commercial returns for those suppliers with scope for supply market differentiation, that these long-term collaborative relationship management approaches, can actually take place. It is clearly obvious that "*win-win*" outcomes are not always feasible for both the client and the supplier's perspective that operate within an environment which is governed by the culture of competition (Cox *et al*, 2006).

CONSTRUCTION SUPPLY CHAINS

END CUSTOMER	CONSTRUCTION OR CIVIL ENGINEERING FIRM	MATERIALS SUPPLY CHAINS	
This stage includes all customers of construction projects. These clients purchase from a highly competitive supply market for all sectors of the construction industry. The construction project provides the required functionality to support their business.	This stage includes all civil engineering and construction firms that deliver projects to the end customer. These firms play the "integrating" role for all the constituent construction supply chains and operate within a highly competitive marketplace.	**MATERIALS SUPPLIERS** (there is a multitude of suppliers who provide the necessary components for construction projects)	**RAW MATERIALS/ COMPONENT SUPPLIERS**

LABOUR SUPPLY CHAINS

PROFESSIONAL SERVICES FIRMS	SUBCONTRACT LABOUR	LABOUR
This stage includes all professional services firms that provide engineering, design, planning, etc. services. These firms operate within highly competitive marketplaces	(There are a number of different mechanisms through which individuals are employed)	**LABOUR MARKET**

EQUIPMENT SUPPLY CHAINS

EQUIPMENT PROV.	EQUIPMENT MAN.
purchase, lease or rental	

Further, the construction industry has a reputation for its fragmented approach and the amount of time and money spent on claims and ligation. Since the 1990's the industry has abandoned training schemes, deskilled its workforce, while sustaining its conflict-ridden competitive tendering culture. Consequently, the construction industry has developed into a low-trust system where adversarial working relationships persist throughout the whole supply chain, impacting on clients, contractors and suppliers (Dainty *et al*, 2007). On the one hand, clients want to ensure that their professional insurance is not exposed to unnecessary risk, while on the other hand contractors and their suppliers are adopting opportunistic behaviours so that they can recover from unacceptably

low tendered profit margins for improperly allocated project risks (Pryke, 2008).This had led to the emergence of **partnering** not only as a way of improving client/contactor relations and hence improving the project outcomes, but also as a way of transferring the partnering ideal down the supply chain to encompass subcontractors and suppliers (Walker, 2007).
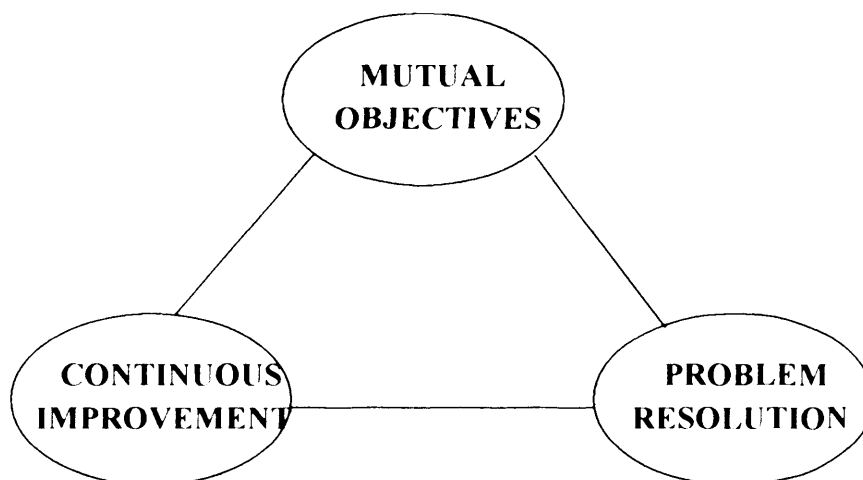
2.4 PARTNERING

SCM is closely linked with partnering, but whether partnering creates the need for SCM or vice versa is debatable. Thus, the ideas underpinning SCM are an extension of partnering further down the supply chain. Partnering has been subject to a plethora of definitions, but the one given by Sir John Egan remains convincing : " *Partnering involves two or more organisations working together to improve performance through agreeing mutual objectives, devising a way of resolving any disputes and committing themselves to continuous improvement, measuring progress and sharing gains*" (Egan Report, 1998).

Furthermore, there are three essential prerequisites to effective partnering:

1. Establishment of agreed mutually beneficial objectives and goals;

2. Mechanism for quick, co-operative dispute resolution and performance benchmarking;

3. A culture of continuous improvement supported by a high level of inter-organisational trust;

(Barlow *et al*, 1997)

The three necessary requirements for the successful implementation of partnering are presented in *Figure 7* below.

Bennett and Jayes (1997, cited in Broome, 1999) have focused on Strategic Partnering arrangements over multiple projects, and thus they proposed seven components for successful partnering, known as the "*Seven Pillars of Partnering*", as shown in *Figure 8* below .
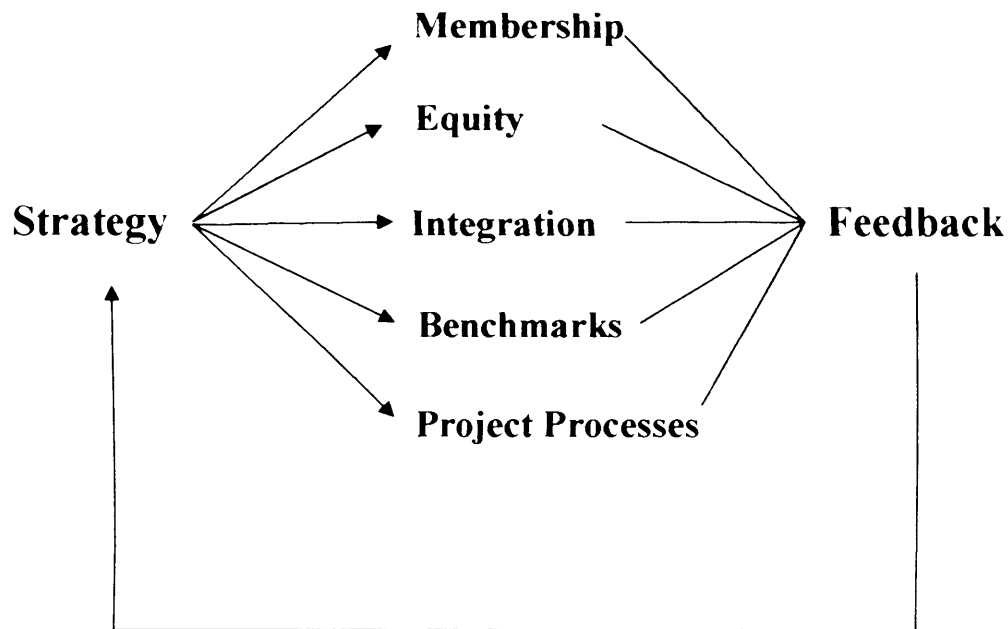
Where:

Strategy: Achieving the clients' objectives and finding ways to implement them;

Membership: Identify the adequate project actors/ partners to implement the Strategy;

Equity: Ensure that all partners are rewarded accordingly with fair prices and profits;

Integration: Integration of the Supply Chain achieved through trust and collaboration;

Benchmarks: Set targets for continuous improvement;

Project Processes: Find/ establish the best practices/ procedures for the project;

Feedback: Receive feedback and examine it for future reference projects;

Moreover, in order to achieve mutually beneficial outcomes, a partnering approach encompasses commitment to common goals and objectives; collaboration; open channels of communications; maximisation of each participant's recourses and expertise through information and knowledge exchange; trust, respect; equity; fairness; client focus; co-operation and enhanced teambuilding; joint risk sharing and agreed dispute resolution procedure (Bresnen *et al*, 2000). Expected *benefits* include: improved profitability, efficiency, cost effectiveness, organisational

learning, empowerment of employees, delivery of better designs, safer construction and earlier completion deadlines, better *"value for money"* for the costumer, increased opportunity for innovation and continuous improvement of quality products and services (Naoum, 2001). However, the benefits of partnering are not necessarily immediately apparent; it takes much time and effort to establish any significant benefits (Barlow *et al*, 1997).The stated benefits of a partnering approach are shown in *Table 2* for clients, contractors and subcontractors.

The Construction Industry Board (1997, cited in Ogunlana, 1999) distinguishes partnering into *"project specific"* and *"strategic"*. In Project Specific partnering, the supply partners are coming together only for the duration of the project, whereas in Strategic partnering the parties develop long-term relationships which are founded in an environment of trust, communication and continuous improvement over a series of projects, for which contracts are usually negotiated.

Additionally, the Latham Report advises that partnering *"empowers people and encourages them to work together but without rigorous management, this can lead to "cosy" relationships and overlong carrying of non-performers"* (Latham, 1994 cited in Walker, 2007). In addition, Bresnen and Marshall (2000) observed that whilst there are many benefits for clients arising from more collaborative approaches, nevertheless conflicts were not necessarily removed and problems occurred in integrating design and construction.

Transaction cost economics, risk, trust and culture have their roots in partnering. Sequentially, a partnering culture will develop more amicable relationships which will result in a reduction in transaction and production costs. In order to protect against opportunistic behaviour, the parties involved in a partnering arrangement are based on trust, openness and informal agreements whereas transaction cost economics argue that construction firms are protected by formal contractual arrangements to safeguard their commercial interests. In theory, partnering should not require any contractual safeguards against opportunism between the members of the supply chain although in reality they are inevitably used as an essential safety net in case partnering fails, without having to be strictly dependent upon (Walker, 2007).

Therefore, **dangers** are always possible in any relationship requiring *"mutual dependency and high levels of trust"*. The main pitfall is that one side sees themselves as being wronged, which results to a collapse of any amicable relationships, particularly trust and goodwill. Hence, the major barriers that construction supply chain partners face are summarised as follows:

- Lack of top management commitment due to managers' unwillingness to relinquish control; senior management refuses to allow a project team to act in accordance with the project mission;
- Lack of clear goals and objectives;
- Lack of trust; partners revert to adversarial relationships due to self-interest focus;
- *"Clash of cultures"* and incompatible *"team chemistry"*; lack of coordination between management teams;
- Lack of appropriate information technology;
- Poor understanding of the concept of partnering;
- Suppliers add contingency to tenders;
- Cost of new operating procedures/systems;

- Limited competition leading to cartels;
- Inappropriate organisation structure to support system;
- Increasing dependence on partner ;
- Partners become complacent; a partner's complacency could reduce the potential returns on an organisation's committed resources;

(Akintoye *et al*, 2000; Ogunlana, 1999).

Consequently, Macbeth and Ferguson (1992) have developed two organisational operating paradigms for *adversarial* and *collaborative* relationships which are shown in **Figure 9** and **Figure 10**. The time-span of interactions of individuals, the personal attitudes and behavior exhibited by the players in each organisation as well as the organisational processes and measurements employed are compared and contrasted in Figures 9 and 10 respectively.

In addition, Macbeth and Ferguson (1994, cited in McCabe, 1998) suggest that the drawbacks of partnering/SCM are divided into two categories: **External** and **Internal** threats. The external threats may occur whether the market changes very quickly and new expertise, technology and services are emerging, or if the clients demand significant price reductions, whereas the internal threats to partnering are more likely to stem from misunderstandings and conflicts between the projects teams. Individuals within a construction project team mostly come from different companies, professional or cultural backgrounds. Loosemore (1995, cited in Ogunlana, 1999) highlights the fact that these *"cross-functional teams"* face team forming difficulties within the industry due to the limited life-span of the team, which consequently gives little incentive for the members to move too far from their organisational objectives in favor of more common project goals. The reality is that there is no infallible way to avoid any of the above mentioned drawbacks of partnering. However, the difficulty lies in the task of setting up a cooperative and collaborative context within the project coalition, so that high levels of trust which require minimum surveillance and enforcement are cultivated to secure continuous improved performance (McCabe, 1998).
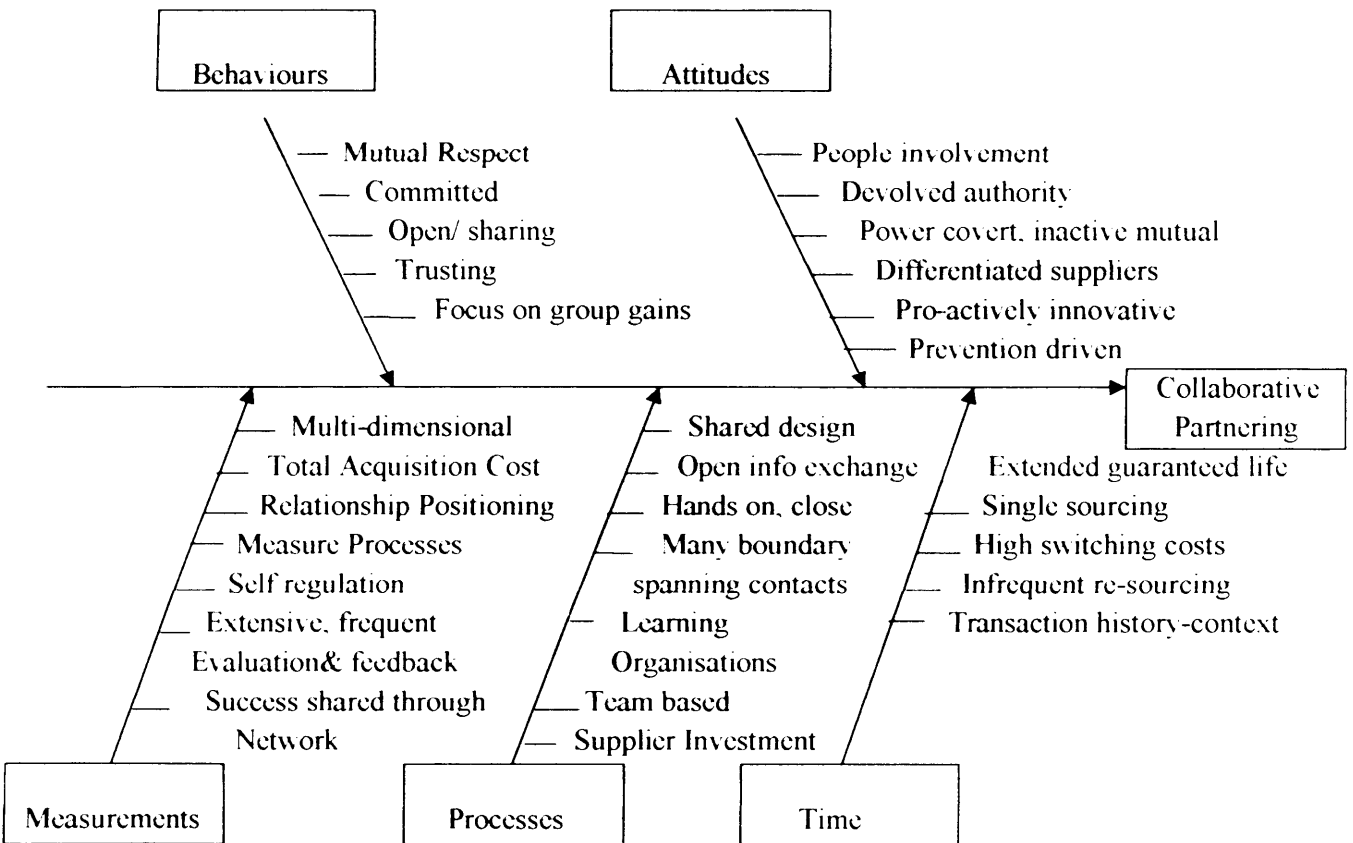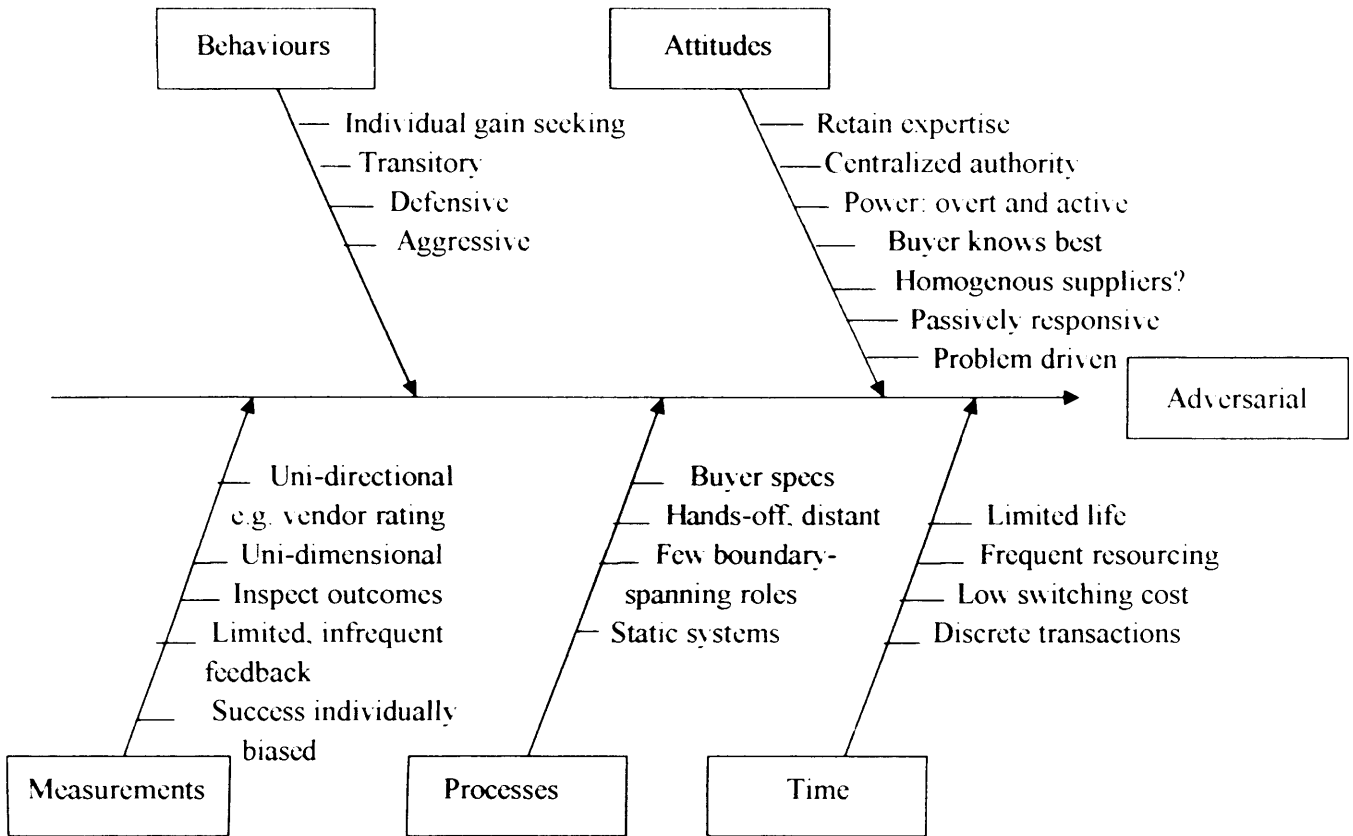
Adversarial

Behaviours
— Individual gain seeking
— Transitory
— Defensive
— Aggressive

Attitudes
— Retain expertise
—Centralized authority
— Power: overt and active
— Buyer knows best
— Homogenous suppliers?
— Passively responsive
— Problem driven

Measurements
— Uni-directional e.g. vendor rating
— Uni-dimensional
— Inspect outcomes
— Limited, infrequent feedback
— Success individually biased

Processes
— Buyer specs
— Hands-off, distant
— Few boundary-spanning roles
— Static systems

Time
— Limited life
— Frequent resourcing
— Low switching cost
— Discrete transactions

Collaborative Partnering

Behaviours
— Mutual Respect
— Committed
— Open/ sharing
— Trusting
— Focus on group gains

Attitudes
— People involvement
— Devolved authority
— Power covert, inactive mutual
— Differentiated suppliers
— Pro-actively innovative
— Prevention driven

Measurements
— Multi-dimensional
— Total Acquisition Cost
— Relationship Positioning
— Measure Processes
— Self regulation
— Extensive, frequent Evaluation& feedback
— Success shared through Network

Processes
— Shared design
— Open info exchange
— Hands on, close
— Many boundary spanning contacts
— Learning Organisations
— Team based
— Supplier Investment

Time
— Extended guaranteed life
— Single sourcing
— High switching costs
— Infrequent re-sourcing
— Transaction history-context

Table 2: The stated benefits of a partnering approach, {Matthews *et al* (1996); Bennett and Jayes (1998); Bresnen and Marshall (2000); Black *et al* (2001); Ng et al (2002)} cited in Cox *et al* (2006).

2.5 RESEARCH ISSUE

An aligned culture among project participants is a culture which allows the development of relationship management approaches such as partnering and integrated supply chain management to achieve an integrated collaborative project organisation (Latham, 1994). The extent to which supply chain participants are aligned with the project's core values and objectives in order to promote relationships of trust, openness and collaboration with the project coalition so that successful performance of the supply chain is assured, will be investigated in depth. For this reason, semi-structured interviews were conducted in two construction companies, one based in Greece and the other based in the UK ; the relationship of the contractors organisations' with their customers and suppliers is examined. The aim of this research is to establish how behavioural attitudes of construction supply chains, which are articulated through the manifestations of culture, lead to project performance improvements, minimisation of conflicts and coordination of the supply processes. In addition the perspectives of the contractor's organisations' respondents were assessed in respect to cultural alignment of their supply chain. Hence areas of significant differences between the two contractor's organisations were identified and analysed in terms of the implementation and impact of cultural alignment on project performance.

A qualitative survey methodology was used based on the questionnaire presented in the Appendix, which sought to examine UK and Greek Contractor's opinions on how culture affects supply chain management in their organisations. In depth semi-structured interviews were conducted with the representatives from each company: the director of supply chain, the head of supply chain, the project manager and the site engineers i.e. civil and mechanical engineers. Therefore four semi-structured interviews were conducted from each construction company, thus a total of eight interviews. The qualitative data technique was used because it allowed the respondents the time and scope to discuss their perspectives on the particular subject; hence the conducted interviews allowed face-to-face communication and conversations to take place rather than confined responses (of the type yes or no/true or false) and the interviewees were able to openly discuss about this research. The same open-ended questions were used for all the interviews for both companies; each interview lasted approximately forty-five minutes and they were all recorded and transcribed verbatim and analysed further in the "Discussion of the Findings".

Limitations of the qualitative data technique include the possibility that an interviewee is not completely honest in his answers as he wants to "advertise" his own company. Hence the reliability

of the answers of the respondents is debatable. Moreover, a second problem existed in that SCM in the Greek construction industry is a relatively new concept within the construction sector; hence it is still under development. Thus, finding Contractor companies who had been exposed in managing their supply chains was extremely problematic.

Therefore, the questionnaire was divided into four sections; each section comprising of four questions which explored the principles of an **aligned organisational culture** within a project supply chain; its variance with the contractual context; its implementation and its impact on project performance. The questionnaire was designed to investigate the relationship between culture, supply chain management and partnering based on previous academic research on these topics. Principal research which helped me become acquainted with the philosophy of SCM and Partnering included the Egan (1997) and Latham (1994) Reports; Pryke (2008); Akintoye *et al* (2000); Morris *et al*, (2004) etc. while I designed the questionnaire in relation to the subject of Culture on the research of the following academics: Fellows (2008); Dainty *et al* (2007); Hofstede (2005); Handy (1985) etc. Culture represents the norms, values and attitudes that are embedded in an organisation's employees and processes. Integrating the various supply chain participants who come from different environments and thus aligning their diverse objectives and cultures into cohesive and collaborative projects teams, where relationships of trust, co-ordination and mutual benefit are developed, has as a result significant performance improvements. This statement represents the concepts of *SCM, Partnering* and the manifestations of *Culture* in relation to the latter. Therefore, the questions embrace a successful combination of the theories of Culture, SCM and Partnering. Hence the following *four coding frames* were discussed:

A. Dimensions of an aligned organisational culture: Contractors were asked their opinion on the elements that constitute an aligned culture with their supply chain participants; the importance of cultural alignment in relation to the success of their businesses; their relationships with other companies comprising the supply chain; and the function of project management to align the contributors to the project's core objectives.

B. Cultural alignment in respect to various contractual terms: Each contractor was asked a series of questions relating to the variance of cultural alignment with the contractual context; their relationships with their clients' organisations; and their attitudes towards partnering and the principles that underpin it.

C. Implementation of cultural alignment in the contractor's organisation: Contractors were requested to answer how further supply chain integration could best be achieved with the aid of team building activities like training programmes and various workshops. Further they were asked to discuss their perspectives on the development of social relationships with their supply chain.

D. Impact of cultural alignment on project performance: Each informant was asked to discuss the impact of the manifestations of culture and behavioural imperatives on supply chain performance and the necessary changes in organisational culture that would facilitate continuous improvement in the integration of the supply chain.

Two construction companies were approached to participate in my research: The Greek construction company **INTRAKAT** and the UK construction company **Taylor Woodrow**. The companies were chosen on the basis that they had exposed to a wide range of supply chain management practices on a number of different projects being managed by the large contracting organisations. Hence, a comparison of the perspectives of the interviewees was allowed between the two companies with regards to the issues raised in the interviews.

Therefore, INTRAKAT has 600 permanent employees in the Athens' headquarters, without counting the employees that are geographically dispersed across various projects. The company undertakes public and private sector building projects and operates in various regions of Greece, which are focused on the development of large scale buildings; sport premises; industrial facilities ; distribution and logistics centers; construction and refurbishment of academies and schools; medical centers and hospitals; development of airport infrastructure and etc. The company's main clients of the Public Sector are: the Hellenic Ministry for the Environment, Transport and the Regions, the Hellenic Telecommunication Company, the Public Gas Corporation and the Physical Planning and Public Works, while their major private clients include IASO, Hellas on Line, Siemens, Societe Generale, Vodafone and Forthnet. Furthermore, the Greek contractors are among the first five Greek construction companies in the Athens stock exchange.

Moreover, Taylor Woodrow is a Housing Development company operating in the UK, Spain, S. America and Gibraltar. The company has 8000 employees and their turnover was £3.7bn in 2006. Further the company undertakes construction activities, facilities management services and Consultancy. The company's respective building projects include: K2 Building, St. Katherine's by the tower, the Heart Hospital, Bristol Harbourside, the Victoria Wharf residential development project, the Cardiff International Sports Village etc. Further the company undertakes projects in the following sectors:

> Public;
>
> Education, which includes the development of Building Schools for the future (BSF);
> Retail ;
>
> Health, development of Hospitals and modern healthcare facilities etc.
>
> Airport, i.e. construction of airport infrastructure;
>
> Rail infrastructure;
>
> Mixed-use, which includes the construction of quality office, leisure and mixed-used developments in the UK and etc.

The company's major client includes TESCO with whom they have a partnership agreement for delivering projects in excess of £ 1bn.

In addition the findings from the interviews are basically focused on the customer's (Tier 1) relationship with their contractors, rather than the entire supply chain, although more evidence is needed to substantiate these findings by conducting more interviews. Further investigation is suggested to move upstream in the supply chain and hence examine in depth the contractor's (Tier 2) relationship with their subcontractors.

4.1 CASE STUDY 1: INTRAKAT

Greek Company's Interview data

A. <u>Dimensions of an aligned organisational culture</u>

➤ The project manager of the Greek construction company, when interviewed, concluded that one of the most important <u>elements that constitute an aligned organisational culture with the project coalition is a strong willingness by all the parties to align the project objectives and an awareness of their expectations.</u> The Greek contractors believe that integration of their supply chain processes is achieved through effective team formation where individuals collaborate in pursuit of common project goals. Further, they state that for supply chain integration to occur successfully in order for project performance to be improved, not only goal congruence but also compatibility of organisational cultures is critical.

➤ Moreover, 100% of the persons interviewed agree <u>that an aligned culture throughout the entire supply chain is of paramount importance for the management of construction projects.</u> In practical terms an aligned organisational culture is achieved through some simple parameters. Firstly, the project manager must give precise instructions to the suppliers about the quality of the building materials; specifications; time schedule and the total budget of the project; hence the right guidance must be given to the subcontractors. Also accurate design information is very important so that last-minute changes can be avoided. In terms of the behavioural aspects of the parties involved in a project, what bonds the people together is the fact that they can cooperate in a spirit of trust and collaboration *provided that* the contract terms and the design specifications are followed, the cost and time constraints of the project are well understood and the subcontractors' payments are on time.

➤ Consequently, the Greek contractors confirm that much more effort is needed into creating an aligned culture with the project participants. Some projects have extremely good alignment due to the compatibility of the individual project teams which leads to better supply chain integration, whereas others not so good. Thus there is gap which needs to be closed. In addition, the Greek contractors conclude that "*it's our obligation to constantly prove competent at our client by satisfying his needs*". Hence, an aligned culture has to be cultivated both ways i.e. between the client and the contractor but also between the contractor and the subcontractors, so that the project's performance is enhanced.

➤ The <u>responsibilities of senior managers in order to ensure that the organisational culture is aligned with the project goals</u> are to follow precisely the various construction procedures and supply processes. The project manager further highlights the significance of delivering the project on time, on budget and within specifications provided that the members of the supply network

follow strictly the contract requirements. The key issue here is to bring cost benefits to the client through delivering the project on time, on budget and within specifications but also to increase the contractor's profitability. Therefore, it is a function of project management to align contributors to the project's core objectives, so that they are clearly understood and accepted by both technical expertise and engineers.

B. Dimensions of an aligned organisational culture in relation to contractual context

➤ 80% of the interviewees answered that different emphasis is given in cultural alignment in different supply chain situations being evident through various contractual forms. In case of a large regular construction client who ensures a big portfolio of a series of projects which will significally increase the contractor's profitability, an aligned culture with the supply chain is established towards satisfying the client's needs and exceed his expectations; hence deliver the project successfully. Repeat clients represent a significant turnover for the Greek contractors, so more effort and greater emphasis is given to have an aligned culture with the project participants; as the Greek contractors state "we are very careful in the way we treat our relationship with large clients, because we aspire that further opportunities for work will occur from them in the near future". From their point of view, with Design and Built Contracts, an aligned culture is easier to achieve.

➤ In case of a small client, the Greek contractors examine the relationship between project duration and profitability; then they decide whether the project is worth to bid for or not. Specifically, for a random client they are looking at the commercial returns in terms of profit in relation to the duration of the project. For example, if the project that they want to enter will keep them occupied for a short period of time and the profits are insignificant, then they won't bit for it. In the opposite case where profits are significant, they are willing to undertake the project as it will significantly increase their turnover, even though the project will last for a short period of time.

➤ Moreover, in the Greek Construction industry, there is still a very distinctive relationship between the client, the contractors and the subcontractors. According to the answers of 80% of the persons interviewed there have been some attempts in the past to form some sorts of partnership arrangements throughout the entire supply chain but they have proved to be a failure. Hence, according to the opinions of the interviewees, in some cases, the client was mislead by his subcontractors in his aim of cutting down costs, at the expense of the contractors, having as a result the poor quality of the project and time and budget overruns. In other situations, contractors and subcontractors in order to increase their profits, adopted opportunistic behaviour against the client. This is the reason why there are rigorous contract procedures in the Greek Construction industry. It is worth noticing here, that if the contracts' requirements are not satisfied by all the parties involved in a project, then there are serious legal implications for everyone, because construction contracts have built in penalties in the form of liquidated damages. Thus the Greek contractors add that it's in everyone interest to oblige with the requirements of the contract, so that they don't face any further legal consequences.

➤ 60% of the interviewees argued that within their supply chain, there is a relationship of trust, respect and collaboration. However, they argue that trust takes a lot of time to develop

between the partners; it is very difficult to achieve on a single project, even if it is of long duration. They verify that high-trust relationships are built up usually though repeat transactions between clients and suppliers. Recognition plays a fundamental role throughout their supply processes. The hard work of their subcontractors is appraised by cultivating a relationship of trust and respect; their reward is achieved by means of a continuous and prosperous collaboration throughout the years. As far as *innovation* is concerned, the Greek contractors observe that their suppliers have not yet reached the appropriate "*product quality consciousness*" and their primary concern is achieving high profit margins rather that high levels of innovation and quality standards. Cohesiveness and support of project teams are also of vital importance because without these elements of an aligned culture a project's performance might suffer. However, in the end it's all about communication and collaboration between the members of a supply chain.

C.   Implementation of an aligned organisational culture within the project supply chain

➤   According to the interviewees, the social events with the project's clients and stakeholders are not very frequent. Usually they have some "*open days*" before the project is delivered, for the satisfaction of the client and the project's stakeholders. Also, the senior managers of the contractor's organisation organise dinners with the client to further enhance their non-working relationships.

➤   Furthermore, the project manager suggests that "all their supply processes are done under formalised team activities". The project manager and the engineers meet every month with their clients and the design team, to discuss about the project's progress but also to exchange any additional information needed for its successful realisation. Further, they have frequent meetings with their suppliers to discuss about the buildings materials that will be used for the construction of the project, the cost and time constraints of project, their payments etc. Moreover, the company appears to show a great concern about R&D; they experiment by constructing models with new innovative techniques. For example they built "*room models*" while they construct residential facilities and hotels; thus they can suggest what needs to be done differently, what needs to be improved etc.

➤   Continuously, the subcontractors are selected through: their curriculum vitae on the basis of previous track record; their sound financial strength; the lowest tender; reputation; and their responsibility and capability in delivering the project on time and within budget.

D.   The impact of an aligned culture on the supply chain performance

➤   The Greek contractor's interviewees argue that when you have an aligned culture with your supply chain, the project's performance improves in a great extent. Evidence of performance improvements include the development of quality construction services, cost effectiveness and improved profitability for the client due to earlier completion of the project.

➤ Finally the Greek contractors conclude that the behavioural aspects of their businesses must be changed or rather improved in order to improve performance of the supply chain. Communication and commitment issues must be further enhanced, because they are the key to a successful project. Dedication to the project's objectives and values by the entire supply network is crucial; thus a major cultural shift is needed for the Greek Construction industry to achieve successful supply chain management.

4.2 CASE STUDY 2 – TAYLOR WOODROW

UK Company's Interview data

A. Dimensions of an aligned organisational culture

◆ According to 100% of the interviewees, the elements that constitute an aligned organisational culture are around the vision and values of the businesses that they are engaged, the businesses that they contract in terms of their clients and also the businesses that they subcontract in terms of their suppliers. The similar values and visions of the project organisations have to be supported by the appropriate behaviours of the parties; however, the aligned businesses have to be driven by similar processes and procedures between the parties involved i.e. clients, contractors and suppliers. Hence, the sharing of common project goals and values is the key to creating a culture that is symbiotic and mutually beneficial for the partner organisations. As the project manager notes "when you create the right project culture, the right environment, through setting up similar, values and beliefs, then you know that the established relationship will be advantageous for all the parties involved in the project". He further continues that "you need to be aware of your organisations' and your partners' organisations' aspirations to actually be able to align your objectives, and bring your businesses together".

◆ Furthermore, the UK contractors state that an aligned culture is of absolutely paramount importance to the success of their businesses. The main reason is that construction projects are temporary, which requires highly-performing and cohesive teams from the beginning of each project; thus an "aligned culture" approach is extremely critical for the effective function of the total supply chain. They actually have 16 Strategic Alliance Partners (S.A.P.) which drives 60% of their turnover. As the managing director states " an aligned culture is one of the fundamental principles of the S.A.P., so not only we believe in it, but we also invest in it".

◆ As a result, the 75% of the persons interviewed confirm that "you cannot stop into making an effort into creating an aligned culture with your supply chain otherwise your organisation will crack and eventually fail". Hence they try to seek new opportunities all the time, new ways of managing a project, because "relationships can became risky if you are not careful in the way you manage your supply chain". Also, according to the project manager "an aligned culture is not something that you say it exists and there it is. You have to make the conditions appropriate

so that an aligned culture can "survive" in a project". Consequently, the UK contractors have to be constantly aligned with their suppliers.

◆   The managing director observed that <u>the responsibilities of the managers of the UK construction company are to "*communicate*" the vision and values of their businesses, which are underpinned by processes and procedures, to all project participants.</u> On top of that, the behavioural aspects are seen as important. However, according to the managing director's point of view people can still follow practices and procedures, even when they adopt prejudicial behaviours. Hence, leaders must enforce the appropriate code of conduct, in order to obtain the best performance from the people that they are managing. From the individuals interviewed' remarks, this is the biggest responsibility facing the project manager. Particularly, they state that "*partnering and cultural alignment is impossible to happen if you don't believe that you can actually achieve it. It has to be demonstrated through practical ways, believing in it by itself is not enough"*. This statement is further demonstrated by their philosophy of supporting their Strategic Alliance Partners, through their high-level of investment on their supply chain management team and hence the development of a constructive project culture.

B.   <u>Dimensions of an aligned organisational culture in relation to contractual context</u>

◆   In terms of whether cultural alignment varies with the client's financial status and construction portfolio of projects, the managing director of the UK construction company argues that "*you cannot bounce around in terms of changing the way you engage with a client or a supplier because you would then ask your team to behave in two different ways, obviously this doesn't work so you have to be absolutely consistent with the way that you engage with your suppliers, with the way that you set your behavioural standards, you processes and procedures and you stick with them"*. Although the UK contractors distinguish clients in terms of their importance, the decisions that they make are around the way that they support those clients and are made at tender stage. Thus they confirm their commitment at tender stage through the alignment of their internal and supplier's resources' to actually achieve "*clients' delight"*.

◆   75% of the interviewees argue that <u>contractual terms and forms are irrelevant</u> because the cultural aspects of Taylor Woodrow transcend all that. They further state that different contractual terms would possibly have an impact for some of their competitors as they don't have the same aspirations with them.

◆   Furthermore, 100% of the individuals interviewed argue that <u>as far as "key clients" are concerned, more effort is given in creating an aligned organisational culture with the project's participants with the intention of satisfying their clients' needs.</u> The reason for this is that repeat clients represent very important accounts to the company and as a result they get a significant amount of their resources dedicated to their effective management. A loss of those clients will be disastrous for their order book and their profitability; thus they put much effort into aligning their supply systems with the requirements of the client, but at the same time they are quite robust in trying to understand their client's businesses, through working in their environment. Nevertheless

the culture of the Taylor Woodrow, which encompasses the values and vision of the supply chain processes, is not changing; rather modifies itself towards achieving the best interests of their client as long as they have the potential to offer respective projects in the future.

◆   In addition, all the interviewees state that if the clients are less important to them in terms of profitability, it is less likely that they would be interested to bid any project for that particular client, unless there is an overall strategic reason. For example, in cases where a very profitable opportunity occurs with a small client or where a less profitable project occurs with great marketing value. In particular Taylor Woodrow had entered into a contract with a high media profile project, which was of absolutely no financial value at all. Nevertheless, a great effort was given into assuring the cultural alignment of the project supply chain processes, due to the powerful marketing significance of the project.

◆   100% of the people responded that an aligned culture is more important in partnering arrangements than others. They argue that "*partnering cannot work without having an aligned culture with all the contributors to the project*". Further, the UK contractors have embraced the partnership philosophy within their supply chain for the past 20-30 years, so they feel very proud to be quite way down the evolution of using partnership arrangements successfully. They continue that they can't afford having adversarial relationships within their supply chain, neither upstream nor downstream. Precisely about the upstream suppliers they state that "*we don't contribute anything to the project other than managing effectively the technical ability of our suppliers in order to maximize the impact that they can have on a project, thus we are very reliant on the performance of our suppliers, that's why we are investing very heavily on our supply chain management team*".

◆   Moreover, all the persons interviewed suggest that there are two ways in embedding the principles of partnering within your supply chain:
1.   Processes and procedures, which allow the project participants to collaborate to achieve the desired performance targets; on a project basis, the alignment of the supply chain starts very earlier than the start of the project. For example in civil engineering works, the UK contractors form "*clusters*" with the relative supply teams and they start the construction process, before the tender is received; this facilitates the development of a "*cluster culture*" with the individual organisations.
2.   Communication; According to the managing director of Taylor Woodrow: "*Communicating the requirements of the project, is about being able to have an open discussion with the project participants, without actually feeling that other people are taking advantage of you, and that's where trust comes in*"; hence trust comes in from working together repeatedly with their suppliers and their clients and from having the confidence that their partners are competent at their work.

In terms of recognition, the company holds a lot of awards, like "*partnership awards*" or "*suppliers' award*", where their suppliers are awarded for adding value to a project through their own innovation. In addition, the UK contractors hold frequent innovation reviews with their suppliers and are very much concerned with "*value engineering*" processes. They reinforce their view on this matter by stating that "*we are trying to always bring the best solutions to our clients, always working with the best suppliers, engineers and designers*". It is worth noticing here that Taylor Woodrow has won the award for the best use of technology from the Chartered Institute of Purchasing and Supply Chain (CIPS) for its supplier online registration and vetting system and performance reporting system , which is unique in the building industry.

C. Implementation of an aligned organisational culture within the project supply chain

◆ Social events are really important from the UK contractors' point of view as they traditionally offer corporate hospitality to their clients and suppliers. They attend the Ascot week; they organise tennis; golf; football and rugby events with their clients and suppliers which give them the opportunity to develop better social relationships. Thus as indicated by the managing director: *"the non-working events are very significant because we are trying to cement relationships and get to understand people. We are trying to understand people for what they are like, what they enjoy etc."* To support this position, the UK contractors have a fleet of procedures, business-to-business executive board meetings and activities that bond them together; from the earlier tender stage when considering a job opportunity that they wish to bid for but also during the project's life, they will have meetings and workshops with their principal suppliers; a sort of a debating forum where contractors and subcontractors agree on the strategic direction of the S.A.P; where long-term value adding relationships are established, supported by the creation of aligned business objectives.

◆ Therefore, lots of different team activities and workshops exist within the businesses of the UK contractors, innovation workshops; risk management workshops; programme and methodology workshops. They are further engaged with investigating some sort of *"engineering psychology"* through organising *"behavioural workshops"* with their suppliers every six months, from which they exhibit what kind of behaviour manifests the workforce and employees on site and how do groups of individuals interact with each other. Besides, they are holding frequent H &S educational sessions and training courses which are open not only to the company's employees, but also to their key suppliers. This fosters communication, through the acquisition and sharing of knowledge amongst members of the project supply chain. That exchange process is important in the realisation of projects, especially for the UK contractors, who like to position themselves at the forefront of knowledge and innovation.

◆ Moreover, the UK building contractors have:

1. 16 S.A.P. who will be immediately notified when an opportunity occurs, and who will be required to demonstrate the value that they can bring to a forthcoming project. In addition, they have to demonstrate that their approach to innovation and H&S are compatible with the company's culture.

2. Preferred Suppliers, who must have a strong track record of previous successful collaboration with the company; a strong prerequisite for their selection is also their quality of services and "adding value" activities;

3. Approved Suppliers, who need to demonstrate strong financial strength, good approach to H&S matters and innovation; they must be fully resistered with the database and have successfully completed SOLVE (Supplier Online Vetting System). Typically they must have worked with the company before.

Hence the supply chain partners are strategically selected through using their *key trade review* every year, where they identify which key trades are the best performing suppliers in terms of profitability, H&S, quality, planning. execution and delivery of project.

D. The impact of an aligned culture on the supply chain performance

◆   100% of the people interviewed confirmed that <u>cultural alignment improves the performance of a project supply chain</u>. They continue by appraising the benefits of cultural alignment: safer construction; quality workmanship; construction of environmentally friendly buildings due the integration of the total supply chain; superior product services, cost savings and improved profit margins to client's organisation etc.

◆   According to the managing director of Taylor Woodrow, one characteristic example of improvement in project performance is the construction of the <u>TESCO's format stores</u>, which represent one of the biggest clients of the UK construction company. Throughout the years, exactly the same stores (in terms of design, size, quality and building specifications) were constructed with major improvements. Significant cost and time reductions were realised, due to the cultural alignment of the company with their supply chain and the thorough understanding of their client's businesses (see **Figure 7**). Hence they enhanced their relationship with TESCO through providing them with valued added services as they increased their turnover and profitability.

◆   100% of the interviewees argue that "*there are always changes in organisational culture that must be made if you want to improve the performance of you supply chain. We are leaving in a constantly changing environment, which is affecting our businesses and the way our suppliers view are businesses; thus you have to be reactive to these changes*". According to the interviewees, the key to successful performance is <u>effective communication with their clients and suppliers</u>.

Comparison of the two Case Study's data

5.1 SIMILARITIES OF THE GREEK AND THE UK CONSTRUCTION COMPANIES

After thorough examination of the two Case Studies, there seems to be a lot of **similarities** between the two Building Construction Companies. These similarities are presented in detail as follows:

All the people interviewed from both companies agree on the fundamental role that an aligned culture plays on supply chain performance. They stress that the elements that constitute an **aligned organisational culture** with the supply chain members are *mutual objectives, values* and *visions* that have to be underpinned by *similar processes* and *procedures*. Good working relations among the parties of the supply chain can only be established through a mutually developed formal strategy of **commitment** and **open communication** where **respect** among participants and **enhanced teamwork** prevail, which in turn facilitate the completion of a successful project. Further they highlight the significance of **appropriate code of conduct** of the supply chain members for the effective realisation of the project; hence (especially in the case of Taylor Woodrow) it is of vital importance to looking into what behaviour manifests their subcontractors and suppliers, so that they can establish **closer relationships** with them, by mutually understanding of each other's needs and requirements. It's only through developed communication skills that effective **collaboration** and **co-ordination of the supply activities** can be achieved, so that conflicts can be minimised.

Moreover, the interviewees emphasize **the importance of project management** in implementing the principles of an aligned culture to all the project participants. The difficulty in the task of project management lies in making sure that the project teams embody a **collaborative constructive behaviour** which leads to the development of an appropriate work culture with their project organisation. Managers must reinforce the behavioural issue, so that project teams are committed to strong collaborative relationships for the well-being of the project, rather than adopting confrontational attitudes. Hence project management is about harnessing the various cultural forces which are evident in construction projects to the benefit of projects, and hence clients in meeting their requirements.

Furthermore, both the construction companies' interviewees emphasize that the principles of an aligned culture, found in *supply chain management approach* are embedded in their organisations. They have realised that **integration of the supply chain processes** can only be achieved through

the development of long-term collaborative relationships based on **trust**, **cooperation** and **mutual benefit** with the upstream suppliers. Nevertheless, project supply chain integration can only be achieved if all the parties involved are committed to cooperate, allowing each to meet its own business objectives more effectively, meanwhile achieving the objectives of the project as a whole. Therefore, supply chain integration is considered as the merging of different organisations with different goals, needs and cultures into **cohesive project teams**.

Moreover, it seems that both the building contractors have frequent meetings with their *clients* to discuss about the development of the project, but also with their *designers* and their *subcontractors* to communicate the requirements of the project through a **joint collaborative knowledge and information exchange process**. Hence regular meetings which foster communication and effective co-operation are held with the upstream and downstream supply chain members and seek to develop **mutual understanding of each member's roles and responsibilities** for the successful implementation of the project.

Finally, 100% of the persons interviewed from both the construction companies agree that cultural alignment within the entire supply chain improves project performance. Hence, aligning contributors to the project's core values and objectives, effective teamwork and integration of the supply chain are essential to provide **better project performance**. Evidence of performance improvements due to the cultural alignment with the entire supply chain is presented by the UK contractors in **Figure 11** below from which we can observe significant cost and time reductions. Thus, **culturally integrated project teams facilitate performance improvements**.
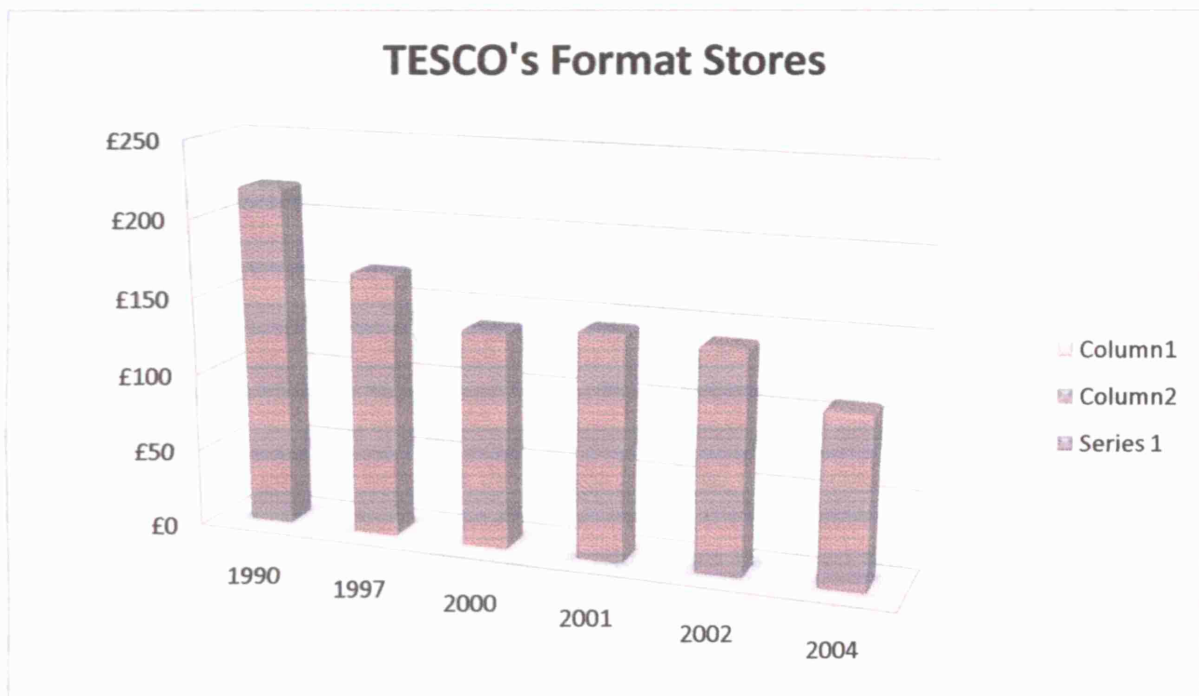

Figure 11: Evidence of performance improvements on TESCO's Format Stores due to cultural alignment of the supply chain

5.2   DIFFERENCES OF THE GREEK AND THE UK CONSTRUCTION COMPANIES

Apart from the similarities, the two construction companies seem to have some major **differences** which are as follows:

The Greek contractors give different emphasis in cultural alignment in different supply chain situations whereas the UK contractors appear to have consistency in the manner they engage with their suppliers and in the manner they are setting their behavioural approaches to the management of their supply processes. Various contractual terms play a major role for the integration of the supply chain of the Greek construction company, as different forms of contract alter the behaviour of the project participants and dictate their roles and responsibilities accordingly. This is in accordance with the literature of the construction industry, where traditional construction contracting is characterised by an adversarial relationship between the clients, the contractors and the subcontractors creating conflicting objectives, suspicion and contempt. In the case of the UK contractors, contractual forms are irrelevant in the establishment of an aligned culture with the project coalition as the company's embedded cultural norms, inter-organisational relationships and individual behaviour patterns surpass all that.

Both the building contractors distinguish their clients in terms of their financial status and their construction portfolio of projects, in "key clients" and "small clients", the former being for their regular demand of construction works and their highly-profitable projects and the latter for the opposite; "Key clients" seem to be the incentive for INTRAKAT and Taylor Woodrow to fully integrate their supply systems and processes to satisfy their clients requirements, as those clients represent a significant turnover for these contractors; hence, more effort is given into the creation of an aligned culture with the supply network. In case of the "key clients", Taylor Woodrow seems to be modifying its culture even more to embrace the full benefits of supply chain management and thus to enhance their relationship with their clients, whereas INTRAKAT appears to follow strictly the requirements of the contract. Although the Greek contractors are very careful in the way they treat their relationship with their "key clients" in order to ensure continuity of work, they seem to be willing to accomplish only what the contract documents and conditions require, which sometimes set up the propensity for conflict between the parties involved in a project.

Therefore highly collaborative relationships which are based on trust and transparency and performance management approaches may not be feasible for many contractors or clients within the construction supply chain, although more evidence is needed to support these findings. Attempts to adopt these long-term collaborative relationships mean that all project actors are equally committed to their implementation. This is not always the case as the adoption of relationship management approaches needs the necessary investment; consequently, the concept of full supply chain integration still remains a utopia for the construction industry, full supply chain integration is more likely to be achieved due to the power of a regular construction client whose construction portfolio

ensures a continuity of projects. Hence, powerful clients have the ability to develop their supplier's competence through their relatively standardised construction project demand (Cox *et al*, 2006).

Furthermore, from the two case studies of the two construction companies, it looks as if the Greek contractors have not yet adopted partnership arrangements, at least not in the manner that these arrangements have been established in the UK Construction company. The responders of the interviews of the Greek construction company draw attention to the fact that earlier partnering-related experiments were carried out in the past but they have failed because the parties involved where not culturally aligned and project focused. Each party tried to pursue their own business objectives to further strengthen their market positions and increase their financial returns on profit. *Mistrust, opportunistic behaviour* and *adverse cultural problems* were the major barriers of successful partnering arrangements between clients, contractors and subcontractors. Thus, prejudicial attitudes arose among the preferred subcontractors who formed a cartel in order to impose their pricing on the contractor; parties made promises that they didn't honour; competitive tendering still remained the principal mechanism for subcontractor selection; contractors sought to enhance their profitability by driving down prices at the expense of other supply chain companies; cashflow difficulties occurred and a breakdown in trust relations. Unavoidably, according to the interviewees of INTRAKAT, a more adversarial climate was developed which generated significant perceptual hurdles to the successful implementation of partnering; hence partnering proved to be extremely problematic.

Despite these problems, the Greek Construction industry is making serious attempts to overcome the cultural and organisational barriers to change; and thus to develop long-term collaborative relationships in the project coalition that are based upon mutual trust, co-operation and continuous improvement. Thus, from the case study of the Greek contractors, we can assume that they have established an aligned culture within their organisation, although this cultural alignment has been set up in a different context from the one the Taylor Woodrow has established. Therefore, the Greek Contractors seem to have developed more long-term collaborative relationships with their clients rather than with their suppliers and subcontractors. Up to now, the way of proceeding with their suppliers when problems occurred, was to give the job opportunity to their suppliers' competitors. It seems that the greater concern for the Greek contractors is to satisfy their client's needs, hence to deliver the project on time, within budget and scope rather than integrating the specialist trades effectively, whereas the UK contractors are investing very heavily in their relationships with their suppliers. Therefore the UK Contractors appear to have embraced the benefits of the partnering philosophy throughout their supply chain and are very much reliant upon the performance of their suppliers. This investment is evident from their relationship with their Strategic Alliance Partners, but also from the various workshops and activities that exist within their businesses.

Moreover, even though both of the contractors have regular business-to-business meetings with their clients and suppliers to promote effective co-ordination of the supply processes and successful implementation of the project, the UK contractors underline the importance of the non-working relationships with their clients and suppliers, in contrast with the Greek contractors who rather ignore it. Thus according to the UK contractors social events are significant in order to cement relationships and become acquainted with people's values and beliefs, whereas Greek contractors consider social interaction with their clients as a means to ensure further continuity of work load.

In addition, Taylor Woodrow has established a variety of workshops and education programmes which are fully endorsed by contractors, clients and suppliers. Hence, Taylor Woodrow has realised that the future of the organisation's development lies on training and education of both contractors and suppliers. Hence the UK construction company has invested a vast amount of time, cash and available resources to nurture a much closer liaison with their suppliers through the professional facilitation of workshops. The ongoing workshop practices (concerning *value engineering, risk management, H&S* and *engineering psychology*) show the commitment of the UK contractors to align their business goals and objectives with the rest of the supply network through *open communication, knowledge* and *information exchange* and effective *resolution of problems*. This exchange relationship is really important for the successful realisation of projects, especially for the UK contractors who like to position themselves at the forefront of knowledge, innovation and competitive advantage. Unfortunately, the same thing doesn't seem to apply in the Greek construction company. The Greek contractors give the impression that they have a constant focus on cost and programme issues to the detriment of quality and client's requirements. Although they carry out some Research & Development practices, they are not very much ahead of innovative products and techniques and as a result the quality of construction suffers. Again, more evidence than the one provided for this thesis is needed to substantiate the findings in this matter.

Finally, the sense of alienation and mistrust between the Greek contractors and their subcontractors prevents effective teamwork and collaboration and can cause productivity barriers to the project's progress. In this case, fear or coercion leads to collaboration due to the differential hazards of breach that arose under different investment and contracting scenarios. Hence, the behaviour of the people needs to be changed in order to create an appropriate project culture for successful project delivery.

The Construction industry worldwide has been widely criticised for its fragmented approach to project delivery and the adversarial contractual working relationships that exist among the client and the contractor but also among the contractors, subcontractors and suppliers. This has resulted in reduced project delivery efficiency which has been attributed to the continued use of traditional procurement practices that do not encourage integration of the participants (Phua *et al*, 2003). However, over the past decade the industry has realised the impact of *cultural facets* on project performance, as culture determines people's behaviour and the way they interact with each other. Hence, awareness and accommodating of cultural differences in construction supply chains is of fundamental importance because only through a **thorough understanding of the manifestations of culture** can fragmented supply chains be appropriately integrated into cohesive and collaborating teams which enhance project performance (Fellows, 2008).

Therefore, the construction industry is moving away from its traditional modus operanti towards more collaborative and integrated relationship management approaches like **Partnering** and **Supply Chain Management** which are embracing collaborative relationships between the parties involved based on mutual objectives and competitive advantage; exchange of knowledge and information; trust and greater transparency; teamwork and cooperation (Baiden *et al*, 2005). Hence, an *aligned culture* with the project's participants is essential if performance of the supply chain is to be improved and the opportunistic and adversarial culture of the construction industry is to be eliminated. Consequently, this matter was thoroughly investigated by conducting semi-structured interviews with two building contractor's organisations: **INTRAKAT** and **Taylor Woodrow**, the former being UK based and the latter being Greece based.

According to the findings arising from the interviewees of both construction companies cultural alignment is of paramount importance for supply chain performance. They agree that commitment to the project's goals and objectives, open communication, trust and a collaborative constructive behaviour amongst the project participants espouse closer relationships with the supply networks which lead to performance improvements of the supply processes. In addition, the respondents of the interviews from both construction companies agree that integrating the various supply chain participants with different objectives, cultures and requirements into cohesive and collaborative projects teams is a function of project management.

Nevertheless, the Greek contractors seem to evaluate the establishment of an aligned culture with the project coalition in relation to various contractual forms as they appear to be concentrating on satisfying their client's requirements through delivering the project on time, with budget and specifications rather than integrating effectively the various specialist trades. Thus, the Greek contractors seem to have developed more long-term collaborating relationships with their clients rather than their suppliers and subcontractors, in comparison with the UK contractors who have greatly invested in having an aligned culture both upstream and downstream the supply chain and therefore have successfully embraced the principles of partnering in their project organisations. For

this reason they have established a number of training programmes and workshops to cultivate relationships of trust, collaboration and co-ordination with their suppliers and to bring their organisations forward towards achieving competitive advantage. Hence, the Greek contractors need to invest in their relationship with their suppliers and subcontractors in order to realise the benefits of supply chain integration. Although these findings would not be a surprise for the Greek contractors, further evidence is needed to support these findings as the sample of the interviews was not sufficient. The same thing applies for the UK Construction industry.

Consequently, engendering the *attitudinal and cultural change* required for effective supply chain integration to occur is unlikely to be possible without fundamentally rethinking the current inter-organisational relationships and dynamics that exist within the construction industry. A key challenge therefore is to replace traditional project drivers with outcomes related to behavioural and cultural improvement. In this way, the *behavioural changes* required in the construction industry to generate more suitable project cultures will help project teams to develop long-term collaborative relationships which are founded in trust, respect and continuous improvement (Dainty *et al*, 2001). Furthermore, these changes must be complemented with *educational and training practices* which will be advantageous for the entire supply chain. Besides, training programmes and professional development practices are seen as leading to goals and objectives of the organisation for continuous improvement and development (Briscoe *et al*, 2001).

Moreover, main contractors' and clients' organisations must realise the *added value* that their suppliers and subcontractors can contribute to the construction project delivery process. This must be accompanied by a willingness between the parties involved to *exchange information, knowledge and communication* in order for performance to be improved (Dainty *et al*, 2001). In addition, *contractual terms*, including promises must be replicated throughout the entire supply chain and not just between the client and the contractor; thus the development of a contractual system that emphasises parity of obligations and responsibilities at each level of the supply chain is suggested (Smyth *et al*, 2007).

Finally, in order to develop the *trust* that is needed so that long-term collaborative relationships can be developed with the project participants, *a change in organisational culture is essential*. The management of the large cultural shift needed to achieve trust and effective collaboration throughout the supply chain requires *intensive management activity*, hence *charismatic leadership* and a powerful commitment by the leaders of all the parties involved are necessary which percolates to all levels of the organisation. In the end, it is the responsibility of senior management to prepare their organisation for *cultural change* and thus towards a *team culture* that can be nurtured over a number of projects (Walker, 2007).

This thesis sets a good starting point for further investigation of the relationships that prevail between contractors and their subcontractors.

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Questionnaire

A. Dimensions of an aligned organisational culture

1. What are the elements that constitute an aligned culture for your organisation?
2. How important do you consider that an aligned culture is for the management of construction organisations and projects?
3. Do you need to make more effort into creating an aligned culture within your project coalition?
4. What are the responsibilities of managers in order to ensure that the organisational ethos are communicated properly so that the organisational culture is aligned with the supply chain participants?

B. Variance of the dimensions of an aligned culture with the contractual context

5. What emphasis do you give on culture in different supply chain situations? Does culture vary with different contractual forms? If you undertake a very big project for a major repeat client do you give more importance and effort to have an aligned culture with your supply chain in order to satisfy the client's needs and deliver the project successfully?
6. What happens if the clients are less important to you? Do you put less effort in the creation of an aligned culture with the project participants?
7. Is an aligned culture more important in partnering arrangements than others?
8. "Trust, collaboration, coordination, recognition, innovation, cohesiveness and support" are characteristics of partnering. How are these dimensions embedded in your supply chain during a project?

C. Implementation of an aligned culture in your organisation

9. Do you organize social events with the clients and the project's suppliers in order to cultivate trust and promote a spirit of collaboration and open communication with the project participants?
10. Have you established any participative decision-making techniques and practices such as *value* and *risk management, human resource policies, periodic project reviews* with the whole supply chain so that cultural alignment is enhanced?
11. Have you established any formalized team activities and workshops in order to develop an aligned culture in your company?
12. How do you select your suppliers and with what criteria?