THE CULTURAL DIMENSIONS OF INFORMATION AND COMMUNICATION TECHNOLOGY SUCCESS FACTORS

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ABSTRACT

Although the widespread deployment of Information and Communication Technology (ICT) was once thought likely to address construction industry ills, it is now becoming apparent that the surrounding contextual issues hinder the successful use of ICT in a project setting. This paper identifies and illuminates the theoretical concepts of softer cultural dimensions that influence the Critical Success Factors (CSFs) for ICT engagement in construction projects. The paper concludes that the commonly held view of a total integration of project teams, an idealistic functionalist paradigm, in which culture is seen as providing cohesion and direction (characterising cultural metaphors of ‘glue’ or ‘compass’) is unlikely to be achieved. Rather, construction project environments are inherently fragmented where culture is more likely to be adversarial and clannish (characterising cultural metaphors of ‘disorder’ and ‘clan’). Failure to recognise these cultural dimensions during ICT deployment results in sub optimal outcomes. It is contended that a cultural analysis approach that identifies the underlying ‘root working assumptions’ of a project team is essential prior to ICT deployment.

Key words: Culture, Cultural analysis, CSF, ICT, Metaphor

Introduction

While it has been established that the uptake of ICT to automate business processes has, to some extent given productivity gains, the full potential of ICT to integrate operations across a project team is not widespread. CSF is one of the approaches used to identify the issues that hinder or promote success. Therefore, it is beneficial to identify the CSFs for effective ICT integration in construction project teams. However, the concept of ‘culture’ has been recognised as one of the important factors influencing both the success of, and barriers to ICT engagement. In most instances, culture is treated as one of the variables (or one of the success factors), which may not fully to recognise the subtle influence of culture on all other variables. A true sense of the culture of a group or team can only be deciphered from the team members’ basic assumptions and beliefs. The aim of this paper is to relate a model of critical success factors for ICT engagement in project teams to a theoretically constructed cultural analysis framework, thereby illuminating the cultural dimensions that impact upon project teams.

Methodology

Data for identifying the CSF for ICT mediated supply chains was gathered from two separate sources – a qualitative Delphi study and a quantitative questionnaire survey. Reliability analysis, a one sample t-test and factor analysis were employed as statistical tests in order to identify the CSFs. Then a ‘Cultural analysis’ was performed to identify the influence of culture on CSFs for ICT engagement, using a theoretical framework developed from related literature. This cultural analysis framework analysed the potential beliefs, underlying assumptions and values of the project environment where CSF’s will be put into practice, thereby allowing the construction of a generic theoretical cultural position and describe the consequent practical implications.
Cultural analysis
All culture conceptualisations can be placed on a continuum where the polar extremes are represented by culture as a ‘Functional/Variable’ and culture as ‘Non-Functional/metaphor’ (Martin, 2004, Alvesson 2002, Smircich 1983). Generally the researcher’s philosophical stance determines whether they characterise ‘culture as one of the aspects’ (variables) that affect ICT uptake and integration or ‘as the overarching aspect’ (metaphor) that determines successful ICT uptake and integration. The proposed cultural analysis framework is predominantly focused on a subjective ontology that uses a metaphor-driven approach, whilst concurrently accommodating aspects of the variable-driven perspective.

Analysis of the literature identifies a number of metaphors for culture including ‘culture’ as: Exchange Regulator or Clan, Compass, Social Glues, Sacred Cow, Affect-regulator, Disorder and Contracts. Each of these metaphors is influenced by different assumptions of the concerned groups/teams and the way they integrate internally and adopt externally.

CSF and cultural analysis
The Delphi study and literature review identified 21 potential success factors for successful ICT engagement (Brewer et al. 2005, Gajendran et al. 2005). However, statistical analysis of the survey results found 4 of those factors to be insignificant, and a factor analysis performed on the remaining seventeen items identified five factors namely: organisational commitment, support and assurance, rights and duties, organisational attitude, investment drive, and communication structure.

Cultural analysis performed on the cultural associations with each of the CSFs highlighted that most of the CSFs cannot be successfully implemented without a clear prior understanding of the cultural context of both the implementing organisation and the project environment(s) into which they are to be deployed. A naive approach to implementation is likely to produce a situation where they are regarded as superficial artefacts or espoused values, misleading the observer but not the stakeholders in the firm/project, who lack confidence in them.

Concluding remarks
It has been argued that understanding of underlying assumptions and beliefs is a critical prerequisite in order to deploy ICT in business operations whilst concurrently avoiding situations of conflict. The discussion indicates that the CSFs will generally be deployed in a situation of disorder, due to the complex and uncertain construction project environment. Thus their implementation cannot be expected to result in a total integration of activities, as most functional paradigms suggest.