

Procurement in uk construction industry construction essay



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2. 1 Introduction:

Chapter 2 is a critical literature review that will briefly outline the e-procurement. It also discusses in detail its drivers and barriers within construction industry, and talk over the main problematic of e-procurement process. The next stage of the literature review will discuss the occurrence of Building Information Modelling (BIM) how it is being implemented within the UK construction industry, as well as outlining its functionality and application. An in depth evaluation has been conducted that states how the BIM approach in the form of various BIM architectures applications such as Service Oriented Architecture (SOA), Model Driven Architecture (MSD) along with Cloud computing can enhance the e-procurement process when compared to traditional approach of e-procurement.

2. 3 E – Procurement in UK Construction Industry:

This section of the literature review outlines the current level of use for e-procurement across the UK Construction Industry. An empirical study conducted in the USA by Gebauer et. al, in the year 1989, established that " cost" and " time" are the elements used to measure the success of a procurement process. Research shows that the e-procurement process can enable cost reduction, which has been identified in the UK and results from a survey conducted in Australia show that also most 75%-80% of construction professional have noticed that e-procurement is minimising costs of projects (Hawking et al, 2004). This is also backed up by Rankin, 2006.^{1} However in 2007 e-Business Watch Report (European Commission) addressed that the construction industry reports the second lowest adoption of e-procurement, compared to nine economic sectors across Europe (food beverage, <https://assignbuster.com/procurement-in-uk-construction-industry-construction-essay/>

manufacturing, ship building and, etc). A major survey was carried out by the RICS (Royal Institution of Chartered Surveyors) on the use of electronic contracts in the UK Construction industry (Martin, 2003). {2} Results showed 29% of Bill of Quantities created was sent to contractors in an electronic format. This portrays that 2. 9% use CITE (Construction Industry Trading Electronically) format to deliver contract documents in the UK Construction Industry. This low use continued throughout the industry over many years. Martin (2009) (3) also carried out a similar study, but was aimed at UK Quantity Surveyors who were members of the RICS. His finding showed that 15% of the Quantity Surveyors carried out e-procurement. The study also showed that 85% saw e-procurement as an opportunity rather than a threat. However, as this research was only aimed at Surveyors it was unable to provide results on the construction industry as a whole. Eadie et al. (2011) [4] followed this by carrying out two studies (pilot and main), which was constructed to reach various types of organisations within the UK construction industry. The pilot study contained the views of known e-procurement users from the construction contractor discipline (Eadie et al. (2011) while the main study focused on the remainder of the disciplines within the construction industry. The pilot study used construction contractors who had registered interest or tendered for Road Service contracts in Northern Ireland. In late 2001 Road Services adopted an e-procurement system. A sample of 70 construction contractors was used. The results shown in figure 1 outline that 47% of the contractors within the sample only 1-10% received their Bill of Quantities (including Schedules of rate) in an electronic format. The remainder of 53%, 26% received between 11% and 30%. The 6% who had 91-100% of documentation in electronic form worked solely for Road

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Services -using there e-procurement system (Eadie et al. 2011). These results again indicate the little use of e-procurement within the construction industry. Figure 1 - Percentage of BOQ/SOR received in electronic form by contractors in Northern Ireland - Eadie et al. (2011)The main study mainly focused on to which extent of e-procurement is implemented throughout the disciplines and sectors in the UK construction industry. The survey carried out from January to March 2008, consisted of 775 construction organisations on a variety of disciplines: 483 surveyors, 42 Public Sector clients, 17 Architects, 35 Privates Sector Clients and 45 Consulting Engineers (Eadie et al. 2011). This study carried out by Eadie et al. (2011) was the first time a comparison of different disciplines practice of e-procurement in the UK construction industry. Table 1 shows the results found from the study. It indicates that public sector clients are more active with e-procurement with 47% having adopted it in some manner. This shows that the public sector clients are implementing e-procurement within its work far more often than other disciplines. The overall industry average use of e-procurement is 27%, this is yet again indicates e-procurement is lagging behind other industries and many firms are still using traditional methods. Table 1 -Sample Valid Response Breakdown by Discipline - Eadie et al. (2011)From both studies carried out by Martin (2003, 2009) and Eadie et al. (2011) we see that the public sector clients (47%) are implementing the means of e-procurement more often compared to others sectors within the UK Construction Industry. This indicates public sector clients are on target to changes made by the government who want all asset information and document on an electronic format (Level 2) by 2016. Whereas on par with other sectors, the studies

show that these sectors need to use adopt e-procurement within their procurement process to increase their changes for securing contracts.

2. 4 E - Drivers and Barriers of E-Procurement in the Construction Industry:

This section of literature review will outline the factors which influence the implementation of e-procurement in the construction industry. These factors have been divided into two sections. The factors which influence the implementation of e-procurement are the positives (drivers) and the negatives (barriers) causing challenges to its adoption within the industry. Existing literature review carried out Eadie et al (2010) reviewed e-procurement construction from a worldwide perspective. The research examined detailed studies and compared e-procurement in construction with other manufacturing industries, whom which have been successfully implementing e-procurement. The Eadie et al. (2010) study supported the e-Business Watch Report (2007 European Commission) statement " that the construction is lagging behind to e-procurement compared to other sectors". In 2008, an investigation carried out by Martin outlined that although e-procurement has been a driving force within the construction industry it still has not been exploited to its maximum level due to the various barriers within the industry compared to other sectors (Martin, 2008). Eadie along with his group of researchers used the Delphi process to filter out the drivers and barriers from a construction standpoint. They examined over 18 papers (Delphi process); they identified a range of drivers and barriers which can be seen in table 2 and 3 (2007, 2010a, 2010b). The following subsections

provide a detailed discussion how these can affect e-procurement within construction.

2. 4. 1 Drivers

Table 2 -Drivers of E-procurement - Eadie et al. (2010a) From the Delphi process used by Eadie et al (2010a) a total of 21 drivers were identified by Eadie et al. (2010a). Summarised in Table 2. Some of the driver's identified are explained in detail and why they are an important force for e-procurement.

2. 4. 1. 1 Process cost saving - (Tendering/ Process) An empirical study conducted in the USA by Gebauer et. al, in the year 1989, established that " cost" and " time" are the elements used to measure the success of a procurement process. Research shows that the e-procurement process can enable cost reduction, which has been identified in the UK (Erridge, et al., 2001) and results from a survey conducted in Australia show that also most 75%-80% of construction professional have noticed that e-procurement is minimising costs of projects (Hawking et al, 2004). This is also backed up by Rankin (2006) and Kong, et al (2001) who acknowledged this driver in the Canadian and Chinese construction industry thus to save cost and time. E-procurement can considerably modernise the " material procurement process and convey speed, flexibility, efficiency and increased profit margin to organisation" - Knudsen, (2003) Minahan and Degan, (2001) and Martin (2009). The Office of Government Commerce (OGC) in 2003 acknowledged these elements and advertised a framework contract for the provision of an e-procurement system in the Official Journal of the European Union (Bravesoulton, 2008). BravosSolutions won this competition, and created an e-procurement system for the OGC in 2003. With this system

implemented within both the public sector (via OGC), and the private sector (via Royal Institution of Chartered Surveyors - RICS) resulted in major savings. An estimated £15million saving in staff productivity have been reported. (Bravesoultion, 2008). Martin (2008) reporting for the Royal Institution of Chartered Surveyors (mostly private sector organisations) also highlights the BravoSoultion TM system and focuses the importance of cost saving as an valuable driver. From the various literature reviews it is mainly outlined that e-procurement can process cost savings not only in the public sectors but private as well.

2. 4. 1. 2 Increased Quality through improved communication

Smit et al (2005) states that about two-thirds of construction problems are caused by inadequate communication and exchange of information data. Minaham & Degan (2001) propose that by using e-procurement improves contact compliance. It is defined by Hawking et al. (2004) that " improved communication also improves the quality of the end product". Quality is increased as there is less room for human error (eliminated by computers). By using e-procurement it eliminates double entry of data input and allows additional information to be exchanged electronically. (The Internet Encyclopaedia -Volume 1 A-F). Information such as: forecasts of requirements, supplier, shipping notification, overdue purchase orders, requests for quotations, material certifications, statistical quality analysis, and order changes and cancellations (Neef 2001, p. 55) can all be transferred by a click off a button. It also reduces time and allows procurement activities to be carried out on 7 days a week, 24 hours a day (Kalakota et al 2001). E-procuremnts allows " Shortened Internal and External Communication Cycle times" thus reducing time.

2. 4. 2 Barriers

Table 3 shows 31 barriers related to e-procurement. Eadie et al (2010a) used the same Delphi process as before to identify the barriers. SHOW TABLE HERE

The investigated carried out by Whong and Sloan (2004) indicated that 48% of respondents were able to conduct e-procurement effectively. This shows that there are still barriers which unable e-procurement to be used to its full advantage. Few of the barriers shown in table 3 have been outlined in detail. Lack of Technical Expertise and IT Infrastructure

From the research carried out by Wong & Sloan (2004) it was clear that many organisations do not have the necessary technological infrastructure to carry out e-procurement. Hawking et . al (2004) also stated that the price of some e-procurement systems on the market have put off mainly small firms. This is also backed up by research found by Wong & Sloan (2004) and Martin (2009). He also states that firms are still adopting paper based procurement process, indicating they lack the skill sets to adopt and IT infrastructure. Wong & Sloan (2004) and Martin (2009) all make it clear that software cost is major barrier.