



Electronic communication systems effects on the success of construction projects in United Arab Emirates

M. El-Saboni ^{a,*}, G. Aouad ^a, A. Sabouni ^b

^a University of Salford, UK

^b AlHosn University, Abu Dhabi, United Arab Emirates

ARTICLE INFO

Article history:

Received 31 October 2007

Received in revised form 23 July 2008

Accepted 29 July 2008

Available online 21 October 2008

Keywords:

Construction project success

Electronic communication

Organisational transformation

UAE

ABSTRACT

This research investigates the use of modern electronic communication management systems, and how these systems affect the success of construction projects in the United Arab Emirates (UAE). The research starts with a literature survey, and a brief background on how the communication mechanism works; how using these systems influence relationships amongst the project stakeholders, and consequently the projects success. Two case studies are introduced, followed by an analysis of results and conclusions.

The first case study, based on action research, employs interactive tools to collect the evidence, including interviews, surveys, document review, and feedback on progress. The study uses success criteria from construction projects in the UAE, previously identified by the authors. This case study has revealed an organisational transformation trend, from functional, towards matrix and project structures. These types of change are taking place after the implementation of project electronic communication management systems into the client organisation, and are enhancing chances of project success.

The second case study takes into consideration the co-existence of the new modern project electronic communication systems with the other traditional communication media. It has been shown that such an arrangement works both for the strategic benefit of the projects, and the projects stakeholders.

In the areas of improvements to schedule and project control, the current research results are in agreement with pertinent published literature and research findings. However, the benefits for quality control during the design and construction phases of the project, in addition to potential improvements in the health safety and environment (HSE), remain debatable.

© 2008 Elsevier Ltd. All rights reserved.

1. Introduction

Good communication, during all phases of a project lifecycle, is an important success factor that connects all the other factors of project success. For many reasons, construction projects can suffer from the lack of effective communication between the project stakeholders, and the construction project parties. Using electronic communication is becoming increasingly effective in enhancing effective and efficient project communication. Many projects in UAE are now using various formats of electronic communication systems, which raise the need to investigate their effects, particularly in view of the recent construction boom in UAE.

Electronic communication in project management needs to be researched on a strategic level [1,2 and 3]. Dent and Montague [4], in a CIRIA publication, in 2004, addressed the challenge of the relationship between the knowledge management, and strategic business objectives of the organisation. This can be attributed as the link between knowledge management and project suc-

cess, as perceived by the stakeholders. Many researchers focused on the integration of IT system in the AEC industry [5], projects like; WISPER project [6], Gallicon project [7], and others. Collaboration is found to be the highest score factor among the most effective four factors that affect project success [8]. Recent research has emphasised the role of computer-integrated construction into collaboration. [9], and Craig and Sommerville [10], 2006 claim, “within any construction project the exchange of information is perhaps the principal component/function in ensuring success”. NIST report [11] in 2004 and Coleman and Jun of AISC [12], 2004 stated, “Inadequate interoperability prevents digital communications between software programs used by designers, contractors, specialty contractors, as well as building owners/operators.”

Ongoing research is addressing a series of case studies, which aim to realise the strategic benefits of implementing electronic communication in the project management of construction projects in UAE, and enhance chances of construction project success. The kind of IT applications used in the case studies, is simple and easy to use, starting with the email which was used during the first case study which is for a construction project that started in 1999. The second case study has been for using web-enabled documentation and a communication package prepared specifically for the

* Corresponding author.

E-mail addresses: mahmoudsabouni@gmail.com (M. El-Saboni), g.aouad@salford.ac.uk (G. Aouad), sabouni@gmail.com (A. Sabouni).

AEC market. Both cases need to be looked into on a strategic level. The same thing, to a lesser extent, could be said about process issues, at least at this stage of implementation. Document management and communication has most recently been the fastest growing e-business application in construction [13].

Therefore it can be said that, compared with the previously mentioned research in the same field, this paper is investigating the same subject of electronic communication in the construction industry but from different angles, and for a different environment with reference to the following points:

- It investigates the effects of the use of e-communication on the project success criteria. Success is considered as a strategic issue by the Association for Project Management [14] and [15].
- To achieve this success at a strategic level, senior executives within the construction industry must support its implementation [16], therefore this point has been emphasized during interviews with this group, amongst other users.
- This research is industry initiated from within a client organisation. It is need oriented from the very beginning, and therefore it is for the purpose of satisfying the success criteria requirement, and not to study the effect of a particular IT solution.
- The basic need of communicating the essential dynamic (day to day) information of the construction project has been addressed.
- Accordingly a rather simple off-the-shelf IT product, which deals with this need, has been selected in the case study.
- Due to the fact that such research into the success criteria is very much context oriented and industry related, the construction projects in UAE have been considered as the domain. An earlier research by the authors has targeted the question of project success identification in this environment [17], the results of which are being investigated during the interviews for this current research.

The research into project success criteria shows that they are subjective [18], context oriented [19], and time dependent [20] and [21], accordingly the adoption of soft system methodology in a series of interviews has identified success criteria in UAE environment [17] which has been used as a tool for measuring the success after the IT implementation.

The approach used has been soft and systemic [22], and mainly qualitative case studies [23], which renders most of it as being phenomenological, at the same time following up and comparing with the more empirical and positivist research done by other researchers [24,25], and [26]. Nitithamyong research has quantified some of the areas about people and processes related to using slightly different systems (Application Service Providers; ASP's), therefore it addressed areas like IT readiness of users, training needed, etc., and some of their effect on "hard" success of projects.

Comparatively speaking, the domain of the current research is the entire content of the cases that are visited and considered. It applies soft system thinking and aims at defining the effect on the overall success of the project as perceived mostly by the client and his team. The first author is part of a client organisation (first case study), through which he has access to project documentation and capable of making daily contacts with project participants. Extensive interviews have been the base for data collection in the second case study. Hence the main objective in both case studies during data collection has been to 'listen'.

Alshawi and Ingirige [27] addressed using electronic communication during different phases of the project lifecycle. On the other hand, during the current investigation in 'our' first case study, the focus has been mainly on systems suited and used for the construction stage with an extension of its effect in the preceding tendering stage, while the following operation and maintenance stage have been considered in the second case

study. Simple tools have been used in the first case study for the communication management of the construction project, while the second case study used more recent tools, including web based solutions (based on the project manager local server, and not through ASP) in order to manage the construction projects. This technology is also simple but is more tailored to the needs of the construction industry. Both projects are major building projects in the UAE. Two fold objectives are achieved through presenting both cases, the first of which is to indicate the direction of the development of electronic communication in the construction industry in UAE, and the second is the comparison of the findings of both cases with similar investigations in other environments. At the same time, both cases are considered as cycles in the action research of implementing project electronic communication (project e-com'n) in the management of construction projects in UAE. Both of the cases are related to the client decision-making process during the construction phase.

The interaction between various communication media, namely electronic and face-to-face meetings, inside the communication network model of project stakeholders, is briefly looked at in the analysis of the second case study, from the perspective of satisfying the strategic benefits in this particular environment. The appreciation of multimedia communication models in the AEC industry, is gaining more ground in the literature. This is supported by the laboratory study of the mechanism of interaction in the multimode capture, transfer, and reuse of knowledge in the design process [28] which aimed at studying the model of interaction between the analogue face-to-face and digital communication, all during the design sessions.

2. Components of the two case studies

2.1. Proposition

These cases studies have been initiated because a solution was needed to solve the problem. An assumption has been proposed that the implementation of electronic communication can be the solution, Yin [23], says that "Only if you are forced to state a proposition will you move in the right direction", therefore the purpose of case study methodology is to prove that this tool:

- Deals with fragmentation (geographic, organisational and multi disciplinary) problem.
- Can contribute significantly to project success in UAE environment.

2.2. Unit of analysis

- The main unit of analysis is the project success as identified by the success criteria, as have been clarified in literature and through UAE research [17].
- Organisational transformation as the second unit of analysis in the first case study, from functional towards project organisation, and the computerisation of project communication as a top management commitment.

2.3. Boundaries

First case study: the housing project and the client organisation, with documentation from the project manager and the consultant.
Second case study: the project, and the interviews.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات