

# Lessons learned from large construction project in Saudi Arabia

Sumit Mitra

*Indian Institute of Management, Kozhikode, India, and*

Albert Wee Kwan Tan

*Malaysia Institute of Supply Chain Innovation, Shah Alam, Malaysia*

308

---

## Abstract

**Purpose** – The purpose of this paper is to identify project management issues in a specific construction project in Saudi Arabia, highlighting its unique context.

**Design/methodology/approach** – In the tradition of phenomenological research, a framework based deductive research approach is adopted where a structured questionnaire is used in one-to-one interview with project participants.

**Findings** – This research highlights the interaction outcomes of human, project tool & methods, supply chain and finance affecting overall project execution and goes beyond to identify critical linkages in these interactions, including those that will need identification of skill sets required for the project manager's role, options approach and standardization of product and processes together with early involvement of diverse stakeholders in the project for their better execution through ex ante identification of project parameters requiring minimum changes.

**Practical implications** – The final framework arrived at identifies various tradeoffs involved in project management in the idiosyncratic context of demanding client driving the project needs and internal resistance to change limiting flexibility in project execution. It focuses on deviations from international project execution standards, as found in large construction projects in the Middle East, specifically Saudi Arabia.

**Research limitations/implications** – The limitation of the research lies in arriving at generalizable findings based on the study of a single international hotel construction project, and not an industry-wide questionnaire survey which can, in future, refine and strengthen the framework developed.

**Originality/value** – A study in the context of Saudi Arabia is seldom reported in international journals although large turnkey construction project opportunities exist for international firms in this country and in the Middle East region.

**Keywords** Middle East, Saudi Arabia, Project management, Supply chain management, Construction industry, Hotel industry

**Paper type** Case study

## 1. Introduction

From 2005 onward, Middle East (ME) and particularly the oil dependent economies began to diversify their economies by searching for alternative sources of revenue and reduce dependency on oil revenues. One such area was construction and real estate. Construction projects have always been capital and labour intensive. In the last decade, many of these projects have shifted to the oil rich ME and Asian subcontinent with rapid growth in their domestic economies including infrastructural, residential, commercial and entertainment construction. According to IMF, at the peak of its

growth the per capita GDP of the Arabian gulf states stood at US\$20,000 indicating affordability of plush residential properties as well as commercial investments like hotels, office complexes, entertainment centre to attract tourists to the region. *Middle East Economic Digest* indicated construction project estimates to the tune of US\$1.5 trillion (AED 5.5 trillion)[1] were announced in the Gulf region until September 2007 (Gulf News' Financial Review, 2008, p. 24). Countries like Saudi Arabia saw their non-oil sector as a percentage of real GDP grow from 65 to 68 percent between 2000 and 2007 primarily on the back of mega construction projects like the seven strategic cities including those of Medina Knowledge Economic City and King Abdullah Economic City for a total estimated cost of US\$168 billion.

While on one hand there has been large amounts of capital injection into these projects from oil related "petrodollar" earnings of these largest oil-exporting countries, on the other hand there has been challenges of completing large projects within time and budget limits so as to keep the projects viable. While private construction companies are lured by the liquidity in the market, many governments' related companies started competing in the domestic markets. This restrains the local construction industry to upgrade from low skilled labour intensive projects to specialized, sophisticated construction projects (Dubai Economic Council, 2009).

International competition involving some of the largest foreign construction companies bid for the big infrastructure and commercial properties in ME countries like UAE. These are dominant European companies followed by Asian and US companies as shown in Table I. While it is important that these projects follow international norms and standards, local industry practices deviate from these standards making it critical for foreign companies to be aware of these deviations, their cause and appropriate ways to handle these deviations.

Given the importance of understanding construction projects in the ME region, this study looks at a high end hotel construction project in Saudi Arabia to identify what causes time and cost overrun, their long term implications and suggested remedies. At the specific project level, learning from this project helps improve execution of an extension of the hotel undertaken subsequently. At a general level, it should help international firms handle projects in the ME while attempting to introduce more international standards and practices there.

A local private company with interests in real estate construction, undertook building a hotel complex for an international chain to run in Khobar City in Saudi Arabia (a business and international travel hub in the country). Having faced

Country	Construction services export (%share 2007)	Construction services export (%change share 1997-2007)
Germany	17.15	3.78
Japan	14.34	- 5.92
USA	8.99	- 0.03
China	7.47	5.95
France	7.37	- 2.81
Spain	5.91	4.54
Russian Federation	4.79	4.55

**Source:** Institute for Strategy and Competitiveness (2009)

**Table I.**  
Country-wise  
construction services  
export to Dubai

---

inordinate delays in the completion of the project and associated problems of execution, a team led from inside the company conducted a study to identify the root cause so that similar mistakes can be avoided for the new hotel extension project.

To begin, a review of literature undertakes to list the most commonly identified problems in construction project execution and some of the remedies proposed. This helps to compare the problems faced in this project with other projects reported so that solutions proposed for the problems can help avoid similar delay in construction project especially those in Saudi Arabia.

## 2. Literature review

Project management is a process that involves planning and control methods that give a comprehensive view of handling projects in any industrial or commercial sector. It offers a structural approach to the project (Burke, 2003, p. 1). Rapid changes in global economy, developments in technology, increase in competition and improvement in quality of products and services have added to complexities in project management requiring skilled people and threatening possible delays. Project management therefore links the operational side of business efficiency and cost to the strategic side of exposure to external environmental uncertainties and competition (Wideman, 2003; Besner and Hobbs, 2008; Kerzner, 2009). In the present recessionary conditions arising out of sub-prime mortgages in the property market, large-scale project delays may hamper quick response to environmental changes leading to fall in demand, prices of property. Numerous studies on construction delays have narrowed on issues like variation in specifications, owner's financial problems besides lack of scientific and sophisticated project management as some of the reasons for delay (Sambasivan and Soon, 2007; Faridi and El-Sayegh, 2006; Koushki *et al.*, 2005). Whether it is post-war reconstruction of Kuwait or construction boom of Saudi Arabia and UAE, the typical source of project execution related issues in construction faced in ME are listed in Table II.

In Table II, the ten key problems highlight delays arising from lack of skills, manpower productivity, lack of control of project manager, shortage of labour or in general "manpower related issues"; planning and approval, changes in design, poor control, obtaining permit or generally in "methods related issues" together with delay in delivery of material or "supply chain issues" and owner payment delays, cash flow problems or "money issues". Literature identifies linkages across these critical variables in project execution as discussed later. An accurate picture is however difficult to construct with contractors blaming clients and their consultants for delays and vice versa.

Project management is an application of skills, knowledge and capability to deal with environmental uncertainty while satisfying divergent need of stakeholders from owners to suppliers and employees (Verzuh, 2008; Burke, 2003). While meeting these divergent needs of stakeholders, projects need to meet their fundamental objectives of cost, time and quality optimization in a short term temporary endeavor where each project is unique (Lewis, 2001; Burke, 2003). Success depends on the project managers interpersonal skills to motivate the project team while adhering to tight budget and technical specifications (Schmid and Adams, 2008). Structurally, project teams are organized in a "matrix" with dual reporting relationship, giving rise to potential conflict from having two bosses. At the same time this is most efficient if roles, responsibilities and objectives are clearly defined and considerably dysfunctional if

References	Faridi and El-Sayegh (2006)	Assaf <i>et al.</i> (1995)	Sambasivan and Soon (2007)
Country research	UAE	Saudi Arabia	Saudi Arabia
Type of industry	General projects	Different construction projects	Construction projects
Ten key problems	Drawings planning and approval Poor planning  Passiveness of the owner in terms of decision making Lack of manpower  Poor control and supervision  Manpower productivity  Lack of skills  Delivery problem Permit obtaining problem, government regulations Contractor's cash flow problem	Contractor's financial problem in financing projects In experience of the contractor  Lack of skilled labour  Delay in owner's payment to contractor  Delivery delay of resources and material  Poor control by the project manager and management Ineffective scheduling  Problems of bidding In efficiency of contractors, technical staff  Poor performance and productivity of manpower	Shop drawing planning  Delay improvement by the contractor Owners delay in payment Change in design  Cash flow problems  Slowness of decision making by the owner Conflicts between the subcontractors Mistakes in design Shortage of labour  Lack of skillful labours

**Table II.**  
Project execution  
issues in ME

organizations fail to make the transition from traditional hierarchical authoritarian structures centralizing control (Badiru, 1996). This can raise serious manpower and HR issues in structuring a project organization.

Planning of projects has important stages of “scheduling” and “controlling” as prime responsibility. Scheduling involves building uncertainty into projects and needs to go beyond using tools like “CPM” and “PERT” to use concepts like “critical chain” adding a human side to the algorithm. This process helps avoid time over runs which can be as high as 40-50 percent (Khodakarami *et al.*, 2007; Roger, 2000).

In the client-server computing environment, use of computer programme based project management techniques are common today speeding up progress and attaining multiple optimization of time, cost and energy consumption (Badiru, 1996). Control and monitoring of progress in a project is critical to identify deviation from targets and computer programmes can be useful. But such control should not become entirely authoritarian and as an autonomic process should facilitate self control by members of the project team leaving room for creative problem solving aimed at work to be done effectively besides efficiently (Lewis, 2001). Cash flow analysis and “earned value analysis” are other methods of project control (Badiru, 1996).

The delays in project execution are of three unique types:

- *Type 1.* Delays on which either the client/owner or the contractor have no control.
- *Type 2.* Delays on which only the client/owner has control.
- *Type 3.* Delays on which only the contractor has control.

In project delay Type 1 where the contractor is exposed to non-completion, cost overrun, adequate revision of targets should be made to compensate and avoid unnecessary penalty on the contractor. In Type 2, since the project delay and overrun is due to client's wrong estimates, contractor should receive a fair compensation in terms of time and cost estimates for the project. In Type 3, contractors are required to absorb any time and cost overrun penalties and may need to adequately compensate client for the same. In reality, most delays in project completion are not clearly one or the other type of problem discussed above and is a mix of the type of problems discussed. Therefore, superior project planning and control requires *ex-ante* determination of project parameters and clear responsibility of clients and contractors to better pinpoint causes of delay and responsibilities of client and contractor in them. Much of these issues related to methods can however have an impact to cash flow and compensation.

From a project cash flow management perspective, use of net present value (NPV) as a measure for accepting or rejecting a project may be too simplistic. As a static model it is based on current conditions and does not built in future changes in environment of the project. Dixit and Pindyck (1995) suggest using an options approach to capital investment which highlights project management need to evaluate risks in a project at any time during its life. While clients and other stakeholders will want to enter any project that is time bound and cost contained, project managers need to be able to identify obstacles at all stages in the life of the project (Morris, 2008) again reflecting critical methods issues with possible monetary implications.

Another issue related to projects is linkage all the way from the raw material to the final delivery to client which in other words is the supply chain management (SCM) (Anders and Thomas, 2010). The subject is developed for manufacturing industry but when applied to construction industry reflects inadequacies of SCM in service industry due to considerable dominance of the chain and its outcome by client or customer and not project executors like contractors or suppliers (Kornelius and Wamelink, 1998). This affects client/customer long term relationship with suppliers and contractors. Due to non-standard production and processes for construction projects, efficient SCM cannot be developed and bottlenecks can appear in product, process or even buyer-supplier relationship. However, with increasing standardization of design, process and approvals, SCM can play an important role in reducing costs (Vollman *et al.*, 1997; O'Brien, 1999; Atkin *et al.*, 1995) highlighting impact of material supply chain to project delays. There is strong interdependence owing to synchronization of many supply chains in relation to each and every construction project (Lars *et al.*, 2010). Furthermore, there are potential dangers of applying "lean thinking" discretely and indiscriminately in a project environment with high levels of complexity and uncertainty (Andrew and Nicholas, 2006). Considerable focus on "money" arising out of SCM inefficiencies inspite of standardization of "methods", only points to inadequate "manpower" skills in creating linkages between client and suppliers throughout the life of the project and inappropriate choice/application of concepts like "lean thinking".

Many authors emphasize resistance to change as a major contribution to project failure. This resistance manifests in cost and time overrun as well as difficulty in managing change although it can be a useful learning opportunity if knowledge absorptive capacity of organizations are high (Lawrence, 1954; Strebel, 1994; Beer and Eisenstat, 1996; Waddell and Sohal, 1998). Besides refusal to change and reverting to

historical protocols, resistance to change arises from manager's self belief that they can see all problems facing a project beforehand and be able to tackle them in advance, referred to as cognitive limitation (Davidson and Holt, 2008; Nadim and Ronald, 2003). Organizational change therefore refers to change in shape, state of the organization or in the quality produced as also new thoughts, style of operation and implementation where change predominately focuses on adapting to a changing environment and/or improving performance (Van de Ven and Poole, 1995; Schalk *et al.*, 1998; Child and Smith, 1987; Barr *et al.*, 1992; Boeker, 1997). In Kurt Lewin's term change management entails moving from one fixed state to another fixed state through pre-planned intervening steps (Bamford and Daniel, 2005). Ultimately there is no one best way to handle change in organizations in general but one best way to handle change in each organization (Todnem, 2005). Change management does cause delays arising from interaction of manpower and methods issues of a project with implications for material and money issues as well.

### 3. Research problem

From the discussion of literature, the main problem in construction projects can be traced to lack of human and technical resources, unavailability of material and supplies, payment problem and conflicts between different stakeholders besides differences between the original design of the project and the actual execution plan. Change orders and also differences in cultural background are other reasons cited (Odeh and Battaineh, 2002; Arain and Low, 2003; Abdul-Rahman *et al.*, 2006; Sambasivan and Soon, 2007).

As discussed before, organization transition efforts include need to adopt a matrix structure. The change is required to address project management delays of Types 1-3 together with superior project management approaches like "critical chain" whose human side demands change in mindset. Management tools like "options approach" to capital investment better represents dynamic project environment just as "SCM" can better manage suppliers, inventory and cost. Better project management involves application of "software tools" including those to track deviation from targets.

Based on the literature, we can group the issues under:

- manpower and HR;
- organization and project execution;
- cash flow and finance; and
- supply chain issues.

The primary tools available include:

- project management;
- project software; and
- change management.

Figure 1 captures in summary issues raised in the literature. The following section discusses the methodology used for this study followed by findings of the research based on the hotel construction project study in Saudi Arabia.

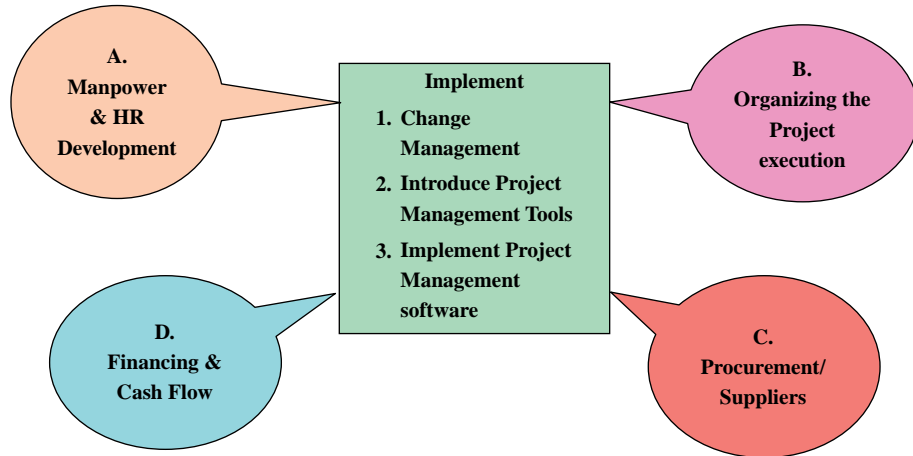


Figure 1.  
Factors from literatures

4. Methodology

Before identifying the precise research methodology, this study investigates the broad research philosophy suitable for this investigation between a positivist and phenomenological approach. As identified by different researchers (Easterby-Smith *et al.*, 1991; Collis and Hussey, 2003), the broad characteristics of these philosophies are tabulated in Table III.

A phenomenological philosophy is adopted which warrants a qualitative case study research method for the following characteristics of such a methodology suit the setting of the research and characteristics of data available:

- Ready availability of qualitative data amenable to case study approach.
- Data is rich and subjective: the qualitative data is rich by nature, and the gathering process subjective due to the level of involvement of the researcher.

	Positivist paradigm	Phenomenological paradigm
Basic beliefs	The world is external and objective	The world is socially constructed and subjective
Researcher should	Observer is independent Science is value-free Focus on facts Look for causality and fundamental laws Reduce phenomenon to simplest elements Formulate hypotheses and then test them	Observer is part of what observed Science is driven by human interests Focus on meanings Try to understand what is happening Look at the totality of each situation
Preferred methods include	Operationalising concepts so that they can be measured Taking large samples	Develop ideas through induction from data Using multiple methods to establish different views of phenomena Small samples investigated in depth or over time

Table III.  
Compare positivist and phenomenological research

- The location is natural: the setting for this research is a commercial organization (rather than a laboratory setting).
- Validity is high due to personal one-to-one data collection ensuring validity and consistency across interviewee.

Following Collis and Hussey (2003, p. 15) definition of deductive research as a study in which a conceptual and theoretical structure is developed which is then tested using empirical observation; thus particular instances are deduced from general influences, a deductive approach is adopted having developed a framework from literature to use for this study (Figure 1). As suggested by Myers (1997) the case study interview method tries to capture the three stages of determining present situation, capturing the built up to the present situation as well as presenting the analysis.

The researcher is an entrepreneur running a family construction business and was involved in the project from the beginning. Learning from the study will help to improve future project execution including the extension work for the project under study in a typical ME context in Saudi Arabia. Motivation for the study comes from the inordinate delays and difficulties faced in the project under study needing immediate improvement. As a benchmark, the hotel extension project needs to strictly fit into a 15 months time frame using improvements obtained from the study. Participant responses cannot only improve overall project performance but their individual experience as well as the suggestions given by them can be effectively implemented.

The study used a mix of structured and unstructured interviews requiring response to specific questions as also free discussion on different issues. Interviews conducted highlighted purpose of the interview, with each lasting 30-45 minutes with multiple sittings in one-to-one settings at interviewee workplace or any place of mutual convenience. Interviewees has the option of being interviewed in English or Arabic and wherever possible, voice recorder and telephonic interviews supplemented hand notes with log book maintained of each interview for record and continuity. The questionnaire used is listed in the Appendix.

## 5. Findings

### 5.1 *Manpower/HR and project organizing issues*

Over 11 interviewees representing the client, contractor, government, supplier participated in the project to give their views in the project execution issues for hotel construction. Most interviewees are engineers working on the project and the rest are accountants, consultant, administrators involved in the project with experience profile as in Table IV.

The major methods and tools used by respondents to manage the project included contractor report, monthly report, inspection procedure, technical memos, project schedule, Primavera software and Microsoft project. The non-standard and imprecise nature of such tools lead to misinterpretation and misunderstanding resulting in delays, leaving the results open to interpretation and difficulty in converting from one format to another. Some of the other sources of complexity in having more standard methods and tools are highlighted in Table V.

The hotel project is executed by various contractors where the major works like structure, block work, plastering, drainage system, water supply system, electrical power supply are executed by one contractor, while the fire fighting and fire alarm system,



BIJ 19,3		No. of responses
<b>316</b>	<i>Years of experience</i>	
	< 5	0
	5-10	3
	11-15	1
	> 15	6
	<i>No. of projects involved</i>	
	1	0
	2-5	3
	6-10	1
	11-20	4
	> 20	2
	<i>Role in project</i>	
	Engineering	5
	Administration	1
Accounting	1	
Designer	1	
Project manager	2	

**Table IV.**  
Profile of respondents

Method issues	Disagree	Agree
Too many contractors	0	9
Getting government approval	7	1
Handing over	1	7

**Table V.**  
Important methods issues

and building management system (BMS) is executed by a different contractor. These contracts include supply, installation, testing, and commissioning whereas a third party contractor supplies interior decoration work and furniture. Whenever an issue arises in the project, responsibility and accountability cannot be pinpointed on a contractor since no contractor will come forward and take responsibility. The project manager needs time to identify which contractor is responsible for the issue before it is rectified. Handing over from one contractor to another is a source of delay just as the absence of project manager and key engineers during commissioning and handover of the project. These reflect poor planning and coordination practice. In the Saudi Arabia context, most disagree there are any delays in securing government clearance provided all papers are in order. Much of the problems may arise as contractors are not brought up to the same level of “manpower” and “methods” skill level and/or may not have been involved in the project from the beginning to be aware of the chain of command and critical linkages in the project.

### 5.2 Supply chain issues

Suppliers are selected based on quality and price as shown in Table VI. As a five-stars hotel, selecting suppliers with high quality products and services is important but in the process financial planning and cash flow management skills of the supplier, adversely affecting his stability in “money” related matters, may be ignored as no penalties are imposed on late deliveries affecting project completion. Most of these problems are further aggravated by coordination issues among too many suppliers (Table VII).

### 5.3 Fund management issues

Most of the interviewees agree that suppliers and contractors are not paid on time resulting in cash flow problems for them. This can result in delays in delivery and inferior quality in an attempt to save cost. Most of the interviewees however claim their budgetary allocations and spending are within their budget limits and are not causes of delay in payment as shown in Table VIII. While this may not be a “methods” issue at all it could be a serious “money” and payment issue with potential for exploitative behavior by large clients and in turn by large contractors in dealing with smaller suppliers and contractors leading to delays, inferior material and workmanship.

Changes in specification need to be approved by owner, designer and project manager. However, the changes can have financial impact on the entire project. To improve cash flow, the interviewees suggest minimum changes to specification in the course of execution of project by having better initial planning, proper documentation and standard procedures in place to draw up a realistic and attainable project schedule as captured in the list below indicating critical “manpower” and “methods” challenges for such projects in the region.

Reasons for project delay:

- No realistic with schedule.
- Plan not complete.
- Inexperience staffs.
- Poor coordination.
- Design change.

Selection criteria	No. of responses
Quality	7
Price	5
Reliability	3
Reputation	3
Financial	1

**Table VI.**  
Supplier selection criteria

Supply chain issues	Disagree	Agree
Too many suppliers	0	5
Late delivery	2	5
Not systematic procedure	0	1
Compliance with regulation	1	0
Poor support	0	1

**Table VII.**  
Supply chain  
management problems

	Agree	Disagree
Pay supplier or contractor on time	0	8
Overspending	1	6

**Table VIII.**  
Funds management  
issues

- No proper selection of contractor.
- Financial problem.
- Scope not clear.
- No follow up.

As it can be deduced from the discussion and from the list above, the main causes of delay in project completion are namely using of inferior tools and methods as well as having inexperienced staff in critical project co-ordination positions.

## 6. Discussion

From the perspective of a prestigious construction project in one of the largest economies in the ME (Saudi Arabia), most of the project participants interviewed for this research not only had project related technical knowledge but also experience of working in multiple project. However, the critical position of project manager had someone with inadequate experience for such a large international project. Formal methods and tools including standard format of reports, inspection records, technical memos and schedules were not used in this project making uniform understanding and interpretation of project details difficult. This is exacerbated by the fact that different contractors with varying scopes of work handled different segments of the same hotel project, in some cases supplying material and constructing while in others using client supplied material to construct. Without formal methods and tools it is very difficult to pinpoint responsibility in such a complex and fluid setting. Given that standard documentation as per government specification accelerates clearances for construction projects, this same standard government documents could be used to standardize methods and tools for the entire project improving project-wide accountability.

Much of the project improvement effort will however fail if the supply chain from raw material to end client fails mid way. This may be caused by non-payment of contractors on time due to reasons other than budget overrun. Even the best quality and competitively priced contractor will delay deliveries and compromise on quality in order to save cost particularly if a penalty clause for this is not included in the contract and consistently implemented. Payments on time in return for adherence to delivery and quality standards accepted in the contract will help improve contract execution.

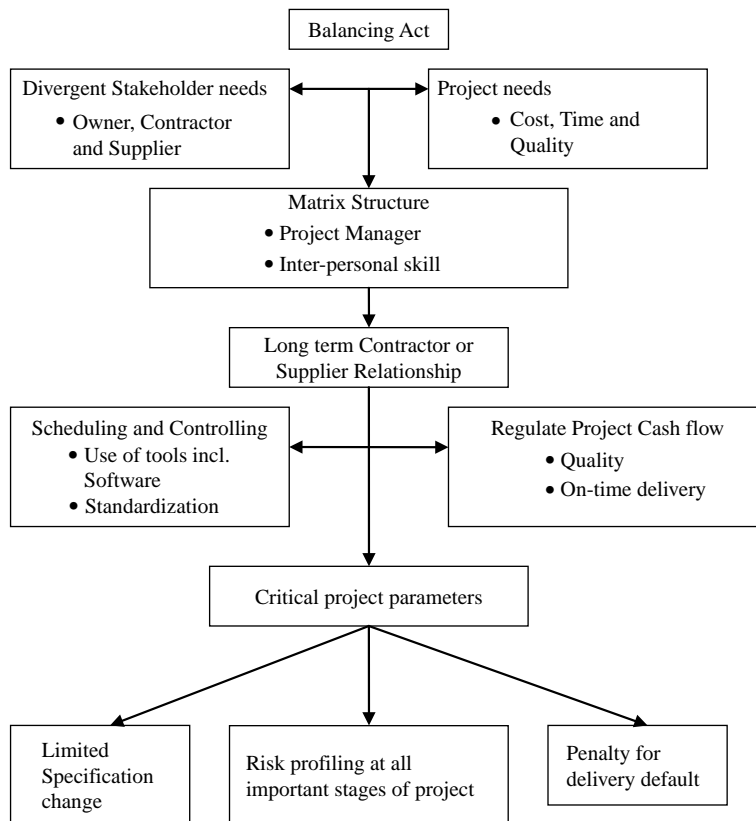
Many of these issues are easier to handle with smaller number of contractors responsible for larger parts of a project, on a turnkey basis where use of effective methods and tools not only removes ambiguity but brings accountability and quality in delivery. Some sort of subcontracting arrangement through collaboration with specialized suppliers/contractors emerging in construction industry projects has to especially address the added complexity arising out of the uniqueness of each construction project and their time bound execution.

Minimum changes in the specifications of a project should happen in the middle of a project which implies that careful planning involving all aspects of the project is done at the very beginning. For this, important stake holders in the project including contractors and suppliers be included with the client, consultant, government officials and project manager fairly early on so that all aspects of execution of the project can be considered clearly and in details. This not only builds transparency and trust but helps manage changes in the course of the project arising out of environmental or strategic compulsions. It is important that from the beginning a realistic and achievable project

schedule be drawn up with provision for different scenarios in future by assigning different degree of risk to each such scenario for better preparedness. The objective being to adhere to the project targets of time, cost and quality.

Literature on project management so far identified a static model (Figure 1) that highlighted broad issues to address and tools useful to address them appropriately. Our research attempts to deepen the understanding further by introducing a more dynamic flow diagram (Figure 2) that attempts to link issues and tools to external environmental and internal uncertainties. Beginning with the intention of balancing the needs of stakeholders and the needs of executing the project efficiently and effectively, the flow diagram highlights some of the important issues and challenges that need to be met so as to make construction project outcomes more deterministic by undertaking risk profiling where uncertainty exists. As discussed in literature, this is in the idiosyncratic context of construction projects being client pull dominated externally and change resistant internally with government policy decisions influencing all project execution.

To cater to the complexities of construction industry, specialist network IT companies have come into existence to conduct general and syndicated research in the



**Figure 2.**  
Proposed framework

---

industry, disseminate information and provide a business-to-business (B2B) platform for transactions in the industry. By providing information on upcoming construction projects, major changes in technology in the industry globally, events related to industry as also data base of leading contractors and suppliers for different products and services of construction industry, these network companies help create the most competent and efficient project team and partners for construction project execution. These network organizations can have close links to government construction departments and influence future policy decisions of the government by predicting trends, strength areas and priorities in the industry.

## 7. Conclusion

Proliferation of construction projects in the oil rich ME economies post 2000 has seen explosion in non-standard, *ad hoc* methods and tools being used in these construction projects as highlighted in this study. Together with acute shortage of experienced and quality project manpower – both skilled, unskilled as also contractors, this has led to poor on time project execution, client satisfaction and cost control. This research has tried to use first hand information available from construction project employees to understand the scope of the problem, its roots and has tried to suggest possible remedial measures for some of the more critical problems identified so as to improve construction project execution records in the ME, specifically Saudi Arabia in the hotel industry. For this reason, the authors have proposed to group the diverse problems into those of “manpower”, “methods” and “money” and their interactions.

As raised in literature (Wideman, 2003; Besner and Hobbs, 2008) dynamic, real time management of project specific issues come with the added complexities of strategic long term issues like changing government standard, idiosyncratic client demands and internal resistance to change. Also as highlighted by Verzuh (2008) and Burke (2003), project management success needs a balancing act of the two. Our framework in Figure 2 captures this balance in the critical project parameters and goes on to argue that all other aspects of the project like “long-term contractor/supplier relationship” and “matrix structure” of the project need to be geared to address these critical project parameters in order to achieve the required external environmental and internal stakeholder demand balance.

Literature on construction projects in ME has highlighted ten key problems facing project execution in ME (Table I), but their linkages are limited to a few causalities or none. This paper attempts to link the diverse causalities in a dynamic framework as shown in Figure 2.

Much of the methods related issues affecting cash flows and arising out of Types 1-3 delays are effectively addressed by attending to the matrix structure of the project. For this type of structure, one should ensure personnel with required interpersonal skills to establish long term contractor/supplier relationships while working within the bounds of the critical project parameters. In Figure 2, continuous risk management profiling of projects can throw up change management challenges that one might faced in the life of a project.

While the framework is universal, some of the issues of skill and use of management tools may be especially acute in emerging construction industries in Saudi Arabia. The list of issues may also not be exhaustive given the limitations of a single site study. Reliability of data can be increased by broadening this study to include surveys of

different project in different country settings. Studies in the ME have indicated that although managers and employees generally behave like in the west, there may be differences related to culture given that the ME is a richly diverse region with myriad of different cultures.

#### Note

1. One Arab Emirates Dirham (AED) = US\$3.67 (pegged).

#### References

- Abdul-Rahman, H., Berawi, M.A., Berawi, A.R., Mohamed, O., Othman, M. and Yahya, I.A. (2006), "Delay mitigation in the Malaysian construction industry", *Journal of Construction Engineering and Management*, Vol. 132 No. 2, pp. 125-33.
- Anders, S. and Thomas, O. (2010), "Supply chains in the construction industry", *Supply Chain Management: An International Journal*, Vol. 15 No. 5, pp. 347-53.
- Andrew, F. and Nicholas, F. (2006), "Efficiency versus effectiveness in construction supply chains: the dangers of 'lean' thinking in isolation", *Supply Chain Management: An International Journal*, Vol. 11 No. 4, pp. 283-7.
- Arain, F.M. and Low, S.P. (2003), "Measures for minimizing adverse impact of variations to institutional buildings in Singapore", *Journal of Housing, Building and Planning*, Vol. 10 No. 1, pp. 97-116.
- Atkin, B., Flanagan, R., Marsh, A. and Agapiou, A. (1995), *Improving Value for Money in Construction: Guidance for Chartered Surveyors and Their Clients*, Royal Institution of Chartered Surveyors, London.
- Badiru, B.A. (1996), *Project Management in Manufacturing and High Technology Operations*, 2nd ed., Wiley, New York, NY, p. 579.
- Bamford, D. and Daniel, S. (2005), "A case study of change management effectiveness within the NHS", *Journal of Change Management*, Vol. 5 No. 4, pp. 391-406.
- Barr, P.S., Stimpert, J.L. and Huff, A.S. (1992), "Cognitive change, strategic action, and organizational renewal", *Strategic Management Journal*, Vol. 13, pp. 15-36 (special issue).
- Beer, M. and Eisenstat, R.A. (1996), "Developing an organization capable of implementing strategy and learning", *Human Relations*, Vol. 49 No. 5, pp. 561-97.
- Besner, C. and Hobbs, B. (2008), "Project management practice generic or contextual: a reality check", *Project Management Journal*, Vol. 39 No. 1, pp. 16-33.
- Boeker, W. (1997), "Strategic change: the influence of managerial characteristics and organizational growth", *Academy of Management Journal*, Vol. 40 No. 1, pp. 152-70.
- Burke, R. (2003), *Project Management Planning and Control Techniques*, 4th ed., Burke Publishing, Seiten.
- Child, J. and Smith, C. (1987), "The context and process of organizational transformation – Cadbury Limited in its sector", *Journal of Management Studies*, Vol. 24 No. 6, pp. 565-93.
- Collis, J. and Hussey, R. (2003), *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, 2nd ed., Palgrave Macmillan, New York, NY.
- Davidson, M. and Holt, R. (2008), "Failure points: where BPM projects tend to falter", *Business Performance Management*, December, pp. 18-23.
- Dixit, K.A. and Pindyck, S.R. (1995), "The options approach to capital investment", *Harvard Business Review*, May, pp. 105-15.

- Easterby-Smith, M., Thorpe, R. and Lowe, A. (1991), *Management Research: An Introduction*, Sage, London.
- Faridi, A.S. and El-Sayegh, S.M. (2006), "Significant factors causing delay in the UAE construction industry", *Construction Management and Economics*, Vol. 24, pp. 1167-76.
- Gulf News: Quarterly Financial Review (2008), "Stacking up: UAE banks on the rolls", *Gulf News: Quarterly Financial Review*, May, pp. 22-6.
- Kerzner, H. (2009), *Project Management: A System Approach to Planning, Scheduling and Controlling*, 10th ed., Wiley, New York, NY.
- Khodakarami, V., Fenton, N. and Neil, M. (2007), "Project scheduling: improved approach to incorporate uncertainty using Bayesian networks", *Project Management Journal*, Vol. 38 No. 2, p. 39.
- Kornelius, L. and Wamelink, J.W.F. (1998), "The virtual corporation: learning from construction", *Supply Chain Management: An International Journal*, Vol. 3 No. 4, pp. 193-202.
- Koushki, P.A., Al-Rashid, K. and Kartam, N. (2005), "Delays and cost increases in the construction of private residential projects in Kuwait", *Construction Management and Economics*, Vol. 23, pp. 285-94.
- Lars, B., Lena, E., Bygballe, A.D. and Marianne, J. (2010), "Interdependence in supply chains and projects in construction", *Supply Chain Management: An International Journal*, Vol. 15 No. 5, pp. 385-93.
- Lawrence, P.R. (1954), "How to deal with resistance to change", *Harvard Business Review*, May/June, pp. 49-57.
- Lewis, P.J. (2001), *Project Planning Scheduling and Control*, 3rd ed., McGraw-Hill, London.
- Morris, A.R. (2008), "Stop the insanity of falling projects", *Industrial Management*, Vol. 50 No. 6, p. 20.
- Myers, M.D. (1997), "Qualitative research in information systems", *MIS Quarterly*, Vol. 21 No. 2, pp. 241-2.
- O'Brien, W.J. (1999), "Construction supply chain management: a vision for advanced co-ordination, costing and control", in Tommelein, I.D. and Fischer, M.A. (Eds), *Defining a Research Agenda for AEC Process/Product Development in 2000 and Beyond. Proceedings of Berkeley-Stanford CE & M Workshop, August 26-28*, available at: [www.ce.berkeley.edu/tommelein/CEMworkshop.htm](http://www.ce.berkeley.edu/tommelein/CEMworkshop.htm) (accessed 20 June 2010).
- Odeh, A.M. and Battaineh, H.T. (2002), "Causes of construction delay; traditional contracts", *International Journal of Project Management*, Vol. 20, pp. 67-73.
- Roger, M. (2000), *Critical Chain Concepts*, Scitor Corporation, available at: [www.scitor.com](http://www.scitor.com) (accessed 15 June 2010).
- Sambasivan, M. and Soon, W.Y. (2007), "Causes and effects of delays in Malaysian construction industry", *International Journal of Project Management*, Vol. 25, pp. 517-26.
- Schalk, R., Campbell, J.W. and Freese, C. (1998), "Change and employee behavior", *Leadership & Organization Development Journal*, Vol. 19 No. 3, pp. 157-63.
- Schmid, B. and Adams, J. (2008), "Motivation in project management: the project manager's perspective", *Project Management Journal*, Vol. 39 No. 2, p. 60.
- Strebel, P. (1994), "Choosing the right change path", *California Management Review*, Vol. 36 No. 2, pp. 29-51.
- Todnem, B.R. (2005), "Organizational change management: a critical review", *A Journal of Change Management*, Vol. 5 No. 4, pp. 369-80.

- Van de Ven, A.H. and Poole, M.S. (1995), "Explaining development and change in organizations", *Academy of Management Review*, Vol. 20 No. 3, pp. 510-40.
- Verzuh, E. (2008), *The Fast Forward MBA in Project Management*, 3rd ed., Wiley, New York, NY.
- Vollman, T., Cordon, C. and Raabe, H. (1997), *Supply Chain Management – Mastering Management*, Pitman, London.
- Waddell, D. and Sohal, A.S. (1998), "Resistance: a constructive tool for change management", *Management Decision*, Vol. 36 No. 8, pp. 543-8.
- Wideman, R.M. (2003), *The Role of the Project Life Cycle (Life Span) in Project Management*, AEW, Services, Vancouver, available at: [www.maxwideman.com/papers/plc-models/plc-models.pdf](http://www.maxwideman.com/papers/plc-models/plc-models.pdf) (accessed 22 June 2010).

### Further reading

- Assaf, S.A., Al-Khalil, M. and Al-Hazmi, M. (1995), "Causes of delay in large building construction projects", *ASCE Journal of Management in Engineering*, Vol. 11 No. 2, pp. 45-50.
- Levy, A. (1986), "Second-order planned change: definition and conceptualization", *Organizational Dynamics*, Summer, pp. 5-20.

### Appendix. Questionnaire used to interview the staffs

Name of interviewee: \_\_\_\_\_  
Date of interviewee: \_\_\_\_\_  
Job position of interviewee: \_\_\_\_\_

#### Questions related to manpower

- (1) How many years have you worked in the construction industry?
- (2) What is your main role in this hotel construction project?
- (3) Do you have anyone reporting to you in this project? If yes, how many?
- (4) Have you handle similar large-scale project before? If yes, how many?
- (5) Do you have any problem handling conflicts with staffs involved in this project? If yes, what are these conflicts and how do you handle them?
- (6) What change would you recommend for handling manpower conflicts in future project?

#### Questions related to methods

- (1) What are the reporting tools used for this project? If yes, name some of these tools used.
- (2) Are these tools used useful in scheduling and managing the project? If not, why is this so? What other tools can you recommend for such large-scale project?
- (3) Are there too many contractors to handle in this project? Do you think it might be better to reduce the number of contractor for better result?
- (4) Do you have any issues coordinating with the contractors? Can you name some of these issues?
- (5) How often do you the project team meet to review each milestone?
- (6) Do you have difficulty getting government approval and licenses to carry out the project? Can you describe some of these difficulties faced?
- (7) Was the handover from contractors done properly? If not, what are some of the issues faced during handover? How can these issues be overcome?



- (8) Do you know why this project is delayed for more than 30 months?
- (9) What change would you recommend for future project?

*Questions related to materials*

- (1) Do suppliers deliver their materials on time? If not, what are the main reasons for their delay?
- (2) Do you have penalty clause in the purchase order to deter them from late delivery? If yes, have you ever impose those penalties to those who are late?
- (3) Do you have too many suppliers to handle? If yes, how do you keep track of their delivery?
- (4) How do you select suppliers? Based on lowest price or other criteria?
- (5) What other problems do you faced in handling suppliers?

*Questions related to money*

- (1) Do you pay contractor on time if they deliver the work or material on time?
- (2) The total amount of money spent in this project is more than budgeted? What could be the reasons for overspending in this project?
- (3) Who approve the changes to specification for this project?
- (4) Did anyone measure the impact of the change to the project specification? If yes, how is it being done?
- (5) What change would you recommend for better cash flow in future project?

**About the authors**

Dr Sumit Mitra holds a PhD in Business Policy from the Indian Institute of Management in Ahmedabad, India. He has a number of years of teaching experience in premier management institutes in India handling MBA level teaching and administrative responsibility. International assignments include teaching at the Manchester Business School (MBS) and Hull University Business School (HUBS) both in UK. Research and publication interests pertain to emerging global competitive structure in automobile, telecom and airlines industries, particularly focused on India, China and the GCC.

Albert Wee Kwan Tan is currently a Director at the Malaysia Institute of Supply Chain Innovation, which is part of MIT Global SCALE Network. His research interests are in reverse logistics, process modelling and reengineering and information technology to coordinate supply chain. He obtained his MBS from the National University of Ireland and his PhD in Supply Chain Management from the Nanyang Technological University. His research works have been published in several international journals and he is a reviewer for several international journals. Albert Wee Kwan Tan is the corresponding author and can be contacted at: [atan@misi.edu.my](mailto:atan@misi.edu.my)