



**Exploring the characteristics of project alliancing in oil & gas Industry**

**Linking the benefits, expected risks and the project outcomes**

استكشاف خصائص المشروع التحالف في مجال صناعة النفط والغاز

ربط فوائد ومن المتوقع مخاطر نتائج لمشروع

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# DISSERTATION RELEASE FORM

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**Abstract**

There is general consensus on the links between project success, contracting plans and related challenges. In oil and gas industry, with multilayer set up of complex large-scale projects, the challenges of project contributors, including main contractor and subcontractors are even exacerbated. Clients though, have gradually adapted project partnering strategies to overcome the challenges, enhance project outcomes and to make the project successful. This dissertation, intends to extend an insight in regional project alliancing characteristics, including better understanding of benefits and risks of alliancing in project and the impacts on project outcome that might help project executers to build up an effective partnership. Research aim is fulfilled by developing the theoretical framework based on intensive literature review on research variables. The nature of research and adapted measurement tools are based on qualitative study, organized with sets of semi structure interviews and case study approach. Four contractors (two main contractors and two subcontracts) with different scope of supply and field of activity were selected as study sample in United Arab Emirates and Oman. Interviews were carried on with organization's top executives and project managers with adequate experiences in handling and delivering successful partnered projects. The study has revealed a set of benefits and risks and the impacts on project outcomes. Among benefits, commercial interests, communication and integration improvement, planning and resource allocation enhancement and likelihood of higher customer satisfaction in partnered project, perceived to be of high importance. Relatively, the risks of delays in project with low quality of delivered job and the risk of decline in safe performance are main risks which could be concluded in this study. Subsequently, the likelihood of positive impact of communication improvement and negative impact of miss integration and inconsistency on project outcome is considerable.

**Keywords:** Project, partnering, alliancing, risk, benefits, project outcomes,

## الملخص

وهناك توافق عام على الروابط بين نجاح المشروع خطط التعاقد وما يرتبط بذلك من تحديات. في صناعة النفط والغاز المعقدة متعددة الطبقات انشاء المشروعات الكبيرة. تحديات المشروع المساهمين. بما المقاول الرئيسي والمقاولين من الباطن حتى يتفاهم. العملاء ومع ذلك، تكييف تدريجيا مشروع الشراكة استراتيجيات للتغلب على التحديات وتعزيز المشروع نتائج المشروع ناجح. هذه الطروحات، تعتزم تمديد التبصر في مشروع اقليمي تحالف خصائص، بما في ذلك تحسن فهم فوائد ومخاطر تحالف في المشروع. ما قد يؤثر على المشروع نتيجة قد تساعد العنفي على بناء شراكة فعالة. الهدف هو الوفاء البحث بوضع الاطار النظرى القائم على الكتابات المكثفة استعراض البحوث المتغيرات. طبيعة البحوث وتكييفها ادوات القياس تقوم على دراسة نوعية تنظم بالاشتراك مع مجموعات شبه هيكل مقابلات أسلوب دراسة الحالة. المقاولين الاربعة (مقاولين رئيسيين الباطن) مع اختلاف نطاق العرض، ميدان النشاط واختبرت عينة الدراسة في الامارات العربية المتحدة وسلطنة عمان. تجرى مقابلات مع منظمة S كبار التنفيذيين ومدراء المشاريع الخبرات الكافية في معالجة ناجحة اشتركت تسليم المشاريع. وقد كشفت دراسة مجموعة من الفوائد والمخاطر والاثار المترتبة على المشروع النتائج. بين الفوائد والمصالح التجارية، تحسين الاتصال والتكامل والتخطيط وتخصيص الموارد وتعزيز واحتمال ارتفاع مستوى رضا العملاء اشتركت في مشروع بايلاء اهمية قصوى. نسبيا، مخاطر التأخير في تسليم المشاريع ذات نوعية الوظيفة خطر انخفاض الأداء في الوضع الامن المخاطر الرئيسية التي يمكن الاستنتاج من هذه الدراسة. وفي وقت لاحق، احتمال الاثر الايجابي الاتصال وتحسين الاثر السلبي ملكة جمال التكامل وعدم الاتساق على المشروع نتائج كبيرة.

الكلمات الدالة: المشروع والشراكة تحالف المخاطر والفوائد نتائج المشروع،

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Thanks to God, the compassionate, the merciful, which without his support, I was not able to accomplish this program. I sincerely appreciate **Dr Paul Gardiner** for his Instruction, monitoring and assistant during the dissertation supervision period. And to the professors in the faculty of business and the department of Project Management, for their valuable knowledge, education, and motivation they gave me, enabling me moving forward in my life.

.

***Dedication***

To my Mother and Father

To my brothers and sister

Love you all

Amir

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## Abbreviations

SMS	Small to medium sub-contractor
MC	Main contractor
PM, CFO, CEO	Project manager , Chief financial officer, chief executive officer
IOC	International Oil companies.
DEPCC	Design, Engineering, Procurement, construction and consultancy contractors
NOC	National Oil Company
EPC	Engineering, Procurement, and construction/consultancy contractor
PPPM	Program, portfolio and project management
HSE	Health, safety and environment
HR	Human resources
WBS	Work breakdown structure
GCC	Gulf Cooperation Council – (UAE, KSA, Qatar, Oman, Bahrain, Kuwait)
UAE	United Arab Emirates
RBS	Risk breakdown structure
RM	Risk Management
CSF	Critical success factor

## ***Chapter 1***

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# **Introduction**

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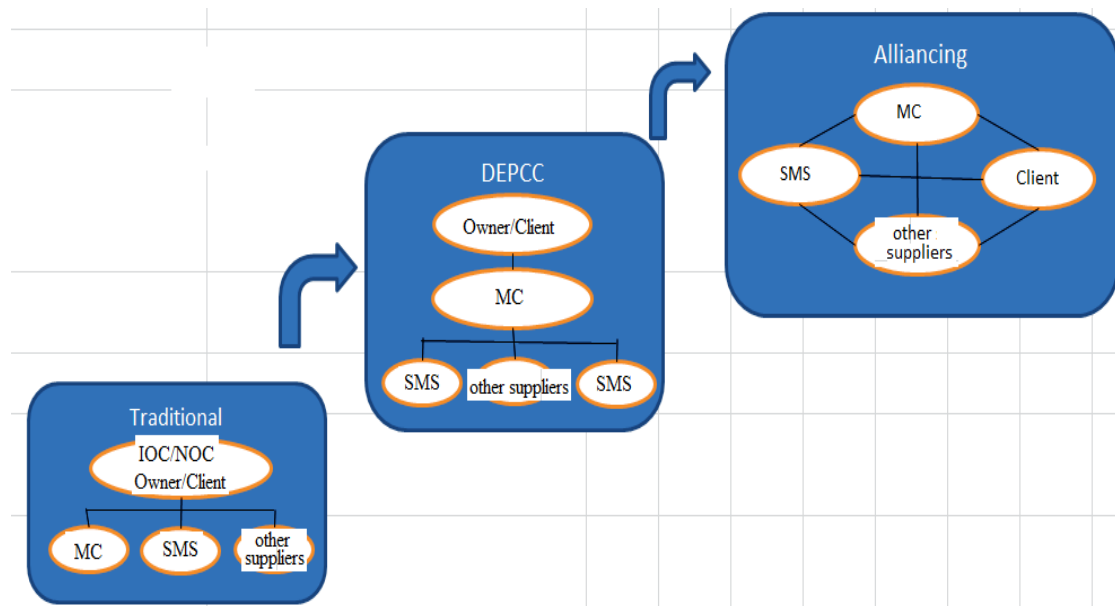
## **1-1 Background**

Growth of population and economies, especially in Asia, together, caused higher energy demand which escalated the price of energy (Halman and Braks 1999). The demand for energy is normally met by adequate mineral resources, like oil, gas or coal, however Anderson et.al (2008) argues that, high energy price, is still motivating clients to discover additional energy resources, this is done by initiating large-scale energy projects and exploration. Cheung. (2001) discussed that, due to need for high profitability in energy projects, especially in volatile global economy, client's concentration is to utilize strategies to meet promised outcomes in project. Anderson et.al (2008) and Kerzner (1989), concluded that, meeting expected financial and technical objectives is a key component of project objectives that might turn the project to benefit for owner. On the other hand the degree in which project achieves designed objectives is considerably leaned upon project contributors and their capabilities (Munns and Bjeirmi, 1996). To give the history about these contributors and their activities , Yergin (1991) reported that ,in 60s, 70s energy projects were mainly executed by a limited number of international oil contractors (IOC) which were executing most of the activities in the projects , including design, engineering, procurement, construction and consultancy (DEPCC)

In the middle of the 70s in producer countries, IOCs has lost their market domination to national oil companies (NOC), particularly in upstream sector where exploration and production starts (Yergin, 1991), smaller projects were undertaken by mid-size contractor and complex projects executed by NOCs (Berends 2007). During 80s, due to fluctuation of energy price, market instabilities and political conflicts, the profit of the oil companies was reduced (Yergin, 1991), therefore, this was an inception for owners to seek less expensive alternatives to handle the projects with reduced costs and maintain the benefits, though with consideration to core competencies (Berends 2007).

Subsequently, industry experts and consultant, recommended the outsourcing strategy and project partnering, as an appropriate plan to cut costs; among them, Halman and Braks (1999) argue that, partnering strategy as substitute method to attain objectives is considerable. He justified that, the partnering can improve the capacity of project

organization and integrate the resources, against less cost, he suggested below transition process in organizational structure of the project and the interrelation improvement in partnering (Halman,Braks 1999)



**Figure 1:** The change in organisation structures; from traditional to DEPCC and then alliancing in the Oil Industry adapted from Project alliancing in oil industry-offshore sector (Halman,Braks 1999)

Many researches and literature have supported the idea of partnership strategy as to cure the problems of project failures linked with schedule delays, escalation of project cost, poor quality and less customer satisfaction and most importantly, reduced benefits that could uncertain owners to initiate new projects due to less commercial interests.

This was new era where private contractors have effectively entered to the market. Some of the contractors are listed by Rooij and Homburg (2002) based on their scope of supply and fields of activity: DEPCC contractors which provide : Design, Engineering, Procurement, construction and consultancy to the project or EPC contractors which supply engineering, procurement, construction to project ; service contractors, MCs or PM or prime / master contractor ,which are undertaking project management tasks and related activities in project; other small to medium sub-contractors(SMSs)-for sub-contracting of large and complex projects which are hired by MC with coordination with client. Particularly, Smith et al., (1993) argues that project activities are carried in recent projects by MC and hired SMSs in form of alliance, so partnering have rapidly become dominant in project developments, therefore the attributes of such partnering and effects on project outcome are on focus of this paper.

## **1-2 Definitions of Project partnering / alliancing, SMS, MC, SMSs-MC Portfolio**

In order to distinguish between the term portfolio in Program, portfolio and project management (PPPM) and SMSs-MC portfolio in this paper it is necessary to develop distinct definitions for both terms. As argued by Lehtinen, (2001) sub-contracting term has vague meaning and that's because of nature of industry where project procurement is initiated; also the terms subcontractor and supplier are normally used as an alternative for each other in some cases, except in two occasions as discussed by Vilasini, et.al (2012), these two terms are given below :

- 1) subcontractor' instead of 'supplier' was used in the cases, where the work requirement, production and operation was increased temporarily hence the need for additional resources was required, so SMS entered into project
- 2) Subcontractors' products or services are a part of the end product in project, while suppliers' products are main inputs of project.

The definition of subcontractor is mainly referring to small to medium capacity subcontractors (SMSs) which are hired by MC under the supervision and coordination of client and owner, as if we consider high capacity subcontractors too; this might overlap with the scope of activity of MCs which will confuse the aim of this paper. It's worth to mention that, the meaning of capacity which is referred above, is not necessarily the capacity of resources or capital , but the capacity of the firm or organization to contract the project directly with client or owner, so, MC in this paper refers to Main contractor , prime contractor , managing contractor or project manager contractor , as Torbet and Dunlop(1995) describe all of above mentioned definitions of MC are conveying the meaning of project manager on behalf of owner and if the difference does exist, that might relays on nature of industry where project is going on, however in this paper and considering the nature of studied projects, we assume all above meaning of MC are the same and exactly equal to the role of project manager.

SMS-MC Portfolio: Contractor and Sub-contractor has been defined by PMBOK (4<sup>th</sup> ed.) as external sources or outsourced suppliers, equal to: seller, vendor, enterprise selling business partner, contractor (both master and sub-contractor), and supplier. (Furlan et al, 2009) in their paper suggested that MC-SMS relation is a buyer-supplier relationships which established the alliancing in project procurement and it can be categorized as business relationship portfolios which stands for long-term alliance relationships and alliancing or set of investments held by SMS &MC in one project, in this paper we use same terminology and develop the discussion/ research study based on

SMSs-MC or buyer- supplier portfolio which to be distinguished from below meaning of portfolio:

Portfolio definition in PPPM: as described by Levine (2005) is a set of business practices that brings projects into firm integration with other undergoing business activities that encapsulates programs and projects relatively. It balances projects with the strategies, resources, and executive omissions of the enterprise and provides the platform and processes for project portfolio control. Please see below:

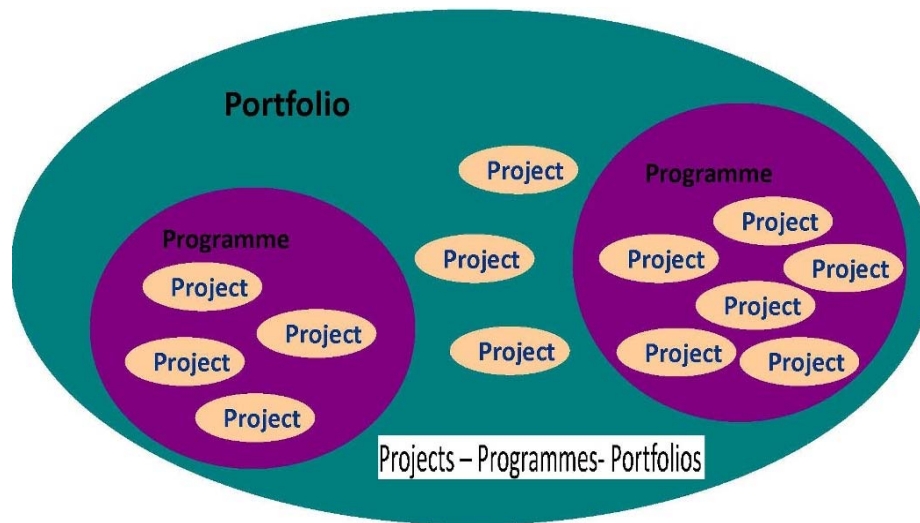


Figure2: PPPM in Enterprise, adapted from Lecture hand out by Dr. P.Gardiner 2011( based on a presentation by Gerda Bartsch)

### 1-3 Rational and statement of the problem

Main reason for selecting current study is self-interest on subject and relevance of the study to my current career, as I've been active in same business for over 14 years; both as main contractor and sub-contractor, especially in service industry including technical inspection and project consultancy. So, as empirical research it's somehow easy to gain access to the data I needed for this research, particularly in service procurement and sub-contracting in GCC countries. Added to above, the relativity of study, that aims to increase existing body of knowledge in project partnering and alliancing strategy and

bridges the existing gaps that can be useful in strategy formulation of project alliancing, all helped me to sustain my interest in subject of study.

Project success or failure is inevitably related to achieving goals that defined at project onset (Munns and Bjeirmi 1996), and there are set of variables affecting the project organization to obtain goals. Some of these variables (that will be discussed in detail in literature review chapter), are identified by many authors in past years, kerzner (1989) proposed below negative parameters: Lack of appropriate procurement strategy, administration drawbacks; ineffective communication, incomplete integration, lack of competence human resources; supplier weaknesses (including SMS and MC), contractual conflicts; political obstacles. Procurement in project for instance is affected by, supplier and contractor selection, third parties, SMSs, human factors, which are within the MC-SMSs portfolio (alliancing) as subject of this study. In brief if the alliance malfunctions, there might be a chance of impact on project out comes and perhaps this eventually causes failure in project. So, in this research paper, main contractors (MCs) and assigned subcontractors (SMSs) are studied for the purpose of identifying possible benefits, expected risks and in particular, the impact of these two factors on project outcome.

Analysing the correlation between alliance function (SMSs-MC), benefits, encountered risks and project outcomes, will be carried. Possible links between functioning of partnership and project outcomes will be studied. Focus of study is mainly on service subcontracting in context of GCC, and that's done by considering the attributes in three main areas as follows:

- A) First, In-depth literature review and comparative study, in project partnering benefits,
- B) Then, the risk factors that might emerge from partnering strategy and may jeopardize project's overall objectives and the likelihood of endangering project outcomes will be studied. In brief, the paper would touch upon: expected benefit and risk factors and the areas, that are likely to help to generate either of benefit or risks in alliancing project such as, financial part of the project, resourcing, time and cost issues, quality and safety issues, procurement conflicts, contractual conditions, prequalification and selection of SMSs, and related consequences are reviewed and given solutions by other researchers are discussed.
- C) Possible links between result of items A and B above and Project outcomes will be assessed and accordingly a pattern for project partnering will be suggested.

Note: The collateral parameters like prequalification and contract related issues, won't be discussed as detailed as dependent and independent parameters in this paper, as if it happens, the direction of this research study changes substantially, because these parameters are too vast to address in this paper.

In energy projects, mostly end user or client is government that might tender the project to sort of consortium or joint venture of master contractors which shall undertake project from resource exploration to distribution of product to final consumer. As discussed earlier sub-contractor may be assigned by a main contractor to perform a specific task as part of the master contract which is called domestic selection (Ross, 2003). GCC is the region where number of various oil, gas and petrochemical projects is on-going; UAE in particular, hosts many contractors, which are oil industry contributors. Many internationally well recognized contractors, in this context, are running mega projects by using project alliancing and sub-contracting in different capacities;

#### **1-4 Aims and Objectives**

With the above identified problem, this research, aims to explore the relationship of subcontractor and main contractor in project procurement and to appraise the level that alliancing can support project outcomes. Focused study on particularly service procurement sub-contracting in context of regional oil projects.

The scope of the present paper is limited to measure the attributes of SMSs – MC relationships and the effects on client or owner. Explore and assess important variables of project partnering for executors and the impact of these changes on project outcomes. Therefore the aim of the paper will be fulfilled with following research objectives in in GCC oil projects:

- 1-To ascertain the benefits of the project alliancing strategy between SMS and MC
- 2-To assess the risk factors that can exist in project alliancing and between SMS and MC
- 3-To examine the possible impacts of alliancing benefits and expected risks on project outcomes and to develop a framework for using alliancing strategy in project procurement process.



## 1-5 Scope of research

This paper tries to address above objectives both theoretically and empirically; the scope is limited to develop appropriate models for project alliancing based on expected risks and benefits by contributors and success constructs. The context of this study is UAE and GCC energy projects.

The significance of this paper is: to suggest and provide practical model and road map for SMS and MC in this industry to manage their relations with owner and clients in a way to receive profit and remain compatible in market and to continue with broader projects of kind in future. In order to propose such model the study is undertaken in the UAE and some other GCC countries and is based on energy projects being implemented by well-known experienced SMSs-MC and owners. Below figure shows the research aim, objectives, scope, context and variables of the research.

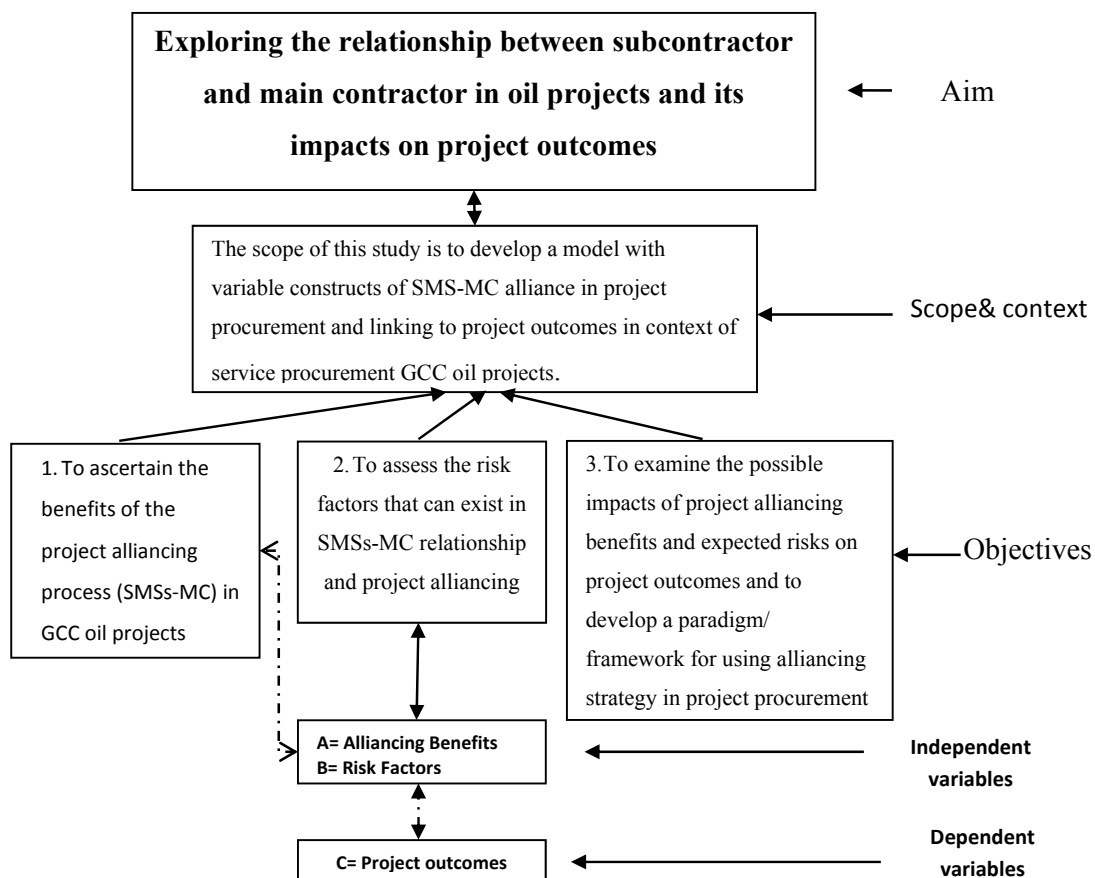


Figure3: research aim and objectives diagram

## Chapter 2

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# Literature Review

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### 2-1 Introduction:

To develop a theoretical understanding on the concepts which this research is planning to examine, and to help establishing effective questionnaire for interviews, following detailed literature review is presented which is pursuing the discussions in three dimensions of: studying the SMSs-MCs alliance (customer –buyer portfolio). In general, the discussion is including the expected benefits and risks of alliancing and the relations of these two with project outcomes (reviewing success factors). Then at the end, results of each part will be gathered, studied and compared against objectives of the research and then the paper fulfils the aim of study and responds to purposes of the research. To provide an example on focused areas, we can consider some instances of service procurement: subcontracting of Inspection and quality services during construction of project; or subcontracting health safety and environmental management of the project.

### 2-2 Project alliancing, the contributors

Thompson & Sanders (1998), describe project alliancing as type of working procedure, where contractors, including main contractor and assigned sub-contractors, work together as an integrated team to deliver a specific product for the project, under agreed contractual plan which satisfies commercial interests of each party based on actual project outcomes.

Recent report (Ross, 2003), suggests that, alliance procurement in projects is collaboration between owner and non-owner parties, rather their assigned contractors, which work as a group to deliver project that satisfies their commercial objectives in line with project outcomes. Lendrum (1997) defined project alliancing as “*establishing long term successful and strategic relationships between clients and suppliers, which is guided by best practices and maintains mutual competitive advantage*”. In this paper the meaning of project alliancing is equal to project partnering and collective collaboration in project; to know the components and characteristics of alliancing and project partnering, the first step is to know about contributors of project partnering. As discussed earlier the main contributor to project partnering are: client, main contractor and subcontractor(s). Based on PMBOK 4<sup>th</sup> Edition, Sub-contractor is an external party or organization which enters

to the agreement at beginning of project life cycle or during project implementation in order to provide service or product to the project and agrees to perform part or all of the obligations of another master contractor (MC) or even another sub-contractor under the separate contract (main contract) with the final employer or end user. (Vilasini, et.al, 2012) defines subcontractor as a business entity which regardless to the size of the organization has awarded a contract agreement (based on process such as prequalification) by MC or client to provide a part of supply, material input, or services to the project. (Bandyopadhyay, Pathak, 2007) suggests that the concept of sub-contracting and outsourcing is to help projects to cut down costs of development and operation and balance the expenses. PMBOK (4th ed.) suggests that SMSs are external sources or outsourced suppliers with same meaning as: seller, vendor, enterprise selling business partner or supplier. They are portfolio's business partner which is contracted by MC or client to undertake part or all of awarded project.

Torbet & Dunlop (1995), describe main contractor as core provider of service or product to owner, sponsor or even to another contractor "*they may undertake an assignment to construct all or part of the project which can be off site or on site*". SMSs have an especial relation with enterprise and can participate in project sometimes through certification process or pre qualifications. SMSs are specialized expertise to fill specified role or to cover a gap in project based on client's work instruction. Such as installation, customization, training, inspection services and quality controller, insurance provider, safety requirement or other type of supports (PMBOK 4<sup>th</sup> ed.)

In particular SMSs in energy projects refers to number of contractors who undertake small to medium engineering and construction project, this field is quite broad and covers wide range of upstream projects (Exploration and production of oil and gas resources), midstream projects ( primary processes, transportation and storages) and downstream projects (Petrochemical, refineries and some sort of end products like detergents), therefore, SMSs are categorized in sub groups, like: offshore platforms, petrochemical plants and refinery industries however considering the sophisticated nature of energy industry, participating firms and executors, will typically turn to be dominated specialized engineering organizations over the time by gaining necessary technology or design expertise. The reason to point out the significance of such high level expertise and skills within the SMS, is discussed later, when the benefits if SMSs are presented. Vilasini, et.al,( 2012) categorized SMSs on basis of their capabilities, payment method, functional involvement , type of entry to the project or selection

method and project requirement at planning phase. Please see below diagram related to SMS categories:

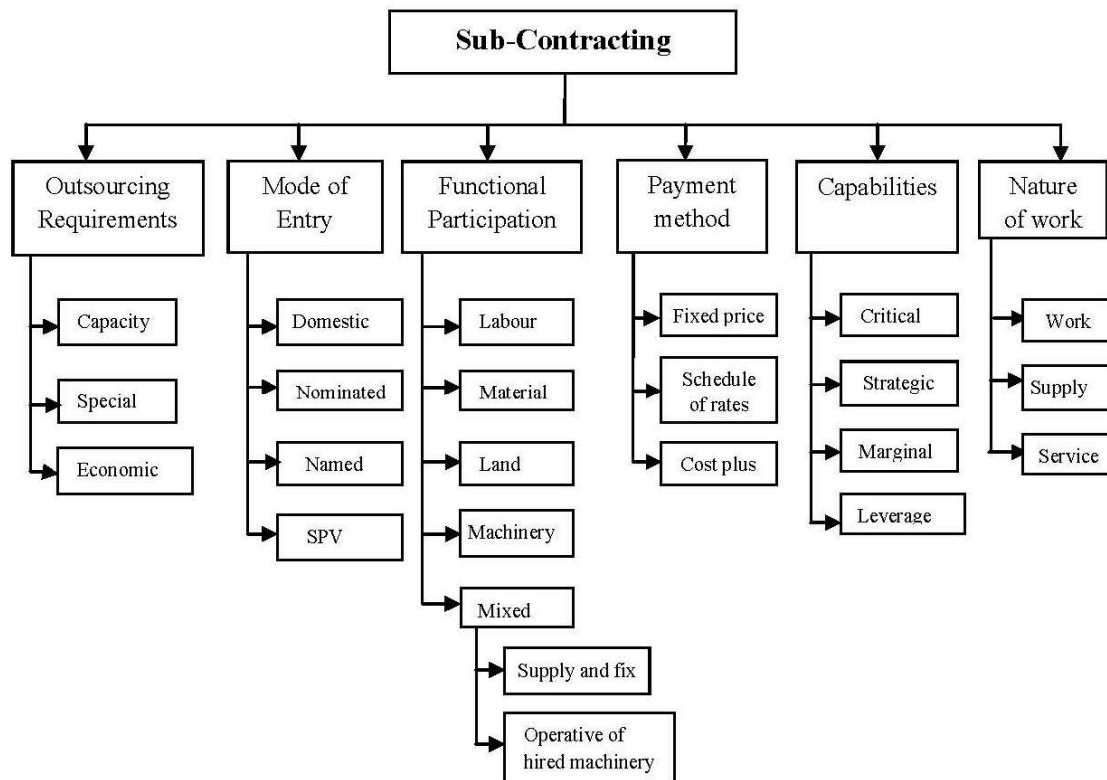


Figure4: Sub-contracting categories (adapted from Vilasini, et.al 2012)

Masrom & Asrul, (2007) has also presented different type of categorizing SMSs as: domestic SMS (selected by MC) nominated SMS (selected by client) and named (combination of both) where client selects the SMS and MC is responsible for work and payment. For rest of paper regardless to nature of SMSs-MCs the focus is on downstream projects and therefore research samples will be selected from this sector of industry.

It's to highlight the fact that distinguishing between main contractor and sub-contractor is entirely relying on business model, which enterprise is following, however as long as alliance function is concerned; this point does not affect the objectives of this paper.

Additionally J.R Turner (1995) considers contractor among other project supporters, who undertake an agreement contract to supply goods or services to owner or sponsor, Turner (1995), argues that, the difference between MC and SMS relays on their ability to be directly contracted with owner or client or another contractor, therefore the description of both SMS and MC which presented above is valid for both of SMS and

MC and the only difference between them is the point of contract which for MC is client and for SMS is MC.

### 2-3 Expected Benefits

Munns & Bjeirmi , (1996) argue that, utilising organisational structures & resources as well as outsourcing , by using a collection of tools and techniques like alliancing and appropriate partnership in project (where necessary, by considering the nature and scope of project), are required to achieve project objectives. Kemp& Stephen, (1999) proposed that one way of enhancing and utilising organisational structures, is project partnering: *“Partnering and alliancing among oil companies and their contractors have become common in the oil industry in recent years; this is because of the benefits of this approach”*.

Francis and Hoban (2002) challenged that, excluding SMSs from procurement loop in projects with high cost of complexity and implementation will demote the value for owner/client. Raghunathan (2006), suggested below diagram to show the value added by contractors to owner’s project and main contractor.

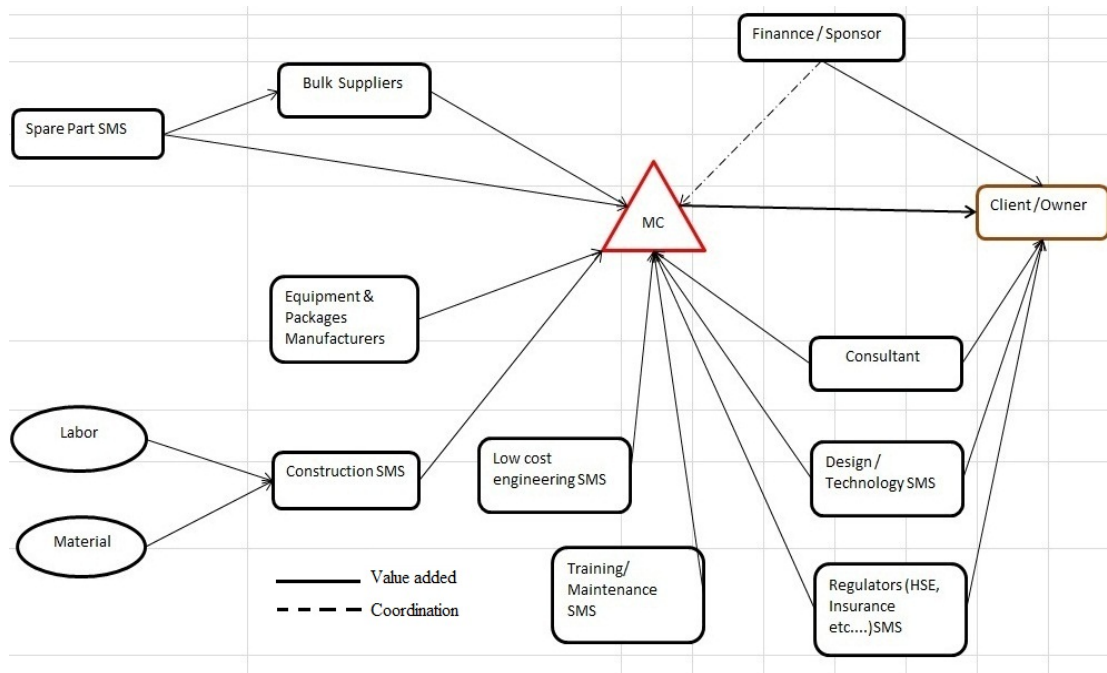


Figure 5: Contractors value chain in Energy project (adapted from Productivity Improvement in Downstream EPC Projects by K. Raghunathan,2006)

Pathak (2007), suggest that one of the rationale behind outsourcing is normally to help projects to cut down costs of operation and to balance the expenses, this advantage as discussed by Pathak (2007) is valid for all contractors and sub-contractors, it means, if even SMSs, outsources the part of their assigned project, then they can be financially benefited and it goes down to the last supplier in the chain. For instance some of these costs which were studied and discussed by researchers or industry experts are: costs of reworking, cost of poor quality, cost related to scope creep (Venkataraman ,Pinto, 2008) Bandyopadhyay and Pathak (2007) proposed different reasons for outsourcing such as: possessing complex and complementary skills by clients or MC. As discussed earlier, SMSs are slowly becoming dominated specialized resources with high level of expertise and skilful man power, as they deal with sophisticated energy industry and other participating firms and executers, this may increase the chances of innovation and new method statements also.

Cabanis and Brewin, (2006) have highlighted that, within the alliancing, other than client, or owner, SMS and MCs are also benefited by leveraging an improvement: *“contractors are increasingly concentrated upon their clients as a point of leverage for improvement”*. So, MC / SMS proportionally need client to be able to improve in market constantly.

Nagarjan (2010), discusses that, the main reason of subcontracting is to reduce the complexity of functions and operation of project so as a result of subcontracting less complex work load would go to prime contractor and then MC can effectively handles other parts of project, he also suggested that professional contractor within above description would improve the quality of project work.

(Wang et al., 2001), argue that, awarded project contract is sub-divided to SMSs to enhance the performance of project's operational unites, this can accelerate the project accomplishment and save the resources added with growth in quality of work.

As studied by vander valk et.al (2011) MCs are highly depending on SMSs to improve their business performance. Refer to Arditi, et.al (2006). under certain conditions having network of contractors will help the project to improve performance; this business performance is significantly depending on the performance of SMSs and the degree of success achieved by the SMSs-MC alliance. Kwok and Hampson (1997) argue that successful alliances between MC and SMS which has been designed to achieve a unique goal will yield to higher client satisfaction because of the overall improvement of operation and quality of work, therefore he discusses that hiring SMSs will have an

impact on operation and work quality, he later suggests that, encountered risks needs to be considered as well.

Miles (1998), suggests that one of the benefits in project alliancing is better performance if project integration succeeds, he discusses if SMS is joined into effective and well integrated alliance, there will be higher chance that projects ends with good performances. Thompson and sanders (1998) suggests below model for integration of contractors in project alliancing and the benefit rate of fair alliancing and coalescence between contractors, in compare with competition between contractors in project.

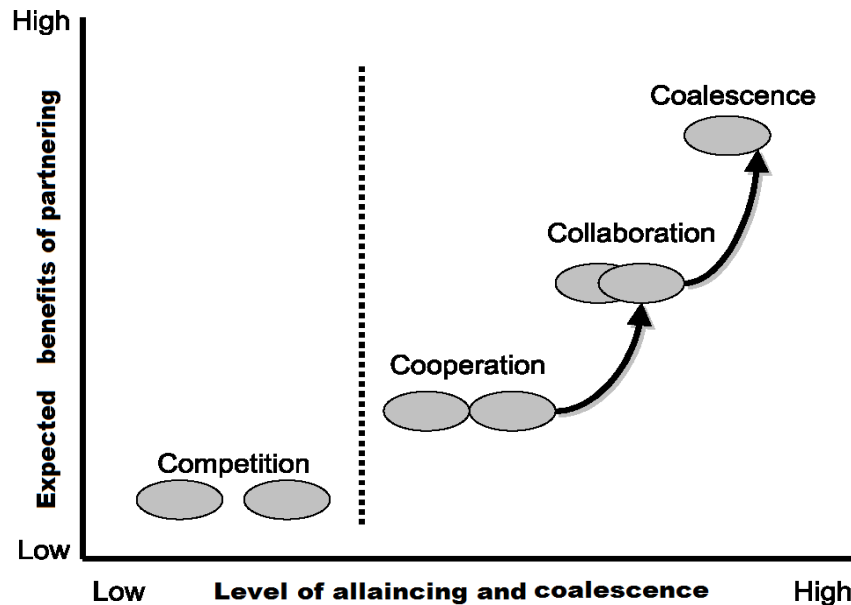


Figure 6: coalescence and alliancing of contractors and the level of potential benefits (by Thompson and sanders (1998))

Robert B. Stewart (2010) studied the case by focusing on values added by SMSs, he suggested that value incentive considerations are justifying sharing the costs and savings money between the contractors and assigned SMSs. Stewart (2010) suggest that, added values are the *“incentives to help to identify and develop proposals and to reduce costs and improve performance”*, besides, if the SMSs are well managed within project time span, they can reduce project’s completion schedule and relatively the risk of failures on assigned part of contract will be declined, which eventually yields to project value optimization and performance improvement. Below diagram was suggested by Mueller et.al (1996), to show the likelihood of shared added value by different contractors in project based on scope of supply and support to the project.

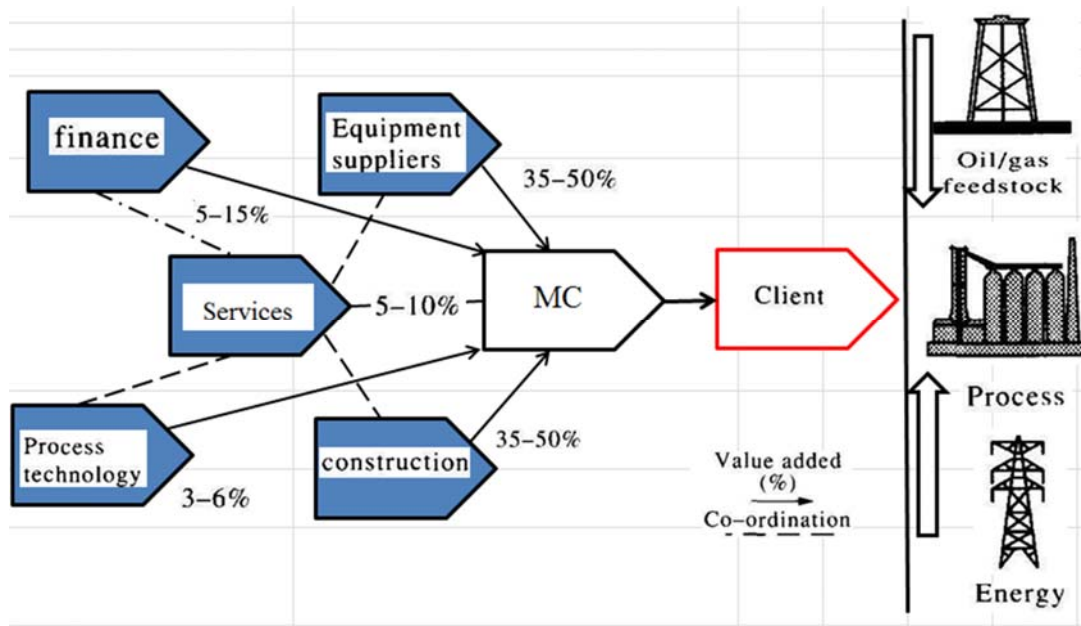


Figure7: contractors in value chain of oil and gas plant.(adapted from The Role of Process Plant Contractors) Mueller et.al (1996)- added values by different contractors are shared and shown by %

Paul Gardiner (2005) argues that more number of contractors in project increases the opportunities to save time and money and improve quality but in other hand increases the chance for risks unless client is well capable to manage the contracts properly. SMSs add value to the project by sharing their ideas and knowledge (Cabanis and Brewin, 2006)..

Bennatan (1995) discuss the reason for sub-contracting is due to the fact that practically not all scheduled activities can be met by MC based on planned time and budget especially in complex projects , so management team and development group shall frequently be dependent on SMSs to engage them in project development. Hence the rationale behind subcontracting falls on increasing an opportunities toward meeting time and budget, the example is subcontracting supply of material which in that, the timely delivery of equipment is important to the project schedule and this often requires outsourced procurement.

Bennatan (1995) further discusses on other reasons of subcontracting and explains that specifically in large or complex projects outsourced expertise in certain areas of project is mandatory as SMSs are commonly specialized in relevant definite areas.

Dinsmore and Brewin (2006) have listed three relatively important reasons for subcontracting in project:



(1) to cover the gaps created by lack of resources, or (2) to cover the lack of proper skills, specialized perspective, or experiences, and (3) to meet and implement sets of standards and local or international regulations, particularly in large and complex projects. for example, safety requirements of offshore projects.

Cabanis and Brewin, (2006). discusses that subcontracting activity is directly impacting project costs, schedules, and overall success; moreover the success of project might also be linked to the type and the structure of project organization, it means for instance if the organisation is conducting the project with joint ventures or perhaps partnering it, the success rate might be higher, comparing when it's done by MC only, please see below diagram related to alliancing project management and organizational structure, by MC and all SMSs proposed by Halman&Braks (1999), which suggest that, one of the advantages of partnering is improved integration in project management team,

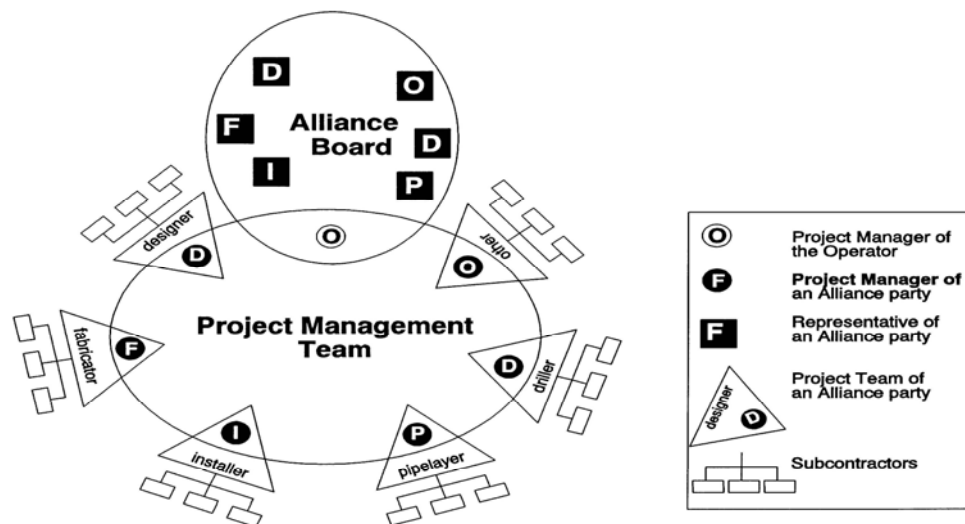


Figure 8: A typical structure of a partnered project & related organizational structure modified form Halman&Braks (1999). Page.5

Yin, et.al (2009), explains that, SMSs participation in project is important because major parts of construction works, are executed by them, particularly in large and complex projects. However, their roles in procurement system improvements and supply chain management also is considerable, as the input of SMSs in project procurement (depends on environmental and circumstantial conditions), counts for 60-95% of project load (Alarcón, Gazmuri, Vrsalovic, 2007), while, MCs roles, might be limited to coordination of work interactions (Humphreys, Matthews, & Kumaraswamy, 2003).

Refer to Eriksson & Westerberg (2011), SMSs contribution in project could help project with schedule completion, improvement in quality, enhancement in performance, HSE improvement and creativity.

Subcontracting furnishes the project with an alternative price reductions, and chances for flexibility in resource allocation, decision making and project planning

Vilasini, et.al (2012) suggests that mutual reliance in MC-SMSs alliance helps to establish and maintain high degree of control over the project activities.

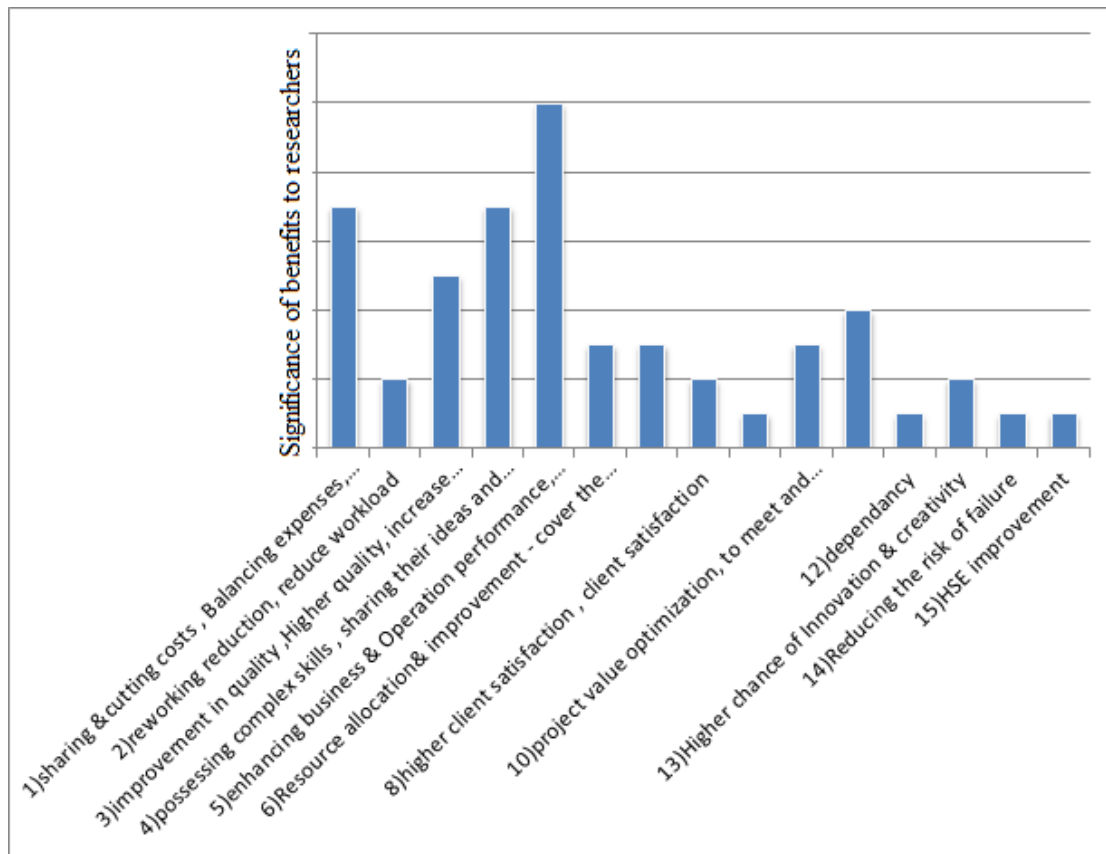
MCs are subcontracting their assignment to facilitate indirect investment, innovative designs, lowering overall costs and utilising fresh outsourced expertise into project, though risks also to be evaluated. To enhance procurement policy Eriksson and Westerberg (2011) proposed that more collective procurement procedures such as collaborative SMSs selection will have positive impacts on project performance. This can be done jointly between MC and client for more effective integration of SMS in project.

Kwok and Hampson (1997) argue that strategic and successful alliances between MC and SMS yield with higher client satisfaction because of the overall improvement of operation and quality of work and Doloi et al.(2010) suggests that contactor's expertise and performance has a significant role in successful delivery of the project

As suggested by Saunders et al (2009), “it’s possible to use diagrams and statistics, to show up the occurrence frequency of principal categories of data before analysing them” so below table and graph are presented:

Expected Benefit Factor(s)	Studded and suggested by :
1)sharing &cutting costs , Balancing expenses, savings money , Saving budget , price reduction	Pathak (2007), Venkataraman ,Pinto, 2008,Robert B. Stewart (2010) , Paul Gardiner (2005) Bennatan (1995) Cabanis and Brewin, (2006).
2)reworking reduction, reduce workload	Nagarjan (2010), (Doloi et al.2010)
3)improvement in quality ,Higher quality, increase quality of work, work quality	Venkataraman ,Pinto, 2008, Nagarjan (2010), Wang et al., 2001,Kwok and Hampson (1997) , Paul Gardiner (2005) , Kwok and Hampson (1997)
4)possessing complex skills , sharing their ideas and knowledge, specialized expertise , proper skills, specialized perspective, professionalism , additional specialist advice or expertise, reduce complexity	Bandyopadhyay and Pathak (2007), Nagarjan (2010),Dinsmore and Brewin (2006) PMBOK (4th ed.)
5)enhancing business & Operation performance, control over the project , overall success	Cabanis and Brewin, (2006) , Wang et al., 2001, vander valk et.al (2011) Arditi, et.al (2006), Miles (1998),Robert B. Stewart (2010) , Bennatan (1995) Yin, et.al (2009), Vilasini, et.al (2012) Eriksson, Westerberg (2011)
6)Resource allocation& improvement - cover the Need for additional resources	Wang et al., 2001,Dinsmore and Brewin (2006)
7)obtaining unique goal , achieving designed goals , Joint problem solving, better problem solving, develop proposals	Kwok and Hampson (1997) (Doloi et al.2010)
8)higher client satisfaction , client satisfaction	Kwok and Hampson (1997)
9)enhanced communication & collaborative working	
10)project value optimization, to meet and implement sets of standards & Law requirment	Robert B. Stewart (2010) , Mueller et.al (1996), (J.Cabanis and Brewin, 2006).Dinsmore and Brewin (2006)
11)Schedule improvement, reduce project phase's schedule, Save time	,Robert B. Stewart (2010) Wang et al., 2001, Paul Gardiner (2005) Bennatan (1995) Cabanis and Brewin, (2006).
12)dependancy	Eriksson & Westerberg (2011),
13)Higher chance of Innovation & creativity	Bandyopadhyay and Pathak (2007)
14)Reducing the risk of failure	Robert B. Stewart (2010)
15)HSE improvement	PMBOK (4th ed.)

Table 1: Summary of project partnering expected benefits suggested by researchers based on reviewed literature



Graph 1: expected benefits vs. the significance of that benefits to other researchers, based on current reviewed literatures (Y axis, refers to number of researchers who suggested particular benefits)

## 2-4 Expected Risks

In turbulent business environment, competitive advantage is no longer inhabited within client or MC's own internal capabilities, rather, the network of subcontractors and relationship that the organisations can create with external sources (Spekman et al., 1999), so, client and MC needs to outsource procurement for the advantages, however, as argued by Spekman et al., (1999), beside benefits, there are comparatively various risks derived from different sources that are encountered with involving SMSs in project procurement and such risks might affect performance of project team and eventually shortfalls in meeting project goals and objectives (Palaneeswaran, Kumaraswamy 1999). Prior to study risks that are linked with alliance projects, there shall be basic discussion on project risks. Nagaeajan (2010) argues that risks are inevitable parts of projects: *"uncertainties and risk goes hand to hand in projects, risk elements are normally invisible as they are hidden beneath the surface of project in ordinary circumstances, and when conducive elements are available at surface, risks get emerged"*. PMBOK 4<sup>th</sup>

ed. categorized the main risks in project into: technical, external, organizational and the risks which are generated by PM (please see below figure) and, it will be shown in following discussion that all of these four categories are likely to be impacted by contractor and subcontractors when the project is outsourced. Vilasini,et.al (2012) describes benefits & risks in project alliancing by using the term “*Gain and Pain*”. Ellram et al, (2008), argues that, the alliancing project is linked with risks and uncertainty, therefore implementing certain practices and monitoring activities might control and manage unexpected risks, he later suggests, the appropriate selection of contractor, and robust prequalification programs are some practices to avoid/mitigate the risks which might be generated by contractors. Later in this chapter, more insight on some of important factors related to risk management in alliancing project such as, contractual issues, prequalification, will be presented. Tah et. Al (1993) suggests that in order to improve performance in complex alliancing projects significant improvements in risk management pertained to contractors and contractual issues are needed.” Tah et. Al (1993) argue that, the alliancing of MC and SMS by its own, might be one of the risk drivers in projects, for instance: BP incident in Gulf of Mexico ( Macondo- Deep-water horizon drilling rig explosion) which was reported as a failure in alliancing project, and that was due to difficulties in risk mismanagement, asset & operation management and contractor and service providers drawbacks (BP Internal report , 2010)

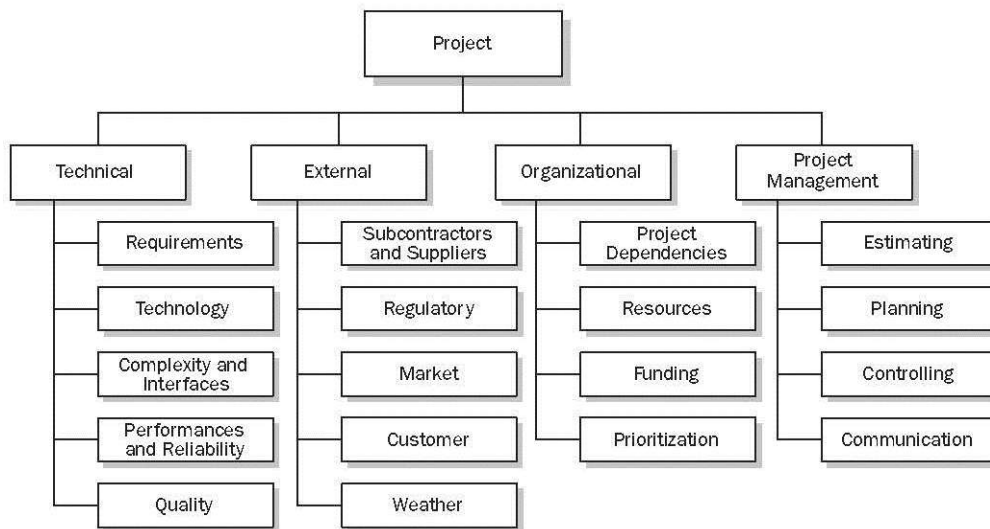


Figure9: Typical project Risk Breakdown structure (RBS)- Adapted from PMBOK 4<sup>th</sup> Ed.

Refer to above table by PMBOK 4<sup>th</sup> ed. the main risks presented in this table are likely to be generated by MC or SMS when sub-contracting in project, which can be in further discussed in details, as following:

-Technical risks: Lack of technical capability of SMS, quality of delivered work, performance and reliability are linked to contractor. In line with same argument, Kerzner (2001) has presented below graph by identifying the relation between, performance and technical capability which are measured proportionally with time factor , as project develops:

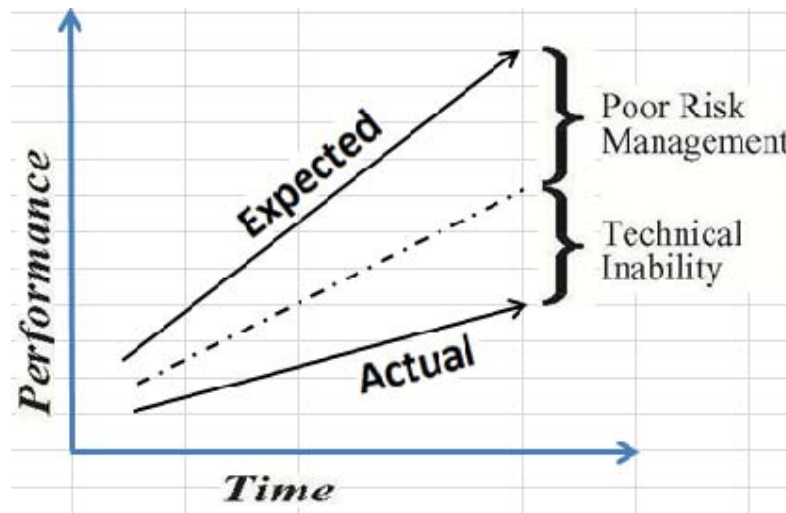


Figure10: Deviation between expected and actual contractor's performance, due to poor risk management and technical inability, adapted from strategic planning for project (maturity model) H .Kerzner (2001)

- External risks: when the project outsourced, presence of external contributor in project as suggested by PMBOK, is expected to be risky
- Organizational risks: dependencies and drawbacks of outsources, their financial capabilities, can be considered as alliancing risks, linked to sub-contractor
- Finally the project management risks, poor project management by contractor can be intensified as number of contractors increases.

In planning project procurement, the circumstances which are likely to happen, are not known, especially in complex project such as energy. Researcher investigated the relation between project complexities and the amount of expected risks , Ruuska & Teigland (2008) discussed, higher the complexity of project, may need higher involvement of multilayer contractors and relatively sub-contractors, and therefore, more executors will escalate the amount of expected risks linked with each one of them, such as: conflict of interests and scope creep (Ruuska & Teigland 2008), relatively the

management of contractors tends to be troublesome (Gardiner 2005) , possibility of budget overrun in project organization escalates (Ellram et al. 2008) , the chance of schedule collapse increases (Bennatan1995).

Bennatan( 1995) indicated, the sets of risks on handing over direct control of project or a part of that to sub-contractor and alternatively retaining partial or full control on SMSs by MC.

Bennatan( 1995) argues that, risks on option first is: the chance of improper resource scheduling, schedule slippage for the whole project and conflict of interests with other SMSs which might produce scope creep. However as an alternative, if MC retains control on SMSs during project lifecycle, MC may lose the benefits of subcontracting the project and this is in contrary with the rationality of subcontracting for that particular project.

Kerzner (2001) suggests that the risks shall be early identified and contingency plans to be prepared to handle the situation, should it occur. He suggests below practices:

- Proper supervision in which MC will be constantly aware of on-going activities, by applying on site routine and scheduled survey visits,
- Milestone control and evaluation,
- Periodic report to PM office by SMSs,
- Motivation methods, such as linking payments to successfully completed milestones,
- Imposing penalties for delayed schedules and delivery.

Motivating and penalizing methods are recommended in PMBOK 4<sup>th</sup> Ed. However, as discussed by Kadefors(2004) close monitoring of SMSs performance may induce the feeling of distrust that causes interrupting interaction “ *This is showing that a higher level of trust should increase project performance, especially if the relationship is made use of to improve cross-disciplinary teamwork.*”

Paul Gardiner (2005) argues that more number of contractors in project increases the opportunities to save time and money and improve quality but in other hand increases the chance for risks unless client is well capable of managing the contractors properly.

Hughes, et.al (2006) in his paper suggest that, the lack of proper integration of SMSs in alliance process is a potential risk of alliancing which may endanger project from achieving designed objectives , in such case, owner and MC might lose the benefits of proper unification in implementation team during project life cycle; so, to avoid this problem Vilasini, et.al (2012) suggests an early involvement of SMSs in alliancing activity, by conducting “*value management workshops*” at project onset in order to

“leverage knowledge and experience to improve performance of the alliance”. Vilasini, et.al (2012) later concluded that fundamental framework for SMSs integration when the project is collectively operated, is mandatory.

Kale & Ardit( 2001) and Schaufelberger(2003;) argue that, although SMSs are generally deemed to be influential to project success, however, weak SMSs in term of performance and technical capability is likely to generates imperfect job and hence reduce the quality of delivered work, this might deflect the product from original required scope of delivery which is expected by client, and thus, this may cause schedule slippage because, SMSs is likely to carry reworks , in order to cover the gap of poor performance. Kale & Ardit( 2001) and Schaufelberger(2003;) further discuss all of above would require additional cost and time to rectify and may endanger overall project success if it's not addressed on time..

Subcontracting strategy obviously influence projects cost structures, but it also changes the nature of risks that project shall manage (Ellram et al. 2008)

Arnold, (2000) reports that , industry experts have sort of recommendation on project alliancing and outsourcing contractors, due to likelihood that expected risks, impacts projects endeavour. Arnold, (2000) suggests, outsourced alliancing shall be properly managed, especially when project is outsourcing the strategic items or complex services and the parts of projects which are in core competency, shall be managed appropriately Amaral et al., (2006), believes that, outsourcing and subcontracting professional services in project procurement is elusive and tighten with lot of implications comparing outsourcing the products. Amaral et al. (2006), later argues that one reason of complexity in service outsourcing is, the MCs normally loss proper understanding of work process of SMSs, which will cause misevaluation of the performance against raised invoices and the price of completed works. He believes, this scenario is one of the risks in service subcontracting in projects which will yield to resource waste, extra hidden charges and eventually budget overrun.

Ellram et al. (2008) discusses on some of important risks which to be considered on subcontracting and outsourcing:

- The risk of inconsistency in the supply market,
- The risk of incomplete specifications, and
- The risk of inward knowledge and effective assessment on whether the SMS is performing as per contract or not, his research indicates that, outsourcing services is strongly having the chance of over payment for less service “*The firm may over pay and*



*be underserved, or pay for a higher level of service than is needed*” This research later suggests that management team shall have their own control mechanism over SMSs. However the allocated controlling mechanisms might generate additional costs for management administration (Ellram et al 2008).

Fine (1998) in his article (Fine, C ,1998, Clockspeed. Perseus Press, Boston) discusses about another source of risk in subcontracting process based on miss identification of *“the risk of loss of tacit knowledge or work related practical knowledge”* which may causes over dependency of organization and management team to SMSs: *“the organization may be held hostage because it cannot suitably assess alternative sources of supply and it has also lost the ability to perform the task internally, in the worst possible scenario, because SMS now knows some directions of the carrying the business better than the original firm, the may quit and become a competitor”* , another important risk of over dependency is an internal risk that might emerge, when SMS deliberately attempt to gain market and favour itself with internal customers (Fine 1998) . When this happens , it’s called *“protected category”* where SMS is securing its business directly with service consumers and thus other parts of procurement team will be outside of the procurement loop , they will not anymore be involved in key decisions. This phenomenon as indicated by researchers is very much linked with the risk of making changes to processes, technologies, and procedures without correctly informing MC, Ellram et al. (2008) discusses that such issue can impact project outcome: *“this creates issues with tracking, monitoring & actually have an adverse impact on the results”* As contingency plan, efficient process control change is suggested to be in use by Fine (1998)

Another risk associated with alliance procurement is the risk of “mistakenly letting the sub-contractor do more and more” this is mainly due to lack of clarity on required scope and contractual boundaries. Fine (1998):“During project period SMSs may step into strategic areas and this *“self-induced”* risk escalates gradually. Industry experts suggest to have *“clear specifications and performance measures”* to reduce the risks of non-performance and dependency. Fine (1998) also discusses that the cost and complexity of managing subcontracting is high and shall not be underestimated as it requires separate budget and effort to manage risks and measure SMSs performance constantly against project scope and procurement requirement. However this is mainly the problem that most of MCs tend to ignore, because it is invisible until the alliance is completely formed and supply is initiated.

Usdiken (1988) argues that “*increased sub-contracting reduces the MCs control over the process and could lead to cost and time overruns*”. Delays or incomplete parts of projects is also associated with SMSs (Alarcón, et.al, 2005)

Ohnuma, et al., (2000) indicated another risks in project partnering and that's over attention of SMSs to work completion that may cause wastage of resources and weaken the quality if delivered service or product , he further discusses that, main solution to this issue is in financial agreements and payment terms (cost reimbursement vs. fixed price) Dinsmore, Cabanis, Brewin, (2006) in their book have identified another source of project subcontracting risk and uncertainty which is associated with type of contract and level of owner involvement (*contractual strategy*). In fact they discuss two type of contract— mainly cost reimbursable and incentive (including fixed price) — which is linked to level of risk that alliance should expect to face. They suggest especially when the procurement scope and client requirement is not clear, contractors to avoid an incentive or fixed-price type of contract and try to substitute it in later stage. However, studying the risks encountered with contract and qualification of the contractors is out of the scope of this paper, since the possibility of emerging such risks is before alliancing forms.

The difficulty for MC is that in large complex projects such as energy projects, MC can encompass broad number of SMSs covering variety of scope of services in different situations to the project, as such, the more number of SMSs will increase difficulties to manage the schedules, overlaps, scope creeps, budget allocation , for both MC and the end-user.

In line with type of contract as one source of risk in alliancing projects, M/S Shell group , one of the major main contractors in energy industry has investigated on the relationship between, type of contract and duration of agreement (between MC and SMS) and expected risk sharing / mutual trust, the result of this research is shown in below diagram:

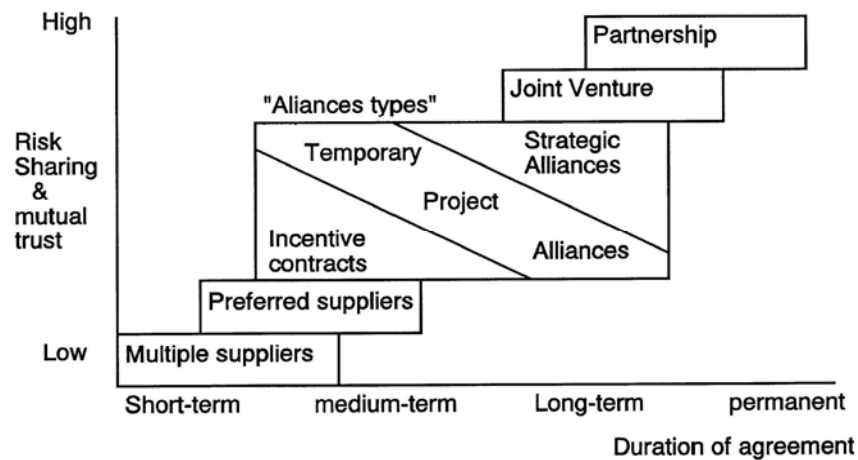


Figure11: The relationship between type of partnership, period of alliancing and the rate of risk sharing and mutual trust in alliancing project(linking the risk, period and type of contract and mutual trust)  
(Source: Shell contracting and Procurement)

Based on above diagram, as the duration of contract increases, type of contract can be changed on reliability basis and hence amount of mutual trust and risk transfer between MC and SMS is also escalates, whereas in short term and medium term contracts, number of SMSs are more and mutual trust is less, so, expected amount of shared risk is less, while in joint ventures and permanent contracts, these two factors are expectedly increased.

James (2010) has specified set of parameters, which are other sources of risk from the perspective of SMSs. He has suggested that if these parameters (listed below) are not set to be attractive to SMSs, it's likely that SMSs loses the motivation to properly support the project and this potentially might impact the quality of delivered work, schedules of completion, optimum consumption of resources. Some of parameters are grouped based on their level of significance to SMSs:

MC capability & fairness

Superintendent by MC or client

Financial capacity of MC and Timeliness of Payments,

Safety & Insurance

Retainage percentage and practices- Indemnity clauses, Back charging, Previous claims

Future work, potential market

The pay-when-paid clause in contract

The risk of Bid Shopping

Tah et.al(1993) , has suggested that alliancing in project is linked with two sources of risks: Internal risks including : resources, contractors, performance, financial

capabilities, contractual conditions, and external risks like technological changes .

Please see below suggested diagram by Tah et.al(1993)

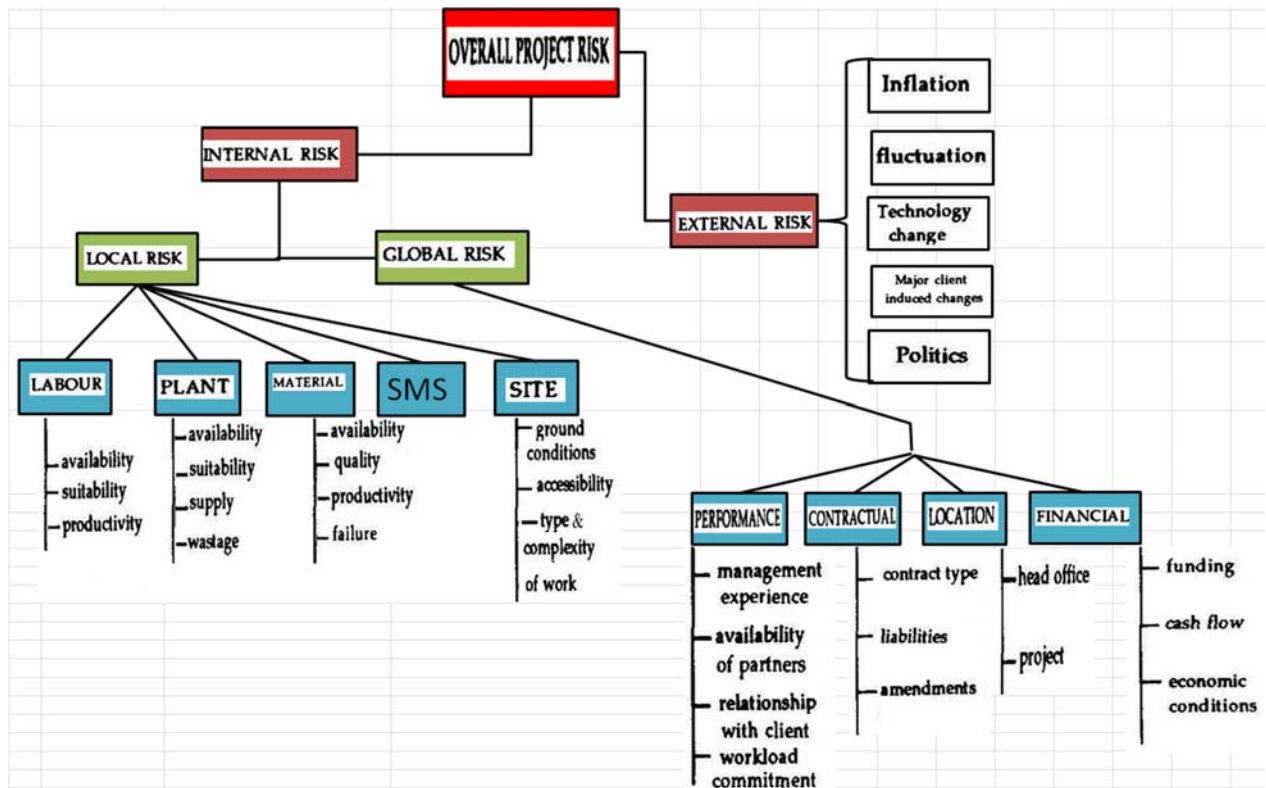
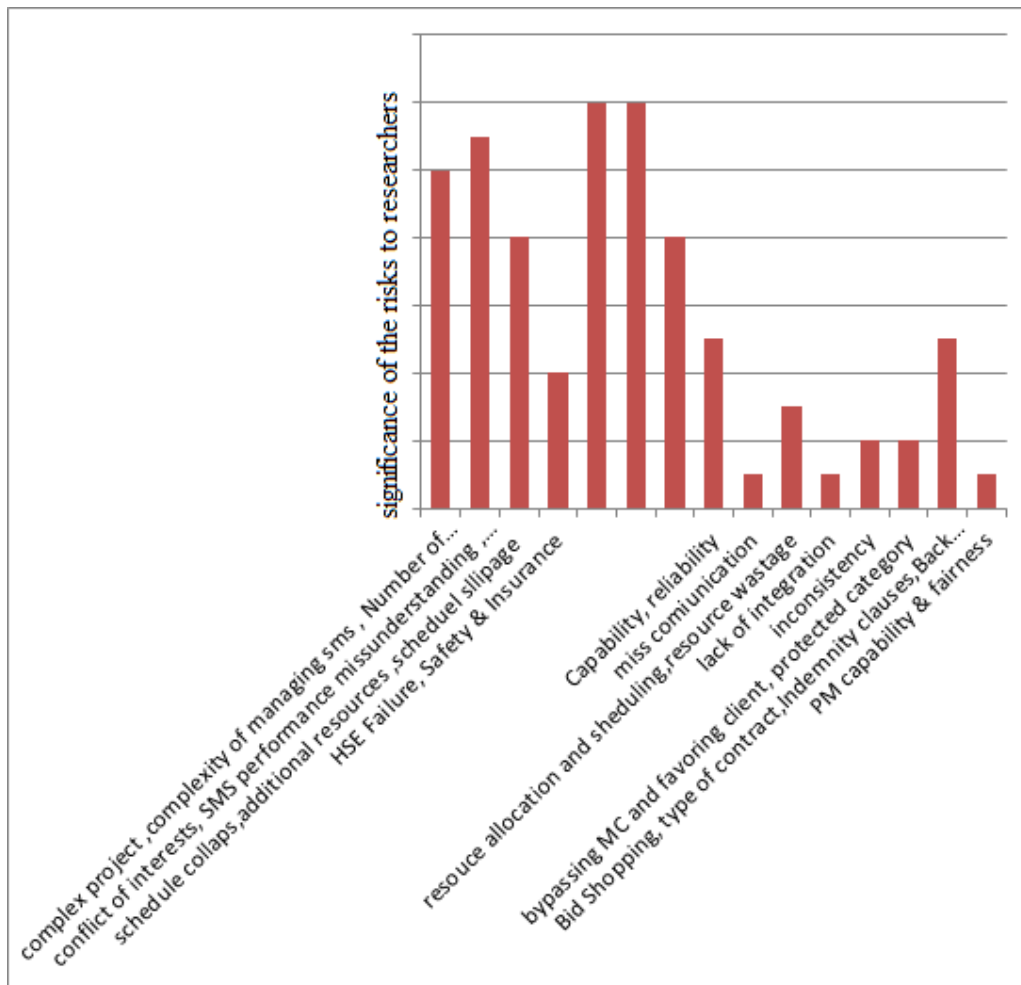


Figure12: Contractor hierarchical risk-breakdown structure. Adapted from contractor project risks contingency allocation Tah et.al(1993)

As suggested by Saunders et al (2009), “it’s possible to use diagrams and statistics, to show up the occurrence frequency of principal categories of data before analysing them” so below table and graph are presented:

S	Risk Factors	studded by
1	complex project ,complexity of managing sms , Number of SMSs, loosing strategic competency	Ruuska & Teigland (2008) , Gardiner 2005, Dinsmore and Brewin (2006) , Bennatan (1995) , PMBOK,(Ruuska & Teigland 2008)Fine (1998)
2	conflict of interests, SMS performance misunderstanding , scope creep	Ruuska & Teigland 2008, Bennatan( 1995) ,Doloi et al. (2010) Usdiken (1988) , PMBOK, (Ruuska & Teigland 2008),Kale & Arditi( 2001) and Schaufelberger(2003;)
3	schedule collaps,additional resources ,scheduel sllipage	Bennatan(1995), Ohnuma, et al., (2000) , Kotabe, et.al , 2003, Kale & Arditi( 2001) and Schaufelberger(2003;) Usdiken (1988) , Alarcón, et.al, 2005
4	HSE Failure, Safety & Insurance	Westerveld (2003), Eriksson & Westerberg (2011),
5	, performance control, Superintendent by MC or client , retaining project control,control and dependancy,over dependency, Retainage percentage and practices, owner involment	James (2010), PMBOK, Kerzner (2001), Tah et. Al (1993),Bennatan( 1995), Kale & Arditi( 2001) and Schaufelberger(2003;) ,Amaral et al. (2006),Arnold, (2000) Ellram et al. (2008) Usdiken (1988)
6	rework,poor quality,work quality,performance,Technoligical cabability,scope of activity,imperfect job,weaken the quality,scope deflection,incomplete spec, less service,poor performance	PMBOK,Kale & Arditi( 2001) and Schaufelberger(2003;) ,Ellram et al. (2008)
7	adding cost, financial and resource capability,over payment,cost of managing sms ,payment methode, Financial capacity of MC and Timeliness of Payments,	PMBOK,ElIram et al. 2008, Kale & Arditi( 2001) and Schaufelberger(2003;)Amaral et al. (2006) Ellram et al. (2008) , Fine (1998)
8	Capability, reliability	PMBOK,Kerzner (2001) , Kale & Arditi( 2001) and Schaufelberger(2003;)
9	miss comiunication	PMBOK,
10	resouce allocation and sheduling,resource wastage	PMBOK,Bennatan( 1995) ,Amaral et al. (2006),Ohnuma, et al., (2000)
11	lack of integration	Hughes, et.al (2006)
12	inconsistency	Arnold, (2000) ,Ellram et al. (2008)
13	bypassing MC and favoring client, protected category	Fine (1998)
14	Bid Shopping, type of contract,Indemnity clauses,Back charging,The pay-when-paid clause	James (2010), Kerzner (2001), PMBOK
15	PM capability & fairness	PMBOK,

Table 2: Summary of expected risks in project partnering, suggested by researchers based on reviewed literature



Graph 2 expected risks vs. the significance of those risks to other researchers, based on current reviewed literatures (Y axis, refers to number of researchers who suggested particular risks)

## 2- 5 other important factors in project alliancing: Pre-qualification, Assessment and contracting

As its discussed in chapter one, through study of project alliancing, benefits, risks and the impacts on outcome, is unlikely possible without proper insight on other collateral parameters. Some of these factors which are discussed by researchers and seem to be more relevant to independent parameters of this study are: Prequalification (Ellram et al, (2008), Palaneeswaran, Kumaraswamy (1999), El-Sawalhi et al 2007, Doloi et al. (2010)), assessment (Eriksson, Westerberg (2011), Arslan et al. (2008)), contract (Tah et al (1993), Davies (2008)) and payment. Below paragraphs attempt to present necessary discussion from conducted literature review on the subject:

Note: The collateral parameters like prequalification and contract related issues, won't be discussed as detailed as dependent and independent parameters in this paper, as if it happens, the direction of this research study changes substantially, because these

parameters are too vast to address in this paper. so the reason of presenting them at this point is, the impact that they may have on dependant and independent parameters of this research paper, by knowing the fact that, client and owner, normally, set some criteria in prequalification or contract that are too important for them in term of significance of obtaining designed goals in introducing particular project. It means, if certain parameters of contractor selection are bold and client is keen to assess them before contributing the contractor to the project, would reveal the areas which are more likely to generate risks or uncertainty for owner.

Oil industry is dominated by prime contractors and many subcontractors in different disciplines and categories; the selection of sub-contractor becomes a prominent factor for clients or MC to ensure the project success (Palaneeswaran, Kumaraswamy 1999) and generally, a clear understanding of the fundamental characteristic beneath the contractor's selection process is critical toward project success. (Doloi et al.2010) so this makes it difficult for clients to make the best decisions in contractor selection; It's important to note that, the rationality of prequalification is based on avoiding risk; it means some of risks can be avoided by proper prequalification or assessment of contractors at tendering stage, during contractual stage or during execution phase.

Contractor prequalification is argued to be "*multi-criteria*" screening aspect which is an important step in project procurement with sort of vague inputs, so implementing it properly becomes "*an art rather than a science*" and if done properly, prequalification reduces various risks and gives confidence to the client or MC, on obtaining project goals(El-Sawalhi et al 2007). It's suggested by experts and researchers that most suitable areas for prequalification are "*financial solidity, management & technical ability, relevant experience and performance, resources, quality of work delivered and HSE*" (El-Sawalhi et al 2007). Kumaraswamy, et al. (1999), argue that , the information used for prequalification parameter assessment can be grouped in: General information in administrative purposes, Financial, Technical, Managerial information, Performance and Experience criteria, HSE data

Palaneeswaran, Kumaraswamy (1999) in his paper proposed that affective risk management needs to be done in early stages of project life cycle and shall also include the contractor selection criteria. Tah et al (1993) suggests, it's better to conduct RM in early stage of project. He suggested: although there are various practised methods for contractor selection like "*open tendering, selective/restricted tendering, prequalification or negotiation*" clients mostly prefer prequalification to minimise risks and failures and

to improve the performance of contractors by setting up bottom lines below which contractors should not be selected.

Many studies conducted in past years have proposed various approaches to evaluate SMSs performance.

Eriksson, Westerberg (2011) propose set of assessment such as: quality inspections of the finished product or evaluation of delivered services by independent auditors, although the drawback is the resource consuming of this method.

Arslan et al. (2008) suggested four assessment criteria for SMSs, “*cost, quality, time and adequacy*”. Albino, Garavelli (1998) used five parameters of price, time, technical/qualitative capability, contractual reliability, and management skills.

As a key note in the direction of the objectives of this paper, Doloi et al. (2010) suggested that the “technical capability and controlling proficiency of contractor over the project is key factor in obtaining success in projects” he suggest that, knowing the importance of these parameters in MC or SMS performance, would yield to successful development of prequalification procedures for client.

Davies (2008), argues that alliance contracting designed to fill the gaps, which are created by drawbacks of split operation of contractors in projects.

Vilasini, et. Al,(2012) argue, there are sets of benefits for both MC and SMSs from their so called “*Informal alliances*”, he presents some examples :” *most SMSs regularly work for the same MC and 94% of Australian SMSs have worked with less than four MCs (Francis & Hoban, 2002)*”. Or “*41% of SMSs have kept regular association with their MCs for less than 9 years on an average base (Costantino & Pietroforte, 2002)*”.

I personally believe, based on self-experience, particularly in service procurement alliances such as Inspection and Quality services in energy projects, where, trust, commitment, deep understanding of client requirement, scope of specialised services and standards are highly valued and required; having less price or better financial offer by SMS at bidding stage, is less important and the reason is simply because: if client or MCs are satisfied with previous accomplishments of their service provider (especially in complex energy projects) and they can lean on future services even with higher price; they definitely decide to select previously experienced SMSs and the expertise rather than other competitors with lower price. However it's important to note such decision is experienced to be smart, particularly in service sub-contracting, and that's because, owner or MCs may wisely pay for relevantly higher price, but (as long as SMSs discipline has already been tested successfully) during project implementation, they save



their future cost of poor workmanship, reworks expenses, poor quality of job delivered etc. besides, financial agreements like payment terms, credit times etc. can be agreed upon easier with already experienced SMSs.

Selection of SMSs is also a concern for the likelihood of impacts on project outcome; as discussed earlier the method of selection is either : domestic SMS (selected by MC) , nominated SMS (selected by client) and named ( combination of both) where client selects the SMS and MC is responsible for work and payment (Masrom & Asrul, 2007), as suggested by Eriksson, Westerberg(2011), named SMSs selection is the best way to assign sub-contractor in order to better serve, six important project success factors of Cost, Time, Quality, Environmental impact, Work environment, Innovation

Where service outcomes are not measurable, client would set up a” *micro-level social agreement*” to mitigate misalignments and negative impacts on project. VanderValk, et.al (2011) debate that the significance and impact of such formal/ legal agreement on SMSs performance is undisputable. .

Shash, (1998) discusses that MCs act as project agents, they play the role of project manager therefore they transfer actual project tasks and risks to subcontractors for execution based on contractual agreements .

Refer to (PMBOK 4<sup>th</sup> ed.) contract is a legal bilateral compulsory agreement that compel the contractor to provide the specified products, services, and the buyer to pay the seller against delivered service or product , its awarded to each selected contractor and can be in form of simple purchase order or complex legal document. It’s included but not limited to “ *work statement and deliverables, Schedule, reporting scheme, Period of job, Roles & responsibilities, places of seller and deliveries, Price , Payment terms, Inspection and acceptance criteria, Warranty, Limitation of liability, retainage, Penalties, Incentives, Insurance and performance bonds, subcontractor approvals, Change request handling, and Termination and alternative dispute resolution (ADR) mechanisms*”

Mainly in service contracts, the contract applying to the MC–SMSs is similar to the contract applying to the MC–client.

Poor contracting by clients engenders “*counter-productive*” behaviours of contractors Many authors suggest that long-term relationship between client – master contractor and sub-contractor play a critical role in enhancing the competitive advantages through continuous improvement by reducing redundant performance and enhancing quality standard (Kale et al., 2001). Some comparing this relation with buyer / seller

relationship and then recommend on the benefits of developing collaborative relationships among them (Kotabe, et.al , 2003) , these are the mechanisms through which SMSs over time combine their own resources with the resources of their counterparts (Mota & de Castro, 2005), and absorb new knowledge and develop new capabilities (Dyer , Hatch, 2006). Moreover, the development of new capabilities opens new routes for exploration patterns with customers. Therefore it's affecting the constitution of the built portfolio in loop of Client- Master Contractor and SMSs (Grandinetti, Furlan, & Camuffo, 2007).

However some other researchers claim that overlapping, conflict of interests, scope creep and encountered misunderstandings would decline the quality of job and eventually impacts the success of project and satisfaction of client.

So as described, its client's vital concern to enhance and manage network of contractors within the project.

SMSs selection in alliance contracting is based on two criteria

- Objective (skills, experience, previous accomplishments) and
- subjective (behaviour, attitude) (Morwood, et.al 2008)

So price competition would not be direct concern of MC or owner (Davies, 2008). Thus this mechanism would further promote "*awareness of SMSs and other participants, enhanced team development and communication*" and these parameters are crucial for project to succeed (Morwood et al., 2008).

A key characteristic of service procurement is that services are directly delivered by the SMS to the client. Thus the SMS's performance is determinative for end customer satisfaction,, and as it will be discussed in following paragraphs, the customer satisfaction is considered to be one of outcomes of project, so the theoretical link between SMS's prequalification, selection , performance and project outcome is indisputable.

## **2-6 Project outcomes/ Project success**

Since one of the objectives of this paper is to measure the impacts of project partnering risk, and benefit on project outcome, there might be different interpretation by reader of this paper on the meaning of project outcome vs., project success, before moving forward to literature review on project outcome ,below discussion is provided to elaborate the definition of project success and project outcome and to clarify the

meanings, identify the overlaps and differences and to provide a casual relation between two terms for the purpose of addressing the objectives in this paper:

The term outcome refers to the result and the term success, refers to the level which the result is measured as desired and expected. Relatively, the term project success in accordance with Baccarini (1999) stands for project management success + project product success. As argues by Pinkerton(2003) and Baccarini (1999) (developed further in below paragraphs), the project management success refers to the traditional concept of being on time, within the budget and satisfying required spec ( quality), whereas product success stands for customer satisfaction and gained net benefit and added value by delivered product. Therefore project success encapsulates all the variables of project management success plus product success. Additionally, by referring to the meanings of project partnering and the meaning of main contractor, which are presented earlier, alliancing includes sub-contractor and main contractor (project management), which is formed to deliver a particular product. So within above argument, in order to satisfy the objectives of this paper, the term “project success” is considered equal to “project outcome” and further discussion is developed on this basis. The same concept is used in developing conceptual frame work and research strategy and data collection, however as it will be shown in below paragraphs , all variables of both project management success and project product success have been contributed in research process and measuring collected data. It means the meaning of project outcomes which is considered to address the objectives of this research dissertation is the level in which the partnered project has relatively met the parameters which are necessary for both the project management success and the product success. Considering above given description, below is the literature review on project outcome:

Perceptions on project success is varying from people to people and project to project (Wang ,Huang, 2006) , Furlan et.al (2009) argue that ,the links between well-functioning project during the project lifecycle and post project success is certain; so, the function and interdependence of SMSs-MC (supplier-buyer portfolio) as part of this functioning system is also notable in line with success or failure of projects.

Researchers have proposed a set of improvements in approaches of project implementation and outsourcing to raise the chances for success and productivity improvement in project (Dubois, Gadde, 2002). For instance, a comprehensive literature survey by .Dewit (1988) in UK on project success/ failure parameters suggested that, eighty factors are contributing to project success or failure which can be summarised to

the following categories: Project management; Finance; Planning and design; legal boundaries and politics; contracting; schedule; human resources issues. Dewit (1988), concluded that, focusing in above areas, is likely to raise the chances for success and productivity improvement in project.

Vilasini, et.al (2012) suggests that, characteristics of successful SMSs-MC alliances is based on trust, commitment, communication, fair profit sharing which results in better problem solving.

Hughes, et.al (2006) argue that achieving designed goals in contracted phase of project is unlikely possible without integration of SMS into the process, he suggests collaborative working environment may be necessary to attain the objectives but not sufficient, in this situation misaddressed risks may endanger the project.

There are many factors presented in PM literature, proposing the success/failure criteria of project and metrics to be considered as project successful outcomes, in overall these researches can be grouped in two, first set of researches discuss the old fashion of opinions on project success which are based on well-known golden triangle of cost, time and quality (Morris, and Hough, 1986); the second set of papers which are newer is based on another constructs, important to the success or failure of the project (Westerveld 2003), parameters like, HSE, customer and stakeholder satisfaction. Comparatively, there is raising criticism for lack of efficiency in project outcomes also i.e. *“time & cost overruns, poor accomplishment and quality, and customer dissatisfaction”* (Chan et al., 2003).

Researchers and experts have suggested three traditionally recognized success criteria of cost, time, and quality, the *“iron triangle”* (Eriksson, Westerberg, 2011), or *“golden triangle”* as used by Westerveld (2003). However these are considered to be short-term and immediate parameters of project success which are crucial for clients.

Westerveld (2003) in his paper discuss that success criteria seems to be far more subtle than using traditional golden triangle, there shall be more challenging criteria that can cover a wide range of stakeholders expectations, thus Van Aken (1996) proposes project success as: *“The satisfaction of all stakeholders”*. With same logic Eriksson, Westerberg (2011), later argued *“golden triangle”* is not enough for long term sustainable project outcome that can satisfies all stakeholders expectations, therefore he identified three more success factors for project: *“environmental impact, work environment and innovation”* which are including HSE and human resources. Project outcomes are the parameters that success or failure will be determined based on them or

as another definition “*those inputs to the management system that lead to the success of the project*” (Cooke, Davies, 2002)

Wit (1988) argue that, best criteria for assessing outcomes of project are the project objectives. If relevantly all objectives have been met, project is definitely successful.

Lam et al. (2008) believes, understanding on whether or not a project can be considered successful or not is hard, as the perceptions on the meaning of success/ failure in projects are still remains hazy among different stakeholders.

Chan et al. (2002) defines project success as “ the level that goals and expectations of stakeholders are met” while Ashley et al. (1987) explains the successful outcome as “ better results than its expected in term of cost, schedule, quality, safety and stakeholder satisfaction”.

Tuman (1986) defines the success in different style “having the results as hoped; meeting all project requirements as anticipated and having adequate resources to satisfy project needs in a scheduled time”. Wite (1988) explains the success in project happens when “it meets the technical specifications, satisfy operational requirement of delivered product/service all with considerable satisfaction level on outcomes among all stakeholders in project”

Ojiako et al(2008), discusses that, considering project success is “*depend on what point it's considered to be successful or not*” he later argues that, in one single project, especially if the project is from large complex one, in same time one phase of project might succeed with the designed requirements while another phase is lacking to meet requirements. He believes consideration on “*performance measurement criteria*” would influence the concept of success or failure.

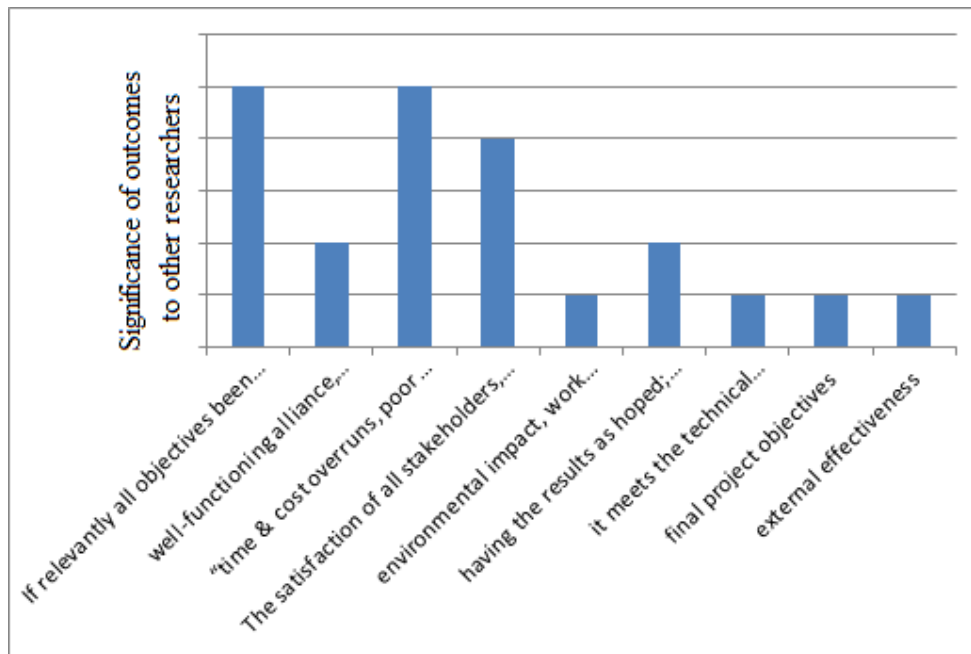
There are debates on relativity of project success, expected outcomes and quality and success of work being done by the parties involved in running that particular project. For instance, some previous research revealed the connections between contractors performance and project success (Farzana Asad, 2011) .

Pheng, Chuan (2006) concluded that PM successes are “*successful fulfilment of cost, time and quality objectives*” while, project success is meeting “*final project objectives*”, Shenhar et al. (1997) also suggest that PM success is “*an internal measure of project success*” while project success is “*external effectiveness*”. But the important point is discussed by Wite (1988) which believes “*good PM can contribute project success*” but, doubtfully be able to prevent the failure in project. The key concept was presented by Emsley etl.al (2012) which mentioned that post project evaluations reveals that

contractor's "*objective & subjective success criteria*" would greatly impact project success, as they play the main role in MC success and both are exclusively involved in project process that eventually delivers the product.

Seq.	Project outcomes	By
1	If relevantly all objectives been met, varying other than golden triangle, varying	(Wang, Huang, 2006), Lam et al. (2008), E. Westerveld (2003), Ojiako et al (2008), Wit (1988)
2	well-functioning alliance, contractor's objective & subjective success criteria	Emsley et al. (2012), Furlan et al. (2009)
3	"time & cost overruns, poor accomplishment and quality, and customer dissatisfaction, cost, time and quality, cost, time, and quality, the "iron triangle", cost, time, and quality, the "golden triangle" better results than its expected in term of cost, schedule, quality, safety and stakeholder satisfaction".	"(Chan et al., 2003). (Morris, and Hough, 1986); (Eriksson, Westerberg, 2011), E. Westerveld (2003). Ashley et al. (1987)
4	The satisfaction of all stakeholders, the level that goals and expectations of stakeholders are met	Van Aken (1996), Chan et al. (2002), Ashley et al. (1987), Wite (1988)
5	environmental impact, work environment and innovation	Westerberg (2011),
6	having the results as hoped; meeting all project requirements as anticipated and having adequate resources to satisfy project needs in a scheduled time	Tuman (1986), Wite (1988)
7	it meets the technical specifications, satisfy operational requirement of delivered product/service all with considerable satisfaction level on outcomes among all stakeholders in project	Wite (1988)
8	final project objectives	Pheng, Chuan (2006)
9	external effectiveness	Shenhar et al. (1997)

Table 3: Summary of project outcomes, suggested by researchers based on reviewed literature



Graph 3: Project outcome vs. the significance of those outcomes to other researchers, based on current reviewed literatures (Y axis, refers to number of researchers who suggested particular outcome)

Above pie chart is showing the repetition pace or redundancy of parameters, proposed by researchers in relevant literature review.

## 2-7 Chapter in Brief

Below is brief categorized data emerged from literature review in line with research objectives, the difference between this list and the one proposed on earlier sections are :

- Earlier tables are the data which were directly transferred from each reviewed literature, even in some points data are repeated, but still in order to have the measure and statistics of each variable proposed by each researchers, (as suggested by Saunderson et. al 2009), main extracted data are kept genuinely, even repeated and then reported accordingly.
- Below list is more refined to include all data and unnecessary repetition are removed, as suggested by Saunders et.al(2009), processing qualitative data can start with “*summarising or condensation of meanings*”
- Data is shaped to be used in next chapter: the conceptual framework and questionnaire relevantly.

1- Project alliancing benefits:

- a- Benefits of project procurement alliancing (SMSs-MCs) which are studied and proposed by researchers are as following:
- b- Sharing & cutting costs, Balancing expenses, savings money, saving budget, price reduction, fair profit sharing
- c- Reworking reduction, reduce workload
- d- Improvement in quality, higher quality, increase quality of work,
- e- Possessing complex skills, sharing SMSs, experiences, ideas and knowledge, specialized expertise, proper skills, specialized perspective, professionalism, additional specialist advice or expertise, reduce complexity, Positive dependency, Improved control over the project
- f- Enhancing business & Operation performance, Overall success, reducing the risk of failure
- g- Resource allocation & improvement – SMSs cover the need for additional resources
- h- Obtaining unique goal, achieving designed goals
- i- Higher client satisfaction
- j- Joint problem solving, better proposal development for encountered issues
- k- Enhanced communication & collaborative working environment, trust, commitment,
- l- Project value optimization
- m- Schedule improvement, reduce project phase's schedule, save time
- n- Improved satisfaction and implementing sets of standards, legal & law requirement
- o- Higher chance of Innovation & creativity
- p- HSE improvement

## 2- Encountered risks arising from alliancing:

- a- Complexity of managing SMSs, Number of SMSs may cause losing strategic competency, Lack of integration, Inconsistency
- b- Conflict of interests, SMS performance misunderstanding
- c- Schedule collapse, schedule slippage
- d- HSE Failure, Safety & Insurance complications
- e- Plan and control, performance control, Superintendent by MC or client, retaining project control, control and dependency, over dependency, Retainage percentage and practices, owner involvement



- f- Rework, poor quality, work quality, performance, Technological capability, scope of activity, imperfect job, weaken the quality, scope deflection, incomplete spec, less service, poor performance
- g- Adding cost, financial and resource capability, over payment, cost of managing SMSs, payment method, financial capacity of MC and Timeliness of Payments,
- h- Reliability
- i- Miss communication
- j- Resource allocation and scheduling, resource wastage, additional resources consumed by SMSs,
- k- Bypassing MC and favouring client, protected category
- l- Bid Shopping, poor contract, Indemnity clauses, back charging, the pay-when-paid clause
- m- PM capability & fairness

### 3- Project outcomes:

- a- Meeting objectives other than golden triangle, contractor's objective & subjective success criteria, having the results as hoped; meeting all project requirements as anticipated, meeting the technical specifications, operational satisfy requirement of delivered product or service
- b- Well- functioning alliance, Final project objectives
- c- Success to overcome time & cost overruns , accomplishment and quality, meeting cost, time, and quality, the "iron or golden triangle" , better results than its expected in term of cost, schedule, quality, safety , having adequate resources to satisfy project needs in a scheduled time
- d- The satisfaction of all stakeholders, the level that goals and expectations of stakeholders are met
- e- Environmental impact, work environment and innovation
- f- Efficiency, effectiveness

## Chapter 3

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# Conceptual framework

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### 3-1 Introduction

In order to draw an outline and present the approach to current observed constructs developed from literature review in project procurement alliancing, SMS-MC portfolio, encountered risks and the connections with project outcome/success, below conceptual framework is suggested.

Given theoretical framework attempts to interconnect all studied aspects in literature review surrounding project alliancing procurement and the impacts of inclosing benefits and expected risks on project success.

Although exact intention for reviewing literature is suggested to be dependent on research approach (Saunders et.al 2009) as for deductive researches, for instance, the literature is used to develop conceptual framework and then testing it using acquired data, whereas, conversely, in inductive approach, gathered data will be explored and then theoretical framework will be developed accordingly, however some other researchers like Yin (2003) believe, it is also possible to adopt both inductive and deductive element in qualitative work and use them in combination, because, researcher aims to develop a “*theoretical position*” and then examine it using collected data and analysis, subsequently.

### 3-2 Variables

As discussed in Chapter one, 3 sets of variables are indicated for this research:

A= Alliancing Benefits (independent)

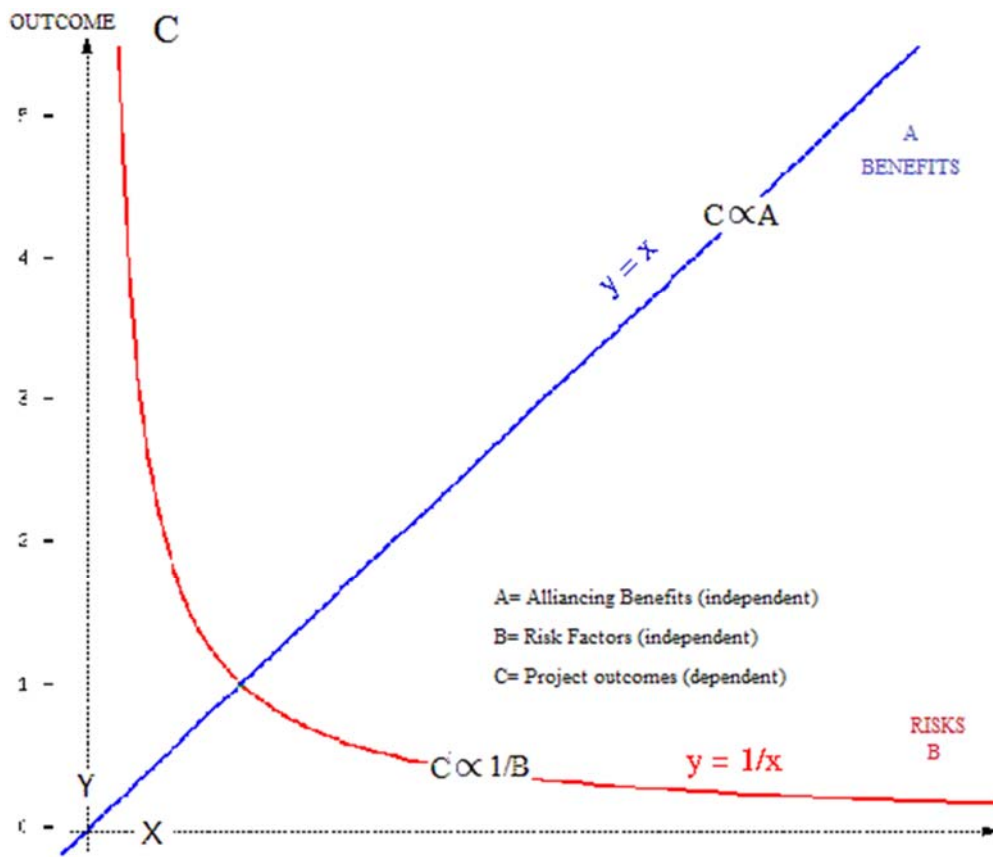
B= Risk Factors (independent)

C= Project outcomes (dependent)

As indicated, independent and dependent variables: C is function of A and B therefore ,C is function of A, also C is a function of B but if we consider that risks might have negative impact on outcome then it means: C and B are conversely related, thus as RISK (B) increases, outcomes (C) decreases and revers, so C is function of reverse B(1/B) thus , C is proportional to  $1/B(C \propto 1/B)$ , but if RISK(B) has positive influence on outcome (C) , then the function and relation is direct , and follows the same pattern of benefits (A).

In other side C is also directly a function of A ( $C \propto A$ )

In result  $C \propto A/B$  and then conceptually when A increases C increases and as B increases C decreases.



Graph 4: the conceptual chart for relation between risks, benefit-outcome & risk-outcome

Reviewed literature revealed some other parameters beneath the concepts of risks, benefits and their connection with project outcome, understanding these parameters is important toward the understanding provided conceptual framework and flow of research paper because all of them are gathered based on suggested idea by other researchers on studied articles and same constructs are going to be used in questionnaire and later in case studies, therefore these are the main parts of research design; data gathered from cases on this basis shall be analysed with same sequence to attain paper objectives, so relatively three variables are subcategorized to:

- 1- Project alliancing benefits:
  - a- Sharing & cutting costs, Balancing expenses, savings money, saving budget, price reduction, fair profit sharing
  - b- Reworking reduction, reduce workload
  - c- Improvement in quality, higher quality, increase quality of work,
  - d- Possessing complex skills, sharing SMSs experiences, ideas and knowledge, specialized expertise, proper skills, specialized perspective, professionalism, additional specialist advice or expertise, reduce complexity, Positive dependency , Improved control over the project
  - e- Enhancing business & Operation performance, Overall success, reducing the risk of failure
  - f- Resource allocation & improvement – SMSs cover the need for additional resources
  - g- Obtaining unique goal, achieving designed goals
  - h- Higher client satisfaction
  - i- Joint problem solving, better proposal develop for encountered issues
  - j- Enhanced communication & collaborative working environment, trust, commitment,
  - k- Project value optimization
  - l- Schedule improvement, reduce project phase's schedule, save time
  - m- Improved satisfaction and implementing sets of standards, legal & law requirement
  - n- Higher chance of Innovation & creativity
  - o- HSE improvement
- 2- Encountered risks arising from alliancing:
  - a- Complexity of managing SMSs, Number of SMSs may cause losing strategic competency, Lack of integration, Inconsistency
  - b- Conflict of interests, SMS performance misunderstanding
  - c- Schedule collapse, schedule slippage
  - d- HSE Failure, Safety & Insurance complications
  - e- Plan and control, performance control, Superintendent by MC or client, retaining project control, control and dependency, over dependency, Retainage percentage and practices, owner involvement
  - f- Rework, poor quality, work quality, performance, Technological capability, scope of activity, imperfect job, weaken the quality, scope deflection, incomplete spec, less service, poor performance

- g- Adding cost, financial and resource capability, over payment, cost of managing SMSs, payment method, financial capacity of MC and Timeliness of Payments,
- h- Reliability
- i- Miss communication
- j- Resource allocation and scheduling, resource wastage, additional resources consumed by SMSs,
- k- Bypassing MC and favouring client, protected category
- l- Bid Shopping, poor contract, Indemnity clauses, back charging, the pay-when-paid clause
- m- PM capability & fairness
- 3- Project outcomes:
  - a- Meeting objectives other than golden triangle, contractor's objective & subjective success criteria, having the results as hoped; meeting all project requirements as anticipated, meeting the technical specifications, operational satisfy requirement of delivered product or service
  - b- Well- functioning alliance, Final project objectives
  - c- Success to overcome time & cost overruns , accomplishment and quality, meeting cost, time, and quality, the "iron or golden triangle" , better results than its expected in term of cost, schedule, quality, safety , having adequate resources to satisfy project needs in a scheduled time
  - d- The satisfaction of all stakeholders, the level that goals and expectations of stakeholders are met
  - e- Environmental impact, work environment and innovation
  - f- Efficiency, effectiveness

Kvale (1996) argues that *"the process data analysis in qualitative work, commences right from data collection stage"*, thus by considering this argument, Saunders et.al (2009) suggests that qualitative data analysis can be continued with *"summarising (condensation) and then categorisation (grouping)"*;

To categorise data, some of knowledge areas elaborated in PMBOK (ed. 4) are used, therefore improved areas under the benefits of SMS-MC alliancing can be refined further:

So the result after categorising, compensating and grouping is:

A ( Expected benefits) ,Improvement in :	B ( Expected risks) & generated from / or due to	C ( Project outcome)
sharing &cutting costs and financial improvement , saving budget	Miss-Integration and Inconsistency	Achieving anticipated objectives and technical specifications
possessing complex skills, , specialized perspective, professionalism , will reduce Scope complexity	Scope and performance drawbacks like : conflict of interests, scope creep	HSE: incident free project with no negative impact on environment
Schedule improvement, reduce project phase's schedule, Save time	Time and schedule slippage, over time accomplishment	on Cost project accomplishment
HR and Other resources allocation and planning improves	HSE downfall	On Schedule project accomplishment
Integration and Performance improvement, rework reduction, workload reduction	Resources and planning and control drawbacks	Quality of delivered job is completely met
Risk sharing and risk transfer	Financial failure and cost , budget overrun	Stakeholders satisfaction
Client satisfaction	Reliability	Introducing an Innovation
Communication improvement	communication difficulties and drawbacks	Efficiency, effectiveness of the resources
Legal and Law requirement	PM incapability	
Innovation and creativity	Procurement issues	
HSE improvement	Market insecurity and protected category	
Quality improvement	Poor Quality of the work and Poor HR Skill an (HR) expertise	

Table 4: independent and dependent variables emerged form literature review after grouping and condensing

In above table: data from the same category might be repeated or grouped with different category of data to help the interviewee to better focus on responds.

### 3-3 The conceptual framework

To better elaborate the relationships between above dependant and independent variables, the simple concept of current (I), resistance (R), and voltage (V) in electric circuit is shown below and the correspondences with dependent and independent variables in this paper is established:

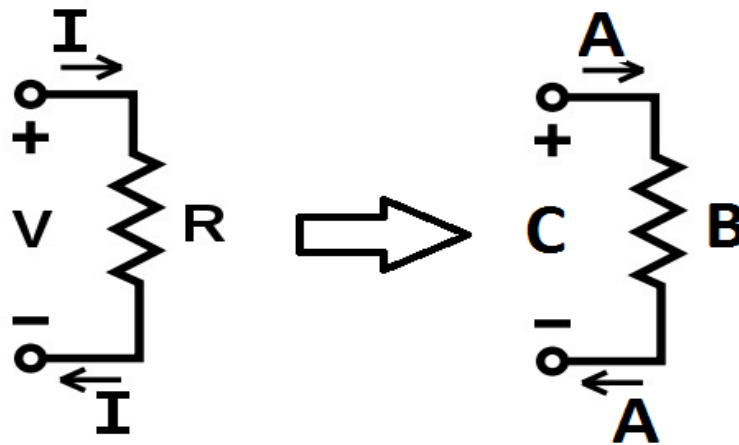


Figure13: comparison between roles and impacts of independent and dependent variables in project alliancing with current, resistance and voltage factors in electrical close circuit.

In above diagram, current (I) is corresponding to expected benefit in project (A) Resistance (R) is corresponding to expected risks (B) And Voltage (V) is corresponding to expected outcomes (C), so based on this concept, as the project moves forward in point “+” expected benefits of alliancing may occur while expected risks and related event are against the progress of the project, which negatively induces the outcomes( C - ).

So, the concept of SMS-MC alliancing, which this paper is following, is based on positive impact of alliancing through gained benefits and negative influence of risks on project outcome. For instance, considering HSE: although alliancing could improve HSE in project, in same time poor alliancing might endanger HSE and if we assume HSE is one of parameters that researchers suggested to be one of typical project outcomes then, if the positive impact of alliancing on this particular parameter is less than negative impact (encountered risk) then conceptually, project result is failed and the outcome would be null. So accordingly bellow elaborated conceptual framework can be suggested for further assessment after case studies are completed and data are gathered:

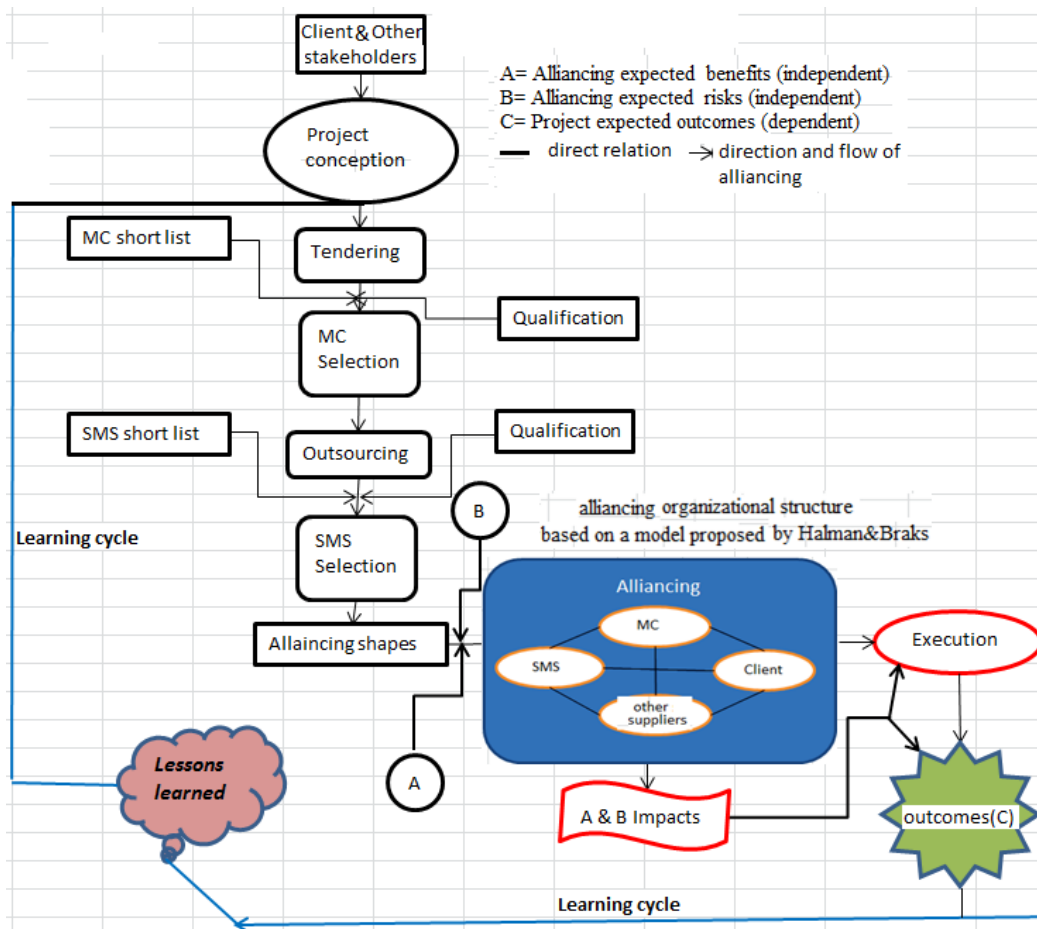


Figure14: The Conceptual Framework



## Chapter 4

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# Research Design & Methodology

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### 4-1 Introduction

Earlier studies which are related to alliancing in project, have separately addressed some of known areas and surrounding parameters of project partnering , including risks and benefits of project alliancing and their relationships with project outcomes; however contexts of such researches and interconnections between those parameters and scope of supply of SMS and MC in project are different from what is intended to be addressed in this paper which is discovery in unknown areas and exploring the characteristics of project alliancing between SMS and MC by assessing types and attributes of expected benefits and risks and the impacts of risks and benefits on project outcomes. Kothari (2004) discusses that research is a “*discovery voyage from the known to the unknown*” and describes research as a “*scientific and systematic tool for gaining appropriate information on a particular topic*”. To reveal unknown areas, this research paper pursues a comparative study based on qualitative philosophy. Information accumulated from relevant literature review is used to recognize current practices in project procurement alliancing and relevant parameters in situ with objectives of this paper.

In chapter one, aims and objectives of the research were discussed and here the methodology of research including: data collection and analysing are presented. Lancaster (2005) argues that, conducting research study, is the process of data collection, data analysing and explaining information in a way to answer specific questions or to solve particular problem which are linked to aims and objectives of the research; he believes “*research can provide fundamental basis for developing knowledge*”. So, research and non-research activity are distinguishable in process of finding answers to questions, Once the research problem, aims and objectives are defined, then, the research plan will encompass the approaches to data collection, methods of data collection, and specific techniques to be utilized for analysing and presenting data to respond to the research questions (Lancaster, 2005).

## 4-2 Methodology, Approach

Methodology and the method of research are different in accordance with suggestion by Lancaster (2005), which describes methodology as “*particular approach to data collection*”;

Dawson (2002) describes research methodology as the method of data collection for research projects and discusses that data collection depends on the type of research and design (i.e. qualitative vs. quantitative). In this paper, first step of data collection was done comprehensively by reviewing literature (secondary data), initially, the data pertaining to project alliancing, including expected benefits, were collected and reviewed, and then expected risks encountered with project alliancing are extracted and added to collected data, later, project outcomes which were suggested by other researchers as data related to this study were reviewed and compiled. Then at the end, gathered data for each stage are grouped and compared. Second step of data collection is done using case study guided by semi structured interviews in situ with developed conceptual framework on basis of secondary data (relevant literature review), in order to measure operational perspective of participant and compare the data with literatures. Interviews are face to face by using set of questionnaires (Appendix) in order to obtain primary data. The rationale behind each of above selected methods is explained below: Considering the name and the nature of this research and aims and objectives to be covered which are exploring the characteristics of project alliancing and studying the links between expected benefits , risks, and project accomplishments and their attributes, the type of dissertation is more fit in *exploratory* research, comparing between four types of researches suggested by Kothari (2004), which are “*exploratory or formulative, descriptive, diagnostic and hypothesis-testing*” the reason for this selection is cited from Thompson’s study in (1998) : “*exploratory*” research is the best to “*precisely investigate formulated problem and to develop hypotheses from an operational perspective*”. Current paper is aiming to clarify an ambiguity in relationship between SMS and MC, when project alliancing forms and that is by studying expected risks, benefits and outcomes of alliancing projects and the correlation between these three, so as suggested by Saunder et.al (2009), that exploratory research is best to apply when the inquiry is to clarify the understanding of such issue, or when one is uncertain of the exact nature of the problem. Therefore best option is the exploratory research which is the best way to precisely investigate and clarify developed conceptual framework and to help to address research aims and objectives based on better understanding the

constructs: project alliancing, expected risks, benefits and links to project outcomes. On the other hand, Thompson (1998) suggests that, the appropriate technique to best conduct an exploratory researches is to adopt qualitative approaches including “*informal discussions*” with management, company’s staff, PM’s or even other competitors, and “*formal approaches by using interviews, case studies or pilot researches*”.

Another reason for using the qualitative method in this paper is an argument by Kothari (2004), which suggests that: when discovering an underlying reason of phenomena encapsulating the descriptive (non-quantifiable) data, like: quality, type or for human behaviour (i.e. why people think project partnering might be useful? or not....and if so, why client and main contractors outsource their projects), or when subjective assessment of attitudes is needed, qualitative approach is the best option. On this paper as discussed above the main research constructs are project alliancing, expected risks, benefits and the underlying links to project outcomes which are matching with above suggestion by Kothari (2004) on descriptive (non-quantifiable) data. To better support the appropriateness of selected methods: Parahoo (2006) suggests that qualitative research is a term that depicts flexible multi approaches to exhaustively discover areas like “*human experiences, perceptions, motivations and behaviours*”, this could simply be interpreted with, the experiences, perceptions, motivations and the opinions of the participants in particular subject of project partnering, that’s involved in “*data collection and analysis of words, speech record or writing*”. Clissett (2008) believes the advantage of qualitative research is the tendency to be moderately “*loose and flexible*”. He further discusses that there are certain characteristics on qualitative research which makes it fairly better approach comparing quantitative research, those are the “*emergent design, sampling strategies, data collection and data analysis*”. Kothari (2004), discusses that the qualitative research is intended to reveal an underlying desire and motives, using in depth interviews for the purpose.

Particularly In this paper, questions which the aims and objectives of paper are developed based on them and above constructs can be re-formulated below in order to support selected method:

- What are the critical parameters of the project procurement process by means of SMSs-MC alliancing in GCC oil projects?
- What are the risk factors that might exist in the SMSs-MC relationship and what are their impacts on project outcomes?

- The idea of developing a paradigm or framework for engagement of SMSs in the project procurement process.

Considering Thompson (1998) discussion on an appropriateness and better fitness of qualitative approach on following cases:

(1) When the questions of study are concerned with, “*What*” or “*How*” or to describe how people think or deal with particular experiences. (2)- When a little is known about events or experiences or phenomena being studied. (3)- Establishing casual explanation and prediction on the research case is difficult when designing the research, (4) - Interrelating variables pertaining to particular event or to research subject is difficult, (5)- In case of examining phenomena from the perspective of the individuals experiencing the case. (6)- To develop new theory or presenting reformulated idea on already studied phenomena.

At least items 1, 4, 5, 6 above, are supporting the idea of selecting qualitative method for this research subject.

Thompson (1998) has suggested below path in conducting the qualitative approach:

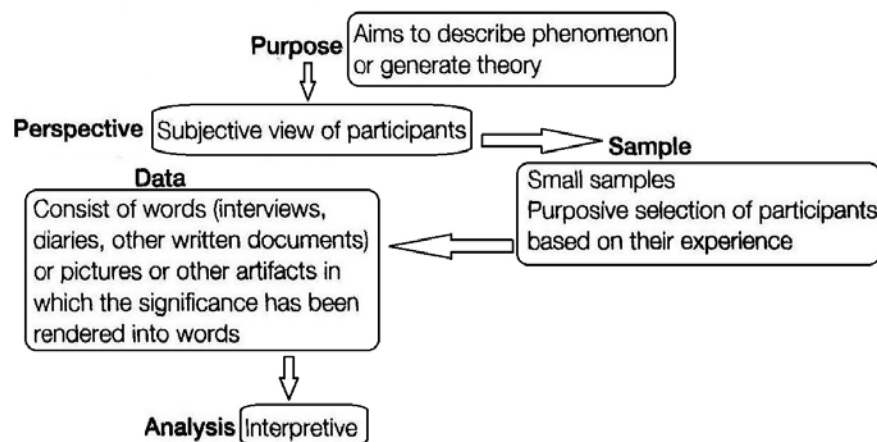


Figure 15: qualitative study flowchart adapted from Thompson (1998)

### 4-3 Research Strategy

As general plan to address the research questions the research strategy is formulated below. Strategy selection is influenced by research question(s) & objectives, amount of existing knowledge and time & resources. The strategies are categorised by Saunders et. al (2009) & Yin (2003) to “experiment, survey, case study, action research, grounded

theory, ethnography, archival research”. They suggests that each strategy can be used for any of exploratory, descriptive and explanatory researches, though such strategies should not be considered as mutually exclusive , for instance, it is practical to implement the survey strategy as part of a case study . Earlier it’s discussed that current research paper is more fit into exploratory research and the reasons are explained, in line with this fact and by referring to the suggestion by Morris& Wood (1991) and Saunders et. al (2009) which explains that case study strategy is often used in explanatory and exploratory research since the case study is considerably capable of answering to the questions like “why? What? And ‘how?’” Therefore it’s an appropriate option when rich understanding of research context is concerned. Considering above facts, case study is selected as strategy to answer and address the objectives of this dissertation. Robson (2002) describes case study as “the strategy which includes an empirical examination of a contemporary phenomenon within its real life context using multiple sources of evidence and data collection technics” such as literatures, earlier similar studies and data gathered by an interviews. So the case study strategy is an appropriate way of exploring and challenging existing theory and to provide a start point for newer research questions and the recommendations for future researches.

For case studies, Yin (2003) grouped case studies to: single vs. multiple and holistic vs. embedded cases, when researcher wants to study on “*critical, extreme or unique cases*” single case study is applicable. Additionally, when typical case is studied or when researcher needs to analyse a less considered phenomenon, single case study might be an option. When single case study is selected making sure that actual target case is selected is too important.in other side, a case study strategy might cover multiple cases as well (Saunders et al 2009), the reason is to discover whether the findings of first case is occurring is consecutive case(s) or not. Multiple case studies might be a better option comparing single case study. So by using above references and considering the fact that current paper is intended to study on research constructs of expected risks, benefits and outcomes of project alliancing when it’s repeated consecutively in different cases, therefore multiple case studies is proper strategy, and since the cases are planned to be studied as separate organizations. This research paper is planned to be implemented on multiple, holistic cases, there are 4 cases selected as sample to lead this research.

#### **4-4 Data collection**

Primary data collected particularly for the research project are gathered from selected cases in target context, secondary data which were useful source of data to cover research questions, collected from reviewed literatures, Saunders et.al (2009) suggests, three ways to collect data in exploratory research: • Literature review research (secondary data)

• Experts interview (primer) and • Focus group interviews (primer)

Burnard (2004) & Thompson (1998), argue that, in most of qualitative researches the data collection method is usually the recorded interview for the duration of between 30 and 45 min with an observation supported by written records.

Based on above supporting arguments, the best option to gather primary data to feed this research study is semi structured interviews. Semi structured interview guided by questionnaire which is shown in appendix, is applied as method for data collection in case studies. Interviews are based on questions structured on main research constructs and surrounding topics including, alliancing in project, expected benefits and risks and the relation with project outcomes.

Other sources other than interviews which were used to get primary data are: studied case's organizational and project documents, including, ISO management system records, controlled administration documents customer satisfaction survey records and related questionnaires, financial records with supervision of management of organizations, where accessibility and confidentiality is taken care, organization charts, Risk management charts, organizations public board, news charts and published magazines (if any) . Some of data pertaining to above documents and records are gathered and reviewed before interviews and some other after interviews were conducted before analysing of data form interviews.

#### **4-5 Questionnaire structure**

The questionnaire designed to carry forward the strategy for in depth data collection, so questions are grouped in 4-5 sections as listed below:

- General information: mainly related to overall experiences, level of expertise, PM overall techniques and skills, years of experience as PM or any other related designation both as SMS or MC

- Participant's general opinion on the concept of project alliancing in energy industry: the focus is given to the perception of interviewee about partnering and alliancing in general, before asking him about his own experiences of alliancing, this is particularly to separate the responds in general from the responds as particular experiences of interviewee, obviously, as the discussion over questions starts, the responds will cover all three areas related to the objectives of this research paper.
- Perspectives of participants on benefits of project alliancing, based on what is experienced by him in sample organization and partnered projects in that particular organization
- Perspectives of participants on risks of project alliancing---- based on what is experienced by him in sample organization and partnered projects in that particular organization
- Perspectives of participants on outcomes of project --- based on what is experienced by him in sample organization and partnered projects in that particular organization
- Some general questions, to get the opinion of participant on possible relations of alliancing, risks, benefits and project outcomes.
- Some additional verbal questions and discussions were used in order to gain more deep data from interviewees

#### **4-6 Pilot research**

Prior to applying the questionnaire for collecting required data and in order to make sure that interviewees will have no problem in understanding and responding to the questions and to check the appropriateness of questionnaire/ questions, the pilot test is carried on selected participants. Pilot research participants are, two project managers namely X and Y. From different contractor organizations, their fields of activities are contracting energy projects, organization X is supplying services and contractor Y is producer and fabricator. The reason for conducting pilot research is based on the initial questions, to remove the bugs, refine the questions and improve questionnaire reliability and validity of data collection as suggested by Bell (1999). The summary of changes made to pilot questionnaire after debugging is given below with relevant reasons and discussion and both questionnaires are presented in appendixes:

##### **Part A: General information**

- Question 1 and 2 are merged to shorten the questionnaire, so the new question is total years of experience and total years of experience in UAE

- Question 3, 4 are merged to shorten the questionnaire: total year as PM and on current designation
- Question 5 which was asking about academic background on PM is deleted, since I understood that some respondents may not be comfortable with this question.

#### Part B: Project alliancing

- Question 2 and 7, which are asking on project alliancing characteristics and general knowledge of respondents are merged, the reason is both questions are in same part and are carrying the same meaning and responds are the same.
- The sequence of Q 3 and 2 is swapped.
- Q 4 & 5 are merged to shorten the questionnaire
- Q8, 9 are merged, because they convey the close meaning and the responses are too close to each one.

#### Part C: Alliancing benefits

- Q 2: is deleted because it was asked in form of Q 8&9 in previous part
- Q 6 & 8: are supported with more verbal discussion to make it easy to understand for interviewee and to give proper theme on the question
- Q 9 & 10: was supported with more verbal discussion to encourage the interviewee with deeper discussion.

#### Part D: Alliancing expected risks

- Q 1 & 5: respondent's knowledge on project risk and the areas which are most influenced by risks in alliancing project: are supported with more verbal discussion, due to clarity issue and ambiguity of the question, its understood that the question is too vast to be clearly replied by interviewee

#### Part E: project outcomes

- Q 1: general knowledge on project outcome is supported with more verbal discussion to remove the ambiguity for respondent.
- Q 3: golden triangle: is removed and replaced with: the opinion of respondent on the achievement of experienced project alliancing in term of cost, quality and schedule. The reason is respondent were not aware on the meaning of golden triangle and hence it was not clear for them to reply to that.
- Q 6: effectiveness of alliancing: is supported with more verbal discussion to remove the ambiguity for respondent and to have in-depth discussion on the answer.



#### **4-7 Research Interviews**

The research interview is an attempt to ascertain the significance of main topic in real life of the research phenomenon by trying to understand and analyse the meaning of interviewee's response (Kvale 1996). To acquire valid and reliable data that are relevant to research objectives semi structured interview with the list of *"themes and questions"* are used in this paper. Some of questions are negligible, flow of conversation has influenced the order of questions and answer progress in one or two interviews and additional questions been asked to further explore the objectives and insight of responders, considering the nature of contest within their organisations, data are recorded by audio-recording and note taking.

Implemented interviews are based on literature review and developed conceptual framework shown at the end of previous chapter by considering time constraints in order to cover main areas of research: project alliancing, risks and benefits, impacts on outcomes of project, Interviews, were conducted with special care to principals of semi structured interviews suggested by Saunders et.al (2009) : *"interview opening, appropriate language, questioning, listening, testing and summarising understanding, recognising and dealing with difficult participants, recording"*, each interview last for 60-90 minutes, typical questionnaire was used to carry the interview however, additional questions and discussions were used in order to gain more deep data from interviewees and confidentiality of acquired information was taken care, Selected participants in each interview, in order of their designations in selected organizations are: CEO, CFO, MD, PM, interviews are held separately with each individuals or as joint meeting, depends on availability of top managements.

#### **4-8 Validity, Bias and Reliability**

Dawson (2002) and Suandes et.al(2009), discusses that the main data quality issues in interviews are: reliability; bias; validity and generalizability. The reliability stands for getting the same result if another researcher carries the same study. As for generalizability, it's one of the limitations in this research paper, the reason is number of samples from each fields of activity which could be available in UAE and Oman, to contribute to this study on shortest available time. In order to make the research more reliable with high validity and to avoid bias below practices are used during questionnaire design and interviews in this research:

- An identical questions been asked from each interviewee at different times and in separate stages of interview, the same structure is used in questionnaire as well, for example please refer to questions C1 and C2, though, the questions in questionnaire might be sequential, but discussion followed in different timeframe in interview, this is mainly done, in order to check if the answers are consistent and to make sure on stability of responds.
- In order to make higher consistency, researcher tried to make integrity within questionnaire and interview by giving an appropriate theme on background of the topic and on each stage of interview, for instance the discussion in section D of questionnaire was blended with the questions on the concept of risk, to make the responses harmonious on same topic
- Also to check the equivalency of the responds rephrased question (alternative form) with same meaning has been structured in questionnaire (please refer to question D1 and D6 in appendix, for instances), the discussion followed by this questions, are with same meaning but different dialog.

For validity of content of the research, samples are carefully selected from four different project based organizations, two samples from service contracting business, one sample from engineering, procurement, and consultancy and contracting business, and one sample form project based manufacturing business. Two service contractor samples are experienced as subcontractor and main contractor, and other two samples are only active as main contractor, also the comparison and correlation between measured and actual performances is verified though careful control of organizational documents for each selected case and comparing recorded and archived documents with the responds by interviewees, all to increase the validity of the research,

In case of respondent's vague answer or in case of misunderstanding issues of participant, either the questions was rephrased or same topic being questioned after proper explanation on background and the theme of that particular question and relevant construct.

To avoid bias, interviewer avoided to give comments or enter own background, knowledge and experiences, in designing questionnaire or during conducting an interviews, for instance, the answers on financial conditions of contractor in partnering was little bit surprising, but to avoid bias, the same answer was reflected in analysing data.

#### 4-9 Sample organizations: A, B, C, D, brief introduction

There are, four cases, selected for the purpose of study in this research paper. All of the cases are project based contractors or supplier, with the background of being MC and SMS entity in their work profile. They are namely organizations A, B, C and D.

organizations A and B are service providers, which are delivering Inspection and quality services, HSE consultancy and project management to clients in energy sector.

Organization C is EPC contractor and organization D is equipment manufacturer and supplier for energy project.

Organization A and B are operating internationally with branches around the world and headquarter in Dubai with the HR capacity of 250 & 200 staff. Organization C is operative in GCC countries; with headquarter in Oman and the branch in Dubai with the HR capacity of 180. Manufacturer D is internationally operative, with several branches and head manufacturing site in Dubai with HR capacity of 600 staff.

Organization A has conducted 15 alliancing projects in past 10 years. Both as MC and SMS, some are still not completed.

Organization B has conducted over 20 alliancing projects, both as SMS and MC in past 8 years.

Organization C has conducted 10 partnered projects with presence of SMSs in past 5 years.

Organization D has conducted over 50 projects in past 5 years, collectively with SMSs and other sub suppliers.

Below table is summary of overall information pertaining to studied cases

Cases: Organization	Type:	Scope of supply	HR Capacity	Area of Activity	Number of completed/ on-going Alliancing projects
A	MC-SMS	Service	250	GCC & International	15
B	MC-SMS	Service	200+	GCC & International	20
C	MC	EPC	150	GCC	10
D	Sub Supplier	Manufacturing Equipment	300+	GCC & International	10

Table 5: Overall characteristics of studied cases

The rationale behind selection of above cases is:

- All of them, experienced the occurrence and circumstances of conducting project collectively with presence of number of other partners (alliances)

- Comparative and exploratory nature of this dissertation oriented me to select different cases in term of field and scope of supply in alliancing project.
- Their filed of business in Energy projects
- The area of activity which is multinational for all of them and hence relatively their PM experiences are considerable, toward sharing required knowledge and experience required to address the objectives of this paper
- My presence in some or all phases of the projects, which was an advantage, in term of accessing to required data for this research.

Organization A: is limited liability Service Company which is active in energy sector and power plants. As service contractor, A is founded in year 2000, with international operation, but the main operation is in Middle East, North Africa and GCC countries, with head quarter in Dubai. Organization A is considered as small/medium subcontractor, but, it has been awarded with some contracts directly by end-user, so, A has also experienced being main contractor. The significant of selecting this case is: Organization A is project based contractor, which based on current contracts the organization is simultaneously acting as MC and SMS, because, for one single project the organization has to be partner of MC and for the same project, organization “A” shall outsource part of the assignments to another SMS. They hire and release their resources based on the condition and situation of operative projects and timeliness of phases. Organization A’s main scope of supply is: inspection and quality services, HSE consultancy, project management, and sometimes engineering. The importance of the operation depends on HR and technical capability of the project team in order to enable organization A to remain competitive in market. Other important parameters of the successful operation as discussed by interviewees are: timeliness and quality of provided service, post project services and customer care aspects when the contract is finished.

Organization B: with almost similar nature and structure of business with organization A, organization B is: limited liability Service Company which is active in industries including energy, Marin, agriculture, and other sectors, depend on market demand. As service contractor, it’s founded in year 1990, with international operation, with the branch offices in UAE. Organization B is considered as main contractor, but, since they have collectively conducted projects with other partners as well, they have the experiences of being SMS entity. Organization B is technical and project based contractor, therefore, they mainly mobiles or hire the resources based on the condition and situation of operative projects and timeliness and the locations of phases.

Organization B's main scope of supply is to provide testing, certification, verification and conditions assessment on project equipment, inspection and quality services, technical support, HSE consultancy. The significance of the operation depends on, availability of human resources, their technical capability, location and conditions of project, scope of inquiry to enable organization B to remain competitive in market. Other important parameters of the successful operation as discussed by interviewees are: technical capability of project team, availability of testing equipment in customer site, timeliness and quality of provided service, post project services, financial strength and customer care aspects when the contract is finished. The vision and mission of the organization as verified in documents and expressed by interviewees is: *"to be competitive and productive service organization in the region. Continuously improving to the best-in-class and to be competitive and to consistently deliver unequalled service to customers; being epitomized by passion, integrity, entrepreneurialism and innovative spirit,"*

Organization C is limited liability engineering, procurement and Construction Company which is active in oil, gas, and petrochemical and power plant projects. As a contractor, it's founded in year 2002, with regional operation, but the main operation is in UAE and Oman, with head quarter in Oman. Organization C is considered as MC, they have been requested by end users to directly participate in some projects, thus, the organization is experienced in the position of MC. Organization C is project based contractor, therefore, they hire and release their resources based on the condition and situation of operative projects and timeliness of phases. Organization C's main scope of supply is: Engineering, procurement, construction (EPC), consultancy and project management. The importance of the operation depends on financial strength, HR and technical capability of the project team, to enable organization C to remain competitive in market. The vision and mission of the organization as discussed by interviewees and verified in document control is: *"Customer Focused operation, to satisfy customers' needs and expectations, to meet all commitments to customers on time, Performance improvement including: Monitoring, benchmarking and continually improving the business, services, employees' performance and to sustain and develop business"* Other important parameters of the successful operation are: timeliness and quality of delivered job, customer satisfaction, post project services and customer care aspects when the contract is finished.

Organization D: is limited liability supplier, distributor and manufacturing company, which produces equipments for energy projects, D is directly dealing with all executers of projects, including, end user, licensors, SMS and MC and other suppliers of the project, founded in year 1985, with the branch in Dubai. Organization D is considered as main supplier to the projects however, they have collectively constructed equipment along with other suppliers, therefore alliancing experience and sub supply to projects is also mentioned in related organization documents. Organization D is producer and contractor, therefore, they have fixed resources plus additional temporarily resources based on project requirements. Organization D's main term of supply is: *"technically capable steel fabrication"* with the focus on fixed equipment, such as pressure vessels, storage tanks, boilers and exchangers. The importance of the operation and production depends on financial and technical capacity, HR and technical capability of the project team, to enable organization D to remain competitive in market. The vision and mission of the organization as discussed by interviewees and verified in document control is: *"to provide full range of services to the Oil, Gas and Process Industries promising the best possible quality in accordance with international standards, to expand its existing infrastructure in line with modern techniques of engineering and environmental requirements. The commitment is toward the development of employees along with growth in the industry, and to consistently exceed client expectations and to provide the highest quality equipment and services to clients, without compromising the quality and the environment."*

Analysis of ABCD cases are done separately in six different parts, which are: (1) alliancing in project, general knowledge and experiences of interviewees, (2) expected benefits of alliancing (3) expected risks by alliancing (4) project outcomes, (5) data classification, summarising and interpretation; studying the links between items 2,3 with project outcomes and listing similarities and differences between studied cases, (6) learning outcomes emerged from the case studies, other than what is discussed in literature review, which will be discussed at the end; all, based on the flow of interviews, structure of questionnaire, related discussions, dialogs, answers and opinions by respondents. There are 2 interviewees for each case, but since the interview is done with both of them simultaneously, analysis and the result are presented in one part.

Note 1: As listed in Table 5 organization A has conducted 15 alliancing projects, which the participants of this interview as PM, was personally involved in 10 of those projects, therefore based on cited argument by Saunders et. al (2009) which suggests that, in

similar cases, if the research is concerned only with the organisation as a whole then the case is holistic study; Thus, although there are 10 projects in which interviewee was personally involved, researcher, do not attend to study those projects separately, instead, all of them are studied as one holistic case and related project documents were reviewed, controlled and studied on random basis to support the analysis and discussion. The same procedure is used for other 3 cases also.

Note 2: based on data given in Table 5 above and related brief data of selected sample organization, cases A and B are both MC and SMS, so whatever data is received during interviews including, expected benefits, the risks and challenges and possible link to outcomes of partnered projects are applicable to both contractor organization (MC and SMS), whereas, for cases C , expected benefits and risks and the links with outcome are discussed from the MC points of view, so the analysis might be true for MCs only. With same perception, the analysis and assumption on the data form case “D” might be only applicable for sub suppliers or SMSs.

General information of participants who are attended the interviews on behalf of their organizations:

Organization	Number of participants	Designation	Overall experience in Energy Project
A	2	PM & Account manger	15- 10 (years)
B	2	PM & Account manger	10- 10
C	2	MD & PM	20- 20
D	2	MD and CFO	20- 15

Table 6: Overall information of interviewees

Below table shows the titles of accessed documents in project or organization, as one of the sources of Primary data for the purpose of this study (subject to have limited access on some of them with no copy permission due to confidentiality)

Organization	HR and Admin and contracts	Finance & Accounting	PM Charts	ISO Audits, surveys & results	Customer satisfaction survey	HSE statement and policy	Monthly and sessional reports to MD	News Journal and magazines
A	√	√	√	√	√	√	√	√
B	√	Limited	√	√	√	√	√	√
C	√	X	√	√	√	√	√	√
D	√	X	√	√	√	√	√	√

Table 7: Accessed organizations documents

#### 4-10 Chapter in Brief

Qualitative approach using the case study, guided by semi structured interviews, adapted to this research.

Data collection is based on the survey study on ‘insight-stimulating’ cases as suggested by Kothari (2004) in situ with conceptual framework which is developed on the analysis of relevant literature review .Interviews are directed by set of research questions as illustrated in questionnaire (Appendix I) which are designed based on research objectives and the progress of reviewed literature. Below referenced argument and suggestions were used to support the best research methodology selection:



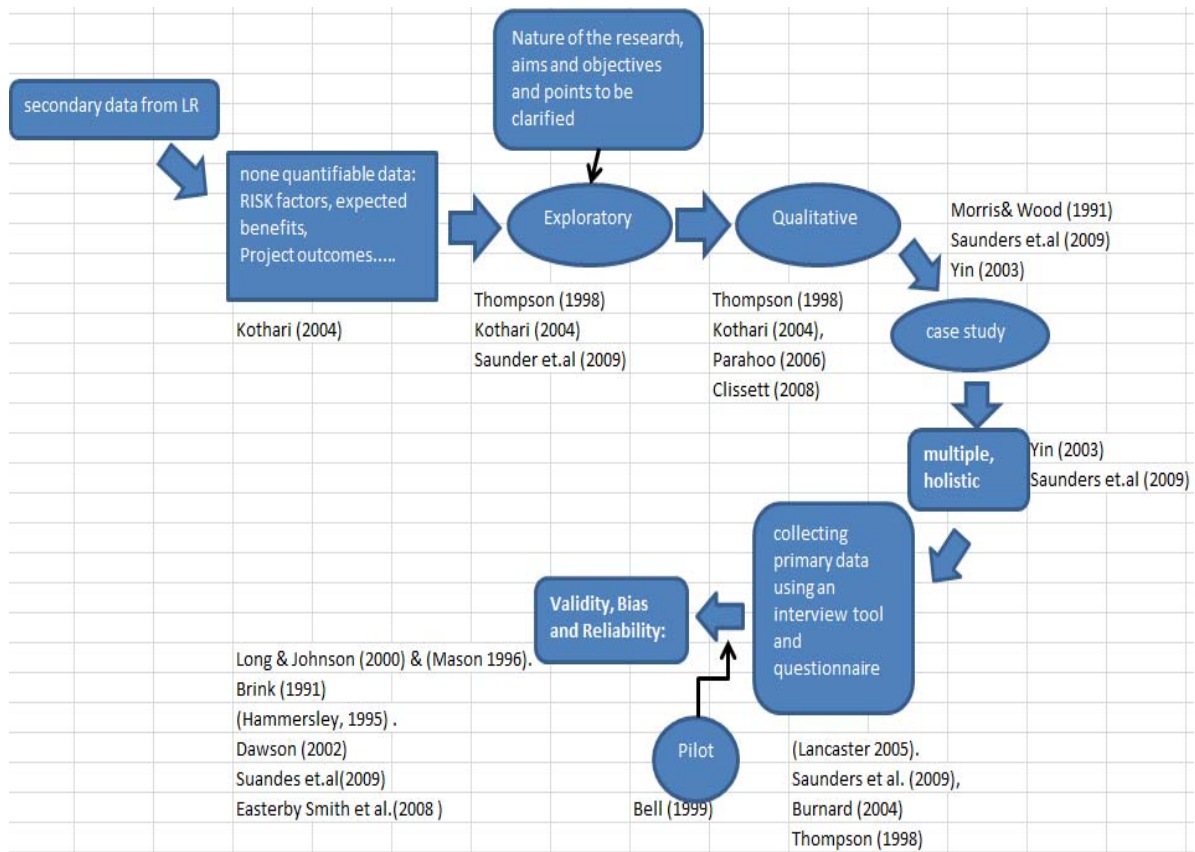


Figure16: Research design process for this paper supported with used references and the suggestions of researchers for selection of each step.

## Chapter 5

### Data analysis, Results, Findings

#### 5-1 Introduction:

Polit & Beck (2006), suggest analysing qualitative data in qualitative research study is challenging and there is no determinative procedure to govern qualitative data analysis, however there are recommendations by experts and researches on methods of summarising data, such as, clustering the qualitative data into a coherent outlines. Kvale (1996) argues that “the process of data analysis in qualitative work, starts from data collection stage and interviews”, it means data collection and analysis are often conducted simultaneously, and then Saunders et.al (2009) analysis, can be continued with “summarising (condensation) and categorisation (grouping)”. The final aim for qualitative data analysis as suggested by Kvale (1996) is “*to go beyond description and become interpretive*”

Below is the table of elements (preset categories) which lists the themes and categories them in advance and helps to search data for these topics. The list is set as references for this study (based on literature review), for each section separate code is given to facilitate the analysing of data thereafter.

<b>A ( Expected benefits)  ,Improvement in :</b>	<b>B ( Expected risks) &amp;  generated from / or due to</b>	<b>C ( Project outcome)</b>
<b>A1</b> = sharing & cutting costs and financial improvement, saving budget	<b>B1</b> =Miss-Integration and Inconsistency	<b>C1</b> =Achieving anticipated objectives and technical specifications
<b>A2</b> = possessing complex skills, , specialized perspective, professionalism, will reduce Scope complexity	<b>B2</b> =Scope and performance drawbacks like : conflict of interests, scope creep	<b>C2</b> =HSE: incident free project with no negative impact on environment
<b>A3</b> = Schedule improvement, reduce project phase's schedule, Save time	<b>B3</b> =Time and schedule slippage, over time accomplishment	<b>C3</b> = on Cost project accomplishment
<b>A4</b> = HR and Other resources allocation and planning improves	<b>B4</b> =HSE downfall	<b>C4</b> = On Schedule project accomplishment
<b>A5</b> =Integration and Performance improvement, rework reduction, workload reduction	<b>B5</b> =Resources and planning and control drawbacks	<b>C5</b> =Quality of delivered job is completely met
<b>A6</b> =Risk sharing and risk transfer	<b>B6</b> =Financial failure and cost, budget overrun	<b>C6</b> =Stakeholders satisfaction
<b>A7</b> =Client satisfaction	<b>B7</b> =Reliability	<b>C7</b> =Introducing an Innovation

A8=Communication improvement	B8=communication difficulties and drawbacks	C8=Efficiency, effectiveness use the of resources
A9=Legal and Law requirement	B9=PM incapability	
A10=Innovation and creativity	B10=Procurement issues	
A11=HSE improvement	B11=Market insecurity and protected category	
A12=Quality improvement	B12= Poor Quality of the work and Poor HR Skill an (HR) expertise	

Table 8: secondary qualitative data after coding

Note: In below case analysis, relevant and consistent data with above coded elements are labelled at the end of each line or paragraph, in order to facilitate categorizing, identifying the patterns and interpreting the qualitative data. Prequalification and contract related parameters are also highlighted.

## 5-2 Analysis of Case A:

Interviewee A is hereafter called “IA”

In reply to the question of the three main reasons that PM is interested on his job and designation, PM has replied that: “(1) his carrier is motivating him because of the level of knowledgeability, (2) daily challenges with clients, partners and vendors that robust the technical communication skills and (3) updated technical skills which makes the job attractive to him” are the three main interesting parameters about his career. This elaborates the importance of professionalism, expertise and knowledge, technical capability in organization A.

### The Alliancing:

The perception of IA on the reasons for outsourcing in project stands for commercial interest , business benefits and performance improvement , IA replied that: “Alliancing is sort of temporarily joint venture to achieve mutual benefits, to my experience main reasons and objectives for outsourcing in project is, business and performance improvement and to have competitive advantages in market and promoting the trade names, the reason MC is subcontracting is to cover the potential weaknesses of performance and incapability” but its conditional, “ one to consider that, outsourcing depends on size and capacity of both SMS and MC, it means not all collaborative implementation of the project can be beneficial to involved parties”. (A1, A5)

Organization A was in position of both SMS and MC in its history of operation. participants is experienced with alliancing projects as PM and project expeditor with 90% success rate in partnered, IA “based on achievement of all objectives including client satisfaction and meeting project requirement”, balance 10% of projects also were not failed however, objectives could proportionally be met by A. (C1, C6)

IA, argue that, alliancing strategy is useful and beneficial “the strategy is useful and beneficial in term of financial and performance advantages, added with improving technical capabilities and skills, covering the shortages of the resource for MC” (A1, A5, and A4)

#### The expected benefits:

Partnering is advantageous comparing with conducting a project only by MC, “better accomplishment of project and obtaining designed objectives when the project is outsourced,( A5, A7) client will have an ultimate benefit of the alliancing, like: time and schedule, quality of the job, lack of HR in some areas will be covered, also financial benefits”( A1, A4, A7, C3, C4, C5)

So the most important benefits that can be expected from partnering: “financial benefits and cost saving, time and schedule, covering the gaps of resources and HR, client satisfaction, scope, quality of the job, improved performance & HSE”, Innovation and covering up the legal and law requirement are not considered as benefit in partnering in accordance with IA, “new work methods to keep the client satisfy could be considered but no particular innovation” (C6)

Integration, communication improvement and risk sharing expected to be the underlying benefits of alliancing, it means “when the major benefits given earlier are achieved in partnering, SMS, MC would seek to add to the value in partnering by sharing risks, enhancing the integration and communication”( A5, A6, A8)

Quality of delivered job on 90% of partnered projects, were ended with high quality of the delivered services, based on client satisfaction survey, which was done at the end of each project,( A12, C5, C6) however in position of MC when organization A outsourced some of projects, not always best level of expertise could be attained by sub-contractors of organization A. (Lack of proper prequalification)

No particular difficulties or client dissatisfaction on resource allocation, however “timeliness of schedule completion, (B3, C 6)was sometimes caused client satisfaction”, the ratio of 90% satisfaction-10% dissatisfaction is roughly correct for this part too.

Partnering could add value to the project depends on condition and situation of each project, also it depends on scope of work, client requirement, and how successful the partner selection process and prequalification would go through. (Prequalification)

IA declared zero incidents in completed partnered projects “the incident ratio is zero, which might be due to appropriate partnering”. (A11, C2)

Client satisfaction survey are always done and the results are all satisfactory, however, there were sort of payment delay by the client, which might have been linked to delays or incomplete work orders. (C6, B3)

#### The expected risks:

IA’s reply on risks in project was not showing deep knowledge on all type of the risks; however, the risks which were faced on the projects that he was the PM were somehow recognized and addressed by him and project team. The risk which was faced by IA is low quality SMS and poor performance. “Risks might impact the result in project, in term of delay in schedule, in term of cost and budget overruns, incident and HSE failure”( B12, B2, B3, B6, B4)

Most important risks linked with project partnering could be: “ improper performance and failure to complete required scope, delay in completion of schedules, HSE failure, miss allocation of resources, reliability and trust issues between parties, failure in quality of delivered job, market insecurity and bypassing the client by SMS ” (B2, B12,B3,B11,B4,B5), on the other hand, IA believes that although some other challenges like “ poor procurement, miss communication , PM competency, miss integration & inconsistency”, don’t seem to be relevant with partnering direct risks, though, miss communication could lead to miss integration(B8, B1, A6) Miss communication can greatly endanger the level of risk sharing in partnering organization, in miss communicated environment, the, risks are more likely to appear and partners are less likely to communicate and address them on time and proper manner, in accordance with IA “in this cases one of the objectives of alliancing which is risk sharing won’t be happening.”. The risk generated by SMS, can easily be transferred to MC, project and then client, which means eventually project outcomes will be affected for “time, cost, HSE, performance, quality”( C2, C3, C4, C5,)

Surprisingly, the financial weakness and budget overrun by partner have had less risk value to IA. The reason for such opinion is because of the nature of the business which is service business that does not need the partner to be too wealthy at contracting stage.

IA: “Particularly, to our business the most important risk is, the risk of SMS that approaches client directly”( B11)

First time partner has more risk comparing when the collaboration is extended for 2<sup>nd</sup> time and more, and main risks of first time partners is “skill and HR qualification, and poor performance related risks,( B2) but as the cooperation continues, occurred events of possible risks are less and the chance on better sharing of risks is more”, thus the learning outcomes and learning cycle in project alliancing is considerable. IA: “establishing an optimized level of communication and reliability between parties, is absolutely depends on the level, time and extension of collaboration in alliancing” because the level of mutual understanding is getting increased.

IA “improper prequalification” is one of the sources of the risk in partnered projects. (Prequalification)

The main claims raised by client in organization A, were assessed by external auditor, and based on available reports from auditor and customer survey reports, the reasons lays on miss communication between parties and miss coordination of the job on time and as planned, this particularly caused client dissatisfaction and delay on project.( B8, B3, B1, C4, C6)

IA: “at least 5% of partnered projects by organization A failed due to the fact that SMS bypassed the MC and directly approached to client” (B11)

#### Project outcomes:

The main outcomes of project are “satisfaction of client and meeting project objectives”, it means if “client is satisfied and project objectives are met then the project can be considered as successful project” (C1, C6)

Added to above finishing the job on budget with good quality and being on time with no incident can enhance the level of satisfaction in client, so these are “all sub categories of project success” (C2, C3, C4, C5), IA: “in overall alliancing is advantageous because it’s likely to improve business and performance, client satisfaction is more likely to happen and resource allocation improves”. IA did not consider innovation, efficiency and environmental impacts as project outcomes, (A1, A7, C6, A4)

### 5-3 Analysis of Case B:

Interviewee B is hereafter called “IB”

IB:” it’s the sense of responsibility in this job, which motivates me more, flexibility in term of time and schedule and rich requirement for technical and advance communication and coordination, are the three things I’d like about my job”

#### The Alliancing:

Based on IB: Project partnering in service business is mainly done to save money and time, and increase the quality of the job, when the organization lacks to provide enough resources or required skills (A1, A12, A2), the alliancing is “equal sharing of risk and responsibility between contractors and clients”(A6)

90-95 % of partnered project by B ended successfully, 5-10% were delayed, still, client was eventually satisfy, though delay occurred, and the judgment of the satisfaction conclusion is based on client feedbacks, financial approvals by client (B3,C6)

Alliancing strategy is experienced to be beneficial, but for organization B the main target when following this strategy is to gain qualification with new and famous clients(Prequalification) in this industry and to extend the business further, this shall cover the financial benefits also at the end(A1); in this situation, if the qualification is succeeds and organization B gets the job from MC, at the end of the project “ new learning cycle is also completed and thus technical benefits will be added to overall advantages of partnering” ( lessons learned)

#### The benefits:

In partnered project, Quality and HSE is likely to improve, IB: “I personally have had no particular incident or Quality/ HSE failure in our partnered project” and the reason is, controlling and monitoring stations is more by different independent parties of all partners in alliancing projects, although, errors are most likely to increase in partnered projects because the number of manpower involved is more, however, the chance of HSE failure declines. (A12, A11, B4)

IB believes that alliancing in project is beneficial because of: “responsibilities and risks are equally shared between parties” , it helps the MC and client to cut costs, save time and increase the quality of the job, it also helps the project to cover the gaps of lack of resources and skills so its somehow better resource allocation but in some cases especially when on time resource allocations were required , partners failed to react quickly, this could escalate the risk of client dissatisfaction, delay and adding extra cost, however quality of the service remained the same.( A6, A12, A1, A3,A2,A4)

IB: “project alliancing is useful for growing business and definitely adds value to project and impacts outcome” when the prequalification with new famous clients succeed and when the job is accomplished, SMS is well equipped with new learning cycle and lesson learned can help the organization to extend the capabilities in future occasions, which eventually impacts the financial goals of the organization as well.

(A1, lessons learned, A2)

The main financial benefits of project alliancing goes to MC, however, in general, all parties are gaining depends on project situation.

IB does not believe there is no rational for expecting innovation out of project partnering.

IB emphasises on the importance of prequalification in project alliancing as a prerequisite to get benefits in partnering. (Prequalification)

IB believes “One way to ensure that client is satisfied on your work is on time payment”, this is also suggested by ISO management system standards (BSI Standards, ISO 9001, 2008). (C6, A1)

Therefore the main expected benefits of project alliancing by organization B are improvements in: finance and cost, time and schedule, integration and performance, less risks, higher chance of client satisfaction, and higher chance of getting better quality of the job,( A1, A3,A5, A6,A7,A12). Other listed parameters are less important parameters that can be expected as benefits in project alliancing.

#### The expected risks:

As sub-contractor, IB believes one important risk is linked with delayed payment and financial difficulties with MC or client. However as MC, misallocation of resources and inadequate technical manpower supplied by SMS to the project are the major concerns.

(B3, B5, B6)

IB: “One of the concerns that we normally face, especially when we work with new partner is, the tendency of directly approaching our clients by our partner (protected category), which is too important for us to avoid it in any possible way” (B11)

Sometime late job notification creates lot of problems in project implementation, as in service business stage notification to mobilise manpower shall be sent by client or MC, when its received late, time would be too short to dispatch the resources, which will cause many problems in implementation and errors are likely to escalate, one of side impacts, necessary communication between parties will be shorten or sometimes even



ignored to save more time, this by itself would cause higher chance of miss integration and miss performance ( B3, B5, B1, B8, B12)

unclear scope of the job by client: client is not quite sure what technical requirements for a particular assignment is needed, so in this condition, while the job is on-going based on older scope and spec, client through MC, tend to change and rectify the scope which causes the reworking, and it consumes extra time, exceptionally in such cases , based on the experiences of IB, direct approach to client and better communication channel with client is required to avoid wasting time and resources. (B2, B3) in case of otherwise, this may cause miscommunication, miss integration and inconsistency in project. (B8, B1)

IB: “Communication in alliancing projects in service business is more complicated than other projects thus”, so it’s risky and difficult to manage more number of SMS in project. (B8)

Based on his knowledge and experience IB believes that , newly assigned contractors are more risky and difficult to manage and hard to communicate, time required to communicate and manage them is more and they are normally delaying the project, however, as the cooperation increase between partners, the risks declines.( B8, B3)

Poor integration, reliability and inconsistency, unclear scope of work, lack of resources, financial related issues, protected category, resource planning and performance, adequate scope, less quality of the job, HR skills, are perceived to be of higher importance risk parameters in partnered project to IB.( B1, B2, B11, B5, B12)

#### Project outcomes:

When project ends, the main goal for organization B is to get “client satisfaction, which is linked to the quality of delivered work” then financial benefits are considered, timely completion of objectives, incident free accomplishment and successful HSE will be assessed too. (C5, C6, C2, C4)

The trend of 5-10 % failed projects is due to: Payment, and financial issues, sudden changes in scopes of work which could not be met on time. (B2, B6), whereas in successful project, time, quality and schedule are all met by organization B based on the client satisfaction survey responds. (C4, C5, C6)

-In general IB believes that “alliancing strategy is effective and necessary to better achieve project objectives although there are both benefits and risks encountered” the main outcomes of alliancing project in service industry are: meeting project objectives, on time , on budget and with required quality and less possible incident, to make the client and other stake holders satisfactory, other parameters such as effectiveness and

other environmental impacts are not too important in service projects. (C1, C4, C5, C2, C3)

IB: “Alliancing is directly impacting project outcomes in term of both risk and benefits”

#### **5-4 Analysis of Case C:**

Interviewee C is hereafter called “IC”

The main three parameters that IC liked about his jobs are: “Technical Knowledgeability, advanced communication with project team, and financial benefits”

##### The Alliancing and the benefits:

The reason of outsourcing in EPC business as per IC is:

1) to cover the lack of know-how, lack of skills, technical knowledge and expertise, the shortage of professional resources, in order to be able to cover more jobs and be able to respond to more clients, “but even if we think we have the knowledge and still other competitors are doing it better than us, we try to joint with them for the purpose of learning their method statements” and to acquire their knowledge , IC: “ in one of the partnered project we wanted to know how well our contractor is able to reduce the price of one phase of projects, so we joint with them and at the end we learned how the method statement is changed to reduce the price” while quality of jobs is remained the same” (A2, lessons learned) ,

2) To cover the gap of incomplete performance in organization C and to optimize the scope of jobs which we cannot provide for client (A2, A4)

3) Financial benefits (A1)

4) Higher chance of implementing new, innovative method of statement by contractor (A10)

5) Higher chance of recruiting and attracting professional HR of SMS in future projects (A4)

6) Transferring the risk or sharing it with SMS (A6)

Organization C has achieved 90% satisfactory accomplishment in all 10 alliancing projects which are implemented so far and 10% of partnered projects by organization C have not met target objectives of organization, though client was eventually satisfied.(C6)

In organization C at the time of tendering, an expert team will review the technical requirement of the project, if implementation of tender requirement is beyond the

capability of organization, in terms of required equipment or manpower skills and technical capability, outsourcing would be the first solution to use.(A2, A4)

Sometimes, schedule of project is too short to be met by only MC, so MC will have to bring the partners into the phases of the project.( A3)

Learning cycle and flow of learned information from SMSs to MC or from the past performance of partnered projects is one of the key parameter that organization C is following in partnered projects.( lessons learned)

Within above described advantages, alliancing strategy was beneficial in accordance with IC, and “it’s wise to include, outsourcing and alliancing in projects, as one of the targets of the organization” But there are cases that, some MCs are only seeking to hire SMS which are smaller in size and capacity, just to cut down project costs and gain financial benefits, no matter if other objectives are not met. (A1)

Eventually in alliancing project, owner and end user is the main party which benefits the most and MC and SMS are adding value to the project.

The five most important parameters that motivate organization C to assign SMS are: financial benefits, schedule improvement, skills and resource improvement plus better scope coverage, higher chance of having new work method statements. (A1, A3, A2, A10)

90% quality of delivered job in partnered projects by organization C is satisfactory based on intensive client survey and end user certificates which are collected at the end of each project.(C6)

One of the important benefits of project partnering is, sharing skills among participants, and the result is improvement in HR capabilities.(A4, A2)

Though there are challenges, having multiple sub-contractors in partnered project i.e. managing them, communication and coordination between them tends to be more difficult,(B1, B8), but organization C was able to create general coordination statement to facilitate these difficulties and this is mainly more happening with new SMSs.

It’s also important to note, if the duration of collaboration between two particular partner is getting longer and continues in different projects, this shows , as the cooperation moves parties are getting more match together and get to use to the work method of each other, so managing new SMSs and communication/coordination between them tend to be more difficult, comparing with the cases that SMSs are well aware of work methods of that particular MC, in other hand , this also confirm that, how alliancing strategy is beneficial to MC and client.

In HSE, organization C was fully successful, with no incident and the reason is severe training and monitoring procedures and arrangement in project site, with strengthen internal HSE arrangements of SMSs which are controlled at prequalification stages.(A11)

IC: “Two things can’t be accomplished in projects without proper investment, assessment, programming and hard effort which are: successful HSE output and high quality of job”

The expected risks:

Outsourcing is risky and SMS risk can be transferred to MC and client, no matter what the nature of risk is. Organization C is always analysing the risks encountered with SMSs at the time of prequalification. Based on client requirement, there is an important annexure to tender documents which is called *risk assessment survey log form*, this form to be evaluated and addressed, by group of MC and client representative for each phase of the project, in case the SMS is already selected, a representative of SMS is also required to attend the meeting, this meeting and assessment protocol may take couple of weeks to complete based on the extension of project and complexity of the scope.

There is a representative of an insurance company, assigned by client or MC to cover the financial parts of the assessment, the risk survey assessment form may include: HSE, efficiency, quality, finance, performance (B4, B12, B2, B6), IC: “Risk reduction or transfer is one of the benefits if project partnering”(A6)

The main risk encountered with outsourcing is the risk of protected category or the attempt of SMS to bypass MC and directly approach client for future opportunities (B11)

The communication difficulties and lack of integration and inconsistency, meeting project time, schedule, with required resources, and the chance of poor procurement to project by SMS, or other possible challenges which are considered by organization C as risk driver.(B1, B8, B3), However, other parameters like financial and technical capabilities are also important but not as important as above mentioned items.

IC: “as PM, I had difficulties to manage some of SMS with absolutely high technical capabilities but less manageable” the reason is, it’s sometimes risky that SMS realizes that the technical capability of MC in some areas is less than the SMSs, so in this cases they may tend to be hard to manage to meet project requirement, this may cause further difficulties in communication and coordination, or motivate SMS to bypass MC and endangers complete accomplishment of scope of work due to technical

misunderstanding, the solution to this cases is to have strong client consultant to fix the technical misunderstandings, it means in same time of having the benefit of knowhow of SMSs, the risk of less manageability might occur. (B8, B2, B11), The risk of protected category is unavoidable, unless MC forecast the proper action in contractual stages like adding to the cost of direct approach, also MC might need to prove the capabilities to client in term of quality and financial strength in a way that owner does not accept to deal with SMS directly.

One of the reasons that some of SMS are ready to take part of the project with MC is to promote their brand and to extend their business and this is the reason which would confirm that the risk of protected category is unavoidable in alliancing strategy. (A1)

#### Project outcomes:

The most important items as project outcome are: client and stake holder satisfaction even if more cost to be borne by MC, then Schedule, quality and HSE (C6,C4,C5) Cost is having less importance against above parameters for organization C. Improper prequalification of SMS has caused the failure of the project which was partnered by organization C, and that failure was due to incomplete skill and lack of necessary profession by SMS. IC believes, there is direct link between project outcome and risks and benefits of project alliancing, as risk increases, achieving project outcomes will be unlikely to happen, and hence benefits of alliancing will be reduced. in accordance with IC, risk and outcome is indirectly related while benefit and outcome is directly related, after all when partnering strategy is adapted, “against transferred risk to SMSs, there are sort of the risks which SMS brings to the project”

#### **5-5 Analysis of Case D:**

Interviewee D is hereafter called “ID”

Three main parameters that ID liked about his job and designation was: Market expansion, business development, brand promotion, and financial benefits.

#### The Alliancing and the benefits:

To cover the shortages of supply, scope of supply, resources, expertise and to cover the weaknesses in financial capabilities, marketing and business development. Alliancing is done to fill above gaps when organization D and assigned partner are parts of supply chain to the specific project. (A1, A4, A2, A3) in organization D, so far all objectives of alliancing are met.

Benefit motivation of alliancing for D were: to gain and achieve the needs of organization D in term of escalating the market capability by improvements in resources, expansion in market, financial capabilities, motivation in HR when they communicate with high profile partners on daily basis, (A1, A2, A4), and MC is most benefited in this partnership, because of more financial benefits, the most important benefits of alliancing are: "Improvements in financial capacity of organization, scope of supplies are better covered, time and schedules of project accomplishment is shorten and this reduces the chance of schedule overrun, HR competencies are improved, client satisfaction is increased, performance improves.

-However, risks reduction and communication improvements and quality of finished products are also important but organization D, does not initiate the alliancing for these reasons, so the level of importance is less than other 5 parameters. (A1, A2, A3, A4, A7,A5)

HSE, innovation possibilities and legal and law requirement are not relevant in term of benefits. But so far the partnered projects are incident free. So within above, partnership and alliancing adds value to the organization D and increases the level of client satisfaction.(C6)

#### The expected risks:

For D, the expected risks of inappropriate alliancing are: likelihood if endangering the capital of the company and weakening the financial capabilities, market reputation might be negatively affected and brand in market might decline, so other than above benefits, if partnership does not succeed its risky and harmful (B5, B6)

Among other risks, one of the important parameters that are experienced by ID in alliancing project are miss integration between parties, protected category or bypassing D by partner to favour client, schedule collapse due to miss performance of partner and poor resource allocation, poor quality of the final product .(B1, B11,B3,B5,B12)

Established levels of communication in partnered projects are smooth and positive with no particular difficulties

#### Project outcomes:

Project outcomes in order of importance to organization D are: quality cost and time And the quality to "D" means meeting objectives as planned, achieving and delivering product as per complete client requirements and related standards, which encapsulates client satisfaction though.(C1,C3,C4,C5C6), So far full client satisfaction is achieved in

organization D based on results of client satisfaction survey and this is mainly due to high quality performance of partnered organization.(C6)

ID: “To my knowledge and experience, risks and benefits are directly impacting project outcomes, in all aspects which are separately explained in benefits, risks and outcomes parts”

### **5-6 Cross Case Analysis, data classification, summarising and interpretation**

Saunders et.al (2009) suggests that qualitative data analysis includes “*summarising (condensation) and categorisation (grouping)*”; so in this section, gathered information from interviewees and organizational documents listed in Table 8 are processed to satisfy the direction of addressing research objectives and by considering above suggestion from Saunders et.al (2009).

Note: A, B, C or D with red colour in parenthesis, is highlighting the consistencies of the opinion among each organization’s representative on given variable (benefits, risks, outcomes, the casual relationships), after analysing of data. So the name of organizations with similarities of respondents on questioned subject or similarities of interviewee reply on studied constructs of the research are in parenthesis. Independent and dependent variables are separately listed and responds and impacts on either of partners in alliancing project (SMS, MC, and Client), are grouped and categorised at the end.

#### Expected Benefits (Category A-Table 8)

1. Benefits for SMS: financial, business and performance improvement(A,B), competitive advantages in market and promoting the trade names, improving technical capabilities and skills of HR(A,B,C), lessons learned (B,C), Communication improves(A,B,C,D)
2. Benefits for MC: to cover the potential weaknesses of performance and incapability, covering the shortages of the resource ,skills and expertise (A,B,C,D), better accomplishment of project and obtaining designed objectives when they outsource it, financial benefits and cost saving (A,B,C,D), on time and schedule accomplishment of tasks (A,B,C,D), HR skills and capabilities improves (A,B,C,D), as above happens client satisfaction increases(A,B,C,D),scope complexity reduces(A,B,C,D), quality of the job improves (A,B,C) performance & HSE improves(A,B), sharing& transferring risk and responsibilities is more likely to happen(A,B,C), resource allocation improves(A,B,C,D),which improves the integration(B), lessons learned(B,C), business

improvement and expansion(C), new and innovative methods of work statement emerges (C,)

3. Benefits for client: client will have an ultimate benefit of the alliancing, like: time and schedule, quality of the job, lack of HR in some areas will be covered(A,B,C,D), also financial benefits(A,B,C,D), better accomplishment of project with higher level of skills and expertise (A,B,C) and obtaining designed objectives, which make the project more integrated when they outsource it(A,B,C,D), quality of the job improves(A,B,C,D), HSE improves. Resource allocation improves (A, B, C, D), legal and law requirement satisfies (A), especially for government clients, communication improvement would impact client too (A, B, C, D), learning lessons for similar projects are valuable to client (A, B, C),

Table 9 below provides the matrix, linking the Category A elements (benefits) with each organization case. Item A13 is an emergent element for this category.

Organization →	A	B	C	D	A	B	C	D	A	B	C	D
A ( Expected benefits) for →	SMS				MC				Client			
A1 = sharing & cutting costs and commercial interests , financial improvement , saving budget, trade name promotion and competitive advantage in market improves	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A2 = possessing complex skills, , specialized perspective, professionalism , will reduce Scope complexity					✓	✓	✓	✓	✓	✓	✓	
A3= Schedule improvement, reduce project phase's schedule, Save time					✓	✓	✓	✓	✓	✓	✓	✓
A4= HR skills improves, resources allocation and planning improves	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
A5=Integration and Performance improvement, rework reduction, workload reduction	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
A6=sharing Risk and responsibilities and risk transfer					✓	✓	✓		✓	✓	✓	
A7=Client satisfaction					✓	✓	✓	✓				
A8=Communication improvement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A9=Legal and Law requirement									✓			
A10=Innovation and creativity							✓					
A11=HSE improvement					✓	✓			✓	✓	✓	✓
A12=Quality improvement					✓	✓	✓		✓	✓	✓	✓
A13= lessons learned		✓	✓			✓	✓		✓	✓	✓	

Table 9: Responds on expected benefits for either party in alliancing (A13 is the benefit other than what was reviewed in literatures)

#### Expected Risks (Category B-Table 8)

4. Risks for SMS : reliability and trust, payment related issues like delayed payment and financial difficulties(A,B,C), miss communication(A,B,C,D), late job notification by client or MC which will cause delay by SMS and would cause higher chance of miss integration and miss performance (A,B), and difficulties in resource allocation



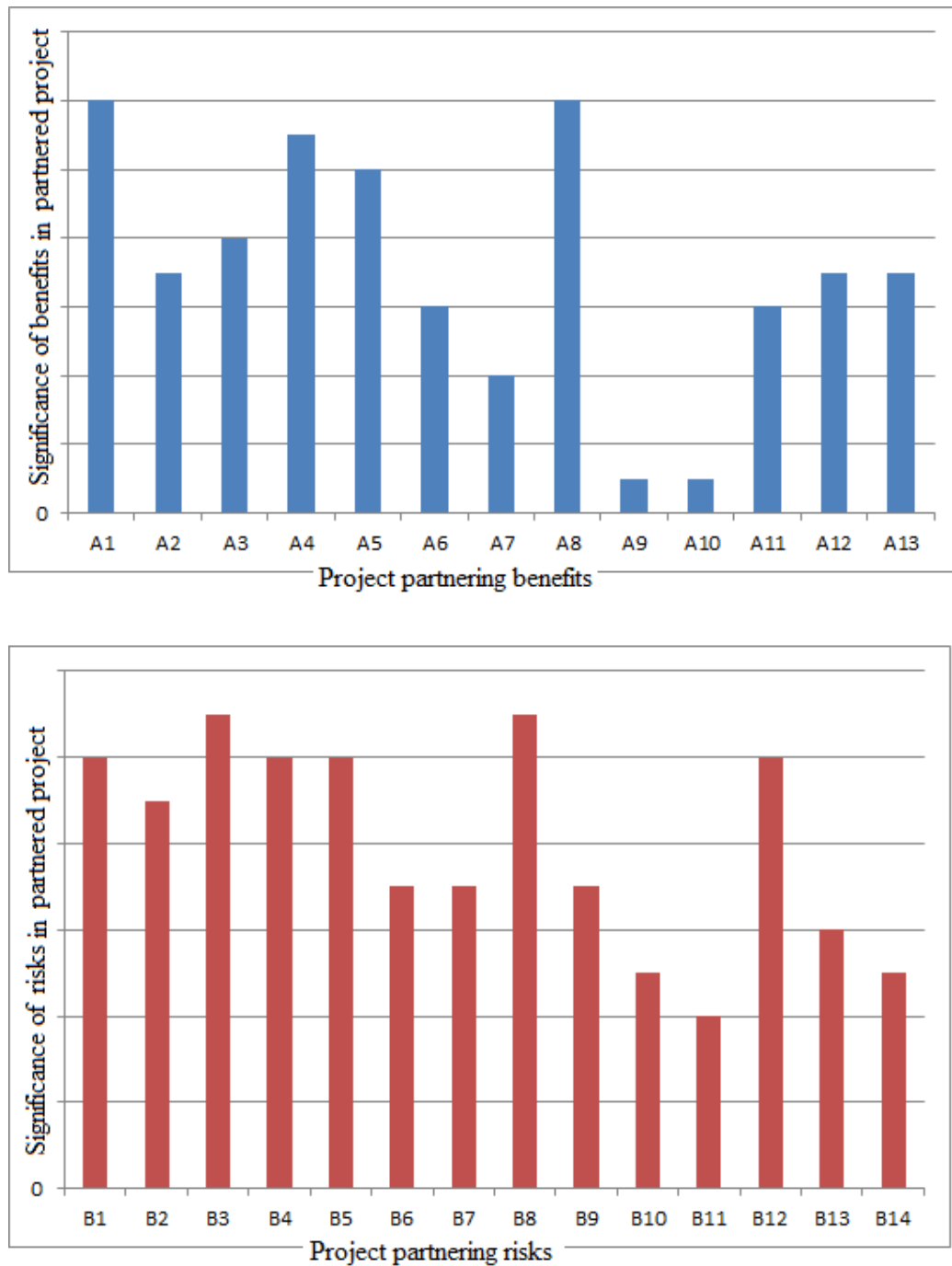
(A,B,C,D) unclear scope of job by MC or client, which causes the reworking, and it consumes extra time and reduces the quality (A,B,C), PM incompetency (A,B), HSE difficulties (A,B,C), delay in payments by MC or client (A,B,C), all would cause client dissatisfaction(A,B,C,D) and impacts the trade name of MC(A,B)

5. Risks for MC: low quality SMS or inadequate technical manpower supplied by SMS or poor performance and failure to complete required scope which damages the reputation of MC against client (A,B,C,D), and project integration and constancy(A,B,C,D), delay in completion of schedules(A,B,C,D), HSE failure, miss allocation of resources(A,B,C,D),reliability and trust(A,B),failure in quality of delivered job(A,B,C,D), market insecurity and bypassing the client by SMS(risk of protected category) (A,B,C,D), miss communication which yields to miss integration(A,B,C,D) risk of client dissatisfaction(B,D), adding extra cost, financial risks(B,D), incapability of assigned PM(B,C,D) , the risk of incapable suppliers (C,D)
6. Risks for client: low quality SMS , poor performance and failure to complete required scope, delay in completion of schedules(A,B,C,D), HSE downfalls(A,B,C), miss communication, risk of “improper prequalification” , Miss integration (A,B,C,D) , PM incompetency (B,C), Procurement issues by sub suppliers (C, D) or drawbacks of on time reaction for resource allocations ( A, B, C)

Table 10 below provides the matrix, linking the Category B elements (risks) with each organization case. Items B13 and B14, are emergent elements for this category.

Organization →	A	B	C	D	A	B	C	D	A	B	C	D
<b>B ( Expected risks) for :</b>												
B1=Miss-Integration and Inconsistency	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
B2=Scope and performance drawbacks like : conflict of interests, scope creep, Poor performance		✓			✓	✓	✓	✓	✓	✓	✓	✓
B3=Time and schedule slippage, over time accomplishment	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
B4=HSE downfall	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
B5=Resources planning and control drawbacks	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	
B6=Financial or commercial failure and cost , budget overrun, delays in payments	✓	✓	✓		✓		✓		✓			✓
B7=Reliability	✓	✓	✓		✓	✓				✓		✓
B8=communication difficulties and drawbacks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
B9=PM incompetency	✓	✓			✓	✓	✓		✓	✓		
B10=Procurement issues by sub suppliers				✓			✓	✓			✓	✓
B11=Market insecurity and protected category					✓	✓	✓	✓				
B12= Poor Quality of the work and Poor HR Skill and expertise	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
B13= negative impact on MC's reputation in market	✓	✓			✓	✓	✓	✓				
B14= risk of client dissatisfaction	✓	✓	✓	✓		✓		✓				

Table 10: Responds on expected risks for either party in alliancing (B13, B14 are the risks other than what was reviewed in literatures)



**Graph 5:** Significance of risks and benefits elements in partnered project, based on relative importance and consistencies among samples. (Note: In above graph, Y axis, shows the number of times that parameters in X axis (elements A and B), evolves during qualitative analysis)

#### Project Outcomes (Category C-Table 8)

Achievement of all objectives including client satisfaction (A, B, C,D), and achieving project requirement as per designed objectives with high quality (A, B, C,D), project

accomplishment, on schedule (A, B, C,D), within the cost and budget (A, B,D) and incident free ratio with high HSE standards (A, B, C)

Organization →	A	B	C	D
<b>C ( Project outcome)</b>				
C1=Achieving anticipated objectives and technical specifications	✓	✓	✓	✓
C2=HSE: incident free project with no negative impact on environment	✓	✓	✓	
C3= on Cost project accomplishment	✓	✓		✓
C4= On Schedule project accomplishment	✓	✓	✓	✓
C5=Quality of delivered job is completely met	✓	✓	✓	✓
C6=client satisfaction	✓	✓	✓	✓
C7=Introducing an Innovation				
C8=Efficiency, effective use of the resources				

Table 11: Responds on project outcomes from the perception of interviewees in studied cases.

Table 11 above provides the matrix, linking the Category C elements (outcome factors) with each organization case.

#### 7. Linking the benefits and risks of alliancing with project outcomes

Risks might impact project outcome, in term of delay in schedule, in term of cost and budget overruns, incident and HSE failure” and “in same way, benefits also can impact the outcomes of the project”(A,B,C), the risk generated by SMS, might be transferred to MC, project and then client, which means eventually project outcomes will be affected”, the areas which might be effected are:” time, cost, HSE, performance, quality”(A,B,C) Miss communication between parties and miss coordination in partnering will cause miss integration and might particularly cause client dissatisfaction and delay on project if it’s not managed properly by MC (A, B, C, and D)

Risk and benefits in alliancing is directly impacting project outcomes

As there is direct link between project outcome and risks and benefits of project alliancing, as risk increases, achieving project outcomes will be unlikely to happen, and hence benefits of alliancing will be reduced, the areas which might be impacted are different form project to project, and it’s all depend on nature of deliverables by parties though. For instance in service contracting financial situation of parties might not be too important to impact eventual objectives of project, however other items like integration or commercial interests of parties can influence the outcomes of the project (A, B, C, and D), it’s important to consider that finishing the job on time, within the budget with high quality of finished product and preferably with no incident, most probably satisfies

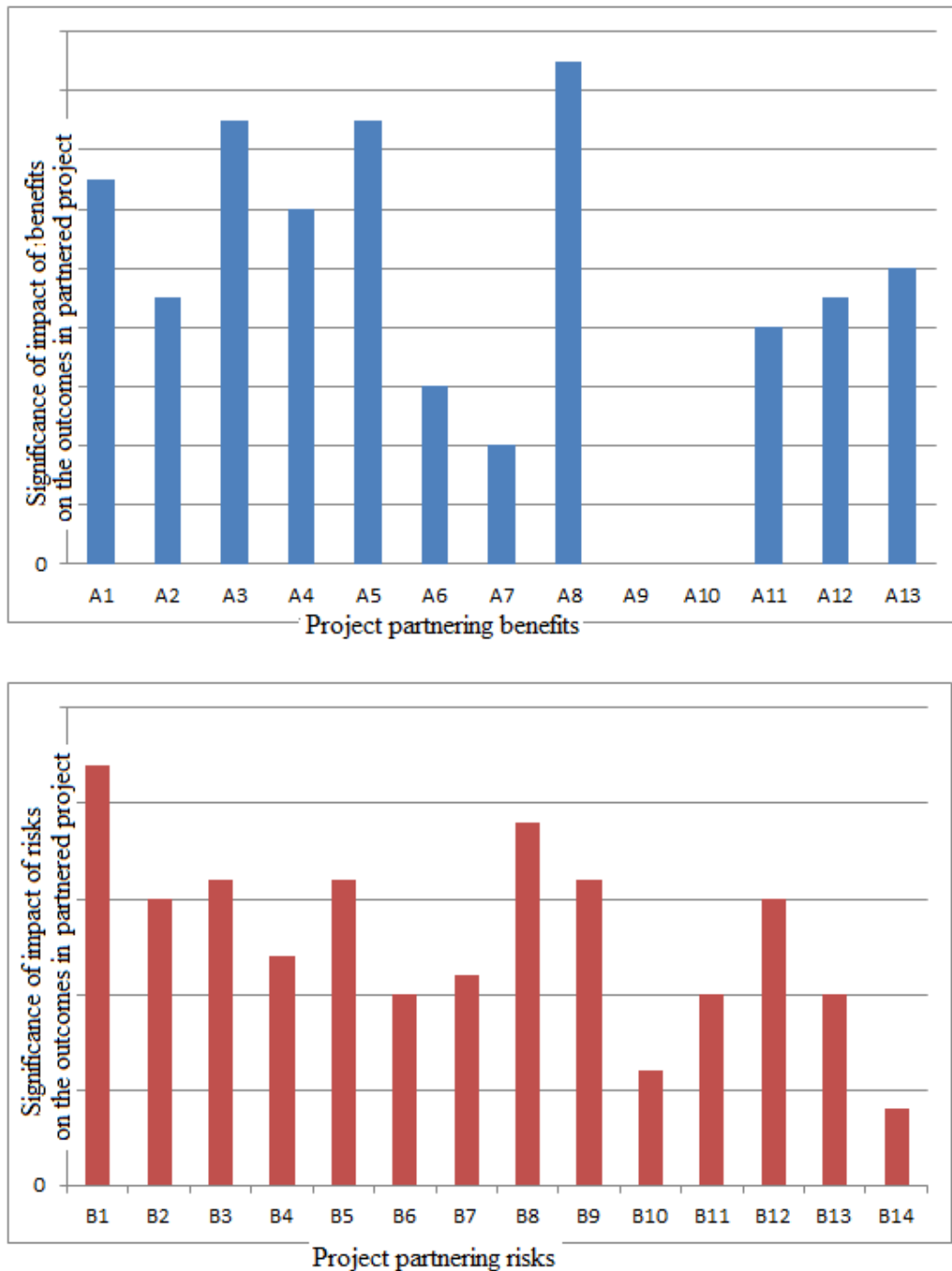
every client and that's what all parties follow to achieve at the end of project lifespan

.(A, B, C, and D)

		Service Contractor								Service Contractor								EPC Contractor								Manufacturer,Supplier							
		Organization A								Organization B								Organization C								Organization D							
		C ( Project outcome)																															
		C1	C2	C3	C4	C5	C6	C7	C8	C1	C2	C3	C4	C5	C6	C7	C8	C1	C2	C3	C4	C5	C6	C7	C8	C1	C2	C3	C4	C5	C6	C7	C8
Benefits	A1	+		+			+		+	+			+			+		+		+						+		+			+		+
	A2	+				+				+				+	+			+				+				+				+			
	A3	+			+		+		+	+			+		+		+				+	+		+	+	+			+		+	+	+
	A4	+				+	+		+	+				+	+							+	+						+	+	+		+
	A5			+	+		+		+				+	+	+	+	+	+	+	+			+	+		+					+	+	+
	A6								+							+		+					+								+	+	
	A7						+									+		+					+								+		
	A8			+	+	+	+	+	+				+	+	+	+	+	+	+			+	+	+	+				+	+	+	+	+
	A9																																
	A10																																
	A11		+				+			+	+					+			+				+								+		
	A12					+	+			+			+	+							+	+							+	+			
	A13		+			+			+		+		+	+			+					+			+								+
Risks	B1	-	-	-	-	-	-		-	-	-	-	-	-	-		-	-			-	-	-			-		-		-	-		
	B2	-			-	-	-					-	-	-	-						-	-		-				-		-	-		
	B3	-			-	-			-			-	-		-					-	-		-		-	-		-	-		-		
	B4		-		-	-						-			-					-	-		-				-						
	B5				-	-			-			-	-		-				-	-		-	-		-					-		-	
	B6	-				-			-	-				-				-	-				-		-		-					-	
	B7								-									-	-			-	-		-			-	-				
	B8				-	-	-	-			-		-	-	-	-		-			-	-	-	-		-		-	-		-		
	B9	-			-	-	-	-			-		-	-	-	-						-	-		-			-	-				
	B10																		-			-		-							-		
	B11	-				-			-	-				-				-	-			-		-		-						-	
	B12	-	-			-	-			-	-			-	-			-	-			-	-		-				-	-			
	B13			-			-		-			-			-			-			-		-		-							-	
	B14					-									-								-								-		

Table 12: linking the expected benefits and risks with project outcomes based on the responds of interviewees,

Table 12 above, elaborates the casual relationship between category A, B (benefits and risks) with category C (outcomes) for each studied case.






Graph 6: Significance of impact of risks and benefits on the outcomes in partnered project, based on relative importance and consistencies among samples (Note: In above graph, Y axis, shows the number of times that parameters in X axis (elements A or B), evolves during qualitative analysis)

Significance of variables in Y axis in graph 5 & 6, are measured based on accumulation of number of times in which, unique respondents referred to certain themes listed in Table- 8. Measuring emergent themes is done after focusing and categorizing gathered information.


### 5-7 Learning outcomes emerged from case studies

Kothari (2004) discusses that research is a “*discovery voyage from the known to the unknown*”, gathered data from literature review are tailored with below lessons learned from studied cases, which is the “*discovery voyage from the known to the unknown*”, learned lessons from each organization cases are separated by the circle in left:

- 
- 1) Gaining benefits in outsourcing depends on size and capacity of both SMS and MC and the way partnering succeeds, not all partnering yield benefits for either party. not necessarily in all cases partnering would add value to the project, it's all depend on condition and situation of each project, scope of work, client requirement, and also how successful the partner selection process and prequalification would go through
  - 2) Alliancing is temporarily partnership to achieve mutual benefits .Gaining benefits and facing expected risks for either party, depends on the duration of the contract and number of times which those parties have worked with each other on different projects. This is also discussed in literature review (Figure11, page 37 ) , so the same theory is valid based on conducted empirical study, the first time partner in project is likely to expose more risk , comparing when the collaboration is extended for 2<sup>nd</sup> time and more” and main risks of first time partners are related to “skill , HR qualification, and poor performance” , in addition, establishing an optimized level of communication and reliability between parties, is absolutely depends on the level, time and extension of collaboration in alliancing” because as the collaboration increases, the level of mutual understanding is increased too.
  - 3) The financial strength of partner has less risk concern for MC in service industry. The reason for such opinion is, because of the nature of the business, which does not need the partner to be too wealthy at contracting stage.
  - 4) Lessons learned and learning cycle in project alliancing is important for future partnering occasions and identification of improvement areas. lessons learned are essential as it can be useful for growing business in SMS organization
  - 5) Miss communication can greatly endanger the level of risk sharing in partnering organization. In poor and inappropriate communicated project environment, addressing risk and events can't be properly done. Also Miss Communication will result to miss integration in alliancing project.

- 6) In term of HSE, although, errors are most likely to increase in partnered projects because the number of manpower involved is more, however, the chance of HSE failure declines, because, the controlling and monitoring stations in each phase of project increases (by different independent parties which are active by all partners in alliancing projects)
- 7) In service business, main financial benefits of project alliancing goes to MC
-  8) When scope of job or WBS, is mistakenly circulated by MC or when sudden changes in scope happens, direct approach to client by SMS and better communication channel with client is required to avoid wasting time and resources and to avoid shortfalls in quality of finished job.
- 9) Communication in alliancing projects in service business is more complicated than other type of projects.
- 10) Financial issues such as payment delays may force SMS to abandon the partnership with MC.
-  11) Overall duration of collaboration between one MC and set of same SMSs in different projects, is an indicator to confirm that managing new SMSs and communication/coordination between SMS is difficult, therefore new SMS is less manageable and difficult to communicate and coordinate
- 12) One of the reasons for successful HSE is sever training and monitoring procedures and arrangement in project site, which can be supported with internal HSE arrangements of SMSs which are controlled at prequalification stages by MC and client.
- 13) Outsourcing is risky and SMS risk can be fully transferred to MC and client, no matter what the nature of risk is, however Risk reduction or transfer is one of the benefits if project partnering.
- 14) Some of SMSs are with absolutely high technical capabilities are less manageable for MC and client, expert project technical consultant, who acts as independent party can reduce the risks of these SMSs for MC and client.
- 15) The risk of protected category is unavoidable, so, it always exists, either , it to be absorbed, or mitigated or transferred to insurance companies and the reason is that, SMSs are trying to promote their business and brand as a benefit of partnering,
- 16) When partnering strategy is adapted in project procurement, against transferred risk to SMSs, there are sort of risks which SMS brings to the project



-  17) Motivation in HR when they communicate with high profile partners on daily basis, is one of the benefits of alliancing with highly experienced partner
- 18) Long term and short term business relationship between SMS and MC in alliancing is important in term of level and nature of risks and benefits.

## Chapter 6

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# Conclusions & Recommendations

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### 6-1 Conclusion

Saunders et.al (2009) suggests that good research conclusion shall include judgmental reporting which bridges the empirical findings with research aims and objectives, rather than reporting the facts. Similarly, based on the result of analysis of four cases in energy industry and contracting business, plus analysis of available data, gathered from organization's documents, and the insight from the reviewed literatures on the subject of project alliancing and partnering, below conclusion is inducted to satisfy and address three objectives of the research:

The benefits of the project alliancing:

- 1- The **main benefit** of project alliancing for either party (SMS, MC or client) is commercial interest and cutting and sharing the costs of the project. However, MC and client are the parties (comparing with SMSs), which eventually gain more in project alliancing.( please refer to sections: 5-3 & 5-6 and 5-7)
- 2- Other important advantages of alliancing for sub-contractors are the privileges of lessons learned and improvement in human resources skills and expertise, whereas for main contractors, the likelihood of customer satisfaction through the improvement in quality of product, higher HSE standards, better resource planning and less chance of schedule collapse, is critical. For clients, though, high quality and incident free and integrated project, which is on time and budget, is considered as benefit of project alliancing.(5-6&5-7)
- 3- The significance of **communication improvement** in project alliancing is perceived to be an advantage for SMS and MC, to increase the likelihood of performance improvement and to attain better project integration; correspondingly, the higher chance of integration reduces the likelihood of rework, and thus schedule collapse and budget overrun will decline.(5-2 to 5-4 &5-6, 5-7)
- 4- Covering up the gaps of legal and law requirement and innovation by SMS, are considered to be less expected benefit from project alliancing. (5-1&5-2)

The risks of the project alliancing:

- 5- The **main risks** in alliancing project are the delay/ schedule slippage, the risk of poor quality of delivered job and HSE downfall. However, unlike the benefits of alliancing, majority of risks in partnered project are encountered by main contractors. (5-2 to 5-4 & 5-6, 5-7)
- 6- Likewise for alliancing benefits, the **communication drawbacks** between contractors can negatively impact the resource allocation and performance and generates the risk of miss integration and inconsistency. (5-2 to 5-4 & 5-6, 5-7)
- 7- Market insecurities, reliability, bypassing main contractor by subcontractors and direct business between SMSs and client which conflicts the commercial interests of main contractor is one of the important risks for MCs in partnered projects. (5-2 to 5-4 & 5-6)
- 8- Though PM incompetency and financial failures of partner are perceived to be risk driver in studied cases, however, these are not of important concerns for MC and client. (5-6)

Project outcomes & the impacts of alliancing benefits and expected risks on project outcomes:

- 9- The **main outcomes** of the project with almost equal importance to participants are: achieving project objectives as planned, obtaining customer satisfaction via delivering the project on time, with planned budget and high quality. Expecting an innovation (except for improvement in work statements) and high efficiency performance from project partner are not considered as project outcome. (5-2 to 5-4 & 5-6)
- 10- Among benefits of project partnering, **communication improvement is more likely to impact project outcome**, by affecting performance improvement which is linked with higher chance of resource allocation and as result, higher chance of project integration which will eventually result on rework reduction and cutting costs, thus the partnered project is more likely to end on cost with planned schedule as an appropriate outcome. Consequently, other benefits of project alliancing, like, improvement in resource allocation and higher chance of integration will positively influence cost saving, schedule improvement and better quality of delivered job. (5-2 to 5-4 & 5-6)
- 11- Among expected risks in project partnering, the risks of **miss integration and miss communication between parties, are more likely to impact project outcome**, through negative affect on resource allocation, project schedule and performance; thus the risk of reworking and related costs will escalate which might eventually yield to schedule slippage, budget overrun, poor quality and the chance of incident in project. The second

important parameter that might affect project outcome is the risk of project manager incompetency.

(5-2 to 5-4 & 5-6). Knowing above helped to increase existing body of knowledge and map a framework for project partnering to satisfy third objective of this research.

## **6-2 Recommendations**

- 1) It is recommended to have an appropriate contractor prequalification, to enhance the likelihood of emerging more benefits and avoiding unnecessary risks is considerable.
- 2) It is recommended to reduce the high expectations among stakeholders on the perception , that project alliancing will quickly resolve all of the problems in project, whereas alliancing needs time to gradually mature and establishes a homogenous team through which partnering advantageous can be progressively materialised.
- 3) It is recommended to have an appropriate communication loop for lessons learned between parties on constant basis during project lifespan.
- 4) It is recommended to have a well-integrated project team including a competent project managers, and alliancing board with the participation of a representative from each contractor, as a fundamental pre-requisite to achieve alliancing benefits and reduce the chance of emerging risks; this task is not doable without reducing communication problems and avoiding misunderstanding of intentions.
- 5) The need for strong reliable contract and related administration process between contractors, to fulfil legal requirement and to seam the obstacles of reliability and trust and support the intention of integrated team is inevitable.
- 6) It is suggested to establish an updated, competent and error free communication system in project site to improve the conditions of communication and coordination among parties and personnel is mandatory.
- 7) It is suggested to develop an adequate training and induction sessions for human resources for improving communication skills to reduce the risk of incident in projects with multiple contractors.

### **6.3 Limitations of the study & suggestions for future research**

Saunders et.al (2009), discusses that one of the limitations of qualitative research is the level of generalizability, as for this research one of the limitations is the sample size, which was limited to four contractor organizations, though the variety of nature of business and scope of activity of each contractor helped to have different perspectives, still the sample size limited the generalizability of emerged result. So, if time constraint allows, it is recommended to include more samples in future researches.

It is also suggested to include prequalification of contractor and contractual procedure between contractors in alliancing project, in future research, to assess the possible impacts of these parameters on expected risks and benefits of project partnering, which can add value to the quality of the research.

Simultaneous analysis of heterogeneous constructs, from two different perspectives (main and sub-contractor) with limited time might be the limitations for study, therefore, it is recommended to either limit the construct or add to research time in order to maintain the quality of rigorous study. To have an alternative analysis beneath the surface of the results of this research, it would be suggested to segregate and analyse the risk, benefit and outcome constructs of project partnering in separate research studies and to select the samples with similar scope and field of supply to project.

The subject of lean project management and relevant benefits or risk, and the links with project partnering can be appropriate area for future researches.

This study was conducted in UAE and Oman; however, time constraint of the research and the limitation of access to top executives of selected sample organizations, and required time for traveling, were some of the limitations of this research, so to save time for future research it is suggested to either conduct prearranged interviews in events like exhibitions/ conferences where all top executives of target samples are available or to change the data measuring tools /approach to the combination of qualitative and quantitative approach.

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## Appendix

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### I- Interview Questionnaire (revised form pilot)

#### A-General Information

- 1- Total years of experience in: Energy Projects and in UAE and as PM?
- 2- Current Designation? Any academic achievement in PM?
- 3- Company status in terms of SMS or MC
- 4- Scope of supply and coverage areas in term of: designer, service provider, producer....?
- 5- Please list up to three things you like about your job

#### B-Project Alliancing

- 1- How would you describe project alliancing? Please specify the characteristics that you might know
- 2- Any experience in Alliancing projects? How well were the projects ended? Did you achieve desired objectives?
- 3- What normally do you supply to your client with help of your outsourced alliances? And how often is this happens? Any particular reason that you use this tactic? Who is deciding on alliancing strategy in your organization?
- 4- What were your role and/or your company's role in those particular projects?
- 5- Did you find alliancing strategy beneficial? Please describe which areas in project organization were most benefitted areas?

#### C-Alliancing Benefits

- 1- Do you think alliancing is useful toward project accomplishment?
- 2- Based on your knowledge and experience what would you describe as alliancing benefits?

- 3- Which one of SMS, MC or Client is most likely to be benefited in alliancing?  
Please describe why.....
- 4- Please list 5-10 parameters that are most important as alliancing benefits based on your current experience
- 5- How was the quality of delivered work at the end of outsourced project?
- 6- How would you judge the level of expertise associated with outsourced project you experienced? Is the level of expertise elevated due to outsourcing/ alliancing the project?
- 7- How good was the resource allocation and schedule of activities in outsourced project?
- 8- Do you think outsourcing/ alliancing is adding value to your project organization?  
In what way?
- 9- Have you had any sort of incident in those particular projects?
- 10- Any chance for emerging new methods of operation, innovation or particularly new way of work delivery? Please comment
- 11- Have you had any sort of client satisfaction survey at project delivery stage? How was the result, please explain

#### **D-Alliancing Risks**

- 1- How do you define risk in project? Please describe
- 2- Is the risk useful for project or not? Please specify
- 3- Any personal experience with risks encountered in projects? Please specify
- 4- Do you think outsourcing is risky? Why?
- 5- What parts of project organization is most affected by risks associated with outsourcing?
- 6- Please list 5-10 parameters that are most important as an alliancing risks based on your current experience
- 7- Have you had any experience managing SMSs in alliance projects? Please describe how was the experience
- 8- How was established communication and level of mutual reliability in alliance project?

- 9- Was there any sort of unauthorised communication or indirect business between subcontractor and client?

### **E- Project Outcomes**

- 1- How would you describe project outcomes?
- 2- Please list 5-10 parameters that are most important as project outcome
- 3- Do you know what golden triangle is?
- 4- Have you had any failure in your alliance projects? Please explain why?
- 5- If no then how was the project achievement in term of cost, schedule and quality?  
Please comment
- 6- Was the alliance effective? Please explain
- 7- Was there any concern on environmental impact from your project? Please specify

### **F-Re phrased questions:**

- 1- Please number each of the factors listed below in order of importance to you in choice of project outcome :

Note: Number the most important 1, the next 2 and so on till number 4 as less important. If a factor has

No importance at all, please leave blank

*a-Meeting objectives other than golden triangle, contractor's objective & subjective success criteria, having the results as hoped; meeting all project requirements as anticipated, meeting the technical specifications, operational satisfy requirement of delivered product or service*

*b-Well- functioning alliance, Final project objectives*

*c- Success to overcome time & cost overruns , accomplishment and quality, meeting cost, time, and quality, the "iron or golden triangle" , better results than its expected in term of cost, schedule, quality, safety , having adequate resources to satisfy project needs in a scheduled time*

*d-The satisfaction of all stakeholders, the level that goals and expectations of stakeholders are met*

*e-Environmental impact, work environment and innovation*

*f-Efficiency, effectiveness*

(Please describe):

- 2- Please number each of the factors listed below in order of importance to you in choice of alliancing benefits :

Note: Number the most important 1, the next 2 and so on. till number 4 as less important. If a factor has

No importance at all, please leave blank

*Finance and Cost*

*Scope*

*Time and Schedule*

*HR and Other resources*

*Integration and Performance*

*Risk*

*Client satisfaction*

*Communication*

*Legal and Law requirement*

*Innovation and creativity*

*HSE*

*Quality*

- 3- Do you see any relation between, alliancing benefits, risks and project outcome?

Please describe

- 4- Please number each of the factors listed below in order of importance to you in choice of alliancing Risks :

Note: Number the most important 1, the next 2 and so on till number 4 as less important.. If a factor has

No importance at all, please leave blank

a- *Lack of Integration and Inconsistency*

b- *Scope and performance*

c- *Schedule collapse*

d- *HSE Failure*

e- *Resource Planning and control, performance*

f- *Scope, quality, performance, Skills (HR)*

g- *Finance and costs*



- h- Reliability and miss integration*
- i- Miss communication*
- j- Resource, time, schedule*
- k- Market insecurity for MC via bypassing MC and favouring client, protected category*
- l- Integration and poor procurement*
- m- PM incapability, HR*