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Analysing the Impact of Project Misalignment with Business Objectives on the Overall Project Performance: Response from Workshop (Article Review, Critique, & Opinion)

Ebenezer Essilfie-Baiden

Abstract

The characteristics of the construction industry have often been observed and criticised, some even questioned whether construction is actually an industry (Groák, 1994). "Is construction an industry? Note towards a greater analytical emphasis on external linkages." Construction Management and Economics 12, 287-293), or rather a "loosely coupled system" of projects Dubois, A. and Gadde, L.E. (2002). "The construction industry as a loosely coupled system: implications for productivity and innovation." Construction Management and Economics 20, 621-631. Construction projects have been described as coalitions of firms; a number of independent firms coming together for the purpose of undertaking a single construction project and that coalition of firms having to work as if it were a single firm, for the purposes of the project' Winch, G.M. (1989). "The construction firm and the construction project: a transaction cost approach." Construction Management and Economics 7, 331-345. Alternatively, the parties involved in construction projects have been interpreted as organisational units joining and operating together as a single production organisation when it is advantageous; a temporary multiple organisation; or a "quasi-firm" Eccles, R.G. et al (1981).

Keywords: Project Misalignment, Overall Project Performance, Total Quality Management Model

1.0 INTRODUCTION

Many writers tell us why projects fail. For instance, Field tells us "projects fail too often because the project scope was not fully appreciated and/or user needs not fully understood." Field, Tom. (1997). Hulme tells us that "MIS projects and associated procurements take place in an environment characterized by the following: Lack of management continuity and an incentive system that encourages overly optimistic estimates of the benefits that can be attained from doing the project." Hulme, Martyn R. (1997). And Leicht tells us that high user expectations can actually be the cause of project failure. Leicht, Michael. (1999) Hoffman tells that projects fail because of poor alignment between IT departments and business users. Johnson, Jim, et al. (2001). And in another article Hoffman tells us that project managers too often act as "process cops and report compilers and lose sight of what they're supposed to be doing – to make sure projects are running effectively". Hoffman, Thomas July 21, 2003.

It is not uncommon to see construction projects abandoned, left uncompleted for several years, dilapidated and left to rot construction projects across the country. A careful review or study into why most of such projects are left in such states, often the intended beneficiaries complain of their objection to the location or siting of such structures and their disagreement with the government and other local council authorities. Hence this academic research into analysing the impact of project misalignment with business objectives on the overall project performance in the greater Accra construction sub-region of Ghana using the Total Quality Management (TQM) model. Since the subject of construction is broad, the focus of this research shall be on construction of housing in the Greater Accra Region of Ghana

2.0 THE CONSTRUCTION INDUSTRY AND ITS LINKAGES TO THE GHANAIAN ECONOMY-POLICES TO IMPROVE THE SECTOR'S PERFORMANCE

By: Victor Osei

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The construction industry plays an essential role in the socio economic development of a country. The activities of the industry have a lot of significance to the achievement of national socio-economic development goals of providing infrastructure, sanctuary and employment. It includes hospitals, schools, townships, offices, houses and other buildings; urban infrastructure (including water supply, sewerage, drainage); highways, roads, ports, railways, airports; power systems; irrigation and agriculture systems; telecommunications etc. The construction sector holds immense potential for stimulating growth, boosting project exports and generating employment. The domestic construction sector happens to be one of the fastest growing sectors, with an impressive average growth of 7-8 per cent per annum. The foundation of a higher growth rate rests on a sound and efficient infrastructural development which makes the construction sector a key sector. The rapid expansion of infrastructure by both government and the private sector has triggered off construction activities and fuelled demand in many key sectors like cement, steel, paints and chemicals, glass, timber and earth moving equipment and machinery. The construction sector is a crucial industry having strong backward and forward growth linkages. It deals with all economic activities directed to the creation, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering nature. Besides, the construction industry generates substantial employment and provides a growth impetus to other sectors through backward and forward linkages. The main purpose of this study is to assess the economic contribution of the construction industry in Ghana and to throw light on the emerging opportunities and challenges. Construction in any country is a complex sector of the economy, which involves a broad range of stakeholders and has wide ranging linkages with other areas of activity such as manufacturing and the use of materials, energy, finance, labor and equipment (Hillebrandt, 1985). The contribution of construction industry in the aggregate economy of a country has been addressed by a number of researchers and valuable literature available on the linkage between construction sector and other sectors of the economy.

Several researchers conclude that the construction sector has strong linkages with other sectors of the national economy. Hirschman (1958) first defined the concept of 'linkage' in his work on 'Strategy of Economic Development'. He emphasized the significance of 'unbalanced' growth among supporting sectors of the economy as opposed to a balanced development of all interrelated economic activities (Lean, 2001). Park (1989) has confirmed that the construction industry generates one of the highest multiplier effects through its extensive backward and forward linkages with other sectors of the economy. It is stated that the importance of the construction industry stems from its strong linkages with other sectors of the economy (World Bank, 1984). However, interdependence between the construction sector and other economic sectors is not static (Bon, 1988; Bon, 1992). Strout (1958) provided a comparative inter-sectoral analysis of employment effects with an emphasis on the construction. Ball (1981) and Ball (1996 and 1995) addressed the employment effects of the construction sector as a whole. Many studies (Fox, 1976; Bon and Pietroforte, 1993) use the strong direct and total linkage indicator to explain the leading role of the construction sector in the national economy. Field and Ofori (1988) stated that construction makes a noticeable contribution to the economic output of a country; it generates employment and incomes for the people and therefore the effects of changes in the construction industry on the economy occur at all levels and in virtually all aspects of life (Chen, 1998; Rameezdeen, 2006). This implies that construction has a strong linkage with many economic activities (Bon, 1988; Bon and Pietroforte, 1993; Bon et al., 1999; Lean, 2001; Rameezdeen, 2006), and whatever happens to the industry will directly and indirectly influence other industries and ultimately, the wealth of a country. Hence, the construction industry is regarded as an essential and highly visible contributor to the process of growth (Field and Ofori, 1988). The significant role of the construction industry in the national economy has been highlighted by Turin (1969). On the basis of cross section of data from a large number of countries at various levels of development, Turin (1969) argued that there is a positive relationship between construction output and economic growth. Furthermore, as economies grow construction output grows at a faster rate, assuming a higher proportion of GDP (Turin, 1969, Hua, 1995, Wells, 1986). In a recent article Drewer (1997) returns to the 'construction and development' debate. Using data for 1990 similar to that assembled by Turin for 1970, he shows that global construction output has become increasingly concentrated in the developed market economies. He goes on to argue that this new evidence does not support Turin's propositions (Drewer, 1997, Wells, 1986).

Keywords: Construction Index, GDP, Credit, Industry's Output and Economy

The Construction Sector in Ghana: Overview

The construction industry has made significant contribution to both industrial output and overall Gross Domestic Product (GDP) in Ghana over the years. With reference to available country-wide statistics, the impact of the built environment sector as a whole is much greater; including segments of the manufacturing, mining, quarrying, electricity and water sectors. From observations and reference to legal and regulatory documents such as the Building Regulations (ROG 1996), it suggests that the Ghanaian built environment sector is modeled on the UK regulatory system. The

Ghanaian construction sector is akin to the UK construction sector about 20 years ago. There are serious shortfalls in materials handling, safe working practices, quality and timeliness of construction. Another widely applicable feature of the Ghanaian built environment sector, common to many developing countries, is that labour is comparatively cheap. This means that greater emphasis is put on selection of materials and components by price rather than might be expected in countries where there is a higher labour cost.

The key players involved in the Sector are:

- The Client Community – both public and private sectors.
- The Design Community
- The Supply Chain – Materials Suppliers, Machinery Manufacturers, Sub-assemblers.
- Main Contractors and Sub-Contractors of every tier.
- Universities and technological institutions and Professional associations.
- Economic drivers such as Banks and other financial corporations
- Trade Unions, including regulation and standards authorities.

Conclusion

The study suggests that the construction sector plays a leading role in the improvement of socio-economic conditions and the built environment in every country. The sector is an important contributor to capital formation and the rate of activities in the sector is a major indicator of the health of the economy. The study revealed that the construction sector remains as one of the key sectors in the economy in terms of its share of GDP (i.e. 9.1% for 1993-2011 period) and the overall industrial output (i.e. 35.9% for 1993-2011 period). Also, the paper estimated Construction Sector Index for Ghana for the first time and the index revealed that construction sector has improved significantly over the past two decades. Similarly, some empirical evidence from the econometric estimation using the Engel Granger Causality and Johansen Cointegration methodologies suggested that the construction sector activity promote economic growth in Ghana and the relationship remains positive. The study further revealed that the construction sector in Ghana can promote infrastructural development such as hospitals, schools, townships, offices, houses, urban infrastructure (including water supply, sewerage, and drainage), highways, roads, ports, railways, airports, power systems, irrigation systems, and telecommunications. Finally, the paper concludes that, the construction sector when given the needed push in terms of capacity building, good policy initiatives and regulatory guidelines can provide the necessary impetus for socio-economic development in Ghana.

Review

- The study suggests that the construction sector plays a leading role in the improvement of socioeconomic conditions and the built environment in every country. The study revealed that the construction sector remains as one of the key sectors in the economy in terms of its share of GDP (i.e. 9.1% for 1993-2011 period) and the overall industrial output (i.e. 35.9% for 1993-2011 period).
- Also, the paper estimated Construction Sector Index for Ghana for the first time and the index revealed that construction sector has improved significantly over the past two decades. Similarly, some empirical evidence from the econometric estimation using the Engel Granger Causality and Johansen Co-integration methodologies confirmed the evidence that the construction sector activity promoted economic growth in Ghana and the relationship remains positive.
- Finally, the paper concluded that, the construction sector when given the needed push in terms of capacity building, good policy initiatives and regulatory guidelines can provide the necessary impetus for socio-economic development in Ghana.

Critiques

- The researcher refuse covers the fact that many developing countries attach a great interest to the development of their construction industry, the sector is, generally not considered as a clearly identified industry. It is an industrial sector that is often ignored by major actors, Consequently the sector is not planned in a holistic manner, but rather, operates with fragmented and often conflicting components resulting in wastage, inefficiency and inability to plan for total development.
- The researcher would have covered that one of the main reasons for these inefficiencies is related to the multi-sectoral nature of the construction industry which requires sound planning.

- Apart from not planning the construction sector in an integrated manner, the major problems facing the sector are related to deficiencies in the specific inputs required. A review of the various ways and means of constructing infrastructure suggests that the unsatisfactory performance of the industry is due to several inter-related factors.
- Furthermore, the construction industry in Ghana has several deficiencies as far as its demand characteristics are concerned. Governments are usually the main clients of the construction industry, with a large demand for several categories of output by very limited financial resources to meet that demand.

Opinion

Construction sector activity is an integral part of a country's infrastructure and industrial development. The construction industry also generates substantial employment and provides a growth impetus to other sectors of the economy through backward and forward linkages. It is, essential therefore, that, this vital activity is nurtured for the healthy growth of the economy. As a result, there is the need for good policies to be instituted by policy-makers in order to regulate and promote growth in the sector. Hence, the following policy recommendations are worthy of note.

- The construction industry in Ghana in particular plays a pivotal role in the development of the national economy. Its sustainability is crucial to the growth and survival of the economy. The industry is currently characterized by a large number of small contractors, and a small number of large foreign contractors dominating the construction market especially in the area of donor funded projects. Sustainable capacity needs to be built through the strengthening of the local contractors and other actors in the industry without prejudice to their foreign counterparts. Growth and sustainability will not come overnight. It can only be achieved through the creation of an appropriate business environment where both local and foreign partnerships can flourish, thus facilitating technology transfer.
- Proper systems must be put in place to enable contractors to grow step by step. The classification of contractors on the basis of clearly defined criteria based on capability is an important component of such a system. Such classification does not only guide clients and other business partners of the contractor as well as the general public, but it also helps to inform the contractor where the company stands in relation to others.
- Involvement of contractors in planning and implementation of programmes for their own development is crucial for their success. Most of local contractors are very much aware of their problems and their causes. What is then required involves appropriate interventions at both policy and technical level and support to overcome these problems.
- The high resource requirements of the construction industry are not matched by the availability of finance. The high cost of raising finance also translates into high costs, which again has a cascading effect on the economy. Appropriate measures and instruments should be formulated and implemented to reduce financing costs and ease the flow of funds to the industry.
- The high cost of operation has been identified as one of the major problems that not only affects the construction industry directly but also the overall economy indirectly, as high input and process costs are reflected in high cost of infrastructure, which, in turn, translates into higher user charges. This also reduces the surplus that can be ploughed back into construction technology upgradation and labour welfare. As part of the process of standardization and improving efficiency in the construction sector, harmonized bidding conditions and standard bidding documents for domestic construction contracts must be developed and circulated to all stakeholders in the industry as guidelines.
- Finally, there is a need to enhance productivity through appropriate mechanization to build up the sector's capacity and deliver the critical infrastructure needed for economic development. The poor state of technology adopted by the construction sector adversely affects its performance. Upgrading of technology is required both in the manufacturing of construction material and in construction activities specifically.

3.0 PERFORMANCE MANAGEMENT IN CONSTRUCTION: A CONCEPTUAL FRAMEWORK

By: Michail Kagioglou, Rachel Cooper & Ghassan Aouad*

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Throughout the last two decades a number of industries, primarily manufacturing, have introduced new methods and techniques to shift traditional paradigms in order to improve their performance. This has led to the creation of new philosophies such as concurrent engineering/construction, lean production/construction and many others such as JIT, TQM, TPM etc. The main driver behind those philosophies is to optimize an organisation's performance both internally and externally within its respective marketplace. Inevitably, this has led to the 'rethinking' of performance management systems through effective performance measurement.

Bititci *et al.* (1997) explain the distinction between performance management and measurement in that the first "... is seen as a closed loop control system which deploys policy and strategy, and obtains feedback from various levels in order to manage the performance of the system" whereas the performance measurement system "... is the information system which is at the heart of the performance management process and it is of critical importance to the effective and efficient functioning of the performance management system." Therefore, performance measurement is the process of "... determining how successful organisations or individuals have been in attaining their objectives [and strategies]" (Evangelidis 1992). To achieve this, the outputs of organisational strategic and operational processes are measured, in a quantifiable form, to monitor the vital signs of an organisation (Hronec 1993; Euske 1984). This paper examines the elements of the process as illustrated in fig.1 providing a critical review of the literature in order to develop the Performance Process Conceptual Framework (PPF) for predominantly the construction industry.

Background to performance measurement

The importance of identifying an organisation's performance is evident throughout the world-wide markets, the results of which are to attract future investment, increase share value and attract high calibre employees. Therefore, it is important to consider how an organisation's performance is measured and how it can be communicated to the wider market i.e. how can it be understood and interpreted by the potential investors, employees and customers. The basis of formulating performance indicators that achieve the latter have been in operation as early as the beginning of our century (Chandler 1997). Those performance indicators have traditionally concentrated on finances e.g. return on investment, sales per employee, profit per unit production, which as Sanger (1998) suggests "...financial measures are useful - but they tend to measure the past - and they tend to measure the easily-measurable." The apparent inadequacy of financial measures for contemporary businesses has been identified by a number of authors, for example Johnson (1994), Crawford & Fox (1990), Hayes *et al* (1988), Johnson and Kaplan (1987) to mention but few. Neely (1999) identified that the reasons why these types of measures are criticised is because they:

- Encourage short-termism
- Lack strategic focus and fail to provide data on quality, responsiveness and flexibility
- Encourage local optimization
- Do not encourage continuous improvement

The main reason for the above failings of financial measures is they are 'lagging metrics' (Ghalayini & Noble 1996) in that they report on results and decisions made in the past and therefore of little use in improving current performance. In effect, they are reporting on the organisation's past performance rather its current performance. A simplistic analogy to illustrate this point can be drawn from the field of sports, and in particular football, where knowing the result of a match offers you an indication of how the team performed but it does little to suggest future improvements, identify mistakes and wrong strategies, assess individual performance or identify weaknesses. In any case the match was either lost or won. Similarly, organisations that rely on financial measures alone can identify their past performance but not what contributed to achieve that performance. Therefore, in addition to measuring 'what' the performance of an organisation was, the 'how' that performance was achieved should also be identified on an on-going basis. It is only by understanding how the organisation arrives to a particular performance, and designing metrics (leading as opposed to lagging) to measure the 'how' that an organisation might start to improve and increase market share. This has been the focus of research since the late 80's when increased globalised competition has forced companies to consider nontraditional measures (Ghalayini & Noble (1996) provide an interesting comparison of traditional and non-traditional measures). As a result of this a new field of study has emerged which aims to identify the right number and type of performance metrics, in an integrated, to the organisation, manner. One of the tools created to do that is the balanced scorecard.

Conclusions

The number/percentage (if the metric is quantitative) or other result (if the metric is qualitative) forms the output of the 'processes. The results form an indication to which an organisation achieved its goals. However, an organisation is as successful as its customers perceive it to be and the degree to which the marketplace i.e. competition 'allows' it to be. Increased competition in the 1990s forced companies to review what they use to view as 'acceptable' performance measures. In the example presented in the previous section it can be seen that the result of measuring the amount of defects out of 1000 components provided is 2%. This means that twenty parts are faulty. This might have been acceptable in the 1970s but a large number of Japanese companies are demanding and in many cases achieving the same percentage out of a million parts. Therefore, it is important for an organisation to compare itself against what is perceived to be best practice in the industry. This benchmarking can be achieved both for a performance metric and for a particular goal or perspective (see figure 3). Indeed, benchmarking has been identified as a significant tool for identifying improvements within organisations and industries (Elmuti & Kathawala 1997; Ramabadron et al 1997; Voss et al 1997).

Review

- This paper presents a review of literature of performance management/measurement in various industries with the aim of transferring best practise into construction. A framework is presented which ensures that effective strategies are deployed to form the performance management system that construction organisations can adopt.
- The Process Performance Conceptual Framework (PPF) adopts the balanced scorecard (BSC) with the addition of a number of elements/perspectives and it rationalises the relationships between performance measures and goals derived from strategy.
- In doing so, the impact of those measures to an organisation's performance can be examined and analysed to indicate potential improvement areas. The paper also identifies a number of areas that can be used to validate the PPF.

Critique

- The measurement of an organisation's current and past performance is an important issue, which has been considered closely in the past decade. It involves the development of a framework upon which performance measures can be developed and implemented as to identify the degree to which an organisation is able to implement its strategy. This paper would have presented a performance process conceptual framework (PPF) which integrates the main themes of performance management in a simple matrix like arrangement.
- It is based on the balanced scorecard (BSC) but with the addition of the 'project' and 'supplier' perspectives, which can be considered specific for the construction industry. Furthermore, it would have illustrates the relationship of the measures used to measure the goals identified by strategy, as to provide indicators for effective performance management.
- Therefore, the principles (best practice) upon which the PPF would have based can be considered generic, in that the PPF can be adapted for any organisation and/or indeed industry.

Opinion

- The further study of the PPF should be implicit in its conceptual nature, in that it lacks validation from empirical evidence and it is the intention of the authors to test the PPF to derive to its final form.
- Also, no attempt was made to identify explicit performance measures for construction based on research findings and therefore presents itself as a further field of study.
- However, the PPF can form the basis for effective performance management / measurement for organisations.

4.0 IMPORTANCE OF QUALITY FOR CONSTRUCTION PROJECT SUCCESS

By: H. Mallawaarachchi^{1*} and S. Senaratne

Attainment of acceptable levels of quality in the construction industry has long been a problem. Great expenditures of time, money and resources, both human and material, are wasted each year because of inefficient or non-existent quality management procedures [1]. During the last decades' construction industry has been heavily criticized for its performance and productivity compared to other industries [2]. Poor quality in construction projects is a common phenomenon in the world [3]. Further, [4] stated that the satisfaction of quality level in the construction projects has not been achieved and, it is a serious problem. However, most of the countries have been evolved to implement quality standards to ensure construction quality. Therefore, it is necessary to investigate the importance of quality for construction project success. Hence, the purpose of this research is to determine the importance of quality for construction project success. The framework of quality for construction project success is developed accordingly.

Literature Review

Quality can be defined as meeting the legal, aesthetic and functional requirements of a project. Requirements may be simple or complex, or they may be stated in terms of the end result required or as a detailed description of what is to be done. However, the quality is obtained if the stated requirements are adequate, and if the completed project conforms to the requirements [1]. Some design professionals believe that quality is measured by the aesthetics of the facilities they design. According to [5], this traditional definition of quality is based on such issues as how well a building blends into its surroundings, a building's psychological impacts on its inhabitants, the ability of a landscaping design to match the theme of adjacent structures, and the use of bold new design concepts that capture people's imaginations. Quality can also be defined from the view point of function, by how closely the project conforms to its requirements. The concept of quality management is to ensure efforts to achieve the required level of quality for the product which are well planned and organized. However, in the construction industry, quality can be defined as meeting the requirements of the designer, constructor and regulatory agencies as well as the owner.

Application of quality in construction industry

From the perspective of a construction company, quality management in construction projects should mean maintaining the quality of construction works at the required standard so as to obtain customers' satisfaction that would bring long term competitiveness and business survival for the companies [7]. Further, the adoption of quality in construction industry has been promoted in some literature [8; 9]. The application of ISO standards has received much attention from researchers. ISO certification is nowadays a trend in most industries including construction industry [10]. According to study by [11], for the implementation of quality management in project management, the concepts of quality planning (identification of quality standards), quality assurance (evaluation of overall project performance) and quality control (monitoring of specific project results) in the quality management processes are importance. Among those, quality assurance (QA) and quality control (QC) are mostly used in construction. The quality control procedure in construction projects is based on tender documents, specifications, working drawings etc., therefore, the pre tender stage quality and standards of the work should be properly maintained.

Therefore, it is important to maintain quality control of the building projects from the inception of its design stage up to the completion of construction including the maintenance period [12]. Quality Assurance (QA) is a program covering activities necessary to provide quality in the work to meet the project requirements. QA involves establishing project related policies, procedures, standards, training, guidelines, and system necessary to produce quality. QA provides protection against quality problems through early warnings of trouble ahead. Such early warnings play an important role in the prevention of both internal and external problems". On the other hand, Quality Control (QC) is the specific implementation of the QA program and related activities. Effective QC reduces the possibility of changes, mistakes and omissions, which in turn result in fewer conflicts and disputes [11]. The design professionals and constructors are responsible for developing an appropriate program for each project to enhance the project quality.

Research methodology

Key research papers relating to quality, quality management, quality management procedures in construction industry were reviewed in order to determine the importance of quality for construction project success.

Findings and Discussion

A construction project in its life span goes through different phases. The main phases of a project can be described as: conceptual planning, feasibility study, design, procurement, construction, acceptance, operation and

maintenance. Quality is one of the critical factors in the success of construction projects. Quality of construction projects is linked with proper quality management in all the phases of project life cycle. Design and construction are the two important phases of project life cycle which affect the quality outcome of construction projects significantly [2]. Further, quality of construction projects can be regarded as the fulfillment of expectations of the project participants by optimizing their satisfaction. It is because, since the quality outcomes of the projects are not according to required standards, faulty construction takes place. Further, the errors on construction projects occur frequently and can be costly for the contractors and owners of constructed facilities. In fact, 6-15% of construction cost is found to be wasted due to rework of defective components detected late during construction and 5% of construction cost is wasted due to rework of defective components detected during maintenance [13]. Hence, quality has become one of the most important competitive strategic tools which many construction organisations have realized it as a key to develop their building products in supporting the continuing success [14].

Conclusions

Directing a construction project towards quality with low cost and time is a greater concern today. It is because quality is required to meet project requirements of the owners, constructors and other parties involved with a greater satisfaction. Moreover, poor quality could lead to unnecessary cost to the organization where it could create costs due to failure, appraisal and prevention. Hence, it creates a necessity to introduce the concept 'quality' into building process throughout its whole life phases. Implementing proper quality management plan is important at the project inception where, quality drawings, quality standards and constructability of design may lead to enhance the project quality. However, the commitment and the support of the management are important to continue the process. The awareness and training provides a base to collaborate all parties into the process, in which the collaboration of such all parties in quality management process is essential to lead towards construction project success.

Review

- The researcher covered that construction projects are always expected to create a balance between cost, time and quality. It is possible to have high quality and low cost, but at the expense of time, and conversely to have high quality and a fast project, but at a cost.
- The researcher covers high quality is not always the primary objective for the client; however, it is extremely important to a successful project. An appropriate level of quality could be determined during all phases of the construction project. Specially, construction and commissioning are two critical phases where the project could impact by its operability, availability, reliability, and maintainability of a facility.
- Researcher ultimately, covered a facility with a good construction quality program and minimal defects is more likely to have a smooth and trouble free transition into the commissioning and qualification phase of the project. This creates a great potential for quality improvements in construction projects, as the poor quality could negatively effect to project failures.
- Therefore, the purpose of this research is to investigate the importance of quality for construction project success. Accordingly, quality and related key literature were reviewed and a framework of quality for construction project success was developed.

Critiques

The researcher would have covered that construction projects are always expected to create a balance between cost, time and quality. Even though, improving quality is not always the major objective of the project; the poor quality could create cost to organisation. The researcher would have cover the cost of poor quality refers to the costs associated with providing poor quality product or service. The cost due to failure, appraisal and prevention are three major cost categories that could be directed by poor quality.

As further mentioned, failure cost could be occurred as internal and external failures. Internal failure cost includes rework, scrap, reinspection, re-testing, redesign, material review etc whilst external failure cost includes processing customer complaints, customer returns, warranty claims and repair costs, product liability and product recalls.

Further, appraisal cost could incur while performing measuring, evaluating, or auditing to assure the quality conformance. These costs include first time inspection, checking, testing, process or service audits, calibration of measuring and test equipment, supplier surveillance, receipt inspection etc. The prevention cost include the costs related to all activities of preventing defects from occurring and to keep appraisal and failure to a minimum, such as,

new product review, quality planning, supplier surveys, process reviews, quality improvement teams, education and training etc.

Opinion

- Further studies should conduct to create a necessity to enhance the quality of construction projects to lead them towards successful completion.
- As per the extant literature, adopting quality into building process is therefore utmost important. In construction, failure can result from malfunction on the part of constructor, designer, or even owner. In most cases however, it is the result of a combination of actions by several or all of these parties.
- According to previous researches, the construction organisation must, therefore, have the ability to deal effectively with all parties involved to make the project success with high project quality.
- The implementation of quality management plan therefore could start at the project inspection stage and should continue throughout the whole life cycle phases.

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