Application of MS Project Software for Time and Cost Management in Real estate

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Abstract
Real estate construction projects are real estate, land, buildings, and rights to air on land and land rights under the ground. The term real estate means real or physical property. "Real" comes from Latin root precision, or objects. These projects have sponsors who invest money while other teams manage and build the project. Time management and cost management are key processes for project management and construction. The best possible practices for successful project completion should be followed. Oracle Primavera and Microsoft Project are two of the main programs developed to prepare bar charts and determine the network of important paths. Because Primavera is more intensive and used in large or large projects, Microsoft Project is currently preferred in India to build real estate. The author aims to understand MS Project's application to various stakeholders, such as builders, project management consultants and contractors. The main purpose of this document is to express how cost is considered an important constraint on the real estate sector. The survey focused on obtaining surveillance information from four areas in the construction industry, including roads, highways, bridges, stadiums, real estate, oil and gas. It also illustrates the relationship between project monitoring and monitoring and the project schedule.

Keywords: Real Estate, Construction Management, bar charts, Project Management

1. Introduction

Time management is one of the key project & construction management process (Sahin *et al.* 2015). Real estate is the land plus any buildings and resources on that land. Real estate may be used for

commercial purposes, like operating a store or an office, or for industrial purposes, like operating a mine or a factory. The most common type of real estate, however, is residential real estate, which is used for housing.

Types of Real Estate

Residential Real Estate includes both new construction and resale homes. The most common category is single-family homes. There are also condominiums, co-ops, townhouses, duplexes, triple-deckers, quadplexes, high-value homes, multi-generational and vacation homes.

Commercial Real Estate includes shopping centers and strip malls, medical and educational buildings, hotels and offices. Apartment buildings are often considered commercial, even though they are used for residences. That's because they are owned to produce income. Commercial real estate is any property owned for the purpose of producing income.

Industrial Real Estate
Includes manufacturing buildings and property, as well as warehouses. The buildings can be used for research, production, storage and distribution of goods. Some buildings that distribute goods are considered commercial real estate. The classification is important because the zoning, construction and sales are handled differently.

1. Real Estate and Construction

Real estate **(Hartmann, 2015)** development, or property development, is a business process, encompassing activities that range from the renovation and release of existing buildings to the purchase of raw land and the sale of developed land or parcels to others. Real estate developers are the people and companies who coordinate all of these activities, converting ideas from paper to real property. Real estate development is different from construction, although many developers also manage the construction process.

Fig 1: Real estate and construction

3.1 Measures for Cost Control and Management in Real Estate Construction

- Build up a Scientific Management System for Real Estate Construction and Perfect Relevant Equipped Measures
- Build and Perfect the Cost Control System and Implement a Whole-Process Control over Costs
- Emphasize on Designs, Strengthen Contract Management, Be Strict with Design Changes, and Regulate the Procedures of Changes
- Enlarge the Financing Channels and Optimize the Debt Structure. Decrease Financing Risks and Reduce Capital Costs
- Control the Removing Fees
- Control Management Costs and Reduce Expenditure The construction company should strengthen internal control

4. Research background

Seboru A. M. (2015) suggested that most of the road construction projects in Kenya are not being achieved within the initially established objectives. Delays in the project have impeded development, have had a profitable impact on society and have damaged the reputation of all parties involved in the project. The purpose of this study was to explore the factors that contribute to delays in road construction projects in Kenya. Project delays are a common problem in the modern construction industry. Berzosa, A. and others (2015), it was suggested that in the road construction sector, several measures and alternatives were proposed to reduce greenhouse gas (GHG) emissions. While these measures can significantly mitigate this effect, they are not equally relevant in a common context when analyzed separately and under absolute conditions, such as the complete land transport infrastructure project. In this work, they analyzed several emission reduction plans based on the current state of the art, along with reasonable options, and integrated elements of road construction and maintenance in the main contribution to total emissions. Mahamid, I. (2017), aims to address the schedule of delays in road construction projects in Saudi Arabia. The evaluation of the progress report of 55 road projects built in Saudi Arabia during the period 2011-2015 found that the delay was wide: the average duration of the planned contract until the actual completion time was 58.24%, from 2% to 172% . The study also investigated the main factors and the effects of delays in road construction projects through questionnaires. Seventy contractors working in road construction completed a structured questionnaire survey. The 34 factors identified are determined by their severity, frequency and importance. The results show that the five main factors that influence the progress of road construction projects are poor planning, poor labor productivity, increased engineering, rework and lack of contractual experience. Shah, K. (2015) accurate site information is vital for the efficient planning of resources and the management of workplace conflicts in land movements, lost in the current timeline. Therefore, construction managers must rely on personal decision making and intangible imagination to perform resource allocation, work space conflicts, and monitor progress in on-site digging work. Ameyaw, E. E., et al. (2016), this document aims to review the combination of Delphi and other quantitative methods in the field of CEM based on the systematic review of the literature of 88 related articles. Eighty-eight articles were systematically discovered in 10 peer-reviewed journals, published between 1990 and 2012. Subjects' reports, application requirements and statistical techniques were reviewed in 88 Delphi sheets. The mixed use of the Delphi method was also studied with three advanced methods of modeling, such as ambiguous sets, analysis of hierarchical processes and analysis of network operations. These evaluation results provide a useful reference for researchers interested in applying Delphi methods in EMF research. Anthonissen, J., et al. (2015), innovative technologies have been applied to improve the energy and efficiency of materials to pave the asphalt of road industries. Currently, two technologies are supported: the use of asphalt as a hot mix technique and the use of recycled asphalt pavements. Unfortunately, these techniques are evaluated only through their technical and economic benefits, and in most cases, environmental impact studies are not carried out throughout the process.

5. Research Investigation

During the construction phase, the project manager is responsible for monitoring costs and avoiding any overspending to maintain a cost baseline. Project monitoring is an ongoing process and its importance cannot be compromised during the life of the project. It can be monitored using traditional methods that directly report actual costs and budgets. However, the comparison of budget and actual expenditure does not indicate the value of the work done at any given time. This approach does not describe the true cost performance of the project.

5.1 Questionnaire Survey

A questionnaire was designed to collect data. It includes private and public sector projects such as roads and highways, bridges and stadiums, real estate, monuments and oil and gas. Collect data through face-to-face interviews and fill out the draft questionnaire by email. The table below shows the number of respondents in each department.

Table -1: Total no. of respondent

Sectors	**No of respondent**
Roads & Highway	12
Bridges & Stadiums	8
Real Estate	15
Oil & Gas	10
Monuments	10

Data was collected by measurements using a likert scale. Use a five-level rating to determine the impact. This analysis is based on a qualitative measurement or sequencing system. The problem rating for each parameter has been given separately as shown below. The average index formula given by Abd. Majid has been used for analysis

Avg. Index (AI) = ∑ (β*n) / N

'n' is the frequency of the respondents
'N' is the total number of respondents

5.2 To determine rating of time, cost & quality for each sector

Weightage given is as follows-

Table 2: Weightage table to determine rating of time, cost & quality

Ranking by Respondent	Corresponding weightage(β)
1	Lowest
2	Low
3	Medium
4	High
5	Very High

With the rating scale as below,
Less importance (1.00 < Average Index <2.5)
Average Importance (2.5 < Average Index < 3.5)
High Importance (3.5 < Average Index < 5)
Level of importance can be found by the formula,

5.3 Data collection for each sector

Table -3: Data collection of Roads & Highways sector

Desc			No of Respondent										Average
	1	2	3	4	5	6	7	8	9	10	11	12	
Time	1	2	1	3	5	3	2	1	3	2	4	1	6.8
Cost	5	1	3	5	1	4	1	5	2	2	5	5	13.4
Quality	5	1	2	5	3	5	4	5	3	5	3	4	15.75

Table -4: Data collection of Bridges & Stadiums sector

Desc			No of Respondent						Average
	1	2	3	4	5	6	7	8	
Time	1	1	2	1	2	1	2	2	2.5
Cost	1	1	3	3	1	3	1	5	7
Quality	1	1	3	4	3	5	3	5	11.9

Table -5: Data collection of Real estate sector

Desc	No of Respondent															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Time	1	1	2	1	3	2	1	3	3	1	3	1	5	4	1	6.1
Cost	5	1	3	5	1	2	2	1	2	1	2	2	1	2	1	5.9
Quality	5	3	3	1	3	3	2	1	3	2	3	4	1	4	5	10

Table -6: Data collection of oil & gas sector

Desc	No of Respondent

	1	2	3	4	5	6	7	8	9	10	Average
Time	1	3	1	5	1	3	1	5	4	1	8.9
Cost	1	2	2	1	1	2	2	1	2	1	2.5
Quality	2	3	4	1	2	3	4	1	4	5	10.1

Table -7: Monuments

Desc	No of Respondent										
	1	2	3	4	5	6	7	8	9	10	Average
Time	1	1	2	1	2	1	2	2	1	2	2.5
Cost	1	1	3	3	1	3	1	5	3	1	6.6
Quality	1	1	3	4	3	5	3	5	5	3	12.9

A graph plotted from the calculation & results shown in 3.2, summarizes the level of importance for monitoring time, cost and quality in different sector of construction industry.

Table -8: Summary table

Sectors	**Time (Avg.)**	**Cost(Avg.)**	**Quality (Avg.)**
Roads & Highways sector	6.8	13.4	15.75
Bridges & Stadiums sector	2.5	7	11.9
Real estate sector	6.1	5.9	10
oil & gas sector	8.9	2.5	10.1
Monuments	2.5	6.6	12.9

6. Result

It is seen that in roads & highways sector more importance is given for quality as compare to time and quality for monitoring.

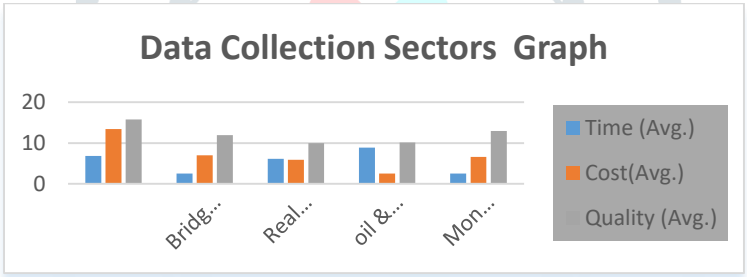

Fig 2: Monitoring status for cost, time & quality in different sectors.

In case of road and highway sector, time and cost quality are more important to complete the project within time frame and of desired quality.

- In case of bridges and stadium, time and cost quality are more important to complete the project within time frame and of desired quality.
- In real estate sector as it is mostly commercial in nature, more importance is given for quality monitoring.
- Oil & gas which is only sector where quality and time has been given more importance as compared to other sectors. Importance has been given for time also for monitoring purpose.
- In monuments, quality play a vital participation for their construction planning.

7. Conclusion

The study has determined the time of different departments, and the weights of costs and quality are not the same. The main finding can be said that in real estate, more weight is cost than time and quality. Successful implementation of the average index can lead to a relationship between project monitoring and project progress. The chart clearly shows that project monitoring decreases as the project progresses. This may be the main reason for project delays, cost and time overruns. The above given examples of software application are meant to provide insight to the software. The purpose is to make the software more approachable to all stakeholders of all constructional industry.

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