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The Impact of Critical Path Method on Project Management: A Case Study of DHA Bahawalpur

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ABSTRACT

Among various factors, correct scheduling is one of the vital elements for project management success. The use of Critical Path Methods (CPM) is a basic way to improve scheduling and deal with such problems. CPM theory approximates project scheduling models to reality by considering uncertainties in decision parameters and expert experience and mental models. This paper provides a step-by-step approach for accurate estimation of time and cost of projects by using CPM. This study endeavors to fill that gap by using SWOT Analysis, IFE Matrix, EFE Matrix, PESTEL and Competitive Profile Matrix Analysis. Methodology adopted is the use of 15 structured interview questions from Engineers working in DHA Bahawalpur. Weighted scores obtained are based on the weights given by the interviewees on their observations & experiences and ratings are given by interviewer keeping in view importance of each factor under consideration. The data was analyzed using IFE and EFE matrix (Fred A. David) and it was found that by using CPM, time and cost of the job can be saved. This study is conducted on the basis of cross-sectional data to test the effect of CPM on a running job however this study should also have been conducted to check the effect of CPM in various regions and for various projects. The study uses effect of CPM theory to minimize the job completion time which in turn saves time and cost of the job by increasing profit.

***Key Words*:** *Critical Path Method (CPM), SWOT Analysis, IFE Matrix, EFE Matrix, PESTEL, Competitive Profile Matrix Analysis and DHA Bahawalpur.*

1. Introduction

Project scheduling and cost planning are key components of project management (Guida, 2019). As it were, the accomplishment of project management requires accomplishing a suitable plan for scheduling and cost of a job (Yan Zhao, 2019). Thusly, proper methods ought to be considered for scheduling and evaluating job execution costs. Various methods, for example, resource leveling and allocation, Gantt chart, system analysis methods, scientific methods (Habibi, Birgani, and Kopplaar, 2018) and reproduction have been put to use for tackling job scheduling issues (Habibi F. B., 2018). For instance, network methods are effective apparatuses for tackling complex job scheduling issues. Notwithstanding graphical benefits, these methods streamline computational costs. CPM and Project Assessment and Survey Procedure (Spunky) are basic instances of network scheduling methods (Sinha, Pahadey, and Chowdhary, 2018). These two methods mean to help project managers in checking the progress of all job stages (Karmaker and Halder, 2017). The CPM thinks about all job parameters, for example, terms of exercises, as fresh qualities. Given the changing environmental conditions, it isn't completely conceivable to foresee future wonders.

1.1 Background of the Study

Critical Path Method commonly known as CPM has a vital rule for completing the tasks in minimum time. Defense Housing Authority (DHA) Bahawalpur located in the city of Nawabs, is the part of one of the biggest chains of housing societies in Pakistan. Its head quarter is located in DHA Lahore. DHA Bahawalpur started in 2015 to give the safe and luxurious living to tenants of Bahawalpur. It is the first ever gated society in Bahawalpur with all the necessities of life including education, medication, shopping malls, joy land for kids etc. At first, four big sectors are under development phase. Villa community is the center of attraction for the people, introducing the first ever smart city area for the residents of south Punjab. DHA's have the privilege to own the 70% market share in housing industry leaving behind its competitors like Bahria Town, Royal Orchard and etc. For customer facilitation, Sub-offices present in Lahore, Islamabad & Karachi. Overseas, Pakistanis are also accommodated by opening a separate sector for their living.

1.2 Purpose of the Study

The main purpose of the study in hand is to understand how CPM plays its role for in time completion of projects by taking into account the fast track project being executed in DHA Bahawalpur.

1.3 Research Objectives

The objectives of this study are:

- To find how CPM helps to complete projects in time
- To find how costs of projects can be reduces using CPM
- To find the Competitive difference between the projects completed using CPM and without using CPM
- To analyze the impact of CPM on job satisfaction

1.4 Research Questions

- How does CPM help to complete projects in time?
- How does cost of a project is reduced using CPM?
- What is the Competitive difference between the projects completed using CPM and without using CPM?
- How can we analyze the impact of CPM on job satisfaction?

1.5 Research Methodology

The report is based on feedback of the engineers in DHA Bahawalpur. The methodology reported for collection of data is primary as well as secondary data. The primary source of information is the observations based on the staff working in DHA Bahawalpur. Formally arranged interviews and discussions were also helpful in this regard.

1.5.1 Theoretical Significance

This article describes that how CPM is helping engineers in their work in various countries. And if we talk about the Pakistan some of the researchers take initiative to explore its impact with different hypothesis and analysis. The contribution of this article is to understand how CPM is helpful in timely completion of projects in construction industry. The analysis is based on SWOT, IFE matrix, and EFE matrix with Competitive Profile Matrix analysis. Competitive Profile Matrix will tell the competitors current position in parallel industry.

1.5.2 Managerial significance

Whenever a project is in hand, a manager has a chance to save money by decreasing time for completion of job taking quality assurance in account. This increase both the quality of the engineer work life and his on-the-job productivity. Organizational theorists attempted to improve the efficiency and effectiveness of organizations by developing a set of principles. The idea would be that efficiency was the ultimate criterion toward which organizations should strive, and that the use of rational administrative practices and procedures would enable managers to reach this goal.

Literature Review

Zareei,(2018) used CPM to analyze the planning and construction planning of biogas plants. (Zolfaghari, Afshar, and Abbasnia, 2014) used CPM to arrive at a reliable job schedule, and assumed that CPM could anyway reduce weaknesses in project planning. However, a slight change in movement can make the scheduled time impossible.

Some researchers have tried to improve the Spunky network. (Chanas and Kamburowski, 1981) wanted to improve and rethink the exercise calendar in the Saucy systems with the aim of making the improvement correct compared to existing standards and strategies. Despite the way in which several researchers have criticized the dispersion of time in Sprightly systems, this method is used as a powerful tool for stochastic planning projects. (Azaron, 2005) has developed a multi-objective model to reflect on the compromise between time and costs in energy systems. The combined Erlang promotion was used in their model to assess exercise duration. and an inherited calculation was used to understand the proposed model. In this way (Adler, 1995) he proposed a procedural point of view to explain dynamic dynamic systems, in which the end times of job s are solved using a reproduction technique. Taking into account certain restrictions in the associations, (Anavi-Isakow, 2003) examined the dynamic dynamic systems, taking into account the limited limits in the confirmation of the job, and decided the moment of the execution of the job using the reproduction technique The FPERT It was first introduced by (Chanas and Kamburowski, 1981) to communicate the range of exercises in the form of soft properties. In their proposed method, the spongy duration of the exercises was determined based on three notes, and an α cut was used to determine the upper and lower limits of the job

completion time. As one of the problems with your method shows, the various values of α set different limits for the job completion time, and then there has been no accomplishment method of representing CPM exercises on systems. (Mo, 1995) addressed this problem and expected the duration of each movement to be a fluffy positive number. Using the α cut, they characterized an interval for each action term. (Chanas S. et., 2001) admitted that the preparation time for each action could be a safe bet, an interval or a fluffy number.

On the other hand, psychological evaluation or prognosis, which depends on specialists' feelings regarding the preparation time and costs of the exercises and the use of soft sets to communicate these parameters, could considerably reduce vulnerability (Zadeh, 2005). (Shipley, 1997) used the Fluffy Delphi (FDM) method to measure the range of exercises that are based on specialist feelings and do not think about stress. (Kaufmann, 1985) has reflected on idealistic, probable and negative perspectives on each action. This method is the rearranged representation of the beta scatter and still has Spunky issues.

Chen, (2007) developed the method proposed by (Chanas and Kamburowski, 1981) by adding new hypotheses and trying to calculate the critical level of the exercises by talking about the soft terms for the exercises and the critical lists for all paths in Thinking in the job. (Mazlum, 2015) examined the results obtained by examining the traditional approaches of PERT and CPM and Fluffy and merging these methods to improve planning.

Planning is a definitive process that tries to anticipate the future (Chinneck, 2016). The earliest job management and planning tasks date back to the development of the Gantt chart by Henry Gantt (1861-1919). The CPM was the revelation of MR Walker by EI Du Pont de Nemours and Co., also by JE Kelly de Remington Rand, around 1957. The main test was carried out in 1958 when the CPM was applied to the construction of another chemical plant. At Walk in 1959, the method was applied to support the decommissioning of the Du Pont facility in Louisville, Kentucky. The program evaluation and monitoring technology was developed in 1958 for the POLARIS missile program by the program evaluation section of the United States Naval Forces Office for Unique Projects. Due to the similarities between the two techniques, they are regularly called the PERT/CPM technique.

2.1 Critical Path Method

It is the sequence of exercises that generally means the longest duration. It shows the shortest possible time to complete the project. Any postponement of an action on the CPM rightly affects the completion date of the planned project. The process consists of four steps:

a. Early completion of the Identification of the last center as a critical center

b. Identification of companies that have no influence on the CPM.

c. Full back movement until the first movement

The main reason for this procedure is to set the most limited time for the completion of the project or action. The preferred option is to see how many procedures will take place at the end of a task, as we recognize that each movement has its own job when a job is completed, but at the same time there are exercises. This can be postponed and has no impact on general time of the article. These exercises are not the critical path. After recognizable evidence of the critical path forward, the method is applied to the reverse course to confirm the path that is displayed correctly or not. As long as the forward and backward passes in this case are not mathematical, this is anything but a critical path.

2.1.1 Critical Path Process:

The progress made will localize the critical path and calculate other useful information about the job. Step 1 is to move forward in the diagram and calculate the most punctual time (TE) for each opportunity (middle). To discover TE, take a look at all the exercises that go to a center. TE is the last point in time for entering curves, e.g. B. TE = max [(TE of the cube at the end of the curve) + (duration of the curve)] for all incoming circle segments. By definition, the TE of the initial center is zero. Step 2 is to return to the table and determine the last time (TL) for each opportunity (middle). To discover T L, take a look at all the exercises that come from a center. TL is the most punctual exit time for circular output segments, e.g. B. TL = min [(TL of the cube at the head of the circular segment) - (duration of the curve)] on all output curves. By definition, the Completion Center TL is close to its TE. Step 3 shows how the stroke idle time (SN) is calculated for each stroke (used). This is a measure of the time that an opportunity can compensate later than your TE without causing downstream problems. SN = TL - TE for each concentrator. In synchronization 4 we calculate the release time of the absolute curve (SA) for each circle segment (action). It is the measure of the time until a movement later than the TE of

the cube can balance in its tail without causing problems later. SA = (TL of the cube at the top of the curve) - (TE of the cube at the end of the segment of the circle) - (length of the elbow). Step 5 shows how the CPM associates the centers with SN = 0 using circular segments with SA = 0. It is not surprising that the CPM centers and circular segments with no margin. If it is loose, the movement should not be done in time at this point, which is actually the opposite direction of the CPM.

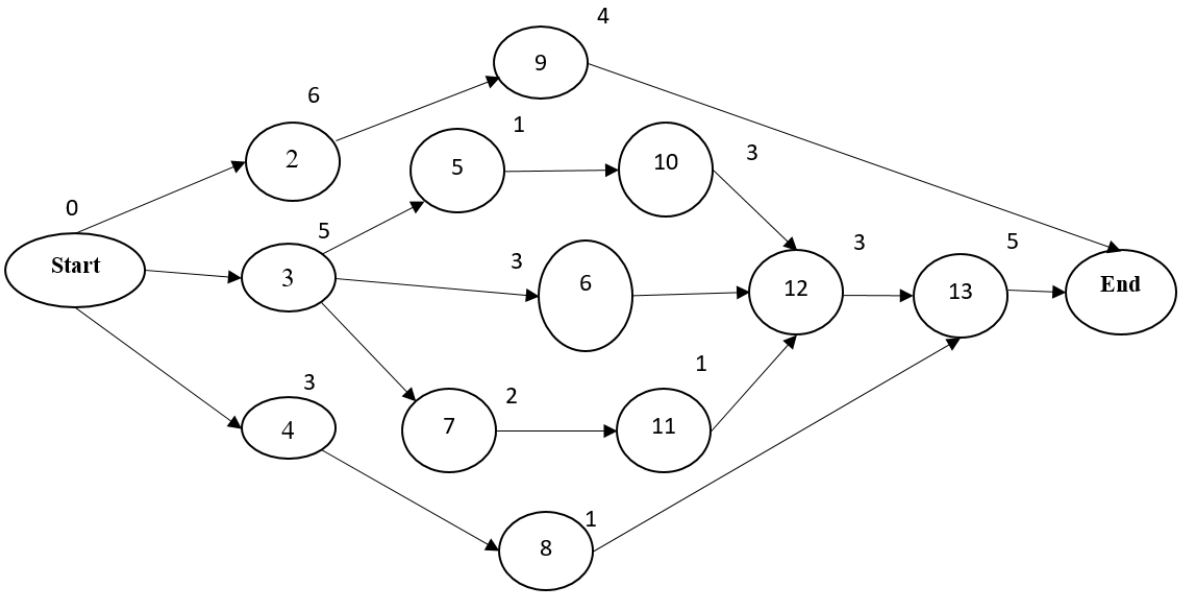

Figure 2.1: The AoN example network of Table 2.1

Table 2.1 Enumeration of all possible paths of the project of Figure 2.1

Path	Duration
1→2→9→14	10
1→3→5→10→12→13→14	17
1→3→6→12→13→14	16
1→3→7→11→12→13→14	16
1→4→8→13→14	9

The goal (Goldratt, 1984) of helping associations achieve their goals at all times. The main objective of this hypothesis is to determine the most important constraint of a generation system as the main engine of system execution, and to propose rules to guarantee this requirement in order to avoid any loss of execution.

2.2 What is Project Evaluation and Review Technique

Spunky, the project evaluation and auditing technique, is a web-based guide to planning and planning the many interdependent careers in a huge and complex job. It was developed during the planning and construction of the Polaris submarine in the United States in the 1950s, which was one of the most complicated tasks of all time. Nowadays, Perky techniques are commonly used in big projects like software development, building construction, etc.

The path to find the critical path responds to the main request, as well as the second (Chinneck, 2016). Proper tightening: a delicate presentation. Of course, we need to know how much each movement takes to satisfy these demands. The critical path exercises must be completed on time

so that the entire job can be completed on time. If one of the critical path exercises is unlikely to be too late, the entire project will be completed too late at this point.

2.2.1 Probabilistic PERT

Evaluation is an inaccurate treatment, so we expect our underlying measurement devices to be buggy. What we really want to know is to what extent this error will affect our assessment of the entire range of projects. Fortunately, with some suspicion and almost no additional work, we can make some decisions about the level of diversity that can be achieved throughout the job. To do this, we start with the three-indicator approach to assess action conditions. Then we make the attached assumptions:

• The action zones are suitable for beta transmission.

• The transition from a to b in the three indicator approach covers 6 standard deviations.

• Promotional durations are objectively independent.

• The critical path currently involves the path with the longest expected estimate of the total duration of the project.

• The general range of projects has a normal budget.

Given these assumptions, the normal estimate of each action expression in terms of the three indicator approach is given in the same way: (a + 4m + b) / 6. The variation of the duration of each action in this model is [(b - a) / 6] 2e

2.3 Time-Cost Tradeoffs

In real applications, it is sometimes possible to reduce the time spent on a single movement by paying more, such as overtime, faster PCs, shipments, etc. In case the project takes longer than it should, you should be raising money at this point to speed things up. What exercises should you accelerate anyway? It is clear that those on the critical path, but with the ability to accelerate movement on the critical path, can switch to a various set of exercises. What critical steps should you accelerate, as some may be more expensive than others? How good would it be to accelerate? It is a complicated subject. You can't really understand it by looking at the exercises one by one; you have to imagine them all the time. Fortunately, there is a definition of smart enhancement that supports this problem. We show a clear definition of programming here, but extending nonlinear programming should be obvious.

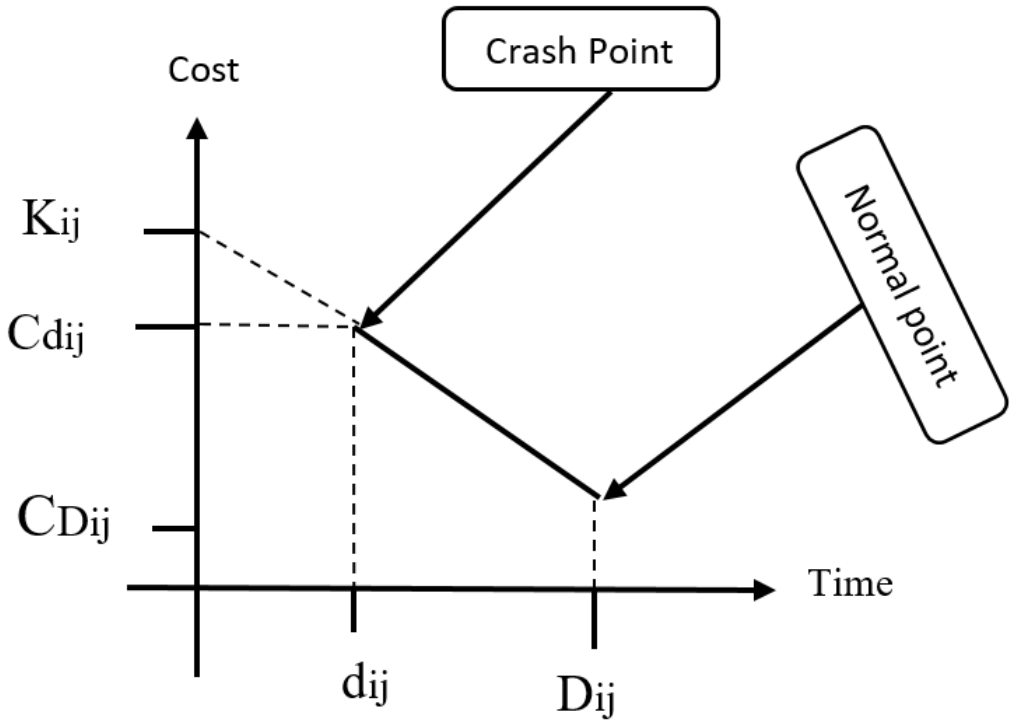

Figure 2.2: Time-cost tradeoff for activity ij.

The essence in the detail of direct programming is a basic model that shows how time and cash are compensated for each movement (see Figure 2.2). In Figure 2.2 the usual point shows the time interval (Dij, D huge for a long length) and the cost (CDij) when the action ij is carried out in the usual way. The accident point shows the time period (e.g. small d for little space) and the cost (Cdij) when the movement is struck or accelerated as much as possible. Note that the cost of shares increases with maturity - cash is exchanged for time. We accept that any acceleration between Dij and Dij is possible. Kij is only the incentive for the cost focus by expanding the time-cost compensation line for measures. that makes the plan a little less difficult.

We also have to record the priority connections in the Perky diagram. This seems problematic since we have no idea of the times of the event, let alone the conditions of the exercises. We characterize the factors and k to speak in the dark moments of the occasion. How would we currently intercept priority links? The main idea is to make sure that no action is

started until all of the exercises that come to the center of the event are finished. For example, consider Figure 2.3

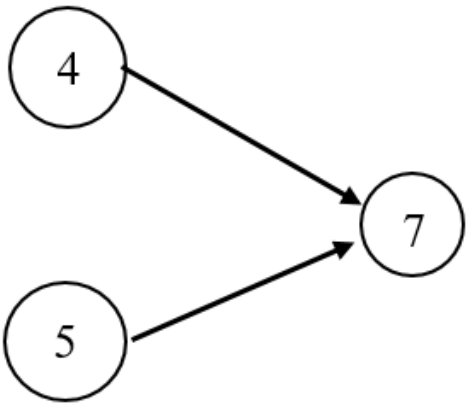

Figure 2.3: Relationships between the activities 4, 5 & 7

How can we make sure that y7, the opportunity time for Hub 7, is after the last appearance time of exercises 4-7 and 5-7? The behavior we need is y7 = max {y4 + x47, y5 + x57}. This can easily be achieved using two disparities: y4 + x47 ≤ y7 and y5 + x57 ≤ y7.

We are currently almost ready to configure the entire direct program. Characterize y1 = 0 for the first occasion and yn ≤ T for the final occasion. Note that T, the job completion time, should not be exactly the shortest job time when every movement is carried out. Is carried out at the typical time, wherever the correction the obvious thing is: just perform every action in normal time.

The basic cost of accelerating the project is not justified by the ideal estimate of the objective work, but it is anything but difficult to calculate once the xij values are known (Chinneck, 2016). Down to earth: a delicate presentation. The objective work for this situation was non-linear, similar to the constraints that characterize xij.

2.4 Research Gap

Previous study focuses on the impact of CPM on timely completion of projects. Contribution of this research is the influence of CPM on Project Management in DHA Bahawalpur by using SWOT Analysis, IFE Matrix, EFE Matrix, PESTEL and Competitive Profile Matrix Analysis.

2.5 Theoretical framework

Theoretical framework shows the relationship between variables of the study. In this study four variables were selected to develop theoretical framework. Project costing, project timing, project scheduling and early project completion.

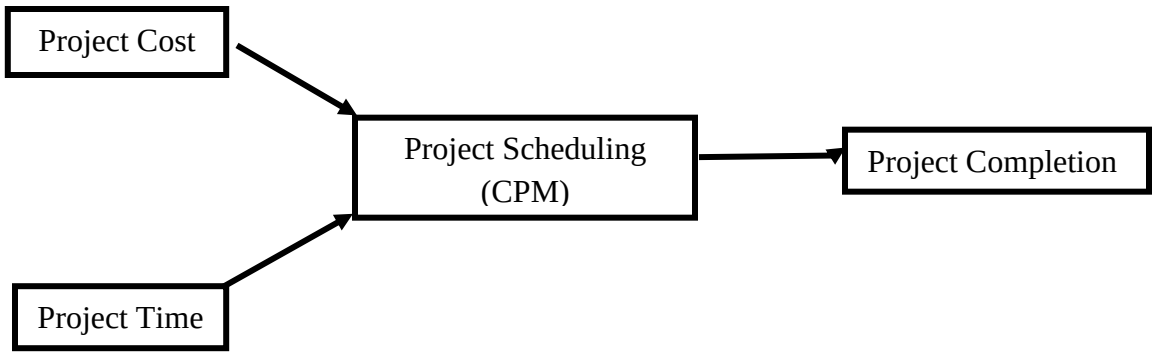

Fig no. Research Framework

2.6 Hypotheses

H1; Project costing has positive relationship with project scheduling.

H2; Project timeline has positive relationship with project scheduling.

H3; Project Scheduling has positive relationship with project completion.

3 Methodology

Research methodology section explain and discuss all steps and procedures which were used for data collection and analysis in this study. Following are the steps involved in research design.

3.1 Sampling technique

Sampling technique is a technique that is use to gather data from the targeted population of the study. In this study convenience sampling technique was used to collect the data from selected sample size.

3.2 Population frame

Population frame for this research were the managers of DHA, Bahawalpur.

3.3 Sample size

In this research study 12 structured interviews were conducted from top and middle management of DHA Bahawalpur sample size was selected to collect data from the respondents of the study. The response rate was 90% from respondents' side.

3.4 Type of study

This is also quantitative study because research data was collected through questionnaire to analyze it and draw conclusion.

3.5 Study approach

This study is deductive approach because in this study man objective was theory testing rather theory developing.

3.6 Data analysis

When data was collected from the respondents of the study, data was analyzed by using IFE and EFE matrix.

3.7 Instrument development

In this study adopted instrument was used to collect the data from the targeted population of the study. In this study interviews questions were adopted from previous studies of (Chanas S. &., 2001) and (Habibi F. B., 2018). The basic purpose of this questionnaire was to provide appropriate and complete information regarding study variables.

Analysis and Results

4.1 General Overview

This analysis can be used for various purposes. It can be used by an individual or by big company, perhaps it is not necessary. This model consists of 4 factors Strengths, Weaknesses, Opportunities and threats. The first two factors are controllable by organization itself. On the other hand, the last two factors might be or might not be controllable by organization because these are external factors. After thoroughly

analyzing this model a company can see its opportunities and strengths and develop new methods and strategies to make brand accomplished, and can minimize the weaknesses and save it from threats already. Resources of company and its performance are the factors that make her strong and give new opportunities, while market and other external factors might be benefit or harmful for the company which are known as weaknesses and threats. This analysis can be used by brand before launching a new product to look up the market threats and strengths what they have to make the product accomplished.

4.2 SWOT Analysis

The forces are in the internal state of the organization. They are the foundation of an organization. The strengths of an organization can overcome all kinds of weaknesses that the organization faces. DHA has different strengths, making it one of the leading accommodation companies in Pakistan.

4.2.1 Strengths

Strengths are found in the internal environment of the organization. They are the backbone of an organization. Strengths of an organization can overcome any kind of weaknesses that the organization is facing. DHA has a number of strengths due to which it is still one of the leading housing society in Pakistan.

1. Strong image of DHA in consumer's mind.
2. Innovation in infrastructure construction.
3. Strong P & D Department.
4. Strong market impact.
5. Established as safe for living.
6. Gated community with security.
7. Quality in terms of service.
8. In time service of maintenance related issues and technical assistance.
9. State of the art construction of buildings.
10. A symbol of strong financial position.

4.2.2 Weaknesses

Weaknesses are also found in the internal condition of the organization. Weaknesses when a larger number can easily separate an organization

1. Expensive than other societies.
2. No job security for employees.
3. Only rich people can purchase houses or can live in DHA's.
4. For construction activities many orchards are destroyed.
5. Monopoly in terms of living being the symbol of pride.
6. Middle class families cannot afford to buy land and construct houses in DHA's.
7. Normally constructed away from cities.

4.2.3 Opportunities

Opportunities exist in the external state. They must be noted and used by the managed company. An opportunity seized and used at the right time will be tomorrow's strength. This type of opportunity also exists for DHA in its external state. Some of them are as follows

1. Market expansion in terms of construction activities.
2. For customer attraction introduction of new buildings of latest concepts.
3. Provide awareness to customer on time to time.
4. Because of high customer loyalty and brand image new conceptual buildings can gain customer preference very soon.
5. There is high market growth opportunity.
6. They are planning for new business which will increase job opportunities.
7. Training of staff to improve their skills.

4.2.4 Threats

Every organization is exposed to external threats that can affect the presentation of the company. These threats can harm the company and could even explain bankruptcy. Without uncertainty; DHA Bahawalpur is an established and prepared organization. However, there are certain threats from the external condition.

1. International construction standards are to be kept in mind.
2. Changing construction trends.

3. Increase in competition due to Bahria town and Royal Orchard.
4. No proper employee's orientation programs.
5. There is a continuous threat from competitive housing societies.
6. New buildings concept if leaked out can be destructive for the society.
7. Local constructed societies can also create problems.

4.3 IFE and EFE Matrix

Following is the IFE and EFE matrix analysis of DHA.

IFE (Internal factors evaluation) is used to see that how much company owned strengths and weaknesses and their value. A table is made in which there are ratings assigned to both strengths and weaknesses and evaluate them. EFE (External factors evaluation) the same process but in this we see the threats and opportunities that company has to face. The ratings and values for weighted score are assigned and evaluation is done and then the comparison of the total value is done with the average value.

4.3.1 The Internal Factor Evaluation (IFE) Matrix

The IFE network summarizes and evaluates the main strengths and weaknesses of the practical areas of a company. It also provides a prerequisite for distinguishing and evaluating the links between these regions. Instinctive decisions are required to develop an IFE matrix. Therefore, the existence of a logical methodology should not be deciphered to mean that it is an omnipotent procedure.

1. List key internal factors as identified in the internal-audit process. List strengths first then weaknesses.
2. Assign a weight that ranges from 0.0 (not important) to 1.0 (all-important) to each factor. The sum of all weights must equal 1.0.
3. Assign a 1-to-4 rating to each factor to indicate whether that factor represents a major weakness (rating = 1), a minor weakness (rating = 2), a minor strength (rating = 3), or a major strength (rating = 4). Note that strengths must receive a 3 or 4 rating and weaknesses must receive a 1 or 2 rating.
4. Multiply each factor's weight by its rating to determine a weighted score for each variable and add all the weighted scores for the variables for total weighted score.

Table 4.1

Internal Factor Evaluation Matrix for DHA Bahawalpur

Key Internal Factors	Weight	Rating	Weighted Score
Strengths			
Strong image	0.15	4	0.60
Innovation in infrastructure	0.10	3	0.30
Strong market impact	0.10	3	0.30
Quality of services	0.05	4	0.20
State of the art construction	0.10	4	0.40
Weaknesses			
Expensive than other societies	0.05	1	0.05
No job security for employees	0.10	2	0.20
Symbol of pride	0.15	2	0.30
Expensive for middle class families	0.10	1	0.10
Constructed away from cities	0.10	2	0.20
Total		**1**	**2.65**

4.3.2 Results for IFE Analysis

So, from the above table the total value that comes is 2.65. In this analysis (IFE) the average value is 2.5, if the total value comes down by this it means the company is not much stronger internally and have more weaknesses and if value is up then the average value it shows the company is internally strong. And the value of DHA Bahawalpur is 2.65 much greater than average, so the result is cleared the company has more strengths than weaknesses and internally strong.

4.4 The External Factor Evaluation (EFE) Matrix

1. List key external factors as recognized in the external-review process. Incorporate a total of 15 to 20 elements, including the two chances and dangers that influence the firm and its industry. Rundown the open doors first and afterward the dangers

2. Assign to each factor a weight that ranges from 0.0 (not critical) to 1.0 (significant). The weight demonstrates the general significance of that factor to being accomplished in the association's business. Openings regularly get higher weights than dangers, however dangers can get high weights on the off chance that they are particularly serious or undermining. The whole of all weights doled out to the components must rise to 1.0.

3. Assign a rating somewhere in the range of 1 and 4 to each key external factor to demonstrate how adequately the association's current strategies react to the factor, where 4 = the reaction is unrivaled, 3 = the reaction is better than expected, 2 = the reaction is normal and 1 = the reaction is poor. Appraisals depend on viability of the company's strategies.

4. Multiply each factor's weight by its rating to decide a weighted score.

5. Sum the weighted scores for every factor to decide the total weighted score for the association.

Notwithstanding the quantity of key chances and dangers remembered for an EFE Lattice, the highest conceivable total weighted score for an association is 4.0 and the least conceivable total weighted score is 1.0.

4.4.1 Results for EFE Analysis

The same technique applies here as we discussed in the above table, but in this there are opportunities and threats that are external factors. Company can never finish these factors completely but can minimize as it can. The same weights and ratings assigned and the total is 2.55. It is not greater than average and not less than equal its mean company has not so much externally strong and not so much weak. But it can be strong externally by using positive opportunities and minimize the threats so far.

4.5 PESTEL Analysis

PESTEL analysis uses certain factors that determine how external forces are affecting the working condition of any organization. These external factors include:

4.5.1 Political Factor

In Asia, and particularly in Pakistan, where the political situation is unstable, no government other than the last government has ended and legislative issues have an incredible impact on the country's various businesses. The effects of political factors on the adjustment of social orders are as follows.

1. The government. Spatial planning is based solely on political affiliations
2. The stages of the main sources of information on operational factors, such as electricity, are also selected by the government.

4.5.2 Economical Factors

The country, like Pakistan, which has an insufficient economy, is affected by many economic factors, including the following:

1. A low education rate is a problem that prevents clients in the country from being able to separate DHA Bahawalpur from other social housing contracts.
2. Job opportunities will be higher.
3. The DHA Bahawalpur extension application requires the implementation of new phases.
4. He joined the evaluation decisions with a common understanding between DHA Bahawalpur and the other DHAs.

4.5.3 Social Factors

The social elements of each audience and of culture in general are unique and also affect businesses.

1. It has now become a model that arch development is an important part of Bahawalpur.
2. New models in development exercises have increased the interest of DHA Bahawalpur.
3. The social government assistance program is also dynamic at DHA Bahawalpur. For example, DHA Bahawalpur provides 1 million rupees for monthly child support in SOS Pakistan.
4. As the main sponsor of the Cholistan Jeep Rally, you have supported the walk every year.

4.5.4 Technological Factors

Today is the time of technology, be it development, information technology or production technology, so DHA Bahawalpur is also influenced by technological factors. The following is one of them.

1. Previously there were no concept of gated housing societies.
2. Now DHA societies are constructed in major cities of Pakistan.
3. Now people have understood the importance of living in societies and old concept of living in Mohalla's have been minimized.
4. Mega projects are being constructed and supervised by Pakistan's renowned consultants. The jobs include grand Jamia Masjid, Super market, Theme parks etc
6. There is no institute in Pakistan which provides state of the art engineering construction projects in south Punjab. DHA Bahawalpur has taken the initiative for not only training the employees but also young engineers of Pakistan by providing them the internship opportunities.
7. There is very limited type of construction activities which are being practices by local housing societies. That is why DHA Bahawalpur is not only the most trusted investing organization but also its mission is to preserve the culture of this area.

4.5.5 Environmental Factors

1. DHA Bahawalpur is constructed on sand area of Bahawalpur city. So, no orchards and cultivated fields are destroyed in-fact DHA Bahawalpur is leading the campaign in Bahawalpur city for installation of new trees and shrubs to minimize pollution in the city.

2. Proper drainage and sewerage system is designed so that no pollution effects the atmosphere.

4.5.6 Legal Factors

1. As there is no concept of illegal construction on govt. land as Bahria town is having a lot of legal issues.

2. The society is approved by Govt. of Pakistan and local Govt. also. Working hours are as per laws of the Govt.

3. Since DHA Bahawalpur is located in out skirts of the city near Ahmad pur East Canal, so being at the bank ok natural water reservoir, there is no problem with clean underground water and so other residents of Bahawalpur are not affected by its location.

4.6 Competitive Profile Matrix

In this term strengths and weaknesses, the organization owned and comparison them to the competitor's strengths and weaknesses and the strategic position.

Step 1 is to identify the critical success factors (CSF)i.e those factors which might help an organization to achieve its missions. CSF ensures the company for its success.

Step 2 consists of the means of the weights, which means that each factor is assigned a weight which is between 0.0 (non-significant) and 1.0 (significant). The weight shows the general importance of this factor for the activity of the company. Opportunities often outweigh threats, but threats can increase if they are very threatening. These weights can be resolved by comparing effective and unsuccessful competitors or by group discussions. The sum of all the weights referenced in the variables should increase to 1.0.

Step 3 means Assign Ratings to CSF's that is, the ratings refer to strengths and weaknesses of each organization in terms of the CSF's, where **4 = major strength, 3 =**

minor strength, 2 = minor weakness, and 1 = major weakness. Rankings can be lowered using benchmarks or in group discussions.

Step 4 always thinks about the scores and takes a step, that is, it examines the scores for each factor to distinguish where the relative strengths and weaknesses of the organization lie.

Table 4.3

Competitive Profile Matrix

		DHA Bahawalpur		Bahria Town		Royal Orchard	
CSF	Weight	Rate	Weight Score	Rate	Weight Score	Rate	Weight Score
1. Market Share	0.20	3	0.60	2	0.40	2	0.40
2. Budget Availability	0.15	4	0.60	4	0.60	2	0.30
3. Competitive	0.10	3	0.30	3	0.30	3	0.30
4. HRM	0.30	4	1.2	2	0.60	1	0.30
5. CRM	0.05	3	0.15	3	0.15	2	0.10
6. Organization's Portfolio	0.20	4	0.80	3	0.60	2	0.40
Total	**1.00**		**3.65**		**2.65**		**1.80**

4.7 Results for Competitive Profile Matrix Analysis

From the above results the total score of DHA Bahawalpur is greater than its competitors. Its mean it is going much good currently and can be much stronger by finishing weaknesses and minimizing the threats. It can make a good place in market by

competing the competitors with the help of opportunities and strengths and internally and externally. Every brand in food and beverages industry has some weaknesses and might be some opportunities which they are not taking the benefit from them. So that is the good chance to compete them.

Conclusion & Recommendations

5.1 Conclusion

There is a considerable impact of the in-time job completion on cost saving of the organization in form of resources and profits which results in the satisfaction of the engineer. Further, it is also important that separate tasks be given to separate teams for in time completion of jobs which results in speedy project execution and use of resources in better ways. A project means an integration of separate tasks to become one job rather than as a collection of distinct tasks. This also adds to better accomplishments. Hence there is a distinct difference between the projects completed using CPM from those of projects which are executed without using CPM. Because jobs executed without CPM does not have any accountability for cost as well as time.

On the other hand, the way in which the nature of the task is interchangeable with the grouping of tasks or with a small number of related races which are normally performed by an individual is also a unique duty and accomplishment. When individual mandates are combined, they check the interdependence between groups, the importance of job characteristics, inclusion in the workflow or work process and the responsibility of whether the work should be done by the group of companies.

5.2 Limitations and future research directions

The study recommends that: Like multinational construction companies DHA Bahawalpur must create a high quality personality for its employees by performing brainstorming tasks, deferring these races and focusing on employee results due to a heavy load. of work. Excellent pivot points for employment and reasonable improvements to ensure employee reliability. most of his work.

Like multinational construction companies DHA Bahawalpur must also have R & D wing to investigate how the sources can be managed to complete tasks in time. Because

they knew the advantages of in time completion of jobs. In this sense, they therefore offer a variety of tasks in all occupations for all employees. A job must be structured in such a way that different skills, abilities, knowledge and skills are required to achieve it. These murders and skills should be developed specifically for employees.

The significance of each task in the DHA Bahawalpur needs to be improved through defining the importance of time and cost. This importance can be made in if training programs are arranged and managed to educate the employees. It has been noticed that employees who are punctual and pay attention to their job descriptions, are more accomplished in completing their tasks in time. Because if you understand the importance of time and money, you learn the meaning of success.

Even though this study has tried to link importance of time and money for completion of projects, but it still needs to be considered for not only large-scale projects but also for small tasks. The study recommends that all employees and specially engineers be educated through time by time training programs and workshops for in time completion of projects. Because proper trainings with practical implementation is important for better results.

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Appendix

1. When did DHA Bahawalpur started?
2. What is the purpose of introducing DHA's in Pakistan?
3. In which city DHA introduced first?
4. What are the objectives of DHA?
5. How DHA do its operations?
6. Whom are the main competitors of DHA?
7. What are the major strengths of DHA?
8. What are the main weaknesses of DHA?
9. What are your best opportunities to take advantage of?
10. What are the central threats of DHA?
11. What are the steps you take for applying CPM to a project?
12. What will be the effect of employees/ engineer's trainings on CPM?
13. Do DHA gives any incentive to employees performing CPM to their projects?
14. How do DHA make sure the application of CPM to every project started or completed?
15. In your opinion what is the impact of CPM on timely completion of projects and cost saving?