

## **Following the scheduling and its role in the achievement of the Central Bank of Iraq**

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### **Abstract**

Most companies nowadays seek the success and completion of the project within the specified time, Although the projects have been managed since ages Old, but when reviewing studies revealed that stone the corner Theoretical methodologies Project management success Not yet agreed Where The success of a project is affected by many different factors that are beyond the control of management The project just Dreat T The scheduling study and its management within the established plan and its impact on the success of the project in the environment of the Central Bank of Iraq building project.

The study aims to measure the extent to which project scheduling is applied in the details of the work paragraphs upon implementation and its impact on the success of the project. DAAX) By submitting work schedules and implementing them within the time specified for scheduling in the project of the construction of the Central Bank of Iraq and its impact on the success of the project within the time for the reinforced concrete sections, the building of the Central Bank of Iraq was selected and the researcher conducted a survey of the opinions of a sample of (91) engineers and consultants n Within the project team, the study relied on the exploratory study approach according to a questionnaire prepared to survey the opinions of the sample of the study, which includes the independent variable scheduling (management of the scheduling plan, scope management, project time management, quality and cost management) and the dependent variable on the success of the project (support of senior management, the entity Executing (contractor), project team, follow-up and evaluation, communications) in addition to conducting personal interviews with the company's work team and project management officials to identify the nature of the work, the researcher used a number of measurements and statistical programs, a program SPPSS V24 Programs AMOS V24 On the practical side to get to the results. The results confirmed that the occurrence of continuous change during the life cycle of the project can be negative or positive and must be subject to control, as we find that the time extension period has changed in the project several times during implementation, and despite this change, the concrete blocks were delivered fifteen days ahead of time.

**Keywords:** scheduling, scheduling plan management, project success.

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### **The first season**

#### **Research Methodology**

#### **Research problem**

There are many projects that are late in completion and when looking into the Central Bank of Iraq project, the reason for its delay in delivery within the specified time. We found the work environment imposed many challenges, which led to the rescheduling of work according to the immediate circumstances that occurred during implementation, and that these

obstacles led to a problem in organizing financial and human resources and applying the scheduling of work paragraphs according to what was planned at the beginning of the project, as there is a difference in the work progress schedule, and the research problem lies in the following questions:

1. What is the availability of application? plan scheduling for it by the implementing agency (the contractor) in the project of establishing the Central Bank of Iraq for reinforced concrete vertebrae?
2. How credible is the work? In the application scheduling within the plan prepared for time management?
3. Are there risks in a timely manner and solve those that may occur during implementation?

research aims

There are many goals that the research seeks, including:

1. To identify the extent of awareness of the contracting companies executing the project (DAAX) for importance scheduling plan management represented by (the importance of time, not being dependent on chance, the importance of expectations of future risks and work surprises in the process). implementation) from the viewpoint of the participants in the research sample represented by: project team in construction companies (DAAX) and Consultants (Meinhardt) and project stakeholders central bank Iraqi.
2. Find the real reasons that caused by project time delay.
3. Finding the relationship of effect between time scheduling and its impact on project success.

research importance

The importance of the research lies in the following points:

1. Highlight plan management the scheduling chronological for project paragraphs and the importance of scheduling in the project success process
2. Understand the importance of scheduling in avoiding the risks that occur during implementation and overcoming them in order to achieve the project objectives within the framework of the project time and cost and quality.
3. Determine the factors and their impact on scheduling in the success of the project.

research assumes

Main premise: no statistically significant effect of scheduling on the success of the project, and the following sub-hypotheses emerge from it:

1. There is no statistically significant effect of the scheduling plan management dimension on project success.
2. There was no statistically significant effect of the project scope management dimension on project success.
3. There was no statistically significant effect of the project time management dimension on project success.
4. There is no statistically significant effect of the dimension of quality and cost management on the success of the project.

community and sample research

representing the research community The Central Bank of Iraq building, which is the new building of the Central Bank of Iraq, which is being constructed at the same time

### **1. research community**

The importance of defining the community is an essential step of the scientific research methodology, as the new building of the Central Bank of Iraq was chosen to be its sample for research, and it is one of the most important projects currently being established in Baghdad and used as a site to conduct research, as one of the biggest projects in the world. And that it is considered the economic front in front of countries because it is considered the place where the state budget is saved. Where the building was designed by contracting with an office engineer (Zaha Hadid) to design the new building on 2012 and completed the design in 2015 and the work was carried out in the year 10/1/2018. The project applies the rules PMI for institute British project management for that selected. The project is to search for the availability of scheduling in its most accurate details and with modern technologies such as the Primavera because the project is big and the scheduling is big and complex. For project details and no. Because the project is under construction, there are sections that have not been completed yet, and it is not possible to study their success. Therefore, the researcher will study the concrete scheduling section of the project and its impact on the success of the project.

## **2. The research sample**

The research sample includes three teams, the first team is the central bank consultants who are stakeholders, and the second team is company consultants Meinhardt They are the Resident Engineer Department, a foreign company that contains 20 engineers Advisor Almost as for the third team, which is the executive team, ie (the contractor), which is a company DAAX), a foreign company that has done more than one work for the projects of designer Zaha Hadid in Baku, and the team contains about 70 engineers, the opinions of the implementing engineers and consultants will be collected as a sample for research In the application ranges scheduling Detail planned Which Implementation and impact on the ground Haon the success of the project.

Spatial and temporal limits

1. time limits The temporal limits are represented by the start period of the researcher's numbers, the theoretical aspect of the research and the practical aspect of the project and the researched sample, which Ranging from (10/18/2020 - 23/4/2022)
2. the borderspatial: represented to Spatial limits for searching the project site the bank Central Iraqy (The new building).
3. Human limits: The researcher chose an intentional sample of project workers, where only engineers were selected in the sample.
  1. standard deviation: one Scatterometers
  2. Simple correlation coefficient: use in To know the nature of the relationship between the variables
  3. simple linear regression (Spearman): used in test The effect of an independent variable on the dependent variable.

## **Chapter II**

### **Theoretical framework**

#### **Introduction**

Fromy Thousands of years ago On this globe, it can be seen in the construction of the pyramids, which man accomplished thousands of years ago Simple efforts, many human resources, imagination and perception of the project in a tremendous way, all of them were under management, planning and scheduling beyond imagination to become a masterpiece in our time and we look at the history of Iraq, we find the beauty of hanging gardens and the construction of Mallawiya Samarra, and with human development, projects have evolved and become simulating human requirements and that the process of planning and scheduling for the paragraphs of the project Advance implementation and implementation as planned is an important reason for the success of the project and this is what we will discuss in our topic Present.

#### **scheduling concept**

One of the most important concepts of scheduling is time, as it is considered one of the important and precious resources for any project. The concept of scarcity of time has been linked to economic rules. Time is also defined as the period needed to reach goals, where the importance of time cannot be hidden in organizing manpower, machinery, equipment, and financing, and in order to T These variables will be used in an organized manner, with high efficiency, and at a lower cost. The time must be shorter and appropriately to the size of the project (2003:7). Therefore, time is defined within the project as The period of time that was planned and contracted during which the project's activities and daily activities would be implemented within the cost and specifications specified in the contract (Al-Jilawi, 2007:40). Hariri said: Time is one of the most important elements of production, just as time is the period and time period that is used in a particular work. It is the practical hours specified for the actual work, and scheduling focuses on managing time in arranging priorities, setting short-term and long-term goals and implementing them within the specified plan (Hariri, 2014: 53) Time management is defined as the process that distributes time effectively between different tasks, with the aim of completing them at the appropriate and specified time (Al-Sarn, 2018:19).

#### **The importance of scheduling**

It is important to prepare a timetable for the project, whether for the organization in general or for project planning in particular The importance of scheduling as mentioned in each of the following sources (Risk & Reynolds, 2006: 359) And

1. WhereIt is the coordinating framework for the basic tasks of dividing, controlling and directing activities within the planplaced.
2. through which it isDetermining the time period for each activity under normal working conditions to complete the project.
3. is determinedMethods of interconnection between activities.
4. CompleteDetermine timingsbeginningactivities and ends.
5. CompleteDetermining the amount of resources being used upall activity.
6. through which it is doneEstablish a realistic estimate between the completion time of the activity and its cost.

#### **aScheduling scorer**

The primary purpose of scheduling is to coordinate activitiessequentiallyTo complete the project in Best time, lowest cost and lowest risk (Kerzner, 2013) where the goal of project scheduling is to create a schedule, which contains the start and end time of each activity within the tasks takes precedenceAnd the predetermined in planning and Determine Restrictions for different pre-defined activities. The scheduling process depends on several methods and aimsProject schedulingTo create a schedule with a minimum project time period(Vanhoucke, 2016:47).And theIt is essential to monitor work progress schedules to ensure that everything is on schedule during the implementation process. This includes measuring motor progress and comparing it to the schedule(Aziz T, et.al., 2015: 20) It is noticed any time late Work on the project scheduleAnd theOn this basis, corrective action is takenand finding solutionsTo return to the specified date, i.e. within the path laid down in the implementation plan(Sun, 2012: 6)where . is consideredMeasure actual work and compare it to planningto accomplish intently and promptly take necessary corrective actionhe isThe key to effective project control.aprocess praiseactual progressIn additionTo other changes that may occur, it is possibleUpdate and recalculation TheSchedule the project regularly and predict whether the project will finish before or after the required completion time(Abul Hosni, 2019: 26). Ama (603 .): 2017 (Render& Heizer,qIt was satisfied with one goal of scheduling, which is to allocate and prioritize when planning the project according to.of the possibilities available.

And in order to be doneExcellencewith men planning and scheduling As two separate missions, he didBaldwin & Bordoli simplifies the goal of planning and scheduling as follows "The main objective of planning is to ensure that the divided tasks occur successfully and this requires setting goals, defining tasks and monitoring progress, As forTimetable for the projectProvidesThe basis for measuring progress, and the basis for regular review and updating of the plan (Baldwin and Bordoli, 2014:13). Scheduling plays a very important role in many manufacturing and production systems as well as in information processing and construction environments.And theIn transport and redistribution and in the makerseservices, andToDescribe scheduling as the decision-making process for allocatingTheresourcesTheLimited work to perform a group ofTasksFor the purpose of improving jobs and reaching goals within the periodtemporalEstablished (Sharara, 2018:17). From the perspective of the American Institute of Project Management, project planning and scheduling include interrelated inputs and detailed outputs that will be implemented in accordance with the objectives set for them. These objectives must be identified and effectively controlled early in planning and during implementation to achieve successful project performance. (Dadekhi, 184: 2020).

#### **Scheduling management**

Includes schedule managementeProject The processes required to manage the completion of the project in a timely manner, so they are called management processes the time(Martinelli& Milosevic, 164:2016) and (173:2017, PMBOK® GUIDE) and (Dadekhi, 2020:184) and (Desmond, 2004:86) White & Fortune,2002:9))And the(American National Standards Institute,2006:127):

1. procesSchedule management plan:WhichDevelop policies, procedures, and documentsschedulingi.e. planning, developing, managing, implementing and controlling the scheduleechronologicalefor the project.
2. procesDefinition of activities:WhichDefine and document actions thatis through Access for goalsThe project.
3. procesSequence of activities:through which it is doneDocumenting relationships between project activities.
4. procesEstimationtimeActivity:WhichEstimate the number of work periods needed to completetoFor individual activities with provided resourcesback to her.

5. processable development chronological: Which Analyze activity sequences, time, resource requirements, and constraints to create a model new for the table chronological for the project and the Project implementation, monitoring and control.
6. process sensorship and evaluation: Which Monitor project status to update schedule chronological for project and management changes to schedule base plane timeline.

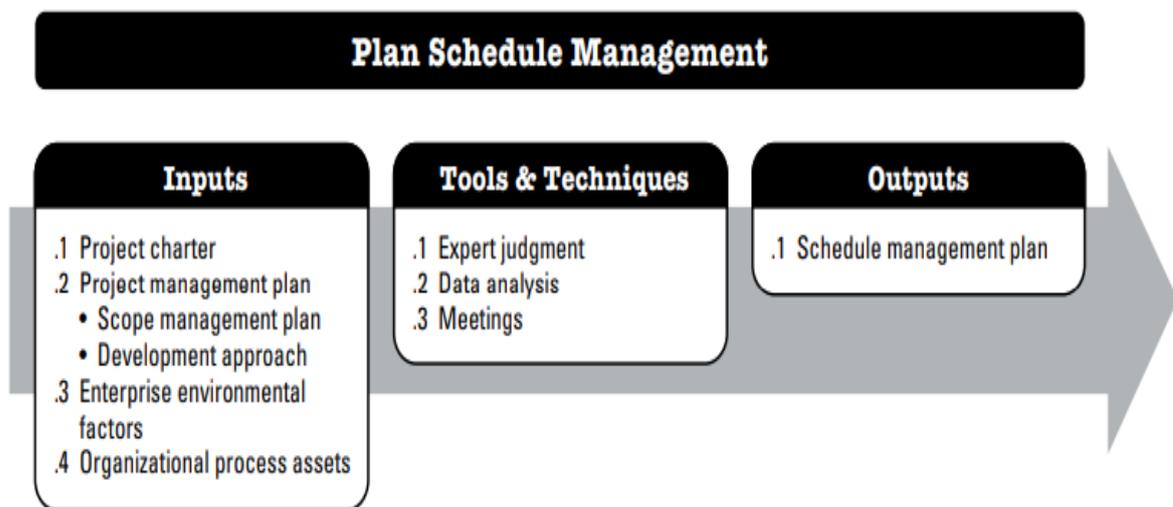
**Scheduling plan management**

Scheduling plan management is the process of establishing policies, procedures, and documentation for planning, developing, managing, implementing, and controlling the project schedule. main benefit who is she Operation It provides direction and guidance on how to manage the project schedule throughout the life of the project as such shown in the figure (2-6) (Hassan, 2019: 5

As each of (Khair al-Din, 147-152) mentioned: 2014) and (Dadekhi, 2020: 186) and (: 1802017, PMBOK® GUIDE) And (Kadhim, 2020: 129) that the plan management inputs for scheduling include:

1. Project charter that sets summary About timetable It is considered a pilgrimager The basis for the start of tasks to their completion is the project time contract Which will affect the schedule management chronological for the project.
2. Project management plan The components of the project management plan include: (Muhammad, 2020: 110)
  1. Scope management plan The project scope management plan describes how the scope will be determined That is, its temporal, spatial, and energy (physical and human) limits. and its development, which will provide information on how to find the schedule.

Scheduling management plan the shape (1)



Source: Project Management Institute, publisher (PMI) (2017), A guide to the project management body of knowledge (PMBOK® GUIDE), 6th edition, USA, P179.

- ب. The development approach will help determine the scheduling method used How is it evaluated? The project time is specified Scheduling tools and how Yeh control it.
1. Environmental factors of the organization that can affect the plan schedule management process for example example (The organizational structure of the company, government or sector standards, scheduling software used, availability of team resources, skills and resources physical, and others depending on the size of the project) (Mahmoud and Saleh, 2017: 14).
  2. organizational process assets that can affect y Scheduling management plan process Which consists of stock Historical information and lessons learned from previous similar projects, development schedule, Management policies and procedures and censorship from meetings and Monitoring Tools and Policies lap Reports (Jassim, 2017: 6).

Where the inputs are processed by tools and techniques to convert them into outputs by rule etcBRA consultantnWhereExpertise from individuals or groups with specialized knowledge or training should be considered in Previous similar projectsAnd theDevelop, manage and monitor scheduleand usescheduling softwareAnd thedata analysiswhichIt involved an analysis of the alternatives, from which it was possible to determine which schedule methodology to use, or how to combine different approaches in the projectAnd theIt also includes specifying how detailed the schedule is required The number of times it must be reviewed and updated and there must be an appropriate balance between the level of detail required to manage schedulingAnd the amount of timeTthat it takes to keep pace with the needs to be reached for each project (Abdulghafour & dhayef, 2018: 555)All this is done bymeetingsT that hold betweenproject teamWhichMeetings to develop a schedule management plan. Participants in these meetings may include the project manager, selected project team members, stakeholders, anyone responsible for planning or implementing the schedule, and others as needed.Which will be mentioned in the project success chapter because they are the reasons for the success of scheduling and are part of the success of the project.

**Chapter III**

**practical side**

**View and analyze the responses of the research sample**

The following research aims to analyze the responses of the researched sample by extracting the arithmetic means, the coefficient of variation and the standard deviations of the questionnaire paragraphs, a copy of which is available in the appendices, and the categories were adopted in the comparison and to clarify the importance of the obtained results,And theWhich was made by calculating the difference between the upper limit of the scale and the lower limit of the scale and dividing the result by the upper limit of Likert scale in the search and adding the result(0.80)after divisionto a minimumThe study scale has a start and sequence to produce the following categories, as in Table No. (2):

the answer	Category
Very weak	1 – 1.80
weak	1.81 – 2.60
Average	2.61 – 3.40
high	3.41 – 4.20
very high	4.21 – 5

Table (2) Categories and level of answer

**View and analyze sample responses in project scheduling and its dimensions**

The project scheduling variable was measured through four dimensions (project planning, project scope management,Project cost and quality management,Project time management), and Table No. (4-4) indicates the arithmetic means and standard deviations of the sample’s point of view in the scheduling variable for the project in the project of establishing the Central Bank of Iraq, so it reflects the arithmetic mean of the total degree of the scheduling variable for the project of (3.912(with a standard deviation of ).521), and a coefficient of variation of (13,318) and that its importance is high, which indicates that the scheduling of the project is applied in the project of establishing the Central Bank of Iraq, in addition to the standard deviation indicator, as it was of little dispersion, which indicates a high agreement of the results.

came afterproject planningin the first place in the middle of my account (3.981) and with a standard deviation (0.579) and with a coefficient of variation of (14.544), followed by a dimensionProject time managementin second place in the middle of my account (3.916) and with a standard deviation (0.538) and with a coefficient of variation of (13.739), followed by a dimensionProject cost and quality managementin third place in the middle of my account (3.908) and with a standard deviation (0.568) and with a coefficient of variation of (14,534Finally, the project scope management dimension came in the fourth rank in my arithmetic mean (3.842) and with a standard deviation (0.645) and with a coefficient of variation of (16,788).

Dimensional order	Variation coefficient	standard deviations	Arithmetic averages	vertebrae	the number
1	14.544	0.579	3.981	project planning	1
4	16,788	0.645	3.842	Project scope management	2
3	14,534	0.568	3.908	Project cost and quality management	3
2	13.739	0.538	3.916	Project time management	4
13,318		0.521	3.912	Project scheduling	

Table (3) averageTArithmetic and standard deviations of the scheduling variable for the project and its dimensions

**Presentation and analysis of sample responses to the success of the project and its dimensions**

The project success variable was measured through five dimensions (support of senior management, project team, project executing agency,Telecommunications,Monitoring and follow-up process), Table No. (3) indicates the arithmetic means and standard deviations from the point of view of the studied sample in the project success variable in the project of establishing the Central Bank of Iraq.3.922(with a standard deviation of )0.512), with a coefficient of variation of (13.059And the success of the project is of high importance, the project of establishing the Central Bank of Iraq, in addition to the standard deviation indicator, as it was of little dispersion, which indicates a high agreement of the results of the variable success of the project. It came after the sideTelecommunications in the first place in the middle of my account (4.158) and with a standard deviation (0.546) and with a coefficient of variation of (13.125), followed by a dimensionSenior management supportsecond in the middle of my account (3.938) and with a standard deviation (0.562)With a coefficient of difference of (14.276), and in third place came afterThe project executing agencymiddle of my account (3.906) and with a standard deviation (0.625)With a coefficient of difference of (16.013), followed by a dimensionproject teamin fourth place in the middle of my account (3.839) and with a standard deviation (0.609) and with a coefficient of variation of (15,861), and finally afterMonitoring and follow-up processIt came in fifth place in the middle of my account (3.771) and with a standard deviation (0.550) and with a coefficient of variation of (14,579) .

Dimensional order	Variation coefficient	standard deviations	Arithmetic averages	vertebrae	the number
2	14,276	0.562	3.938	Senior management support	1
4	15,861	0.609	3.839	project team	2
3	16.013	0.625	3.906	The project executing agency	3
1	13.125	0.546	4.158	Telecommunications	4
5	14,579	0.550	3.771	Monitoring and follow-up process	5
13.059		0.512	3.922	project success	

Table (4) averageTArithmetic and standard deviations of the variable project success and its dimensions

**Measuring the level of paragraphs after project planning for the project's scheduling variable**

The level of paragraphs after project planning was measured for the scheduling variable for the project consisting of seven paragraphs, in addition to calculating the arithmetic means, standard deviations and coefficients of variation for paragraphs after project planning, and Table (5) illustrates:

Paragraph order	Variation coefficient	standard deviation	Arithmetic mean	vertebrae	
1	16,707	0.712	4.264	The company analyzes the project needs before starting the planning process to avoid the expected problems.	1

3	21,078	0.859	4.077	Having experience in collecting and analyzing data and information in preparing the project plan.	2
2	17,286	0.712	4.121	The work paragraphs of the project were neatly divided to prepare the schedule	3
6	24,489	0.942	3.846	Correcting weaknesses and deficiencies in the plan before putting it into effect.	4
4	23.404	0.923	3.945	A coordination plan has been developed between the design team, the implementing team and the consulting team	5
5	23.136	0.900	3.890	Are scheduling daily activities planned to increase speedachievement	6
7	25,643	0.955	3.725	The requirements of the end user (stakeholder) are correctly defined.	7

Table (5) measuring the level of paragraphs after project planning

It is clear from the table (5) (Above that the highest mean of my account reached) 4.264 and with a standard deviation of (0.712) for the content paragraph (1) (the company analyzes the needs of the project before starting the planning process to avoid the expected problems.), which indicates an interest in very high by the sample members about the importance of the first stage of each project, which is to identify the project needs, which are described starting with the environmental survey process, which is based on the analysis of the current process, the areas that can be carried out, and what is expected of stakeholders, And the That paragraph No. (7) Objective (The requirements of the end user(s) have been correctly defined.) which came in the lowest middle of my adult account (3.725) and standard deviation (0.955) This indicates a high interest by the sample members about that The company is interested in the requirements of stakeholders, as they are the intended beneficiaries of the project and who have a direct impact on the project approach and the receipt of the project's completion or project invalidation.

**Measure the level of paragraphs after managing the project scope for the project's scheduling variable**

The level of paragraphs was measured after managing the project scope for the scheduling variable for the project consisting of seven paragraphs, in addition to calculating the arithmetic means, standard deviations and coefficients of variation for paragraphs after managing the project scope, and Table (6) illustrates:

Paragraph order	Variation coefficient	standard deviation	Arithmetic mean	vertebrae	
2	23.404	0.923	3.945	Have the project management requirements been defined?	8
3	22.945	0.895	3.901	The technical needs of the project have been identified	9
1	19.1	0.760	3.978	The method and type of project outputs have been precisely defined	10
5	22.428	0.855	3.813	The project segmentation structuring method and complexity measurement are used to segment the project size	11
6	25,958	0.978	3.769	Convenience to use the program Primavera for the project and accurately adopting the stages of work progress on the ground in preparing the time plan	12
4	24.044	0.922	3.835	There is clarity in defining the scope of the project from the employer for implementation purposes.	13
7	25,654	0.967	3.769	There are orders that affect project activities and the possibility of controlling them.	14

Table (6) Measurement of paragraph level after project scope management

It is clear from the table (6) (Above that the highest mean of my account reached) 3.978) with a standard deviation of (0.760) for paragraph No. (10) Objective (the method and type of project outputs have been accurately determined), which indicates interest high by the sample members about The importance of defining the method and type of project outputs, as the outputs differ according to the project's parameters inside and outside, and may sometimes seem similar, and that each output differs from another, and it is possible to change the scope of the project and the cost as well, and it requires a lot of documents for each project to be delivered, providing requirements and explaining them in accurate details, And the That paragraph No. (14) The same content (there are orders that affect the activities of the project and the possibility of controlling them.) which came in the lowest middle of my adult account (3.769) and standard deviation (0.967) indicating interest high by the sample members In any change in the form, quality and quantity of works and their necessity, or the implementation of additional works to complete the works of the project, schedules of quantities for prices, or orders to switch positions, straight and dimensions for any part of the project works.

**Measuring the level of paragraphs after managing the cost and quality of the project for the scheduling variable for the project**

The level of paragraphs after managing the cost and quality of the project was measured for the scheduling variable for the project consisting of six paragraphs, in addition to calculating the arithmetic means, standard deviations and coefficients of variation for paragraphs after managing the cost and quality of the project, and Table (7) shows:

Paragraph order	Variation coefficient	standard deviation	Arithmetic mean	vertebrae	
4	19,948	0.796	3.989	There is a resource plan in the event of a change in the work paragraphs to avoid delays in completion.	15th
1	15,804	0.703	4.451	A good cost estimate is necessary	16
3	.22,361	0.894	4.000	Is there a possibility to re-change the costs in the event of changes?	17
2	19,475	0.788	4.044	The presence of continuous follow-up to measure the performance of the contractor and employers	18
6	38.408	1.207	3.143	The project was completed within the estimated cost in your organization	19
5	26.031	0.995	3.824	Implementation of the quality assurance method in the project	20

Table (7) Measuring the level of paragraphs after managing the cost and quality of the project

It is clear from the table (7) (Above that the highest mean of my account reached) 4.451 and with a standard deviation of (0.703) for paragraph No. (10) Objective (it is necessary to accurately estimate the cost well), which indicates an interest very high by the sample members about The importance of estimating the cost of the project and its types through the availability of correct data and the standard structure of the estimates and a conclusion about whether the cost estimate is reasonable, and how the project financing will be spent and supported with documents of quantities, supporting accounts and quotations, and requires a lot of documents for each project delivered, requirements are presented and explained in accurate details And the That paragraph No. (19) The same content (the project was completed within the estimated cost in your organization) Which came at the lowest in my adult account (3.143) and standard deviation (1.207) indicating interest Average by the sample members about that The completion of the project is completed at the estimated cost that has been set within the project plan by the beneficiary.

**16.4 Measure the level of paragraphs after the project time management of the project scheduling variable**

The level of paragraphs after project time management was measured for the scheduling variable for the project consisting of eight paragraphs, in addition to calculating the arithmetic means, standard deviations and coefficients of variation for paragraphs after project time management, and Table (8) illustrates it:

Paragraph order	Variation coefficient	standard deviation	Arithmetic mean	vertebrae	
1	17,286	0.712	4.121	Existence of a detailed scheduling plan for project activities and tasks.	21
2	19,579	0.794	4.055	To prepare the project scheduling, provide skilled cadres	22
6	21,907	0.833	3.802	There is a delay in the execution of the stages	23
7	20.74	0.779	3.758	How to handle changes and extend the schedule	24
5	22,766	0.868	3.813	Develop contingency plans in case the project is delayed for any reason from the schedule.	25
3	22,091	0.893	4.044	Do external factors affect the time period needed to implement the project?.	26
4	19.821	0.802	4.044	The importance of the influence of internal factors on the time period needed to implement the project.	27
8	27,588	1.019	3.692	Are there administrative and financial consequences in case the project paragraphs are delayed?	28

Table (8) Measurement of paragraphs level after project time management

It is clear from the table (8) (Above that the highest mean of my account reached) 4.121) with a standard deviation of (0.712) for paragraph No. (21) The same content (the presence of a detailed scheduling plan for the project activities and tasks.), which indicates the interest high by the sample members about The plan for the timetable that determines the start and end of all project activities in addition to the basic milestones that must be implemented until the project is completed on time, And the That paragraph No. (28) The same content (Are there administrative and financial consequences in the event of delays in the project paragraphs) Which came at the lowest in my adult account (3.692) and standard deviation (1.019) indicating interest high by the sample members about However, the delay of the project causes negative consequences and repercussions on the value of the contract, since the contract works are related to cost, equipment and financing, meaning that the delay in the project causes direct harm to the stakeholders and the executing or contracting company alike.

**Conclusions**

1. Continuous change occurs during the project life cycle, which can be positive and the negative and must be controlled to schedule. It changed the project of the Central Bank of Iraq several times during implementation, and despite this change, the concrete sections were delivered fifteen days ahead of time.
2. The contractor's commitment to achieving the primary objective of the project has been. Rather, he must abide by its implementation within the specifications and technical conditions agreed upon in the contract, as well as the quality and cost.
3. Most of the factors that affect the success of the project are: when at the stage of managing the project's scheduling plan, and that officials avoid the trouble of preliminary planning, believing that it is a waste of time and that there is not enough time to carry out the work. Dr. Implementation is a key factor in the success of the project.

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S

Dear sir

Good greeting

The researcher intends to conduct a study to find out “the effect of scheduling on the success of the project to establish the Central Bank of Iraq” and that in order to obtain a master’s degree in industrial management sciences, and in view of your distinguished scientific experience, I place in your hands the attached field survey questionnaire, which includes a set of points that express what is going on around you during the performance of your duties.

It will be for your constructive cooperation and effective contribution to the accurate and objective answer to all the points of the questionnaire a prominent role to achieve the goal of the current research.

Note that all answers and valuable information that will be obtained will be treated with complete confidentiality and it will be used for research purposes only.

Greetings and respect

Thank you for your cooperation

The researcher

The supervisor

Areej Abbas Fadhil

Assistant Professor Dr. Aws Hatem Mahmoud

**Part One: General Information**

1. Qualification:

High School       Bachelor       Master       Doctorate

2. Years of Experience:

1 – 5       6 – 10       11 - 15       16 - 20       more than 20

3. Years of work in the institution:

4. Are you in:

- Architectural Design Team     Structural Design Team  
 Planning Teams                       Implementation Team

5. Career Title:

- Assistant Engineer     Engineer     Senior Engineer  
 Assistant manager of engineers     Senior manager of engineers     Expert

6. Are you in:

- Resident Engineer Team     Consulting Team     Contractor Team

**Part Two:**

**1. The First (main) Variable Project Scheduling:** The First (main) Variable Project Scheduling: The process of converting a general or outline plan for a project into a time-based graphic presentation given information on available resources and time constraints:

**A. PLAN SCHEDULE MANAGEMENT:** Plan Schedule Management is the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule. The key benefit of this process is that it provides guidance and direction on how the project schedule will be managed throughout the project. This process is performed once or at predefined points in the project

NO.	Scheduling plan management	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	The company analyzes the needs of the project before starting the planning process to avoid expected problems.					
1.2	Having the experience in collecting and analyzing data and information in preparing the project plan.					
1.3	The work parts of the project were neatly divided to prepare the time program.					
1.4	Correcting weaknesses and defects in the plan before putting it into effect.					
1.5	A plan has been developed for coordination between the design team, the implementing team and Consulting Team.					
1.6	Is it planned to schedule daily activities to increase the speed of achievement?					
1.7	The requirements of the end user (the concerned) are defined correctly.					

**B. Project Scope Management :**Project Scope Management includes the processes required to ensure that the Project includes all the work required, and only the work required, to complete the project successfully.

Key concepts for Project Scope Management include:

- Scope can refer to product scope (the features and functions that characterize a product, service, or result), or to project scope (the work performed to deliver a product, service, or result with the specified features and functions).
- Project life cycles range along a continuum from predictive to adaptive or agile. In a life cycle that uses a predictive approach, the project deliverables are defined at the beginning of the project and any changes to the scope are progressively managed. In an adaptive or agile approach, the deliverables are developed over multiple iterations where a detailed scope is defined and approved for each iteration when it begins.
- Completion of the project scope is measured against the project management plan. Completion of the product scope is measured against the product requirements

NO.	Project scope management	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
2.1	Have the project management requirements been defined?					
2.2	The technical needs of the project have been identified.					
2.3	The method and type of project outputs have been precisely defined.					
2.4	It uses the project segmentation structuring method and measure the degree of complexity to divide the size of the project.					
2.5	Appropriate use of the primavera program for the project and the use of the stages of progress in preparing the plan of time.					
2.6	There is clarity in defining of the project from the employer for the purposes of execution.					
2.7	There are orders that affect project activities and the possibility of controlling it.					

**C. Management of cost and quality of the project:** Whenever products are recalled or there are lawsuits based on product claims that have not been met, the costs associated with the product or service rise. These costs are known as the Cost of Quality (CoQ). Therefore, CoQ can be defined as the costs associated with not creating a quality product. In project management, CoQ needs to be considered while estimating costs and performing Life-Cycle Costing (LCC).

NO.	Management of cost and quality of the project	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
3.1	There is a plan for resources in case of changing in the work parts to avoid the occurrence of delay in completion.					
3.2	A good cost estimate is necessary.					
3.3	Is there a possibility to re-change the costs in the case of changes taking place?					
3.4	The presence of continuous follow-up to measure the performance of the contractor and employers.					
3.5	The project was completed within the estimated cost.					
3.6	Implementation of the quality assurance method in the project.					

**D. Project time management:** A project, by definition, has an official end date. In order to meet this date, every project needs a schedule and to manage their own time and the team’s time to ensure that the schedule is met Time management is the management of the time spent, and progress made, on project tasks and activities. Excellent time management requires the planning, scheduling, monitoring, and controlling of all project activities

NO.	Project time management	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	Existence of a detailed scheduling plan with time schedules for activities and tasks of the project.					
1.2	Providing skilled staff to prepare the project schedule.					
1.3	There is a delay in the implementation of the phases.					
1.4	Method of handling changes and extending the schedule.					
1.5	Develop contingency plans in case the project is delayed for any reason in time scheduling.					
1.6	Do external factors affect the time period required for implementation of the project?					
1.7	The importance of the influence of internal factors on the time period needed to implementation of the project.					
1.8	Are there administrative and financial consequences in case the project is delayed?					

**2. The second variable (the success of the project):** The second variable (the success of the project): Project success can be measured as a level of effectiveness, where the project deliverables are measured in terms of benefits and stakeholder satisfaction, in other words the extent to which the project ultimate objectives are attained. Project management success is defined by the level of efficiency the project achieved to reach the project objectives. Efficiency is related to how the project manages its limited resources to meet the goals while building good relationships with internal and external stakeholders. On the other side there are many ways a project can fail, a project can fail in meeting the budget, schedule and scope goals, but be a success in meeting the development objectives, likewise, a project can meet the budget, schedule and scope goals and fail in meeting the final development objectives

**1. Senior management support:** Management support systems focus on managerial uses of information resources. These systems provide information to manage for planning and decision making. The information provided by these systems is based on both the internal and external data using various data analysis tools. They also offer a choice to the user to select out of these tools for the purpose of data analysis. These systems serve the information needs of managers at middle and top levels in the managerial hierarchy. There are three types of management support systems, namely: a) Decision Support Systems b) Executive Information (support) Systems and c) Expert Systems.

NO.	Senior management support	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	Senior management allocated sufficient funds and resources to each task of the project's tasks.					
1.2	To ensure the success of the project, senior management shares responsibility with a manager					

	and project team.					
1.3	Senior management has given the necessary authority to the project manager and supports his decision related to the project.					
1.4	Senior management motivates the project team and encourages them to implement the means unconventional modernity during the implementation of the work within the established plan to complete the project.					
1.5	The method of selecting the contractor is appropriate for the project.					
1.6	Senior management supports the health and safety performance of all employees within the project and the application of occupational safety requirements.					
1.7	The existence of reliable and solid foundations for planning commensurate with the size of the project					
1.8	Senior management contributes to the process of facilitating obtaining permissions.					

2. **Project Team (Resident Engineer):** Project teams are multi-disciplinary; team members are brought together from different departments and may include experts from external companies or suppliers. The project team are responsible for completing the project (doing the work) according to the project schedule. Having the right skills within the project team is crucial to project success, and the membership of the project team may change as different skills are required for certain phases and deliverables. Typically, the project manager will be consistent throughout the project life cycle although on some large projects specialist project managers may lead certain phases.

NO.	Project Team (Resident Engineer)	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	The project team is given sufficient power to take immediate decisions without consulting senior management, taking into account the consequences in finance for the employer.					
1.2	The staff is developed through training courses to enhance their expertise and increase their knowledge.					
1.3	Consultants are called to help when needed.					
1.4	Through the completion of the work, the team cooperates to achieve the project objectives.					
1.5	The presence of sufficient experience for the resident engineer team to complete the project.					
1.6	Does replacing team members more than once negatively affect the project completion?					
1.7	Each team member knows his or her role and responsibilities clearly.					
1.8	The existence of cooperation between the resident engineer team and the contractor team.					

1.9	The team looks at previous work on similar projects to capitalize on and improve upon.					
1.10	The project team has experience in previous similar works.					
1.11	Periodic meetings are held to find problems and where they occur.					

3. **The project executing team (contractor):** is the performing the project scope of works and activities in accordance with the project baselines, plans, procedures, and resources for the project interface, change, schedule, cost, risk, quality, safety and environment management, and other contractual requirements. The key success factors for the project execution are well defined project definitions, roles and responsibilities, organized and building the team works, and accurate status reporting including forecast, timely decision making under the leadership of the project managers controls within internal and external organizations.

NO.	The project executing team (contractor)	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	Clarity of documents, contract documents and details of technical specifications and others.					
1.2	Harmonization of quantities schedule with the executive project phases and non-intersection with the time schedule.					
1.3	Clarify and explain the plan to employees, convince them and motivate them to implement it to ensure the success of the plan.					
1.4	The cooperation of all teams to the project and in a continuous manner contributes greatly early detection and treatment of errors.					
1.5	The contractor's influence on the plan implementers contributes to the faster completion of the work.					
1.6	Skillfully deal with delayed activities and review the implementation process.					
1.7	Update the plan according to the done work and match it with the original plan.					
1.8	The importance of using the contractor team for occupational safety.					
1.9	The contractor uses his workers who have the experience and training necessary to complete the projects phases.					

4. **Communications:** The term “Communication” is easy to understand because it is natural phenomenon, but it is difficult to define as a concept due to multifarious interpretations made by several authors. For a common man, “communication” is an exchange of information or ideas. Technically it is a process of transmitting ideas, information and feeling through a channel to another person or a group of persons and receiving feedback from the transferee. Definition of Communication: “Communication is transfer of information and understanding from one person to another person” Keith Davis.

Communication is an exchange of thoughts, ideas, impressions and reaction among individuals Communication is an assembly of different elements and unrelated factors structured in a systematic framework

NO.	Communications	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	Communications are used to plan and coordinate project activities and to communicate with team members.					
1.2	Project management uses different techniques to convey information effectively such as: mobile phone, e-mail and direct contact.					
1.3	Effective communication between all teams involved provides information on the progress of work in the success of the project.					
1.4	Presence of communication channels between the project manager, senior management and members of the team.					
1.5	Sufficient documents for the project are periodically sent by the contractor to the resident engineer team, such as work progress and completion, or reasons of obstacles.					
1.6	Modern communication technologies and programs are used, which greatly contribute to the completion of the project.					

**5. Monitoring and evaluation process:** Project monitoring involves tracking a project’s metrics, progress, and associated tasks to ensure everything is completed on time, on budget, and according to project requirements and standards. Project monitoring also includes recognizing and identifying roadblocks or issues that might arise during the project’s execution, and taking action to rectify these problems. o put it simply, the success of a project relies on complete and dynamic project monitoring. Careful project monitoring empowers PMs to gather valuable data regarding how a project is going — and to use this data to make intelligent decisions.

NO.	Monitoring and evaluation process	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.1	There is an effective monitoring system that helps management to detect risks quickly and processed.					
1.2	Regularly compares actual project progress with time schedule within the project team or contractor.					
1.3	The control takes prompt corrective actions in the event of errors or deviations.					
1.4	The presence of the technical staff and the necessary equipment to monitor and follow up the implementation process.					
1.5	Implementation of the standards and criteria of the British Institute of Project Management (PMP) to measure project performance.					
1.6	The company has the flexibility to deal with what is expected to happen.					