AJSP
المجلة العربية للنشر العلمي
الإصدار السادس – العدد اثنان وستون
تاريخ الإصدار: 2 – كانون الأول – 2023م
www.ajsp.net
ISSN: 2663-5798

”The effect of incentives on the speed of completion of projects in the " Holy Makkah Municipality”

By

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A research project submitted for the requirements of the degree of

Master of Science [Engineering Management]

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Ramadan, 1442 H – May 2021 G

Abstract

In this study, the researcher studies the relationship between giving incentives to contractors and the accomplishment of projects and the best types of incentives that contribute to the success of the projects. Motivation generally affects the achievement that a person does, whether at home or work, and makes him love the thing that he does, and therefore affects his psyche in several things, including.

This research aims to evaluate and examine the relationship between incentives and project success and completion. This research aims to explore the effect of incentives if it implemented on the contractor performance to speed the project compellation. Will the research discover a relationship between an incentive for the contractor and the speed of project completion? And what are the best types of incentives that contribute to the success of projects? The scope of the research focused on The Holy Makkah Municipality projects and their contractors.

The researcher found that giving incentives to contractors will affect the success and speed of project implementation positively. Also, the researcher found that the best incentives giving to the contractors will be Prompt payment of financial dues to contractors, giving highly efficient classification to be added to the contractor points when submitting bids, giving additional contracts to the contractors who are committed to completing their projects faster, giving Certificate of completion to be added as points for contractors upon submission of bid, and financial increase according to the short term of the project.

ISSN: 2663-5798

Chapter I

Introduction

1.1 Background

The speed of completion of government projects is one of the most essential pillars of development that the Kingdom of Saudi Arabia Vision 2030 aims to through the National Transformation Program, which objects to achieve excellence in government performance, enhance economic capabilities and increase the level of living services, by increase the pace of implementation of basic infrastructure projects According to the National Transformation Program (NTP).

The problem of stuttering and slowing down in government projects is one of the most critical problems that the government faces in developing and delaying its results.

Accordingly, the government has recently excluded the national transformation initiatives from the competition and government procurement system, according to Royal Decree No. (11503) dated 3/3/1439, so that the party has the right to present its government works and its purchases in a specific competition, by inviting at least three competitors to submit their bids from Through a separate technical and financial authority.

Based on this, this flexibility represented in the exception provided an opportunity for government agencies to choose the best contractors to carry out their work and negotiate with them before starting the contract, and to determine their ability to carry out the work as required and the speed of awarding these projects.

ISSN: 2663-5798

Often projects face significant risks during implementation, delays and poor quality, and a lot of research has been done to identify various possible solutions to performance problems.

In the same context, incentives can be used as one of the solutions to address the problem of stalling projects, such as an incentive.

A time incentive for early completion, cost incentive to save costs and quality incentive for no defects or minor defects. In recent years, it is evident that researchers around the world have become increasingly interested in the importance of incentive mechanisms for the success of the project, for example, Herten and Peeters (1986), Bower et al. (2002) and Bubshait(2003)

We note the paucity of research in this aspect in the Kingdom of Saudi Arabia. Accordingly, this research will try to focus on this aspect to see the possibility of implementing incentives for the success of projects in the holy Makkah Municipality. Finishing on time, within budget and with specific quality are major goals for each project. Due to the importance of this issue, the Council of Ministers decided on 8/31-2015 to approve the establishment of a national program to support project management in public entities aimed at raising the efficiency of implementing government agencies' projects through the application of international best practices in the fields of project management.

1.2 Aims and Objectives:

Stuttering and slowing down in government projects is one of the most important problems that the government faces in developing and delaying its results. Lots of projects in the Kingdom of Saudi Arabia

suffer from faltering, as some official studies indicated that there are more than 80% of stalled government projects, with a total value of more than 500 billion 7 annually (Al-Anqari, 2014).

This research aims to evaluate and examine the relationship between incentives and project success. The objective of this research is to explore the effect of incentives if it implemented on the contractor performance to speed the project compellation.

1.3 Research Contribution

This research objects to answer the following questions:

1- Is there a relationship between the existence of an incentive for the contractor and the speed of project completion?
2- What are the best types of incentives that contribute to the success of projects?

1.4 Scope of the Study

The scope of the research focused on The Holy Makkah Municipality projects and their contractors.

1.5 Thesis Report structure

The researcher divides this research into five chapters, starting with an introduction in chapter one; this chapter contains background, aims and objectives, research contribution, and thesis report structure. The literature review shown in chapter two and chapter three is about research methodology. Data analysis of this research is explained in chapter four. The researcher reached his conclusions and recommendations in chapter five.

Chapter II

Literature Review

2.1 Introduction to incentives

There are a large number of definitions of incentives, including that incentives are defined as a process of motivating a person to perform a certain behaviour that is desired by management (psychologists view motivation on the basis that it is the process of pushing an individual to take a certain behaviour, stop it, or change its course) Nima Shalaby,1990

This definition clarifies that an incentive is a process of pushing the individual to adopt a specific behaviour without indicating that this behaviour is positive or negative, positively represented by increased production or negative in terms of its inclusion of a penalty.

Several definitions agreed that the stimulus is that exciting that moves the individual towards achieving a specific goal through which the goals of the organization and the individual are achieved alike. Among these definitions:

Dr Ali Al-Salma says (that incentive are the factors that work on exciting the motor force in a person and affecting his behaviour). (Ali Al-Salami 1985)

Others define incentives as a way to motivate workers to improve work (incentives are methods of motivating workers to work productively) (Atef Ebeid 1970)

Some agree with the previous definition, but in other words that incentives are methods of mobilizing the capabilities of workers, which increase their performance, quantitatively and qualitatively, or one of

them, and it can be realized from these definitions that incentives are methods of increasing the productivity of workers to achieve the goal of the organization and the individual, which leads to the stability of the enterprise.

As for Dr Ismail Sabry Moqalled, he believes that incentives are a way for employees to perform their work with sincerity and sincerity (incentives are methods of motivating workers to perform their work with sincerity and sincerity)(Ismail Sabry 1967)

Others see incentives as a type of directing the behaviour of individuals to do a specific action. (Incentives are methods of directing human behaviour to do a specific action) (Encyclopedia of Modern Administration 1980)

Based on the foregoing, it is noticed that the previous definitions agree that the incentive is the factor that moves the individual to achieve a specific goal. These definitions converge at another point, which is that the workers' response to these methods involves achieving financial or moral returns that benefit workers in the form of an increase in their wages, such as rewards. Cash or in-kind and include their human and social needs.

From the previous, it can be said that incentives are factors that affect the behaviour of the worker to achieve work goals by satisfying human needs. There is specialist meaning to four basic concepts:

Motive:

It is an internal state that charges, activates, leads and directs behaviour towards certain goals. Psychologists are interested in this internal state and how it activates.

Motivation:

It is a psychological process that deals with that force that moves the object and directs its behaviour in the sense that it is the psychological process that studies the motives and the motive is something that stems from the soul of the individual and raises in it the desire to work, i.e. it is an internal force that runs in the soul of the individual and pushes him to search for something specific and thus confront his behaviour and His actions towards that thing or goal, and the most important of those motives are human needs of various kinds that stem from a person's feeling of a need for a specific thing, so that need creates a specific desire to obtain that thing, so he seeks to search for what satisfies that need until it reaches the desired level of satisfaction.

Need:

It is the deficiency and deprivation that causes tension and then the behaviour to remove it, which is if one of the elements and parts of the motivation process, but it is the driving element that starts the process. Therefore, needs are often talked about as a synonym for motivation.

Incentive:

It is the means of gratification, meaning that the management's interest in motivation is to motivate workers to do what it wants from them, and it does so through what it provides them with in terms of wages, salaries, social relations, training opportunities and career advancement. So, the success of the organization in achieving the goals of motivation is through its good appreciation of their motives, that is, what motivates them and what stimulates them for intonation and creativity.

Types of incentives:

The types of incentives vary according to the multiplicity of the basis of the division, as there were divisions of the types of incentives. (Suad Faiq Barnouti 2004). Therefore, the types of incentives can be dealt with as follows:

Material incentives:

Most of this type of incentives is tangible and tangible represented in material rewards, or additional wages for workers (the tangible aspect is the incentives, which take different forms in the method of payment for workers.

The performance and effort of the individual are consistent with the amount paid in the form of bonuses, additional wages, or increments that differ on the basis of the difference in effort criterion (Mansour Fahmy1982) . The material incentives are a return that the worker receives in return for the intellectual and muscular effort he exerts (it is what the workers receive in return for their intellectual and muscular efforts, or in other words, the worker's income from his work).(Naama Shalabi199) .0

Time incentives

In this method, the worker must produce at a specific time and be rewarded for the amount of savings in the specified time for completing the work or the reward for achieving higher production at the specified time.

The incentive can also depend on time by calculating the typical or standard production time, then the wage and the incentive are determined based on the presence of an hourly wage and an agreed rate as an incentive and a standard production during the workday. Around time and production are cumbersome and costly processes.

Piece -rate

It is one of the main methods of paying wages or incentives, whereby the incentive is determined according to the production of the worker or the produced pieces.

It is preferred when applying the piece-rate incentive system to have a fixed wage (daily or monthly). Note that the application of this method many times requires a minimum amount of work (the so-called sectional system) must It is paid by the worker before he becomes entitled to the incentive, and what is more than that is rewarded with the percentage of increase in production.

The piece-by-piece incentive method is characterized by being easy to understand and calculate, and that the individual's revenue is directly related to the amount he produced, and one of the most important flaws of this method is the difficulty in determining the size of the standard production, to a continuous measurement of the amount of work produced.

Incentives, performance and criteria

Incentives are of great importance and importance in guiding workers, determining their trends and needs, and paying attention to the study of incentives confirming their importance in influencing performance and this is reflected in the production, quality and quantity, and the ability of incentives to stimulate creativity and initiative energies of workers. This is because incentives contribute to achieving social harmony to meet their personal needs and the needs of society. The establishment is concerned with adapting the individual and his agreement to reflect this on the extent of his productive efficiency, and there are some incentives that affect performance and increase productivity.

Wage incentive

There are two basic conditions for an incentive to produce an over-productive effect

First: That the individual desires to obtain a higher wage, meaning that the increase in the wage is desirable in and of itself.

Second: There is a direct relationship and a positive correlation between the increase in production And get a pay increase.(Ali Al-Salami1985)

It is well-defined from the above that the first condition is logical and natural, so for the wage to become an incentive to increase production and raise its level, the worker must have the desire to obtain additional wages, as the worker who does not have a desire to increase the wage will not be an incentive or an incentive for him to improve the wage. Work or

The increase in the exerted effort, and therefore if there is no correlation between the wage and the increase in it compared to the effort expended at work, the effect of the wage and the increase therein will have no effect on production as the worker does not feel what motivates him to increase production. So, from the point of opinion of the administration that wants to formulate a policy of incentives, one of the pillars of which is remuneration, it should ensure that:

(A) There is a relationship between the wage paid and the production provided by the worker, or there is a way to find that relationship.

(B) The workers' desire to obtain a high wage leads to a process of changing the behaviour of these workers, meaning that the administration is trying to educate workers in a new behavioural pattern with the aim of raising performance and the efficiency of wages as an incentive for this behaviour depends on the workers' desire for the new behaviour and the wage link to production And the extent to which the wage increase is achieved once the increase in production is achieved.(Modern Administration1980).

2.2 Previous studies

1. The impact of incentive mechanisms on project performance. (Xianhai Meng, Brendan Gallagher 2010 **)**

Key findings include: (1) The use of incentives is a way to achieve the goals of all project parties.

(2) Incentives and disincentives must be used to have a greater impact on the project;

(3) There can be only one incentive that has a significant impact on the success of the project;

And (4) the contractor in a project needs to have an incentive to make greater internal and external efforts.

The researcher concluded the following:

(1) Time motivation is one of the most popular incentives used;

(2) Choosing the appropriate method of payment that contributes to the success of the projects; And (3) the use of incentives can result in any projects without flaws or with very slight defects

2- Setting Maximum Incentive for Incentive Disincentive. (Jin-Fang and Wei Tong Chen 2004 **).**

In this study, an approach for predicting the maximum project days for incentive as well as the maximum incentive for SHAs and contractors is presented. By using data from FDOT projects, a quantified model to determine the maximum incentive values is developed and validated.

The main equation used by this model is the functional relationship between the construction cost and duration. The results of the research can be condensed in the following ways:

1. It seems that the FDOT consistently overestimated the necessary project contract time.
2. There is a need for DOT to develop a model to predict the maximum incentive.
3. The model developed by the study enables the DOT to predict maximum acceptable incentive and maximum days for the incentive by using DOT's contract time and construction cost estimates.
4. The model can forecast the contractor's maximum days for incentive and maximum incentive by utilizing his cost and time estimates of the project; and
5. The model developed is based on data from FDOT projects.

Therefore, it is only good for the prediction of FDOT projects.

Although the model is developed based on the data from FDOT projects, this model can be adopted by any SHA that plans to utilize I/D contracts. However, the functional relationship between the construction cost and duration need to be developed by the client depending on construction type, location, and economic factors. It also should be known that the model should be project-dependent only.

3- **Motivation toward financial incentive goals on construction projects. (Timothy Rose, Karen Manley** 2011**)**

Four different projects were studied in this research.

There is a great harmonization between the motives of the participants in this research to achieve the greatest amount of benefits and to find a common language between all project parties based on mutual trust and a fair distribution of project risks.

The use of financial incentives in a respectful contractual environment avoids the perception that the contractor is questionable and unreliable and encourages the fostering of respect and appreciation by rewarding outperformance.

In short, providing a financial incentive does not guarantee the success of the project, which calls for the establishment of a strong relationship between the parties to the project.

The studied projects demonstrated a set of incentives that drive the contractor to the success of the project in addition to the financial incentive, such as an equitable base contract, future work opportunities, relationship workshops, up-front design

involvement, and value-driven tender selection.

4- Incorporating Contractual Incentives to Facilitate. (Florence Yean Yng Ling;

M. Motiar Rahman; and Tiong Lian Ng 2006 **).**

The main findings of this study include:

1. All parties support the idea of allocating project risks because incentives can be viewed as equivalent to rewards for good performance.

2. In general, the researcher found that quality is the most important goal, before the time target and the cost goal, as the contractors classified the cost target before the schedule.

Incentives that are consistent with the project objectives should be used, and the quality incentive is most used, with schedule, early completion, safety, and cost incentives last.

3. It was found that the types of incentives are mainly chosen in the two implementation phases.

4. Among the study projects, 0.5% of the total project cost is spent as project incentives

ISSN: 2663-5798

5. There is consensus among all project parties that the use of incentives is effective in creating better performance.

5- Dynamic performance incentive model with supervision mechanism for PPP project. (Hong Zhang and Lu Yu, and Wenyu Zhang 2020**)**

The dynamic incentives model enables the creation of flexibility in dealing with cases of default or poor results for PPP projects to ensure maximum benefit from the project for both parties.

The objectives of the public sector and the profit of the private sector, respectively, can be achieved through the creation of incentive reward and punishment.

Incentives are able to ensure the benefit of the public sector while protecting the interest of the private sector by controlling the level of private-sector effort unknown to the public sector.

6- Incentive mechanism for inhibiting investors' opportunistic behavior in PPP projects. (D. Bower; G. Ashby; K. Gerald; and W. Smyk 2002**)**

The results indicate that the government should work to create incentives for investors in order to urge them to increase their desire for production. The more obvious the opportunistic trend, the greater the intensity of the incentives and the greater the proportion of the allocation of benefits.

Incentives contribute to enhancing the level of the contractor's productive efforts, reducing the level of opportunistic behaviour among private sector investors and directing it properly to achieve the government's goals and create a common goal with investors that contribute to the success of the project.

7 -Is incentivization significant in ensuring successful partnered projects?

(Deborah Hughes, Trefor Williams and Zhaomin Ren 2012**)**

This paper aims to test the hypothesis "using stimulus with a gain/suffering share of about 15% is a precursor to successful infrastructure partnership projects in South Wales".

The researcher found that the indicated incentive was not suitable for all parties, just as the cost stimulus could have a negative impact on other aspects of time, cost and quality.

8- Optimal project deadlines for mean-variance incentive contract designs.

(Akram El-Tannir 2019**)**

The researcher studied the possibility of creating incentives for contractors represented in rewards and penalties in addition to the fixed payment of the contract and to ensure its impact on the success of the project. And the contractor becomes more motivated to terminate the project before its specified time. Obviously, under appropriate levels of risk aversion to the contractor, and when the reward rate in the contract is greater than the penalty rate, the optimal deadline maximizes risk avoidance. The average variance of the contractor's job is present and is less than the expected average of the random duration of the project.

The reward in the contract gives more incentive than punishment to motivate the contractor to complete the project earlier than planned.

In the other case where the reward rate is less than or equal to the penalty rate, it is shown that the reward function of the risk-avoiding contractor is strictly increasing in terms of deadline and, therefore, there is no limit to it. Hence, the latter cannot work for the contractor.

ISSN: 2663-5798

2.3 A summary of previous studies:

It is evident from the presentation of previous studies that these studies focused on employing incentives as one of the causes of the project's success. It can be said: These studies agree that creating an incentive can be one of the reasons for the success of the project if it is used in the best way. This is through the participation of all relevant parties in finding applicable motivational methods.

Chapter III

Methodology

3.1 Introduction:

This chapter deals with a comprehensive description of the research methodology that was used in carrying out the field study.

During the identification of the various methods and tools that were used in the completion of this study, and this chapter includes a description of the study population and the sample of the study, as well as a clarification of how to prepare the questionnaire, examine the extent of its validity and reliability, and an explanation of the statistical methods used in analyzing the results.

3.2 Ethics:

Ethical concerns are necessary for research projects as all participants have moral and legal rights. For this study, the researcher certified they interacted with the participants in a personal way, that they did not invade their discretion without consent from them, that the research did not upset them're and that all information received from them admitted and accurately represented.

Some ethical considerations this study assured for the participants were:

3.3 Privacy and Confidentiality

Ensuring that information provided will be unidentifiable by anybody other than by the researcher. Guaranteeing they were conversant that if any of the information resulting from the research is to be used for presentations or reports.

I was confirming that they were well informed that the results would be presented in the thesis and they will be seen by the researcher's supervisor, a second marker and the exterior auditor.

Ensuring that they understood that the proposition may be read by future students on the course and may be distributed in a research journal but anyone reading this thesis won't know who they are Confirming that the researches not harmful for participants and certifies proper use of information.

Autonomy

The researcher ensured that the participant's contribution is completely voluntary and that they may withdraw from the research at any time.

3.4 Research Methodology

To attain the research objectives, the researcher used the descriptive statistical method was used to analyze the results that will be obtained when retrieving the questionnaires. This is represented in the percentages and the calculation of repetitions. This method is compatible with the descriptive approach in addition to using the statistical program SPSS in its full transactions and correlations.

The study was conducted as a quantitative study approach to research in order to depict the effect of incentives on the projects of The Holy Makkah Municipality and their contractors. According to Burns and Grove (1993), a quantitative survey is most appropriate to use if the purpose of the investigation is to describe the degree of relationship that exists between the variables. Besides, it also helps in

examining and describing the interactions between those variables, so the staff of the Holy Makkah Municipality and its contractors were chosen to be the statistical community. The choice of this approach is determined by the fact that this study has attempted to answer questions about the relationship between incentive schemes and project success.

A descriptive research design was applied to describe the data and characteristics of the samples in order to understand and describe incentive schemes systematically. They are organizing the case as well as identifying the most influential variables that affect the project. Research that mainly focuses on constructing quantitative data follows a quantitative method. The researcher will not develop theories, however, to test the research hypothesis, which requires the researcher to use numerical theories. Data is one of the characteristics of the quantitative method.

Once the raw data was obtained, it was coded and entered into the computer program. In addition to this, the background information of respondents was presented in a different format .

The Statistical Package for Social Sciences (SPSS) version 20 was used to analyze the data .

Descriptive statistics were used to abridge, organize and simplify the findings in a systematic way. The result is presented in figures, percentages and tables, and the summary statistics such as means, standard deviations are computed for each incentive schemes dimensions and employee performance in this study .

ISSN: 2663-5798

3.5 Data collection sources

1. Secondary sources: the theoretical aspect of the study was covered by returning previous reports, articles, studies, research, books and references on the topic of using operations research for decision-making and community institutions and their role in providing services.
2. Primary sources: The researcher uses a descriptive-analytical approach to conducting the study and the questionnaire as a main primary resource tool for collecting information. The primary data will be collected by a questionnaire containing a total of 22 questions. The target group is The Holy Capital Municipality projects and the contractors. The primary data for the research was obtained through field research by collecting the data necessary to prove the validity or error of the research hypotheses. In designing the questionnaire form, consideration was given to giving clear and complete instructions regarding the type of information required and the place to put it so that it requires the least possible time of the investigated from the respondents. The respondents were given a guarantee and confirmation that their answers will be completely confidential and will only be used for research purposes. It is worth noting that the survey was tried on a survey sample to test it, and after learning about its results, the amendment was deleted by removing some phrases and amending the formula of some phrases of the survey form until it became on the picture attached with this research, and this step, which is the step of experimenting with the initial image of the questionnaire, is one of the necessary steps to prepare any questionnaire.

3.6 Study population and sample

The study population includes all the engineers working in the Holy Makkah Municipality, and it has been used. The researcher uses a stratified random sample.

The questionnaires were distributed on a random stratified sample of size 80. One of the engineers working with contractors, consultants, and Makkah municipality. 80 questionnaires were retrieved, i.e. a ٪100 percentage of the sample size.

The researcher believes that this number of the sample is considered acceptable, especially since there is a lack of interest in satisfying out questionnaires for many engineers.

3.7 Reliability Test

A reliability test was conducted to ascertain the reliability level of the research. The reliability of a measure the extent to which the measure is without bias and offer consistent measurement across time (Sekaran, 2003). Cronbach's alpha is a reliability coefficient that indicated how well the items are positively correlated to one another. The closer Cronbach's alpha is to 1, the higher internal consistency reliability (Sekaran, 2003).

3.8 Study methodology and sample analysis

Data analysis is the process of fetching order, structure and meaning to the mass of information gathered. After collecting all the necessary data, these data were coded and edited, analyzed and rephrased to eliminate errors and ensure consistency.

A descriptive and analytical method was used in this study because this approach is appropriate for a topic.

The study and gives the possibility to analyze the factors affecting the subject of the study, describe and measure the extent of their interrelation with each other in order to explain the results obtained to achieve the objectives of the study and to prove its hypotheses. The data received was entered into the computer by means of the statistical program (SPSS).

To measure the answers to the questionnaire items through the following statistical methods:

- Frequencies and percentages to describe the characteristics of individuals in the sample and to know the relative distribution of responses from individuals.
- Averages for measuring the average of the respondents' answers to the questionnaire questions, the standard deviations

Chapter IV

Data Analysis

4.1 Participants Profile

The participants were selected from the architects of the Holy Makkah Municipality, and the contractors and consultants contracted with it, and all the participants who were identified had experience in the Municipality's projects. The sample consisted of owners, architects, structural engineers, service engineers, project managers, contract administrators, design managers, and construction managers.

The mix of disciplines was well balanced in the sample. In order to obtain the best possible answer that is commensurate with experience and experience, Conversations were held with each respondent to explain and clarify the objectives of the research.

Questionnaire Distribution and Response Rate.

Table 4. 1Questionnaire Distribution and Response Rate

Position	Repetition	ratio%
Amana engineers	49	61.3%
Advisor	22	27.5%
contractor	9	11.3%
TOTAL	80	100%

From the table above, we note that 61.3% of the sample members were employees of the Holy Makkah Municipality, 27.5 were consultants, and 11.3 were contractors.

Distribution according to educational level:

Table 4.2 Distribution according to educational level

Educational level	Repetition	ratio%
Bachelor	60	75.9%
M.A.	18	21%
Doctorate	2	2.5%
TOTAL	80	100%

From the above table, we note that 75.9% of the participants had a master's degree, 21 were masters, and 2.5 were PhDs.

Distribution according to experience

Table 4.3 Distribution according to experience

Number of years	Repetition	ratio%
>5 years	19	23.7%
5-10 years	27	33.8%
10- 15 years	18	22.5%
< 15 years	16	20%
TOTAL	80	100%

From the above table, we find 23.7% of the sample respondents have years of experience of 5 years or less, 33.8% range from 5-10 years, and 22.5% of their experience ranges between 10-15 years, and 20% have more than 15 years of experience Year.

4.2 Survey Results' Findings:

Table 4.4 Question Does the secretariat work system incentivize the contractor to enter its projects?

Answer	Repetition	ratio%
Yas	37	46.3%
No	37	46.3%
Other	6	7.4%
TOTAL	80	100%

From the above table, we find that 46.3% of the sample answered yes By the same percentage, the answer was No, and 4.7% answered otherwise.

Table4.5 Question Did the initiative exemptions play their role in stimulating the enterprise system?

Answer	Repetition	ratio%
Yas	36	46.2%
No	10	12.8%
neutral	32	41%
TOTAL	78	100%

From the above table, we find that 46.2% of the respondents answered yes And 12.8% answered no, 41% were neutral

Table 4.6 Question Does the contractor have an incentive to terminate the project before the end of the contract period?

Answer	Repetition	ratio%
Yas	13	16.9%
No	64	83.1%
TOTAL	77	100%

From the above table, 16.9% of the sample respondents answered yes, and 83.1% answered NO.

Table 4.7 Question: What is the best way to create an incentive for a contractor to focus on the trust project? End of the contract period?

Answer	Repetition	ratio%

ISSN: 2663-5798

Financial increase	**25**	**31.3%**
Additional contracts	**34**	**42.5%**
rating	**35**	**43.8%**
Payment of financial dues	**55**	**68.8%**
Completion certificate	**28**	**35%**
TOTAL	**177**	

From the above table, we find that 31.3% of respondents believe that the financial increase is the best way to motivate contractors, 42.5% believe that additional contracts are the best, while 43.8% think that the classification is the best, and 68.8% believe that disbursing dues is Faster is better, 35% that a Certificate of Achievement is the best motivation.

Table 4.8 Question: The duration of the project will have a greater impact on...?

Answer	Repetition	ratio%
AMANA	**19**	**23.8%**
The contractor	**3**	**3.7%**
Both together	**58**	**72.5%**
TOTAL	**80**	**100%**

From the above table, we find 23.8% of the sample respondents believe that the length of the period affects the trust more, while 3.7% believe that the impact is greater on the contractor, and 72.5% believe that the effect is on the two parties equally.

Table 4.9 Question: Does providing a financial incentive guarantee the speedy completion of the project with the required quality?

Answer	Repetition	ratio%
Yas	**39**	**48.8%**
No	**12**	**15%**
possibly	**29**	**36.3%**
TOTAL	**80**	**100%**

From the above table, we find that 48.8% of the respondents answered yes, And 15% answered NO 36.3% were possible.

4.3Reliability Test

Cronbach's alpha is a coefficient of reliability. It is usually used as a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees. It was first named by Lee Cronbach's in 1951, as he had intended to continue with further coefficients. According to Sekaran (2003), if the alpha coefficient is below 0.6, the reliability is weak. Alpha coefficient, which ranges from 0.6 to 0.8, is considered to be moderately strong.

If the alpha coefficient is above 0.8, they are considered to be very strong. Cronbach's alpha values are reliant on the number of items on the scale.

In this study, Cronbach's coefficient α was used to calculate the interior consistency coefficients of the items involved in the questionnaire. Results of the reliability analysis showed that the items in the five scales had a satisfactory discriminating power, the Cronbach's is equal to **0.724,** and since **the** Alpha coefficient ranges from 0.6 to 0.8, this is considered to be moderately strong, which is sufficient for this study.

Table 4.10: Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.724	0.690	12

4.4 Percentages and frequencies:

The researcher used the two methods of descriptive statistics and analytical statistics to extract results from the questionnaire, where the following methods were used:

A- Percentages and frequencies.

ISSN: 2663-5798

B- The researcher used the weighted average or meant categories according to the criteria for approval and disapproval within the Likert scale used in this study in comparing the averages of the trends as follows:

Table 4.11 Percentages and frequencies

FROM	TO	
1.00	**1.80**	**Strongly Disagree**
1.81	**2.60**	**Disagree**
2.61	**3.41**	**Neutral**
3.42	**4.20**	**Agree**
4.3	**5.00**	**Strongly Agree**

Question: The contractor's commitment to the schedule?

Table 4.12 Percentages and frequencies Source: Own Survey using SPSS

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00001	3.1	1.08616	1.18

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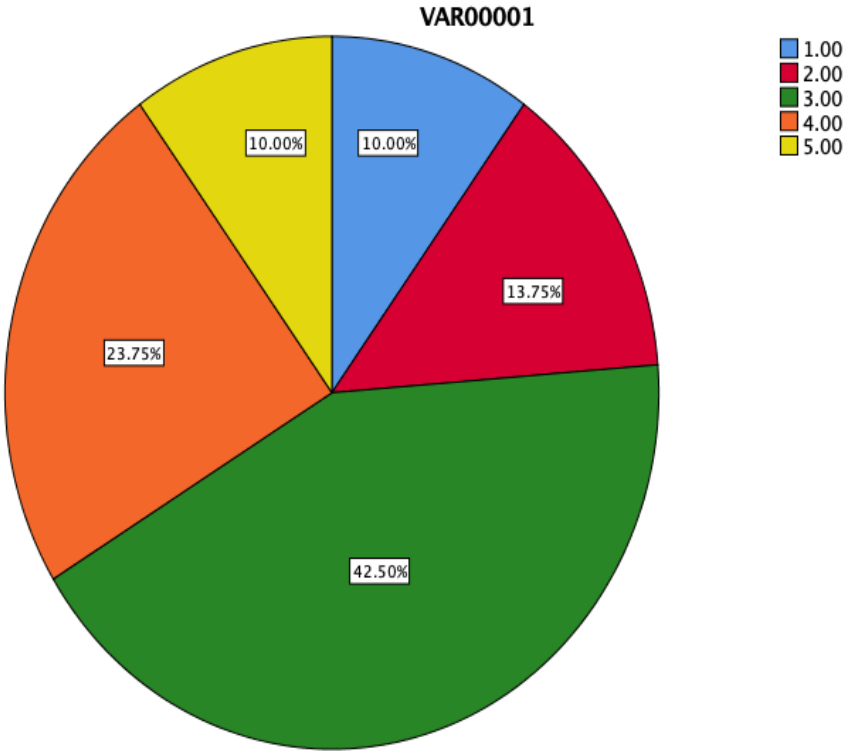

Figure 1 Percentage of the contractor's commitment to the schedule?

From the Figure and the table above, we find 42.5% of those who believe that the contractor's commitment to the schedule is good, while 23.8% think it is very good.

We find that the arithmetic mean of this Question 3.1 tends to be neutral, which corresponds to most of the answers.

Table 4.13 Question: The seriousness of the contractor and his cooperation with the Secretariat?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00002	3.4875	1.09074	1.19

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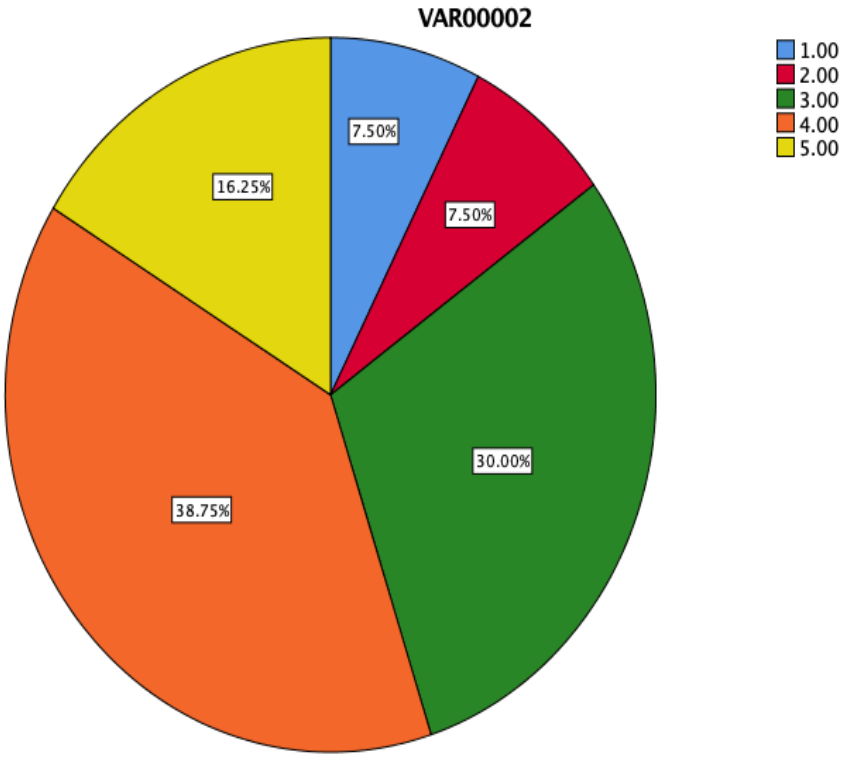

Figure 2 Percentage of The seriousness of the contractor and his cooperation with the Secretariat?

From the above Figure and table, we find 38.3% of the respondents believe that the contractor's cooperation with the trust is very good, while 30% think it is good.

We find that the mean for this Question is 3.4 and tends to be OK, which corresponds to most of the answers.

Table 4.14 Question: Effective communication between the Secretariat and the contractor?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00003	3.7125	1.02121	1.043

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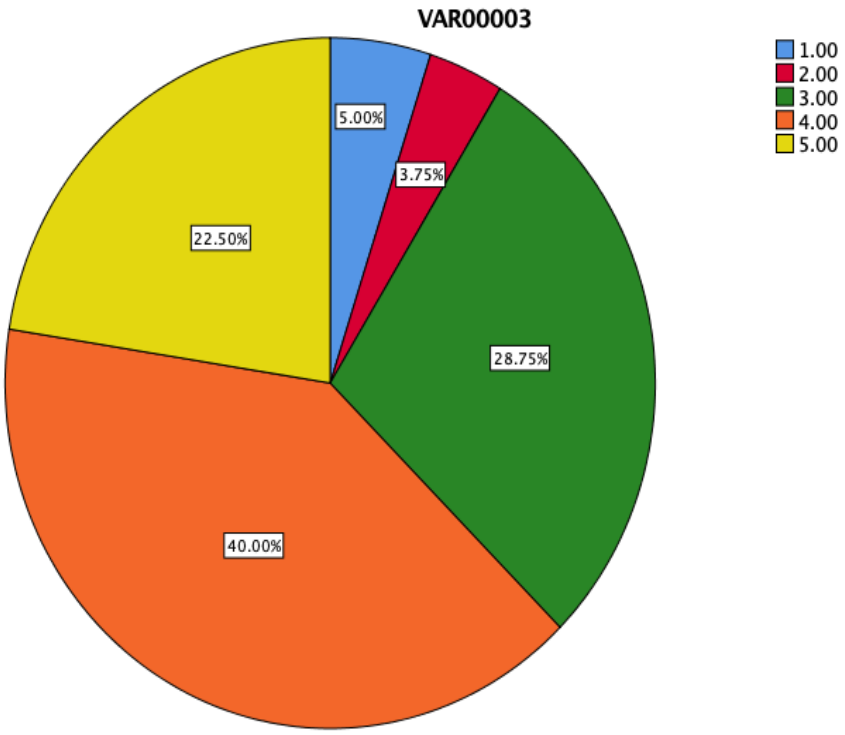

Figure 3 Percentage of Effective communication between the Secretariat and the contractor?

From the above Figure and table, we find 40% of the respondents believe that communication between the Municipality and the contractor is very good, while 28.7% think it is good.

We find that the mean for this Question is 3.7 and tends to be OK, which corresponds to most of the answers.

Table 4.15 Question: Finding an incentive for the project manager in the Secretariat to contribute to the speedy completion of the project?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00004	4.4875	0.63632	0.405

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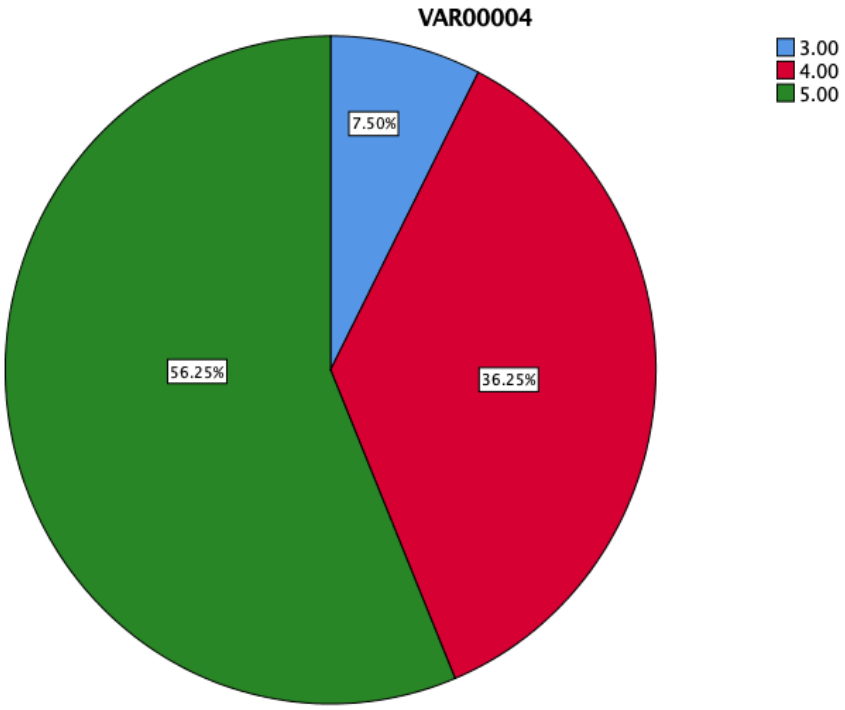

Figure 4 Percentage of Finding an incentive for the project manager in the Secretariat to contribute to the speedy completion of the project?

From the Figure and the table above, we find that 56.3% Strongly Agree that creating an incentive for the project manager in the Municipality will contribute to the success of the project, while 27.8% are Agree.

We find that the arithmetic mean of this Question is 4.4, and it tends to agree strongly, which corresponds to most of the answers.

Table 4.16 Question: Effectiveness of the consultant's role in the project?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00005	3.7625	0.94459	0.892

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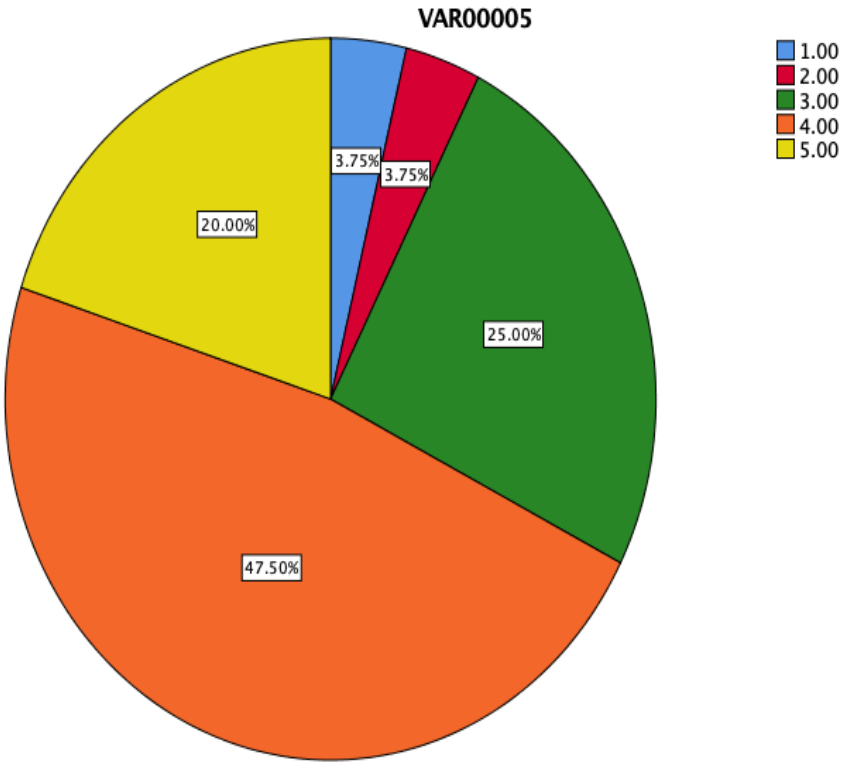

Figure 5 Percentage of Effectiveness of the consultant's role in the project?

From the above Figure and table, we find that 47.5% of the respondents believe that the role of a consultant is very good, while 25% believe that it is good.

We find that the average for this Question is 3.7, and it tends to agree, which corresponds to most of the answers.

Table 4.17 Question: The possibility of choosing the Municipality for its contractors that contributes to the success of the projects?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00006	4.0875	0.93041	0.866

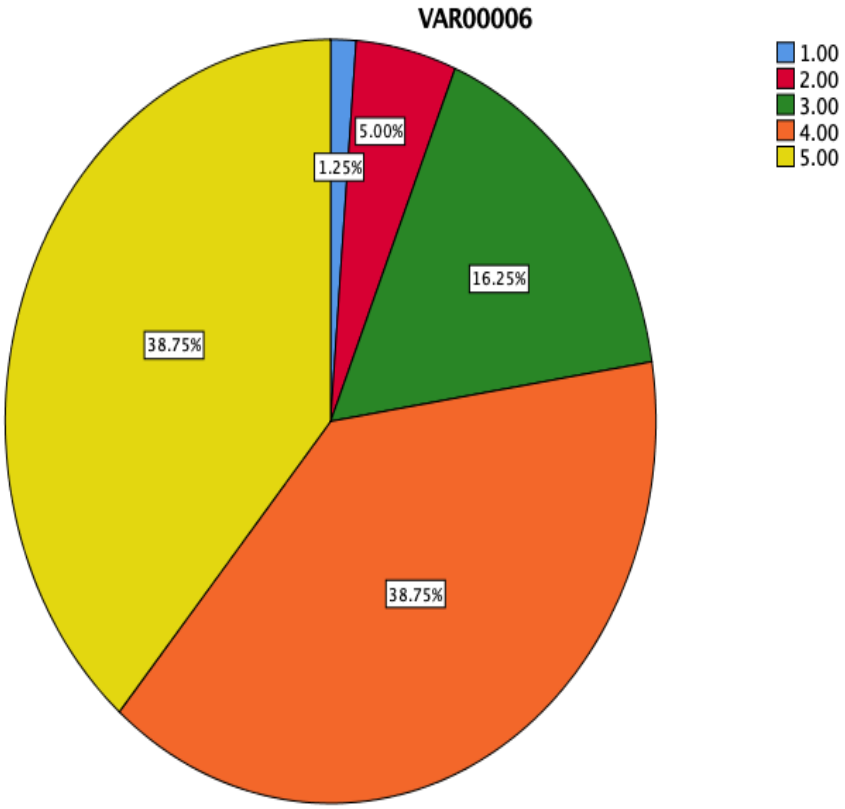

Figure 6 Percentage of The possibility of choosing the Municipality for its contractors that contributes to the success of the projects?

From the above Figure and table, we find 38.8% of the sample Strongly Agree to choose the Municipality for its contractors, while 38.8% that of Agree.

We find that the average for this Question is 4, and it tends to agree, which is consistent with most answers.

Table 4.18 Question: What is your evaluation of the experience of the initiative's projects?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00007	3.65	1.02005	1.041

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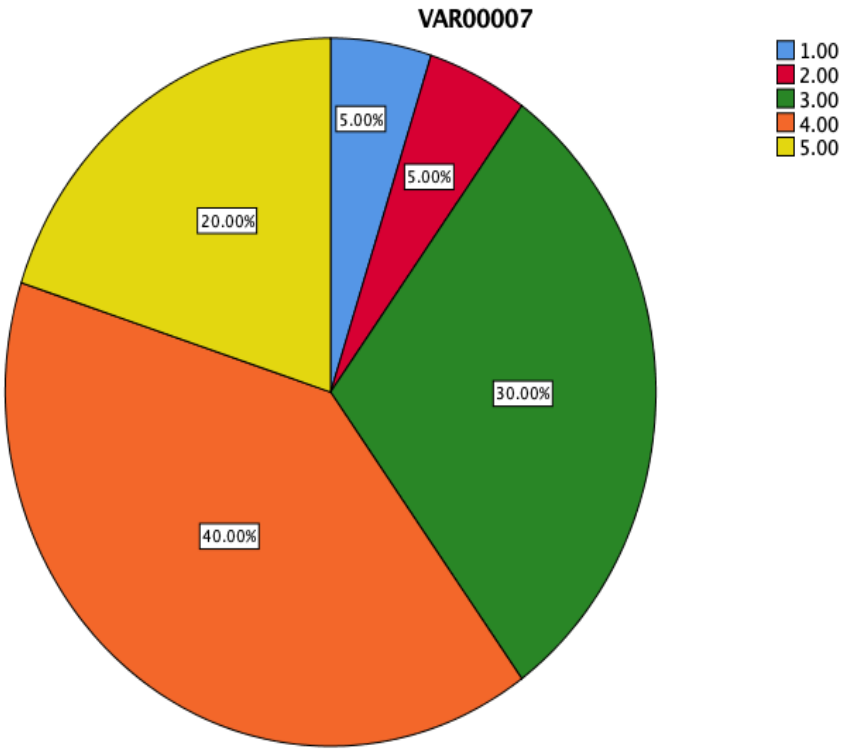

Figure 7 Percentage of What is your evaluation of the experience of the initiative's projects?

From the above Figure and table, we find 40% of the sample believe that the experience of the initiatives is very good, while 30% think it is good.

We find that the average for this Question is 3.6, and it tends to agree, which corresponds to most of the answers.

ISSN: 2663-5798

Table 4.19 Question: The current fines system is sufficient to achieve the goal of completing the project according to the duration and quality?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00008	3.1625	1.06073	1.125

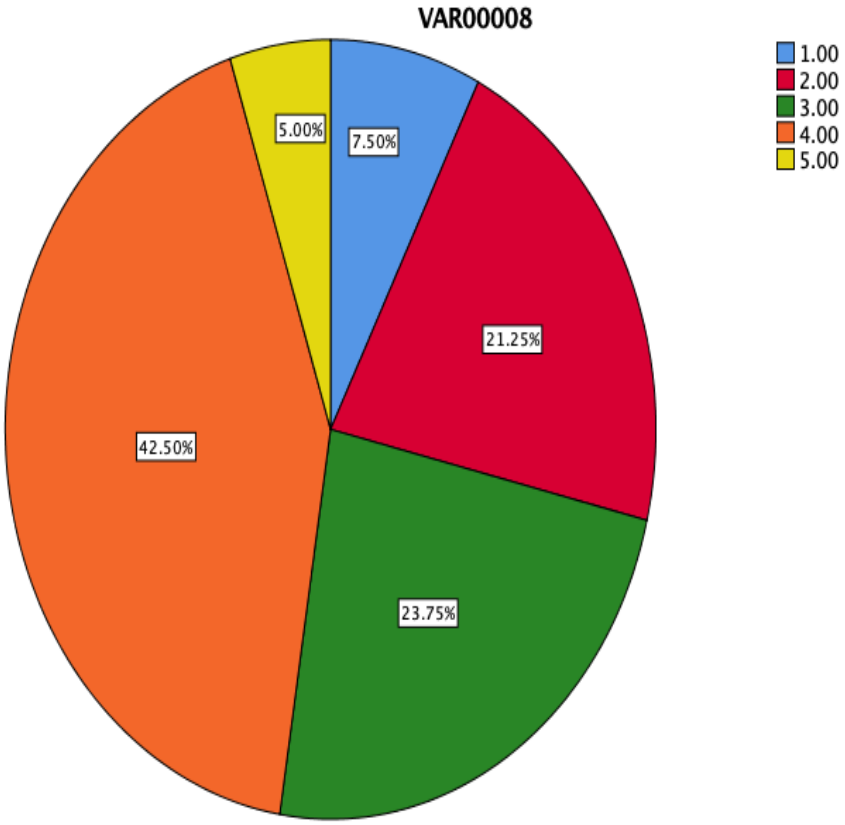

Figure 8 Percentage of The current fines system is sufficient to achieve the goal of completing the project according to the duration and quality?

From the Figure and table above, we find 40.1% of the sample agree that the current fines regimen agree, while 24.1% are neutral.

We find that the mean for this Question is 3.1, and it tends to be Neutral, which corresponds to most of the answers.

ISSN: 2663-5798

Table 4.20 Question: The number of projects the contractor has with other parties negatively affects his interest in the HOLY MAKKAH Municipality projects?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00009	4.2125	0.83732	0.701

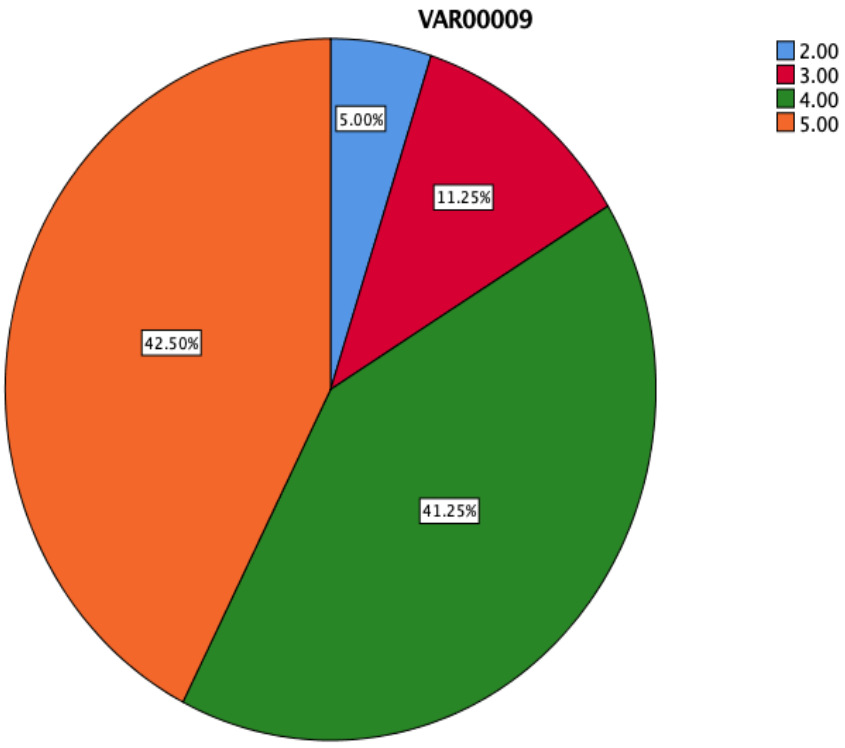

Figure 9 Percentage of The number of projects the contractor has with other parties negatively affects his interest in the HOLY MAKKAH Municipality projects

From the above Figure and table, we find that 31.6% of the sample Strongly Agree said that the number of projects of the contractor with other parties affects the Municipality projects, while 29.1% are Agree.

ISSN: 2663-5798

We find that the arithmetic mean of this Question is 4.2 and tends to be Agree, which corresponds to most of the answers.

Table 4.21 Question: The speed of billing the contractor is an important factor for the success of the project?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00010	4.575	0.5687	0.323

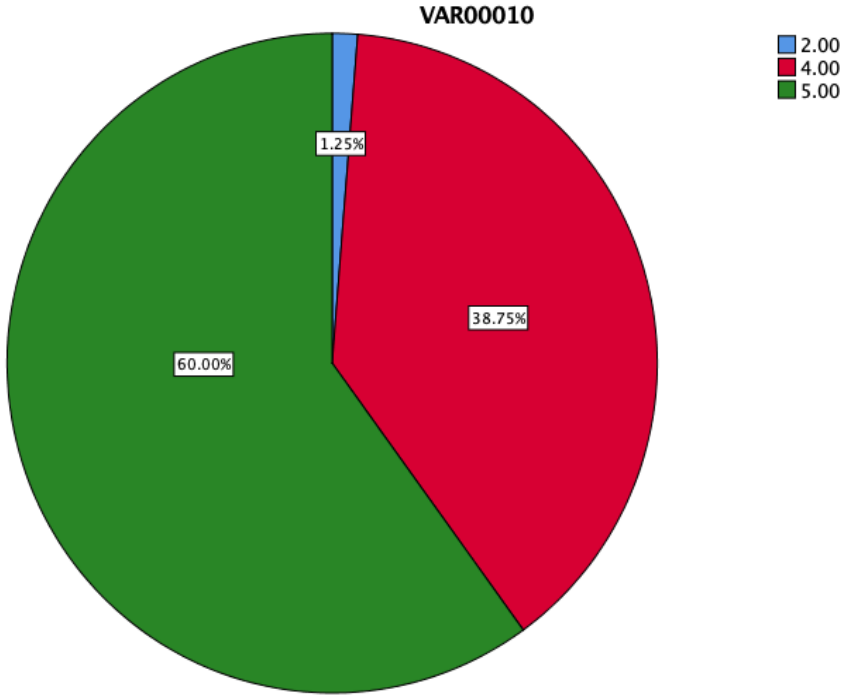

Figure 10 Percentage of The speed of billing the contractor is an important factor for the success of the project?

From the above Figure and table, we find 60% of the sample Strongly Agree that the speed of issuing contractor invoices contributes to the success of the project, while 38.8% of Agree.

We find that the arithmetic mean of this Question is 4.5 and tends to be Strongly Agree, which corresponds to most of the answers.

ISSN: 2663-5798

Table 4.22 Question: The clarity of project risks and constraints is an incentive for the contractor to enter the project?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00011	4.3875	0.7203	0.519

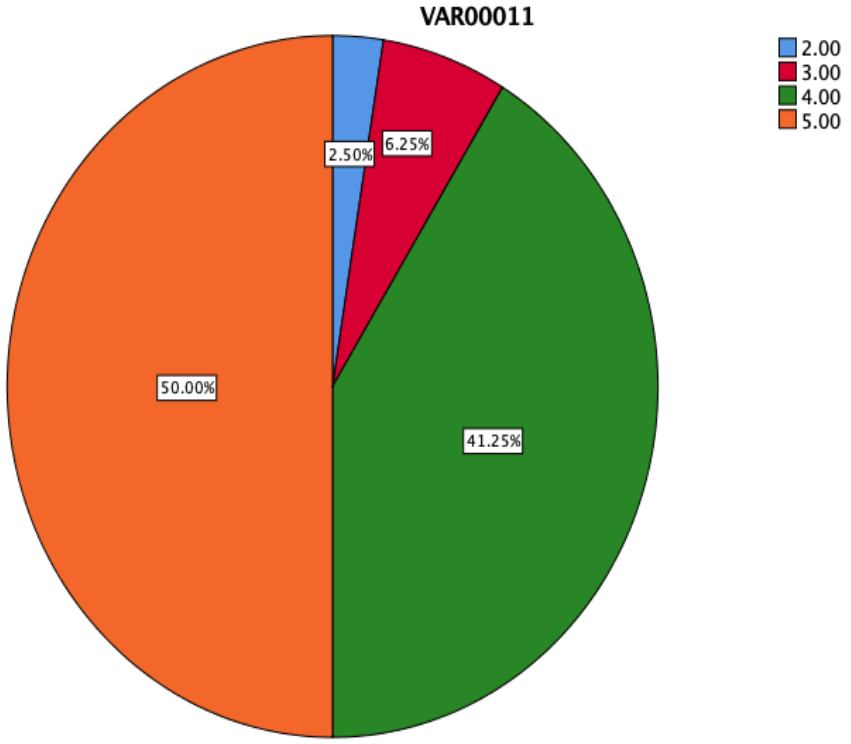

Figure 11 Percentage of The clarity of project risks and constraints is an incentive for the contractor to enter the project?

From the above Figure and table, we find that 50% of the sample Strongly Agree clearly stated the risks in the success of the project, while 41.3% were Agree.

We find that the arithmetic mean of this Question is 4.3 and tends to be Strongly Agree, which corresponds to most of the answers.

Table 4.23 Question: Finding a classification of the contractors regarding the speed of completion and the quality of implementation in the Secretariat is an incentive for the contractor's interest in the project?

Descriptive Statistics	Mean	Std. Deviation	Variance
VAR00012	4.3625	0.71589	0.512

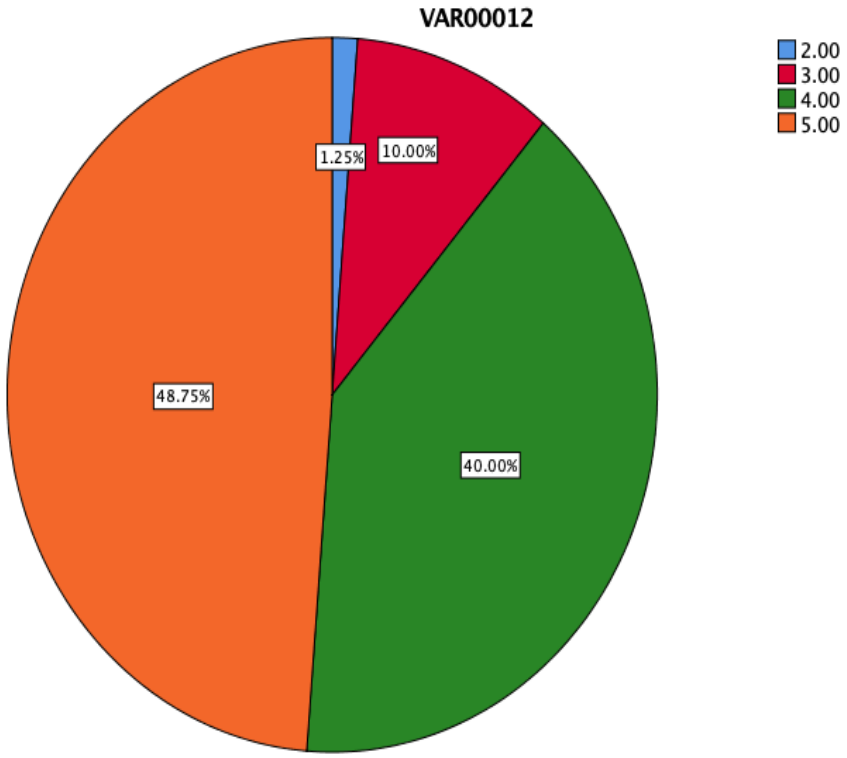

Figure 12 Percentage of Finding a classification of the contractors regarding the speed of completion and the quality of implementation in the Secretariat is an incentive for the contractor's interest in the project?

From the above Figure and table, we find 48.8% of the sample Strongly Agree that the contractors' classification is an incentive for them, while 40% are Agree.

We find that the arithmetic mean of this Question is 4.3 and tends to be Strongly Agree, which corresponds to most of the answers.

ISSN: 2663-5798

Chapter V

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion and Recommendations

The researcher concludes the following:

1. Giving incentives to contractors will affect the success and speed of project implementation positively:
2. The researcher found that the best incentives giving to the contractors will be:
    A. Prompt payment of financial dues to contractors.
    B. Giving highly efficient classification to be added to the contractor points when submitting bids.
    C. Giving additional contracts to the contractors who are committed to completing their projects faster.
    D. Giving Certificate of completion to be added as points for contractors upon submission of a bid.
    E. A financial increase according to the short term of the project.
3. It is also important to create an incentive for project managers in the Municipality, in addition to improving the work environment in the Municipality to be attractive to contractors and engineers.
4. It is also important to correlate and codify procedures between all departments responsible for the project management system in the Secretariat in particular and in government agencies'

projects in general. One of the most important incentives for implementing the project at all stages is where all parties gain confidence in themselves and in other parties, and success is achieved.

5. There must be risk management and preliminary identification of project risks before starting implementation to ensure that they are dealt with quickly if they occur.
6. It was also evident through the research sample that providing additional financial incentives is not the best type of incentive.
7. The impact of the length of the project period has a greater impact on the Municipality and its reputation in front of the community.

5.2 Research Limitations

- Due to lack of time, the researcher did not take a bigger sample size; implementing the same methodology with a larger sample would change the module's weight.
- This research specifically targets the projects of the Holy Makkah Municipality.

5.3 Suggestions for further research

After discussing the main findings of this study, the researcher recommends the following:

- Implement the same methodology with a larger sample than the researcher did; The researcher believes this will change the unit weight.

ISSN: 2663-5798

- Expanding the scope of the model to include more government agencies. Finding the most important motivating factors that can be implemented.
- Make the most of the exceptions for Saudi Arabia 2030 vision initiatives.
- Work to create a stimulating environment for contractors and government sector engineers to expedite the completion of projects.

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الإصدار السادس – العدد اثنان وستون
تاريخ الإصدار: 2 – كانون الأول – 2023م
www.ajsp.net
ISSN: 2663-5798

"أثر الحوافز على سرعة إنجاز المشاريع في أمانة مكة المكرمة"

بواسطة

عبد المجيد عبد الله المالكي

مشروع بحثي مقدم لمتطلبات درجة

ماجستير العلوم [الإدارة الهندسية]

خلاصة

يقوم الباحث في هذه الدراسة بدراسة العلاقة بين تقديم الحوافز للمقاولين وإنجاز المشاريع وأفضل أنواع الحوافز التي تساهم في نجاح المشاريع.

يؤثر الدافع بشكل عام على الإنجاز الذي يقوم به الإنسان سواء في المنزل أو العمل، ويجعله يحب الشيء الذي يفعله، وبالتالي يؤثر على نفسيته في عدة أمور منها.

يهدف هذا البحث إلى تقييم ودراسة العلاقة بين الحوافز ونجاح المشروع وإكتماله. يهدف هذا البحث إلى معرفة أثر الحوافز في حالة تطبيقها على أداء المقاول في سرعة تنفيذ المشروع. هل سيكتشف البحث وجود علاقة بين الحافز للمقاول وسرعة إنجاز المشروع؟ وما هي أفضل أنواع الحوافز التي تساهم في نجاح المشاريع؟ وقد ركز نطاق البحث على مشاريع أمانة منطقة مكة المكرمة والمقاولين التابعين لها.

وقد توصل الباحث إلى أن إعطاء الحوافز للمقاولين سيؤثر على نجاح وسرعة تنفيذ المشروع بشكل إيجابي. كما توصل الباحث إلى أن أفضل الحوافز المقدمة للمقاولين هي سرعة سداد المستحقات المالية للمقاولين، وإعطاء تصنيف عالي الكفاءة يضاف إلى نقاط المقاولين عند تقديم العطاءات، وإعطاء عقود إضافية للمقاولين الملتزمين بإكمال مشاريعهم. المشاريع بشكل أسرع، مع إعطاء شهادة إنجاز تضاف كنقاط للمقاولين عند تقديم العطاء، وزيادة مالية حسب المدة القصيرة للمشروع.