

## The Role of Project Resources on Construction Project Development in the UAE

El papel de los recursos del proyecto en el desarrollo de proyectos de construcción en los EAU

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### ABSTRACT

The main purpose of this paper is to investigate the impact of project resources on project development in the construction projects in the United Arab Emirates (UAE). This study is using the quantitative approach. The main test used are the correlation test to find out the direct effect of the independent variable on the dependent variable. The data are collected using a survey questionnaire instrumentation. The total sample number were 300 participants from the construction industry in UAE. The finding confirmed that project resources influence the construction project development positively and significantly.

**Keywords:** project resources, project development, construction industry, UAE.

### RESUMEN

El objetivo principal de este documento es investigar el impacto de los recursos del proyecto en el desarrollo del proyecto en los proyectos de construcción en los Emiratos Árabes Unidos (EAU). Este estudio está utilizando el enfoque cuantitativo. La prueba principal utilizada es la prueba de correlación para descubrir el efecto directo de la variable independiente en la variable dependiente. Los datos se recopilan utilizando un cuestionario de encuesta de instrumentación. El número total de muestras fue de 300 participantes de la industria de la construcción en los EAU. El hallazgo confirmó que los recursos del proyecto influyen en el desarrollo del proyecto de construcción de manera positiva y significativa.

**Palabras clave:** recursos del proyecto, desarrollo del proyecto, industria de la construcción, EAU.

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## I. INTRODUCTION

In general, construction materials have been provided from raw material resources that have a mediatory broad supply and are not likely to be exhausted for the time being (Shrapnel, 2006). In any case, the extraction and extraction of raw materials can have environmental effects, for example, the disturbing and riparian influence and the impacts of pollution. In addition, there are specific materials that require exceptional thinking. For example, the abuse of wood harvested in a non-economic way, especially in tropical areas, can weaken the suitability of the vegetation of the neighborhood and leave the scenes helpless in the face of instability. More current construction materials, for example, steel, aluminum and polymeric materials include generous extraction and assembly forms with related environmental impacts. Construction materials represent approximately 50% of all materials used and a comparative extension of most of the waste created throughout (Environment, 2011).

It can help avoid the assembly and supply of new construction materials by amplifying the reuse and reuse of devastation materials. In fact, the urban condition refers to a huge reserve of resources that have been acquired in the past and that could be used to maintain a strategic distance from the part of the environmental damage caused by the development of new buildings. In an extremely expansive sense, the World Bank (2001) commented on these resources as a legacy of past eras. Communicated basically, previous networks have paid the cost of increasing manufactured resources in terms of cost, time, resources and vitality, and the resulting ages can benefit from this.

In fact, the use of resources such as the reuse of construction pieces or the reuse of destruction materials for more established structures and structures have already taken place since the beginning of construction. There are numerous illustrations that include the reuse of labor of the buildings of pharaohs spent in antiquated Egypt (E, 2008), the supply of materials of the Great Wall of China and the use of stone of the Wall of Adriano. In the United Kingdom by neighborhood dignitaries after the flight of the Romans. Despite the fact that the dismantling of old structures would not be considered adequate at present, the standard for reusing materials from less notable structures has positive environmental focal points by maintaining a strategic distance from the later abuse of ordinary resources.

Development projects contain several room exercises and related exercises. The rapid changes in the conditions of this period force to meet various budgetary, legitimate, moral, ecological and calculated requirements. They are really, financially and socially associated within the earth, as with other associations, structures, and frameworks. These projects use bulky resources. However, they have integrated problems, vulnerabilities, and dangers. This provision of the position of the issues related to resources, similar to the amount required, "where they will originate from," "when they should be listed on the site," where they should be accommodated, "how to improve their use 'and' when to deactivate '.

When all is said, development projects are of great value and use colossal resources of men, materials, and machines. Significant work includes overwhelming speculation, from several thousand rupees to a couple of thousand rupees, the use of abnormal state innovation and an open model is needed for viable management of resources.

Due to the resource-driven nature of development management, resource management is an extremely problematic task. The development administrator must develop a strategy to coordinate and control the resources of workers, machines, and materials in a facilitated and timely manner in order to transmit a project within the limited funding and time limit. Subsequently, next to a center of procedures and innovation, a resource use center must be satisfactorily attended to describe a development strategy or activity in a project plan (Beng et al., 2017).

This study is developed based on the vital role of project resources in the development of construction projects of the United Arab Emirates construction industry. This study will contain theoretical background of the variables used, methodology used, and the findings of the tests. Finally this study will be ended with a conclusion.

## II. Project Recourses

Resources are the different means or help that is used to achieve an end or satisfy a need. Also, it can be understood as a set of elements available to solve a need or carry out a company such as natural, human, and forestry, among others.

In the area of economy, resources are the material means available for the production of goods. Human resources is the source of work originating from people to carry out an activity or project, material resources are perceptible and concrete goods available to a company to achieve its objectives such as raw material, facilities, tools, and so on.

In the area of grammar, there are literary resources that are used by authors to generate certain effects or embellish texts, specifically are the way to use words accompanied by some phonic, grammatical or semantic features, such as onomatopoeia, alliteration, anaphora, among others. In the same way, graphic resources are used to complete and understand the exposed information, such as conceptual maps, tables, graph, and so on (Elbanna, 2016).

The concept of resource has been applied in various fields, in particular, with respect to economics, biology, computer science, land resource management, and human resources. In addition, it is related to the concepts of competition, sustainability, and environmental conservation.

Resources have three main characteristics: utility, 2) limited availability and 3) depletion or consumption potential.

The resources have been categorized as biotic and abiotic, renewable and non-renewable, potential and real, in addition to more complex classifications.

From a traditional point of view, one would think that the resources available to Project Managers are limited to monetary resources and human resources. We could also include in this obvious vision the tools, software, utilities in general that are used in the daily management.

Thus, there are several types of project resources that are considered as a resource system, considering the resources classified in five different categories: physical resources; Human Resources; intellectual property (IP), software and methods; “ecosystem”; and financial resources.

1. Physical resources are tangible property and include facilities, offices, warehouses, land, machinery, equipment, and tools. Some resources (for example, manufacturing facilities and distribution centers) reflect large investments that only occur every 20 years or more. Others, such as disposable tools, may require little investment and can be changed frequently.
2. Human resources are the employees that make up the workforce of operations. Individual employees differ in their skills, knowledge, training, capacity, flexibility and employment conditions. They also differ in the role they play.
3. Intellectual Property, software, and methods are resources based on knowledge of the operations function. They are the collective knowledge resident in the organization, not by individual employees. Patented and proprietary designs, trade secrets, software, organization systems, processes, techniques, and information are included in this category. The Google search algorithm or the Windows source code in Microsoft are two examples of this kind of valuable resource.
4. The ecosystem of resources, which are the relationships with suppliers, distributors, customers, and partners, which collectively constitute the company’s business ecosystem. Let us realize that almost always strong alliances between collaborators, suppliers, and customers are a very important asset for our success, and therefore they are an available “resource”.
5. Financial resources, which are the types of funds available, including cash, cash generated by operations, and funds available from financial markets. These resources are generally not considered part of the operations, however, they can be decisive in enabling or restricting the application of the strategy. For example, an investment of \$ 500 million in automation can be financially and strategically prudent, as it can improve efficiency and reduce costs, but it will not happen if Operations does not have the funds to invest.

### III. Project Development

Construction project development is a business procedure, which shades exercises ranging from reshaping and re-leasing existing structures to buying a raw land and displaying land that has been created or packaged for others. Land designers are general populations and organizations that facilitate these exercises and change ideas from paper to real ownership. Land development is not quite the same construction, though many engineers deal with construction procedures (Buvik & Rolfsen, 2015).

Developers do not go out on a party to create or re-design the land and get the best rewards. Usually, engineers buy a lot of land, decide to promote the property, build a building system and form a structure, receive basic support and finance, assemble structures, rent, supervise and finally offer them. Sometimes the property engineers will just adopt some part of the procedure. For example, a few designers source the property and get the plans and permits confirmed before submitting the property with plans a thus allowing for the manufacturer’s superior cost. On the other hand, the engineer in addition to the manufacturer may purchase the property with plans and permit set up so that they do not have a negligent risk of obtaining a support arrangement and construction can begin to develop quickly (Walker, 2015).

Designers work with a wide range of partners along with each offering for this procedure, including modelers, city organizers, engineers, surveyors, controllers, temporary workers, legal advisers, hire specialists, and so on. In planning the country and country planning in the UK, “development” is characterized by country law and country planning S55 1990 (Wapwera & Egbu, 2013). A construction project is under three times of pre-construction and construction. Along these stages, indeed there vary exercises done to complete the yield and places ready because of the proprietor. Consequently, it really is fundamental that the building task meeting, approximately a level that is well known is specific measures their execution into the exercises or sub-outlines finished all through the development project. Project execution can be looked at by virtue a method together with the closeness for the framework. All together for the entire project accumulating to push, it really is a crucial for aggregate individuals to obtain a handle on and view the performance this is certainly specific or tips of the job (Yang, Huang, & Hsu, 2014). As showed by Hassanain, Assaf, Al-Ofi, and Al-Abdullah (2013), bunches have existed one hundred thousand decades earlier, even prior to your own duration of Hammurabi irrespective of the bunches built for the midst of the time that is right minimal gatherings that are scaled. The Industrial Revolution in the

1700s changes that are underwent structures that are authoritative plans of the task, which led to the beginning of constant management. Around the sixties, associations made gatherings that are practical gatherings being nonetheless in reality up 'til now divided. A bit for the association collecting after business War II, Japanese associations overhauled the gathering principles by making every worker, in every limit, at each degree. Various associations' modifications which can be skilled moving towards self-facilitated gatherings and gathering based administration structures starting within the 1980s. Later in the course of this proper time around, reengineering was unmistakable and trigger anything numerous allude to being an association that is large is performing. Over time, there was an electrifying addition to the example toward execution of even more gatherings to deal with diverse conditions that are respected. Individuals started initially to understand the hugeness of collaborating and coordinating because of the products which are last inconceivably enhanced than working only or since a bound together unit. Based on to Parker (2011), gatherings and effort that is synchronized presently for the part that will be various, and have a tendency to be delving set for the bargain that is finished overpower the way work is completed. Both have really grabbed centrality as open and components that are private the liberal favorable situations of these tasks. A gathering isn't more a social event of men and women employed in a region that is actually utilizing that is comparative equipment, overseeing comparable clients in the territory that is comparable. Nowadays, it provides people from various associations, arranged all over with an believe that is continuing is abnormal of meant for any success of normal targets. Relative to Stoller (2011), bunches tend to be regular in associations and stipulate responsibilities which can be vital that is regarding is hierarchical.

IV. Methodology

This study has used the quantitative approach (survey method) in order to collect the primary data. The type of this study follows the analytical technique. In this way, the study has already imposed some assumption that is tested and analyzed, this assumption is called the study hypothesis. This hypothesis is imposed with regard to the study's question. This study has used a random sampling approach, by applying to Krejcie and Morgan (1970), the random distribution of questionnaires to the sample was conducted. select the respondents for the questionnaire survey; this approach is one of the sampling design possibilities, in this approach each member of the population has an equivalent opportunity to be selected as a respondent.

And for the samples of this study according to the sample size table of Krejcie and Morgan (1970), 300 respondents managers in the middle management level from different construction companies is selected.

The data collection instrument is going to collect data for the study, and then the collected data are used for analyzing purpose. The analysis of the data is determining the findings and results of the study.

The descriptive statistical analysis was used in order to determine the mean and standard deviation of each variable in the study. The questionnaire's reliability was measured by implementing the Cronbach Alpha test to measure the internal consistency of variables constructs. Along with the study objectives, correlation and multiple regressions were used for inferential statistics.

V. Results

The fist test that was implemented to the study's collected data was the demographic backgrounds of the study's sample. This test was formulated for the purpose of ensuring that the random sampling method was used in the process of distributing the questionnaires among the study's population. The demographic backgrounds test has used 5 main classifications, which were gender, age, education level, income level, and experiences. The following table 1 shows the results of the demographic backgrounds results.

Table 1 Demographic Background (N = 300)

Category	Frequency	%	Category	Frequency	%
<b>Gender</b>			<b>Education level</b>		
Male	247	82.3	Diploma	41	13.9
Female	53	17.7	Bachelor	151	50.4
<b>Age</b>			Master	108	35.7
17-25 yrs	62	20.7	<b>Income level USD</b>		
26-30 yrs	84	28.2	500 - 750	12	4.1
31- 35 yrs	45	15.0	751- 1,000	59	19.7
36- 40 yrs	28	9.5	1,001 and above	229	76.2
> 40 years	81	29.6	<b>Experience (Yr)</b>		
			1 to 3	60	20.1
			4 to 6	92	30.9
			7 to 9	148	49.0

In accordance to the data obtained from the questionnaires, this classification had two major categories, which are male and female. The obtained results are showing the followings:

- The Male category had 82.3% with n=247 participants.
- The Female category had 17.7% with n=53 participants.

In accordance to the data obtained from the questionnaires, this classification had five major categories, which are 17-25 yrs, 26-30 yrs, 31- 35 yrs, 36- 40 yrs, and > 40 years. The obtained results are showing the followings:

- 17-25 yrs had 20.7% with n=62 participants.
- 26-30 yrs had 28.2% with n=84 participants.
- 31- 35 yrs had 15.0% with n=45 participants.
- 36- 40 yrs had 9.5% with n=28 participants.
- Above 40 years had 29.6% with n=81 participants.

In accordance to the data obtained from the questionnaires, this classification had three major categories, which are the Diploma, Bachelor, and Master. The obtained results are showing the followings:

- The Diploma category had 13.9% with n=41 participants.
- The Bachelor category had 50.4% with n=151 participants.
- The Master category had 35.7% with n=108 participants.

In accordance to the data obtained from the questionnaires, this classification had three major categories, which are the 500 - 750, 751- 1,000, and 1,001 & above. The obtained results are showing the followings:

- The 500 - 750 category had 4.1% with n=12 participants.
- The 751- 1,000 category had 19.7% with n=59 participants.
- The 1,001 and above category had 76.2% with n=229 participants.

In accordance to the data obtained from the questionnaires, this classification had three major categories, which are 1 to 3, 4 to 6, and 7 to 9. The obtained results are showing the followings:

- 1 to 3 years had 20.1% with n=60 participants.
- 4 to 6 years had 30.9% with n=92 participants.
- 7 to 9 years had 49.0% with n=148 participants.

After the demographic background test, the reliability test was conducted to ensure that there is internal consistency among the variables' items. The reliability test was conducted using the Cronbach Alpha value. The Cronbach Alpha for project resources was 0.880 and 0.790 for project development. This result means that there is accepted internal consistency for these two variables. The following table 2 shows these results.

Table 2: Cronbach's Alpha and Composite Reliability

Constructs	Cronbach's alpha ( $> 0.7$ )	Composite Reliability ( $> 0.7$ )
Project Resources	0.880	0.898
Project Development	0.790	0.810

The third test applied to the study was the correlation test. The aim of the correlation test is to find out the type of relationship between the independent variable (project management) and the dependent variable (project development).

The correlation test has identified that project resources influence the project development positively and significantly at the level of ( $\beta=0.226$ ,  $t=2.151$ ,  $p = 0.032$ ). The following table 3 shows the results.

Table 3: Summary of the Correlation Test

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value
H1	PR $\rightarrow$ PD	0.226	0.105	2.151	0.032

Key: PR = project resources and PD: Project development

\*significance at confident level 90% and significance level 10%

According to the previous studies, In fact, the use of resources such as the reuse of construction pieces or the reuse of destruction materials for more established structures and structures have already taken place since the beginning of construction. There are numerous illustrations that include the reuse of labour of the buildings of pharaohs spent in antiquated Egypt (E, 2008), the supply of materials of the Great Wall of China and the use of stone of the Wall of Adriano. In the United Kingdom by neighbourhood dignitaries after the flight of the Romans. Despite the fact that the dismantling of old structures would not be considered adequate at present, the standard for reusing materials from less notable structures has positive environmental focal points by maintaining a strategic distance from the later abuse of ordinary resources.

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## VI. CONCLUSION

This study investigates the impact of project resources on the construction project development in the UAE. Due to the rapid development in the construction industry in the UAE, construction companies strive to maintain its position within the market. Investigating factors that boost project development helps to create an integrated construct that improves the expected outcome of the project. This study provides insight for effective project development model linkage to the project resources, this insight presents by suggesting a conceptual framework. The result of this study has shown that there is a significant and positive impact of the project resources on the construction project development.

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