



## ANALYZING ORGANIZATIONAL STRUCTURE FOR CONTRACTING FIRMS' OF CLASSIFICATION "A", EGYPT

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### ABSTRACT

The present study is an attempt to address the efficiency and performance of construction companies in Egypt. This study highlights and compares different types of organizational structures of contracting firms of classification "A". Comparison covers Functional, Divisional and Matrix organizational structures. It analyses and evaluates the effect of the organizational structure on the contracting companies' performance and success. Restrictions of contracting firms of classification "A" according to EFCBC (Egyptian Federation for Construction and Building Contractors) on companies' performance are investigated. Seven main contracting firms of classification "A" representing private, business and public sectors are considered in the present field survey. The field study is conducted by using survey questionnaire, personal interviews for the companies' employees and formal data from the selected companies. Obtained results show that the organizational structure operates in its highest efficiency when hiring minimum number of most qualified personnel. Moreover, avoiding centralization i.e. routine; bureaucracy and long paper work have a significant impact. This research confirmed the domination of functional organization structure in Egyptian companies. The study concludes that a composite structure between matrix and functional organizational structure based on (geographical location or project type), may be recommended as the optimal organizational structure for contracting firms of class "A" in Egypt.

**Keywords:** Organizational structure, contracting firms, Egypt, matrix structure, construction, management, performance.

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## **1. Introduction**

Recently, construction industry in Egypt has been facing serious challenges and significant obstacles due to political instability. Numerous investigations were performed to address the industry's current ways to restore it. Management science applications are certainly one of the most dominant topics in optimizing studies. Business optimization aims to maximize profit in such a way that companies have to adjust and reorganize their strategies and organizational structures to cope with threats. The primary challenge of project management in construction companies is to achieve all of the project goals and objectives while honoring the preconceived constraints. The primary constraints are scope, time, quality and budget. Also, it has to comply with sustainability, insurance, health, safety, and legal requirements of the country in which the project is based. Wolf (2002) [1], stated that structure has a direct effect on the success of an organization operational strategy. "Good organization structure influences the execution behaviors of a company. Structure not only shapes the competence of the organization, but also the processes that shape performance".

## **2. Objective of the study**

Three years ago, according to EFCBC documents 28,000 firm were registered working contracting firms. Lately, it recorded 11,000 firms registered, with only 3,000 firms which are actually working in the market. Also, more than 75% of the contracting firms in Egypt had to liquidate or change their business. Egyptian contracting firms are currently, facing many challenges to achieve their projects' goal which causes great loss in the share capital, profit or manpower. The hierarchy of the management work flow affects the project work in different ways. In addition, the organization's corporate culture and communication channels between the organization different departments have a significant effect. Using the most feasible structure for each organization may increase its efficiency and thus increase its share capital and profit utilizing minimum manpower. Hence, the present study aims at:

- 1) Presenting different types of organizational structures.
- 2) Addressing the role of the management hierarchy in the organization and its effect on the share capital, profit and manpower effort.
- 3) Monitoring field realistic observations and measurements of the current situation for organizational structure of chosen contracting firms.
- 4) Deducing the optimal qualified work flow to be recommended in contracting firms' class "A" based on the study.

## **3. Literature review**

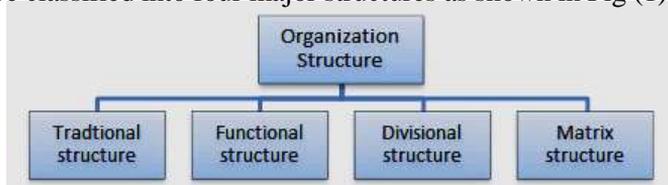
There are many different opinions and definitions on organizational structure. Walton (1986) [2] tied structure to effectiveness, asserting that management restructuring is designed to increase not only the efficiency but also the effectiveness of the management organization. Mintzberg (1983) [3], says that Organizational structure defines how individuals and groups are organized or how their tasks are divided and coordinated. He defines the organizational structure as; "...the sum of total in which its labour is divided into distinct tasks and then its coordination is achieved among these tasks." There is no

such thing as a best organizational structure. E.C. Ubani (2012) [4], stated that organizational structure is the management framework adopted to oversee the various activities of a construction project or other activities of an organization. A suitable organizational structure assists the project management team to achieve high performance in the project through gains in efficiency and effectiveness. Tran & Tian (2013) [5], regarding the purpose of the organization's founding, they can be described as successful (profitable) or failure (non-profitable) ones. To achieve these goals organizations create inner order and relations among organizational parts, that can be described as organizational structure. D. Wolf 2002 [1], says that in another sense, "structure is the architecture of business competence, leadership, talent, functional relationships and arrangement. Underdown (2012) [6], said that organizational structure "is the formal system of task and reporting relationships that controls, coordinates, and motivates employees so that they cooperate to achieve an organization's goals". Ganesh 2013 [8], the manager determines the work activities to get the job done, writes job descriptions, and organizes people into groups and assigns them to superiors. He fixes goals and deadlines and establishes standards of performance. Operations are controlled through a reporting system. The whole structure takes the shape of a pyramid. The structural organization implies the following things:

- a. The formal relationships with well-defined duties and responsibilities;
- b. The hierarchical relationships between superior and subordinates within the organization;
- c. The tasks or activities assigned to different persons and the departments;
- d. Coordination of the various tasks and activities;
- e. A set of policies, procedures, standards and methods of evaluation of performance which are formulated to guide the people and their activities.

### 3.1. Classification of organizational structures' types

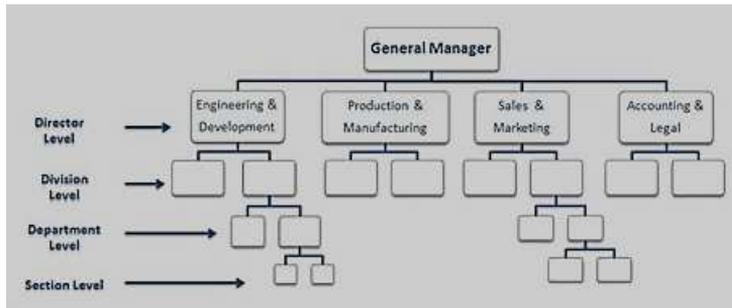
Montana and Charnov (1993) [7], stated that the primary formal relationships for organizing, as discussed earlier, are responsibility, authority, and accountability. They enable us to bring together functions, people, and other resources for the purpose of achieving objectives. The framework for organizing these formal relationships is known as the organizational structure. It provides the means for clarifying and communicating the lines of responsibility, authority, and accountability. Thus, Organization management structures can be classified into four major structures as shown in Fig (1).



**Fig. 1.** Types of organizational structure

#### 1) **Traditional structure:**

This type was satisfactory fifty years ago, when companies had only one or two product lines for organization control and conflicts were minimal. Fig (2) shows an example for the traditional organizational structure for a construction company.



**Fig. 2.** Traditional organizational structure example, Ganesh 2013 [8]

With the growth of project management and the passing of time, executives began to realize problems of this structure. Table (1) illustrates the advantages and disadvantages of this type, Ganesh 2013 [8]. Newer forms of structures had to be innovated and developed such as functional, divisional and matrix management structures.

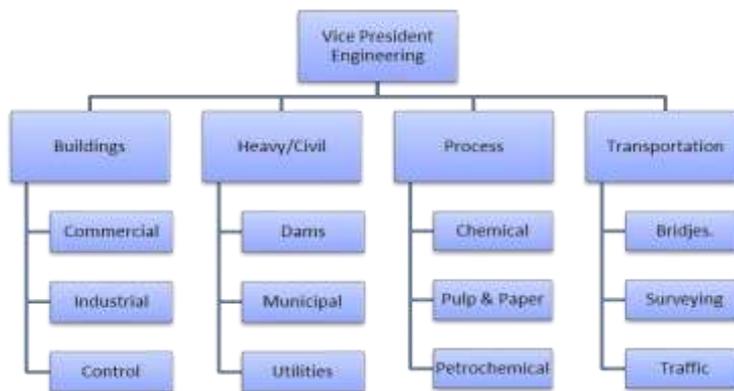
**Table 1.**

Advantages and disadvantages of Traditioanal Organizational structure Ganesh 2013 [8]

Advantages	Disadvantages
Team easier budgeting and cost control are possible.	No one is directly responsible for the total project.
Quick reaction capability exists, but may be dependent upon the priorities of the functional managers.	Does not provide the project-oriented emphasis necessary to accomplish the project tasks.
Continuity in the functional disciplines; policies, procedures, and lines of responsibility are easily defined and understandable.	Coordination becomes complex, and additional lead time is required for approval of decision.
Good control on personnel, since each employee has only one person to report to.	Ideas tend to be functionally oriented with little regard for ongoing projects.

**2) Functional structures:**

The design implies that employees are grouped according to their specialties as shown in Fig (3), Ganesh (2013) [14].



**Fig. 3.** Funtional organizational structure for a construction company example Ganesh 2013 [8]

Functional structures work more efficiently under certain conditions. Such as, the organization has well-developed products or services and implemented sets of

coordinating mechanisms. Also, if the organization is small or medium-sized. Table (2) illustrates the advantages and disadvantages of this type, Ganesh 2013 [8].

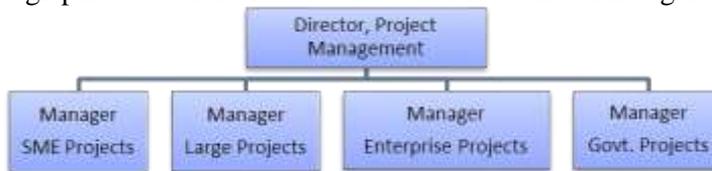
**Table 2 .**

The advantages and disadvantages of Functional organizational structure Ganesh 2013[8]

Advantages	Disadvantages
Team members work in groups according to their functional specialties and expertise.	The barriers due to the differences in goals and processes between functions can prevent functions working together on projects.
Career advancement for functional team members within the functional area is possible when they show improved morale and productivity.	The competition between functions may arise for shared resources resulting in conflicts between them.
Better communications due to vertical and well-established channels	Some of the decisions from upper management may favor the strongest and loudest groups.
Flexibility to use any of the resources as and when needed for projects	In multi-group project situations, there will be difficulty in establishing authority and responsibility.
Functional managers maintain absolute control over budget and have authority, and therefore projects may be completed within allocated budget and schedule.	Functional form becomes inflexible and costly to operate when the no. of products offered becomes too many or if scheduling becomes a problem.

**3) Divisional structure:**

Is a type of grouping employees according to either a product or a project and can be extended to a geographical location or based on customers as shown in Figures (4) and (5).



**Fig. 4.** Divisional organizational structure based on Project example Ganesh 2013 [8]



**Fig. 5.** Divisional organizational structure based on Geographical location example Ganesh 2013 [8]

Divisional structure works better under these conditions: organizations require projects that are based on a particular product or service; specialized knowledge is needed; projects demands better services for different types of markets. Table (3) illustrates the advantages and disadvantages of this type Ganesh 2013 [8].

**Table 3.**  
Advantages and Disadvantages of Divisional organizational structure

Advantages	Disadvantages
Organizations differentiate and focus on products, customers, locations or projects thereby enabling them to address various issues and impacts caused by their individual needs.	Too much focus on an existing product may cause individuals not to keep with technology advances in their own field.
Due to their focus and close proximity to issues, project teams have better understanding of specific needs.	Lack of opportunities to share new advances and technology between groups.
Team members respond quickly to changes that affect product, customer or location.	There may be a duplication of efforts and therefore increases in costs.
Unprofitable products or projects can be easily recognized and eliminated.	Instability of employees if projects are terminated.

**4) Matrix structure:**

Fig (5) shows an example of matrix organizational structure of a construction company. Table (4) illustrates the advantages and disadvantages of this type Ganesh 2013 [8].



**Fig. 6.** Matrix organizational structure of a construction company example Ganesh 2013 [8]

**Table 4**  
Advantages and Disadvantages of Matrix organizational structure

Advantages	Disadvantages
Takes advantage of both the function and the project or the department structures leading to flexibility in responding to changes;	Employees reporting to dual supervisors may run into potential conflict during allocation to projects and evaluation
Decision making process becomes simplified due to authority thus, Budgeting and staffing for projects become easy to create and manage	Duplication of efforts may arise if communication fails between projects
Team members of a project have accountability for project deliverables and performance	The best available human resources may end up with higher-priority projects
Processes can be tailored for individual projects provided there are no conflicts with general organizational policies and procedures	Shifting team members between projects may hinder their growth and development in their specialized areas
New project or functional teams can develop out of necessity	Lessons learned on projects may not be communicated to other new or existing projects

### *3.2. Organizational structure selection influence on firm efficiency*

D. Wolf 2002 [1], stated that structure has a direct effect on the success of an organization operational strategy. “Good organization structure influences the execution behaviors of a company. Structure not only shapes the competence of the organization, but also the processes that shape performance”. Clemmer 2003[16], supported the idea that organizational structure shapes performance: Good performers, in a poorly designed structure, will take on the shape of the structure. Many organizations induced learned helplessness. People in them become victims of “the system”. This often comes from a sense of having little or no control over their work processes, policies and procedures, technology, support systems and the like. These feelings are often amplified by a performance management system that arbitrarily punishes people for behaving like the system, structure or processes they have been forced into. Penguin 2003 [9], claimed that organizational effectiveness and its relation to structure is determined by a fit between information processing requirements so people have neither too little nor too much irrelevant information. However, the flow of information is essential to an organization’s success. Also Germaina 2008 [10], studied the effect of structure on the performance mediating supply chain management and found that in stable environment, formal structure has a positive effect on the performance while in dynamic atmosphere negative effect is attained.

Moreover, Chen and Huang 2007 [11], claimed that decentralized and informal structure will lead to higher performance. Winfred 2011 [12], A suitable organizational structure may assist the project management team to achieve high performance in the project through gains in efficiency and effectiveness. Specific project objectives are set to be achieved at the end of each project. A study carried out by Yinghui and Cheng Eng. (2004) [13], on the “impact of organizational structure on project performance” was limited to site organizational structure. The study considers it necessary to carry out a comprehensive analysis of organizational structure in order to ascertain the effects of various variables in the structure on the effective delivery of civil engineering projects

## **4. Research methodology**

The present study is based on a case study approach. The study used questionnaire survey forms as the main approach, along with interviews based on semi-questionnaire and formal data collected from the selected companies. The questionnaire survey was distributed to the selected respondents (Total 79 respondent). A total of seven Egyptian contracting companies of classification “A” according to EFCBC are considered in the present study during 2014. These companies in the survey cover: public sector (C1, C2); private (C3, C4, C7) and business sectors (C5, C6), which have strong presence in the labor market. Both qualitative and quantitative approaches are employed in this study to assess the effect of organizational structure on companies’ performance.

### *4.1. Data collection & respondent background*

From the analysis of the questionnaire, the majority of respondents were university-educated (87%), 13% of them had an average qualification. Most of the respondents were male (80%), and just (20%) female. The average age of the respondents was almost 40 years, with average years of experience (6 – 10) as a senior engineer, 15 years as a



**Table 5.**

Basic data of the selected companies (By: Author)

No	Company name	Sector	Organizational Structure type	Man power	Company Activities	Company Capital	No. of Surveys Received	No. of Surveys Delivered	No. of Surveys Eliminated
C1	Arab Contractors Co. "Middle & West of Delta"	Public	Mixed between Functional & matrix structure	77,000	Services including: Public buildings, bridges, roads, tunnels, airports, housing, water & sewage projects, wastewater treatment plants, power stations, dams, hospitals, electromechanical projects, engineering consultancy, ...etc.	5,000,000,000,000	25	15	3
C2	Arab Contractors Co. "North & East of Delta"	Public						4	
C3	Hossam & El-Said Co.	Private	Functional structure	40	Delivers housing, service and industrial projects to the government.	20,000,000	20	10	2
C4	Orascom Construction Co.	Private	Matrix structure	40,000	Targets large industrial and infrastructure projects principally, undertakes major commercial, industrial and infrastructure projects and institutional projects.	5,000,000,000	25	14	2
C5	Egyptian Dredgers Co.	Business	Functional structure	1100	Earth works of waterways, Establishment of fish farms, Development of irrigation works, Establishment of ports and marine works, shores protection, Marine cable, laying, Roads leveling.	48 million L.E.	25	14	2
C6	Giza Co.	Business	Mixed between Functional & Divisional structure (based on location)		Contracting works and civil construction, utilities and concrete works prefabricated housing of all types and levels, hotels and hospitals and public buildings	300 million L.E.	25	11	0
C7	El-Swedy Electric Co.	Private	Functional structure	50	Organization specialized in the supply, installation and commissioning of overhead transmission lines and substations on a turnkey basis for utilities and industries.	5 billion L.E.	20	10	1



**Fig. 8.** Arab Contractor's Co. Financial situation 2008- 2013 diagram

Fig (8) illustrates the financial behavior of the company in the period 2008 to 2013. It clearly shows a continuous decrease in the domestic aspect, while there is a noticeable increase in the international one.

### 5.2. Case (3): C3: Hossam & El-Said Co.

Hossam & El-Said Co. is one of the contracting companies in Egypt that realized the importance of the organizational structure's role in the company performance. So, it hired another institution that is specialized in evaluating and restructuring the companies' organizational structure. Fig (9) shows Hossam & El-Said Co. original organizational structure "Functional structure" which had serious problems, such as authority centralization and the lake of essential departments. While, Fig (10) shows Hossam & El-Said Co. organizational structure "Mixture between functional and matrix structure" after modification. Specific job descriptions, job titles and other details are attached with the organizational structure, to assure it's going to operate efficiently.



**Fig. 9.** Hossam & El-Said Co. organizational structure (Original)

### 5.3. Case (4): C4: Orascom Construction Co.

Orascom Construction (OC) is an engineering and construction contractor primarily focused on infrastructure, industrial and high-end commercial projects in the Middle East, North Africa and the United States for public and private clients [18]. Orascom organizational structure is a mixture between functional and matrix organizational structure {But it couldn't be displayed here for confidentiality reasons}. Fig (11) shows a noticeable increase in the company's financial situation for years 2006 – 2011.

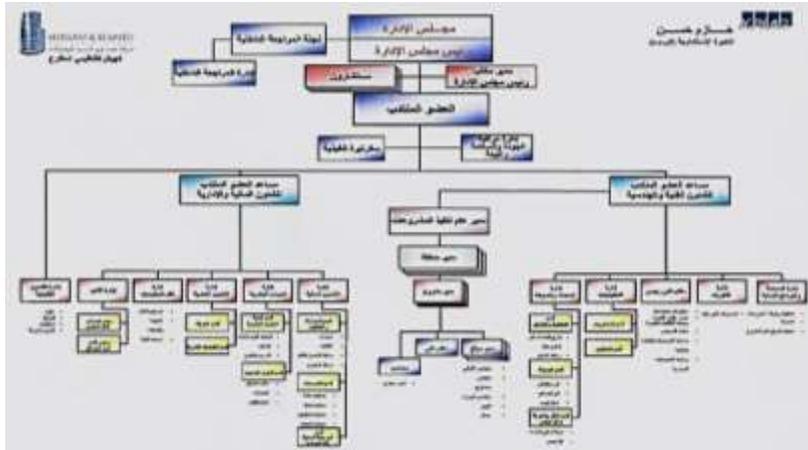


Fig. 10. Hossam & El-Said Co. organizational structure (After Modification)

Income Statement Data	31/12/06 EGP '000	31/12/07 EGP '000	31/12/08 EGP '000	31/12/09 EGP '000	31/12/10 EGP '000	31/12/11 EGP '000
Net other income (expense)	(266,641)	8,322	567,656	(195,167)	(156,521)	(653,962)
Income before taxes	3,549,987	1,468,547	4,574,591	3,041,518	4,489,196	5,767,374
Provision for income taxes	(136,378)	(82,036)	(575,841)	(491,300)	(840,050)	(1,555,885)
Results from discontinued operations	-	2,511,048	11,382	-	-	268,921
Gain on sale of cement group	-	62,274,782	1,433,457	-	-	-
Minority interest	(762,891)	(151,367)	(76,894)	(133,618)	(304,658)	(451,545)
<b>Net income</b>	<b>2,670,718</b>	<b>66,020,974</b>	<b>5,366,695</b>	<b>2,416,600</b>	<b>3,344,487</b>	<b>4,028,863</b>
Per share information						
Earnings per share <sup>1</sup>	12.93	327.70	25.80	11.74	16.21	19.64
Cash dividend per share <sup>2</sup>	5.50	305.00	310.50	10.02	11.26	12.47

Fig. 11. Orascom Co. financial situation 2006-2011

5.4. Case (5): C5: Egyptian Dredgers Co.

The Company was established in 1884 and it was nationalized in 1961. It was rated to first level with capital volume 48 million pounds [19]. Fig (12) shows the company’s organizational structure “Traditional structure”. Fig (13) shows a continuous decrease in the company’s financial situation through 2008 – 2013.

5.5. Case (6): C6: El-Giza Co.

Giza General Contracting Group is a full service contractor [20]. Fig (14) shows the company’s organizational structure “Mixture between Matrix and Functional based on geographic location structure”. A clear increase in the company’s capital and profit i.e. the company’s financial situation for years 2012 and 2013, as shown in Fig (15).

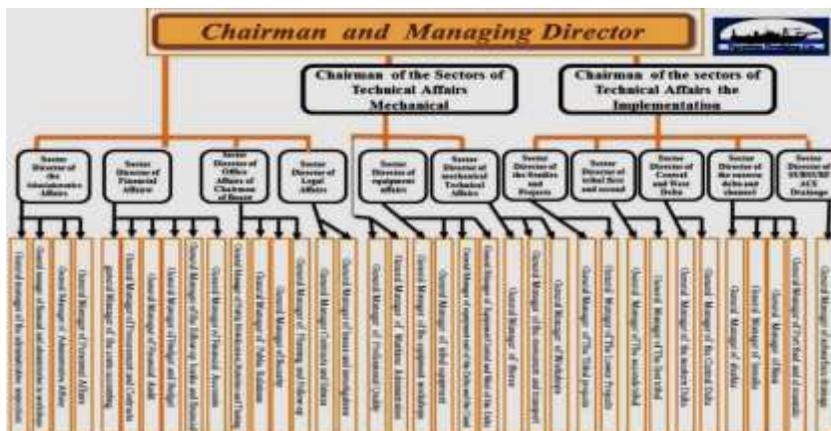


Fig. 12. Egyptian Dredgers Co. organizational structure



Fig. 13. Egyptian Dredgers Co. Financial situation 2008-2013

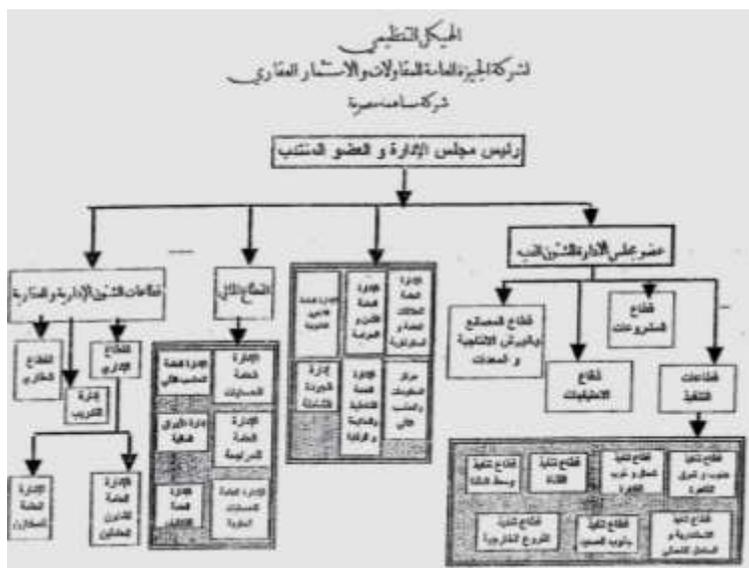


Fig. 14. Giza Co. organizational structure

5.6. Case (7): C7: El-Swedy Electric Co.

El-Swedy Electric is a well-established group with extensive holdings, both locally and beyond borders in several other Middle Eastern & African countries as well as some European & Asian countries [21]. Fig (16) shows the company’s organizational structure “Functional structure”. While, the revenues and gross profit increases through the years 2009-2013 there is a noticeable decrease in the company’s net profit, as shown in Fig (17).

شركة الجيزة العامة للطاقة والكهرباء والإستثمار العقاري (شركة مساهمة مصرية)  
 قائمة الدخل من طبق الشركة (معدلة)  
 عن السنة المنتهية في 31 ديسمبر 2012

إجمالي	أرباح المرحلة	إيراد خازنة	إجمالي هام	إجمالي	إجمالي	إجمالي
مصري	مصري	مصري	مصري	مصري	مصري	مصري
١٠,٤٢٠,١٢٧	٢٠,٢٧٧,٧٨٤	٧,٧٨٢,٥٧١	(٣,٢١٤,٤٧٤)	١٤,٢٦٩,٥٧٤	٥,٢٢٢,١٢٠	٥٩,٢٩٤,٠٠٠
(١٧٧,٨٧٤)	-	(١٧٧,٨٧٤)	-	-	-	-
١٠,٢٤٢,٢٥٣	٢٠,١٠٠,٩١٠	٧,٦٠٤,٦٩٧	(٣,٢١٤,٤٧٤)	١٤,٢٦٩,٥٧٤	٥,٢٢٢,١٢٠	٥٩,٢٩٤,٠٠٠
-	(٢٠,١٠٠,٩١٠)	١٤,٢٦٩,٥٧٤	-	٢٨٩,٧٠٤	١٠,٠٠٠,٠٠٠	-
-	-	(٢,١٤٤,١٨٩)	-	(٢,١٤٤,١٨٩)	-	١٤,٢٦٩,٥٧٤
-	-	(٢,١٤٤,١٨٩)	-	-	-	-
(٣,١٠٠,٠٠٠)	-	(٣,١٠٠,٠٠٠)	-	-	-	-
٧,١٤٢,٢٥٣	٧,٩٩٦,٩٢١	٥,٤٦٠,٥٠٨	-	١٢,١٢٥,٥٧٤	٥,٢٢٢,١٢٠	٧٣,٥٨٨,٠٠٠
١٢١,٨٧٤,٥٧٤	٢٢,٢٧٧,٧٨٤	٨,٨٢٢,٤٧١	-	١٢,١٢٥,٥٧٤	٥,٢٢٢,١٢٠	٧٣,٥٨٨,٠٠٠
١٠,٢٤٢,٢٥٣	٢٠,١٠٠,٩١٠	٧,٦٠٤,٦٩٧	(٣,٢١٤,٤٧٤)	١٤,٢٦٩,٥٧٤	٥,٢٢٢,١٢٠	٥٩,٢٩٤,٠٠٠
-	(٢٠,١٠٠,٩١٠)	١٤,٢٦٩,٥٧٤	-	٢٨٩,٧٠٤	١٠,٠٠٠,٠٠٠	-
-	-	(٢,١٤٤,١٨٩)	-	-	-	١٤,٢٦٩,٥٧٤
(٣,١٠٠,٠٠٠)	-	(٣,١٠٠,٠٠٠)	-	-	-	-
٧,١٤٢,٢٥٣	٧,٩٩٦,٩٢١	٥,٤٦٠,٥٠٨	-	١٢,١٢٥,٥٧٤	٥,٢٢٢,١٢٠	٧٣,٥٨٨,٠٠٠
١٠٨,٥١٤,١٢٧	٢٠,٢٧٧,٧٨٤	٧,٧٨٢,٥٧١	(٣,٢١٤,٤٧٤)	١٤,٢٦٩,٥٧٤	٥,٢٢٢,١٢٠	٥٩,٢٩٤,٠٠٠

Fig. 15. Giza Co. financial situation 2012, 2013

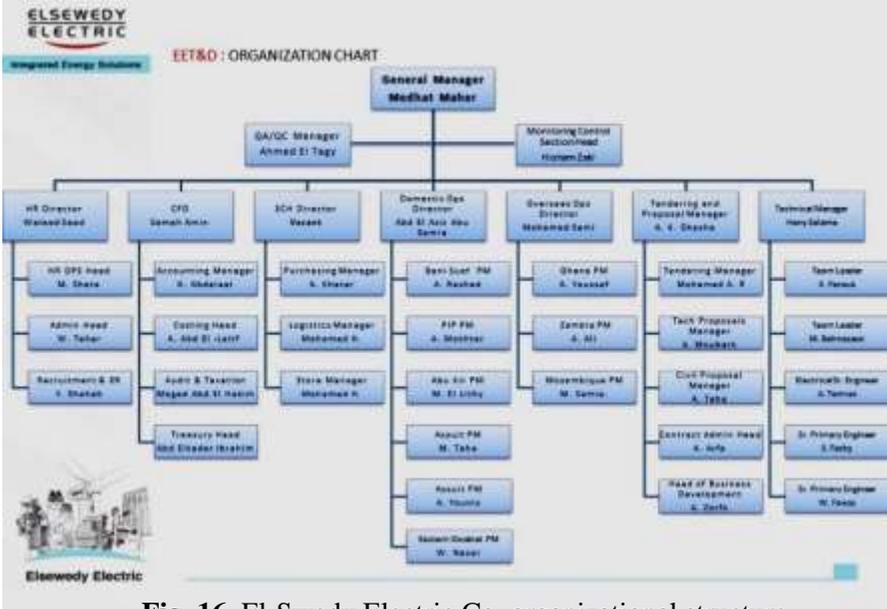


Fig. 16. El-Swedy Electric Co. organizational structure

6. Statistical analysis and discussions

Data was analyzed using SPSS version 16 and Microsoft Excel. The One-Way ANOVA Test was employed to determine the significance of the relationship. Results are represented in bar charts. Results are discussed and analyzed in the following sections.



**Fig. 17.** El-Sweddy Electric Co. financial status 2008-2013

### 6.1. Group (A): Organization strategy, mission and values

Questions of Group (A) investigate the companies' strategy, mission, and values and how much are they applicable and recognized by the company members. Results are shown in Table (6) and Figure (18). Results indicate that there is no significant difference in companies' answers for this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for companies C5 and C7. From personal interviews it was noticed that, in public sector companies there is a clearly defined strategy, mission and values known and shared only by upper management which is probably due to the centralization of authority in these companies. However, in private and business sector companies although they might not have well-known, the company members are aware of its clearly defined strategy and find it applicable through work procedures. In these companies management ensures that employees feel they are effective members in the company performance.

**Table 6.**

One way Anova Test between groups for questions (A1-A7) of Group (A)

Group (A)	Sum of Squares	Mean Square	Sig.
A1: The organization has a clearly defined strategy.	62.004	10.334	.000
A2: The organization has clear and specific announced goals.	63.634	10.606	.000
A3: A set of "business values" guide the organization in the way it conducts its business.	52.633	8.772	.000
A4: The culture of my organization is intrinsically linked to these values.	35.468	5.911	.000
A5: These values are known, shared and practiced by every member of the organization.	47.563	7.927	.000
A6: The business values and mission statement of my organization have a positive impact on performance.	41.710	6.952	.000
A7: Members in the organization who are found to be involved in corruption are dealt with accordingly.	61.742	10.290	.000

### 6.2. Group (B): Managers performance and responsibilities

Questions of Group (B) investigate the managers' performance, responsibilities and how much do they efficiently manage companies' employees and resources. Results are

shown in Table (7) and Figure (19). Results indicate that there is high significant difference in companies' answers for questions (B1, B4) ( $p > 0.05$ ) while, there is no significant difference in companies' answers for the other questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for company C5 which disagree question B6. From the personal interviews it has been noticed that the success of any organizational structure depends basically on the C.E.O. regardless the organizational structure type. Centralization and narrow span of control are the main traits of most of the companies. Also, the limited authority given by some companies to the project managers could cause the stop of the work on a certain project for minor details. In Public sector companies, the work paper goes through a long series of due to long and wide organizational structure, which causes a great loss of time and money.

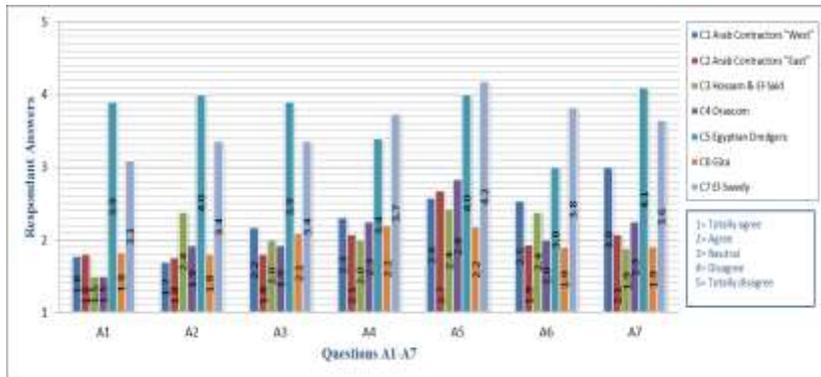
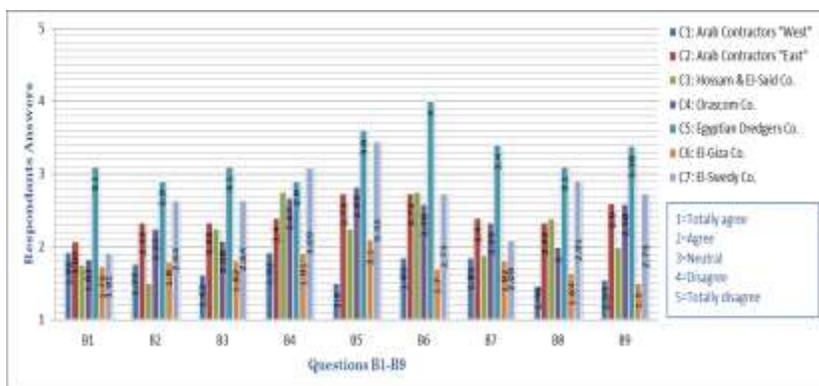


Fig. 18. Companies' answers for Group (A)

Table 7.

One way Anova Test between groups for questions (B1-B9)

Group (B)	Sum of Squares	Mean Square	Sig.
B1: The manager is responsible for selecting, obtaining, distributing, organizing and putting to use all of the available resources that are necessary to pursue and achieve the organization's objectives.	12.556	2.093	.019
B2: The manager considers both the material and the human factors into account when sounding decisions being made.	17.322	2.887	.003
B3: The manager fosters self-discipline within the team by encouraging its members to seek responsibility in running the group's affairs.	18.925	3.154	.003
B4: The manager evokes loyalty from the team member by being fair in all dealings with them concerning matters of rates of pay, bonus payments, promotion, discipline, and work allocation.	19.603	3.267	.027
B5: The manager realizes the improvements in the individual's mental, physical, and social conditions.	44.437	7.406	.000
B6: The manager selects suitable subordinates.	37.729	6.288	.000
B7: The manager treats each individual according to his/her personal abilities.	22.385	3.731	.000
B8: The manager establishes good communications with the Upper management.	26.045	4.341	.000
B9: The manager establishes good communications with the lower management.	29.651	4.942	.000



**Fig. 19.** Companies' answers for Group (B)

### 6.3. Group(C): Employees performance and satisfaction

Questions of Group (C) investigate the employees' performance, contribution, loyalty and how much are they satisfied about the company performance. Results are shown in Table (8) and Figure (20). Results indicate that there is high significant difference in companies' answers for questions (C5, C6) ( $p > 0.05$ ); significant difference for the answers of question (C4) ( $p = 0.05$ ). While, there is no significant difference in companies' answers for the other questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for companies C5 and C7 which disagree for questions (c1, c2, c3 and c7). From personal interviews, it has been noticed that currently in Egypt, recruitment is mostly based on favoritism and personal interests rather than qualification and experience. In private sector companies there is no clear job description for each job title, which causes confusion in employees' authorities and responsibilities. Employees in public sector companies don't feel free to express their dissatisfaction, for the fear of being blamed or worse. Elder employees are more loyal to their firms than younger ones. Business and private sector firms upgrade their employees and give them bonuses on a regular basis in a reasonable way based on reports of good work.

**Table 8.**

One way Anova Test between groups for questions (C1-C7)

Group (C)	Sum of Squares	Mean Square	Sig.
C1: The employees are consulted in respect of decisions regarding what the organization plan to do	44.070	7.345	.000
C2: Employees are encouraged to voice their technical opinions without fear	61.225	10.204	.000
C3: Employees are encouraged to share the responsibility of things that go wrong in their work group	38.495	6.416	.000
C4: The performance appraisals are used as the basis to reward employees	24.367	4.061	.005
C5: Employees accept criticism or negative feedback without being defensive	7.239	1.206	.467
C6: The organization emphasizes on team contributions rather than individual contributions	11.810	1.968	.076
C7: The employees know what they need to do to succeed on the long run	20.812	3.469	.004

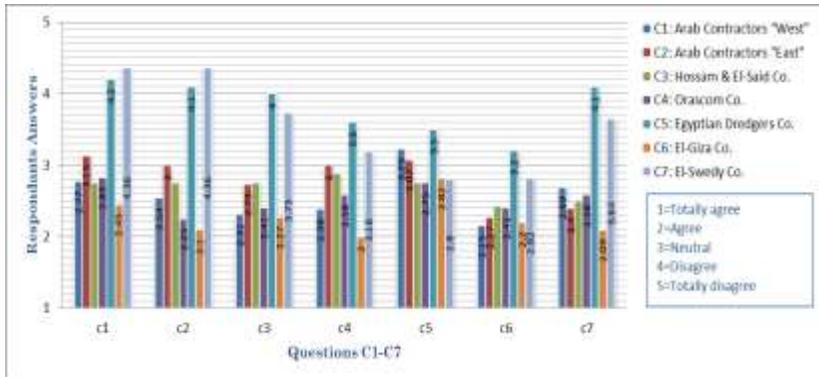


Fig. 20. Companies’ answers for Group (C)

6.4. Group (D): Dataflow evaluation

Questions of Group (D) investigate the access to projects’ database and its efficiency. Results are shown in Table (9) and Figure (21). Results indicate that there is high significant difference in companies’ answers for question (D4) ( $p > 0.05$ ). While, there is no significant difference in companies’ answers for the other questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for companies C5 and C7 disagree for all questions. Through the personal interviews, there were complaints about limited access for projects’ technical database which leads to repeating same mistakes in public sector companies.

Table 9.

One way Anova Test between groups for questions (D1-D4) for Group (D)

Group (D)	Sum of Squares	Mean Square	Sig.
D1: Each project has a well-documented database.	53.716	8.953	.000
D2: All managers have access to projects’ Technical and Financial database	44.516	7.419	.000
D3: All employees have access to projects’ Technical database.	27.694	4.616	.006
D4: All employees have access to projects’ Financial database.	15.562	2.594	.111

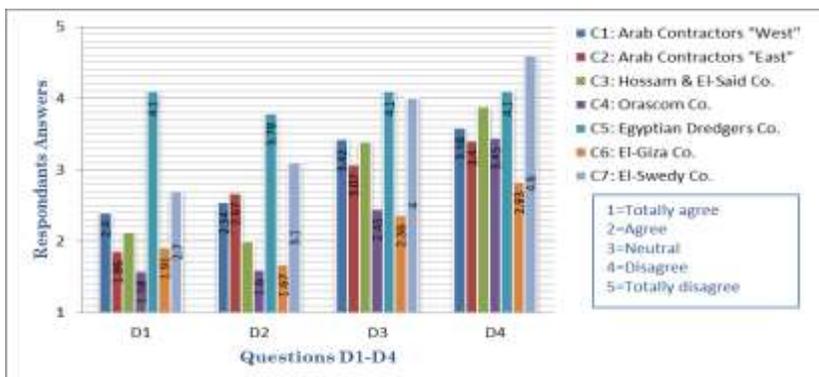


Fig. 21. Companies’ answers for Group (D)

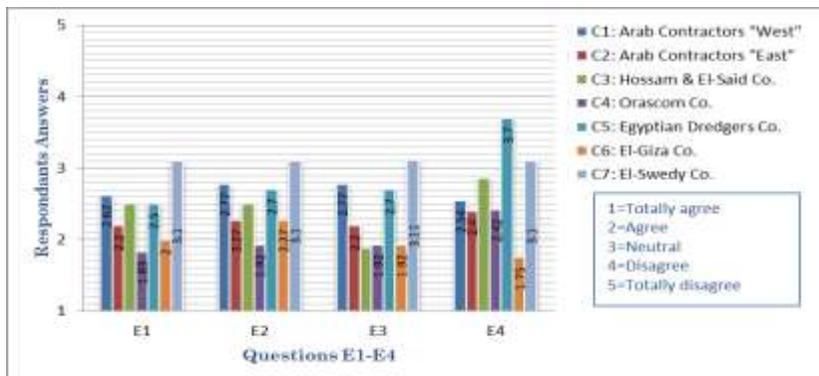
### 6.5. Group (E): Reporting process evaluation

Questions of Group (E) investigate reporting process between the companies' different departments and the methods of evaluating employees. Results are shown in Table (10) and Figure (22). Results indicate that there is high significant difference in companies' answers for question (E2) ( $p > 0.05$ ). While, there is no significant difference in companies' answers for the other questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for company C5 tends to disagree for question E4. From personal interviews, it has been noticed that the contradiction between what really happens in the project field and what is written in reports delivered to higher management, causes a number of disputes that consumes the firm's money and time to solve it.

**Table 10.**

One way Anova Test between groups for questions (E1-E4)

Group (E)	Sum of Squares	Mean Square	Sig.
E1: Technical reports are sent on a regular basis from the project field to the technical offices of the organization	18.242	3.040	.007
E2: Employees' evaluation reports are sent on a regular basis from the Managers/Leaders to the organization's quality management department (C.E.O.).	10.460	1.743	.094
E3: Work progress reports are sent on a regular basis from the project managers to the C.E.O. and to organization's quality management department	16.965	2.827	.004
E4: When evaluating employees these factors are considered for each employee (efficiency- effort expended – performance quality).	29.452	4.909	.000



**Fig. 22.** Companies' answers for Group (E)

### 6.6. Group (F): Innovation and training enhancement

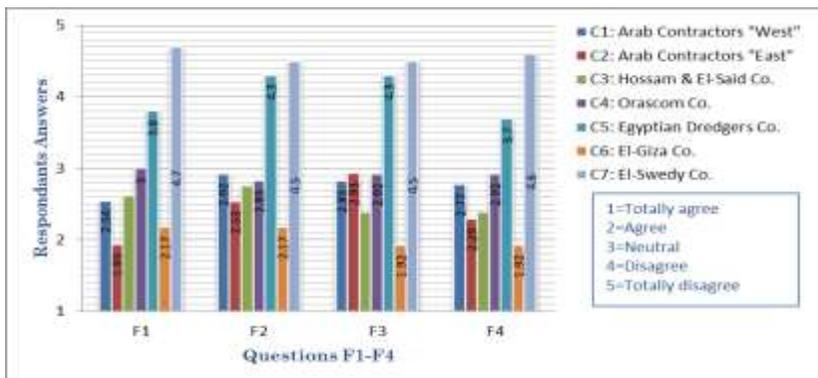
Questions of Group (F) investigate methods of training and developing employees. Results are shown in Table (11) and Figure (23). Results indicate that no significant difference in companies' answers for the questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for companies C5 and C7. From personal interviews, it was found that only Arab Contractors Co. provides professional training on regular basis for its employees.

However, it was noticed that some employees aren't interested in getting any professional training, they prefer to gain experience through work and from elder employees.

**Table 11.**

One way Anova Test between groups for questions (F1-F4) for Group (F)

Group (F)	Sum of Squares	Mean Square	Sig.
F1: The organization provides adequate training to employees.	30.938	5.156	.000
F2: The employees are encouraged to be creative and innovative.	34.577	5.763	.000
F3: The organization enhances competence in transforming employees' innovative ideas into decisions.	47.439	7.907	.000
F4: The employees are coached to improve their skills so they can achieve higher levels of performance.	47.779	7.963	.000



**Fig. 23.** Companies' answers for Group (F)

### 6.7. Group (G): Organizations financial performance

Questions of Group (G) investigate the organization financial performance, its effectiveness in achieving predetermined goals and its ability to develop and adopt according to labor market needs. Results are shown in Table (12) and Figure (24). Results indicate that no significant difference in companies' answers for the questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for companies C5 and C7. From personal interviews, it was clear that relatively few firms have the flexibility to change, update or modify their OS or strategic plan, to commensurate with the labor market changes. Moreover, it has been obvious that some firms practices quality control standards without having a certificate or a quality control department while other firms are considered overqualified for the market needs here in Egypt. However it costs the firm too much additional budget to maintain and keep this level of quality. Unfortunately, overqualified firms are being accepted technically, and rejected financially in bids and tenders now in Egypt. Obviously, public sector firms suffer more taxes and administrative fees than private sector firms do. Based on companies' timeline documents, the study found out that most of the contracting firms deliver projects beyond their time schedule, due to the delay in the clients' payments especially when the client is the government. Finally, there has been a noticeable lake of studies concerning the labor market status quo,

competent firms, current and future industry possibilities and limitations, in most of the firms which weakens the companies' competency in the labor market.

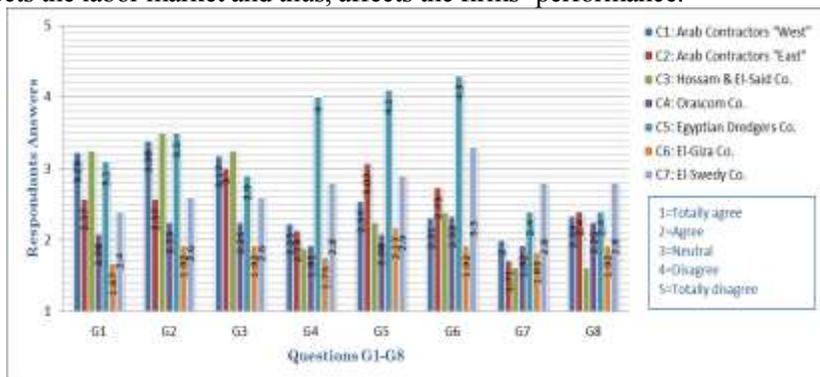
**Table 12.**

One way Anova Test between groups for questions (G1-G8) for Group (G)

Group (G)	Sum of Squares	Mean Square	Sig.
G1: The organization prefers to meet predetermined goals on quality level.	33.243	5.540	.000
G2: The organization prefers to meet predetermined goals on cost control.	21.860	3.643	.000
G3: The organization enhances competence in maintaining the process of achieving the predetermined goals.	32.528	5.421	.000
G4: The projects are delivered on or ahead of schedule.	54.890	9.148	.000
G5: The organization prefers to meet predetermined goals on profitability.	31.523	5.254	.001
G6: The organization prefers to meet predetermined goals on revenue growth.	32.611	5.435	.000
G7: The organization prefers to meet predetermined goals on increasing shareholders returns.	19.253	3.209	.005
G8: The organization maintains being competitive in the market.	45.056	7.509	.000

### 6.8. Group (H): Internal business processes

Questions of Group (H) investigate the companies' business current status quo. Results are shown in Table (13) and Figure (25). Results indicate that there is high significant difference in companies' answers for question (H4) ( $p > 0.05$ ) and significant for question (H3). While, there is no significant difference in companies' answers for the other questions in this group ( $p < 0.05$ ). Almost, all companies agree for all questions, except for company C3 tends to disagree for question H1 and H2. Also C5 answered by disagree for question H4. From personal interviews, it has been noticed that contracting firms in Egypt have been facing some financial problems such as: the delay of payments; overwhelming taxes; administrative fees and many governmental obstacles on starting new business or changing activity i.e. bureaucracy and red tape. Also, it was obvious that firms prefer to maintain or increase their projects regardless, how much is the volume of business or the expected profit. Based on companies' documents, almost all public sector companies' projects are delivered above budget. This happens due to the continuous change in the political and economic circumstances locally and internationally which affects the labor market and thus, affects the firms' performance.

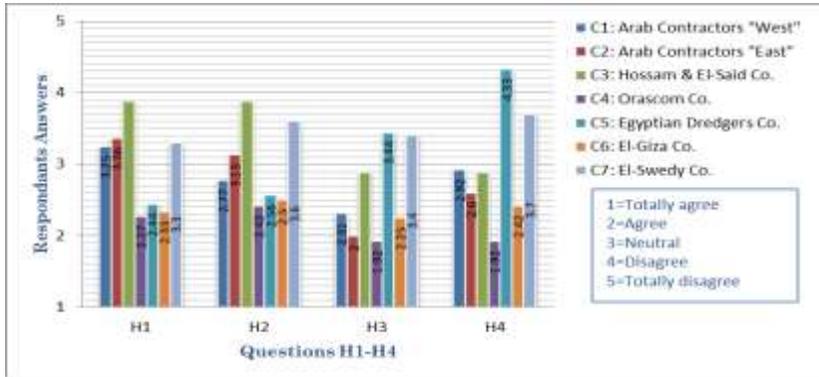


**Fig. 24.** Companies' answers for Group (G)

**Table 13.**

One way Anova Test between groups for questions (H1-H4) for Group (H)

Group (H)	Sum of Squares	Mean Square	Sig.
H1: The projects are delivered on or under budget.	37.464	6.244	.000
H2: The organization achieves expected net profit.	47.485	7.914	.000
H3: The annual growth of the company depends on the volume of business.	11.524	1.921	.021
H4: The annual growth of the company depends on a number of projects.	8.590	1.432	.312



**Fig. 25.** Companies' answers for Group (H)

*6.9. Group (I): Research and development process*

Questions of Group (I) investigate the companies' Research and Development department role and efficiency. Results are shown in Table (14) and Figure (26). Results indicate insignificant difference in companies' answers for all questions ( $p < 0.05$ ). Almost all companies agree for all questions, except for companies C5 and C7 disagree for all questions. Although most of the companies answered that the company has a separate department dedicated to the research and development studies (R & D), there wasn't actually an (R & D) dept. existing in either of them. Likely, answers to the rest of the questions are not realistic. This group of question shows that either the respondents were not interested in giving accurate answers. Or employees don't feel free to express their dissatisfaction even through survey questionnaires performed by their managers or other parties, for the fear of being blamed or worse. Also, it assures the ignorance of the (R & D) dept. importance in these firms.

**Table 14.**

One way Anova Test between groups for questions (I1-I4) for Group (I)

Group (I)	Sum of Squares	Mean Square	Sig.
I1: A separate department in my organization is dedicated to R & D.	77.144	12.857	.000
I2: R & D initiatives have a positive impact on the performance of the organization.	66.807	11.135	.000
I3: The organization invests heavily on R & D.	51.707	8.618	.000
I4: R & D ensures that the organization is on the cutting edge of the latest technology.	63.695	10.616	.000

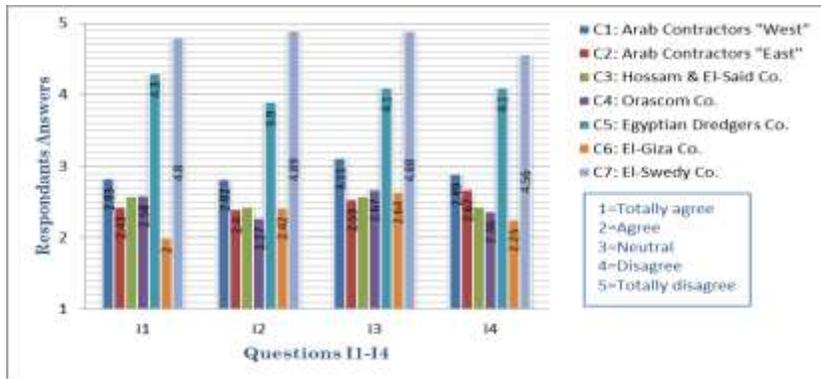


Fig .26. Companies' answers for Group (I)

6.10. Group (J): Risk management awareness

Questions of Group (J) investigate the companies' Risk Management department role and efficiency. Results are shown in Table (15) and Figure (27). Results indicate insignificant difference in companies' answers for all questions ( $p < 0.05$ ). Almost all companies agree for all questions, except for companies C5 and C7 disagree for all questions. Results from personal interviews, coincides with questionnaire results as, firms members' do recognize and apply the risk management standards.

6.11. Group (K): Client/Customer satisfaction

Questions of Group (K) investigate the companies' relationship with its customers. Results are shown in Table (16) and Figure (28). Results indicate insignificant difference in companies' answers for all questions ( $p < 0.05$ ). Almost all companies agree for all questions, except for companies C5 and C7 disagree for all questions. From personal interviews, it was found that current client preference contradicts with companies, strategies. As the current clients prefer lower project budget even if it means lower quality standard while, companies prefer to provide the highest level of quality regardless of the budget allocated.

Table 15.

One way Anova Test between groups for questions (J1-J5) for Group (J)

Group(J)	Sum of Squares	Mean Square	Sig.
J1: Management in the organization understands and appreciates the value of RM.	96.117	16.019	.000
J2: RM helps the organization to minimize its risk exposure.	74.449	12.408	.000
J3: RM helps the organization compete effectively with other contractors.	67.505	11.251	.000
J4: Effective RM has a positive impact on the performance of the organization.	61.095	10.183	.000
J5: Employees in my organization understand and appreciate the value of risk management.	49.197	8.199	.000

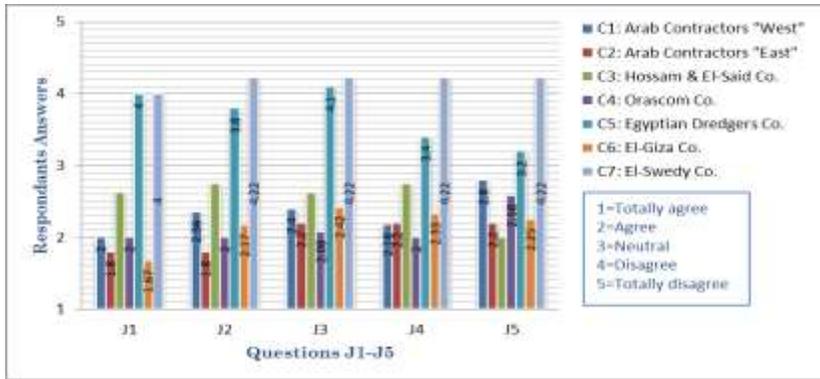


Fig. 27. Companies' answers for Group (J)

Table 16.

One way Anova Test between groups for questions (K1-K5) for Group (K)

Group (K)	Sum of Squares	Mean Square	Sig.
K1: The organization enhances competence in satisfying customers' needs.	53.081	8.847	.000
K2: The organization enhances competence in keeping existing customers.	52.716	8.786	.000
K3: The organization meets goals on company vision about customer service	16.118	2.686	.060
K4: The organization responds positively to opinions, criticism and complaints from customers.	45.900	7.650	.000
K5: Positive relationship between the customer and the company has a positive impact on the company's performance	27.397	4.566	.003

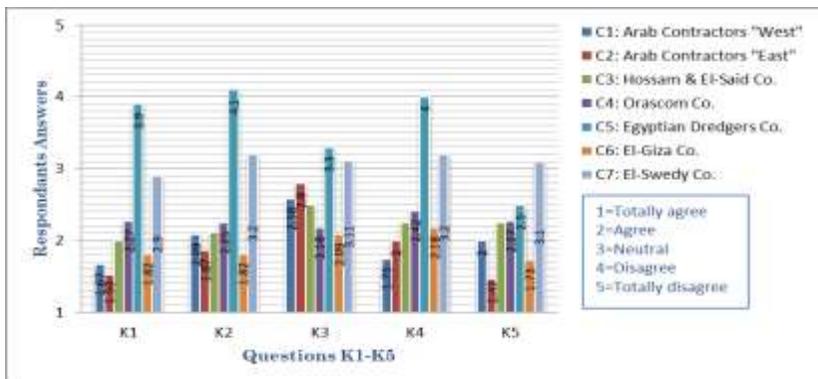


Fig. 28. Companies' answers for Group (K)

### 7. Conclusion

In contracting companies of classification “A”, the organizational structure operates in its highest efficiency under some conditions such as hiring minimum number of most qualified personnel and avoiding centralization i.e. routine; bureaucracy and long paper work. While observing the seven companies' financial situation through years (2009-2013) and analyzing the questionnaire results, the study found that:

- 1) Public sector companies achieved incensement in the profits in the international projects. On the contrary, there has been a decrease in the local projects' profits although it's using the same organizational structure.
- 2) The political circumstances has affected the labor market negatively, that lead to the same result on the companies in construction industry. But companies like Orascom, Giza and El-Swedy held their ground and didn't suffer sudden decrease in their capital, profits or projects' volume.
- 3) Also, employees in business and private sector companies have shown more loyalty to their companies. And had more freedom to express their opinions while filling the questionnaire.
- 4) Orascom and El-Giza companies, have shown more success in being stable, achieving goals and satisfying both customers and employees.

So, by considering the case of Hossam & El-Said Co., which applied the Mixture between functional and matrix organizational structure when restructuring the company. Then, a composite structure between matrix and functional organizational structure based on (geographical location or project type), may be recommended as the optimal organizational structure for contracting firms class "A" in Egypt. Where, this composite structure determines clearly each employee's responsibilities and duties with an average span of control. Also, it provides the project manager enough authority to manage the project efficiently and deliver it on predetermined time and within specified budget thus, achieving company's goals.

## **8. Recommendations**

- 1) Every firm should have a clear strategic plan and appropriate, flexible organizational structure which is compatible with the firm needs and could be easily updated or modified when needed.
- 2) Recruitment should be based on qualification and experience basis only, also there should be clear specific process of upgrade and bonuses based on progress reports.
- 3) It's important to generalize the use of the points system in the bids and tenders nowadays, so that firms of high quality standards do not suffer being rejected financially because of their high prices. Meanwhile, the firms could offer quality standards that commensurate with the size and budget of the project.
- 4) Also, In order to maintain delivering projects on time, project managers of preceding projects could be transferred to the delayed ones and vice-versa, so as all projects would be delivered within schedule.
- 5) Likely, Project managers should be granted more span of authority in making decisions and managing resources, to be able to deliver projects efficiently within time schedule.
- 6) Moreover, in order to come out of the recession state, firms could apply the "Mapping and Housing" strategy.

## **REFERENCES**

- [1] D.Wolf, "Execution and Structure," 2002. <http://www.dewarsloan.com/workin%20papers-execution%20and%20structure.html>
- [2] R. E. Walton, "A Vision-Led Approach to Management Restructuring," Organizational Dynamics, Vol. 14, No. 4, 1986, pp. 5-17.
- [3] Mintzberg, H. (1983). Designing effective Organizations. Prentice-Hall, Inc. New Jersey.

- [4] E.C. Ubani, "Evaluating The Effects Of Organizational Structure On The Effective Delivery Of Civil Engineering Projects" , Interdisciplinary Journal Of Contemporary Research In Business, October 2012, Vol 4, No 6
- [5] Q. Tran and Y. Tian, "Organizational Structure: Influencing Factors and Impact on a Firm," American Journal of Industrial and Business Management, Vol. 3 No. 2, 2013, pp. 229-236
- [6] R. Underdown, "Organizational Structures," 2012. [http://dept.lamar.edu/industrial/underdown/org\\_mana/org/org\\_structure-George.html](http://dept.lamar.edu/industrial/underdown/org_mana/org/org_structure-George.html)
- [7] Patrick J. Montana, Bruce H. Charnov, "Management: *Barron's business review series*", Barron's, 1993
- [8] Ganesh Vaidyanathan, "Project Management Process, Technology and Practice". Indiana University, 2013, Pearson
- [9] Madison, D.L., Allen, R. W., Porter, L.W., Renwick, P.A., and Mayes, B.T. Organizational politics: An exploration of managers' perceptions. Human Relations, 1980, 33, 79-100; Finkelstien, S. Why Smart Executives Fail: What You Can Learn From Them. Bergenfield, NJ: Penguin, 2003.
- [10] Richard Germaina, Cindy Claycombb, Cornelia Drögec, "Supply chain variability, organizational structure, and performance: The moderating effect of demand unpredictability", Journal of Operations Management, Volume 26, Issue 5, September 2008, Pages 557–570.
- [11] Chung-Jen Chena, Jing-Wen Huangb. "How organizational climate and structure affect knowledge management—The social interaction perspective", International Journal of Information Management, Volume 27, Issue 2, April 2007, Pages 104–118.
- [12] Winfred Arthur Jr.a, Tobin B. Kyteb, Anton J. Villadoc, Curtis A. Morgand & Stephen S. Roop, "Introducing a Subject Matter Expert–Based Utility Analysis Approach to Assessing the Utility of Organizational Interventions Such as Crew Resource Management Training", The International Journal of Aviation Psychology, Volume 21, Issue 2, 201.
- [13] Yinghui B and Cheng. Eng G. (2004). The Impact of Organizational Structure on Project Performance; html; (/F/ The % 20 impact % 20 Organizational % Structure % 20 Project %.
- [14] Sai On Cheung, Peter S. P. Wongab & Anna L. Lam, "An investigation of the relationship between organizational culture and the performance of construction organizations". Journal of Business Economics and Management Volume 13, Issue 4, 2012. Pages 688-704.
- [15] Kgositsile Samuel Sidumedi, "An Investigation into the Relationship between the Corporate Culture of South African Construction Firms and Performance". 2010
- [16] Jim Clemmer 2013 , "The Leader's Digest: Timeless Principles for Team and Organization Success", Published by TCG Press.
- [17] The Arab Contractors Osman Ahmed Osman & Co., <http://www.arabcont.com/English/about-us/overview.aspx>
- [18] Orascom construction industries, <http://www.orascomci.com/index.php?id=home>
- [19] Egyptian Dredging Co., [http://egyptian-dredging.com/Default\\_e.html](http://egyptian-dredging.com/Default_e.html)
- [20] Giza General Contracting And Real Estate Investment, <http://www.al-giza.com/IR.aspx?LID=6>
- [21] Elsewedy Electric Integrated Energy Solutions, <http://www.elsewedyelectric.com/FE/Common/Showpage.aspx?Pageid=99&g=6>

## تحليل الهيكل الادارى التنظيمي لشركات المقاولات المصرية من الفئة "أ"

### الملخص العربى:

يقدم البحث الحالى محاولة لدراسة كفاءة وأداء شركات المقاولات في مصر من الفئة "أ"؛ وفقا ل EFCBC (الاتحاد المصري لمقاولي التشييد والبناء). حيث يقدم فى البداية، دراسة و مقارنة للأصناف المختلفة من الهياكل التنظيمية للشركات مثل الهياكل التنظيمية التقليدية و الوظيفية، كما يقوم بتقييم تأثير الهيكل التنظيمي على أداء شركات المقاولات. يتم التحقيق في القيود المفروضة على شركات المقاولات المصرية من خلال البحث و استنباط المعوقات التى تؤثر على أداء هذه الشركات. تشمل الدراسة سبع شركات مقاولات رئيسية تمثل القطاعات المختلفة: القطاع الخاص، قطاع الأعمال التجارية، والقطاع العام، حيث يقوم البحث بإجراء دراسة ميدانية باستخدام؛ الاستبيان، المقابلات الشخصية لموظفي الشركات وبيانات رسمية من الشركات المختارة. وتبين النتائج أن الهيكل التنظيمي يعمل في أعلى كفاءته عند التعاقد مع الحد الأدنى للموظفين المؤهلين مع مراعاة تجنب المركزية، الروتين و البيروقراطية التى لها تأثير كبير على أداء الشركات محل الدراسة. يؤكد هذا البحث على هيمنة الهيكل التنظيمي الوظيفي في الشركات المصرية، كما يخلص إلى أن هيكل مركب بين المصنوفة والهيكل التنظيمي الوظيفي على أساس (الموقع الجغرافي أو نوع المشروع)، قد يكون الهيكل التنظيمي الأمثل لشركات المقاولات من الفئة "أ" في مصر.