



**DECISION SUPPORT FOR SELECTING CONSULTING COMPANIES,
MANAGEMENT BUSINESSES, AND OPERATING AIRPORT
PROJECTS FOLLOWING LOCAL AND INTERNATIONAL
STANDARDS-AN APPLIED STUDY ON NAJAF AL-ASHRAF
INTERNATIONAL AIRPORT**

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ABSTRACT	KEYWORDS
Since the establishment, the University of Kufa has required to prepare specialized staff capable of serving the community and preparing for the planning of future specializations, in addition to establishing and investing in joint cooperation relations between the university and government departments, and this is one of the essential functions and obligations by providing these consultations to solve the technical and scientific problems that society needs. Nowadays, the scientific and practical academic method has become the basis for effective and organized leadership in cognitive development, solving societal problems, and employing scientific research in the aspects of the Iraqi government in general and Najaf Al-Ashraf governorate in particular.	Decision support, project evaluation.

Introduction

Consulting offices play a major role in serving the community, as they provide many services, whether at the local or international level and at the level of different sectors. Consulting services vary according to the offices or companies. There are companies that prepare research studies while others performing practical consulting work and provide advice and guidance. Some companies and offices contact foreign companies and invite them to participate in investment, management, or provide solutions according to well-studied scientific standards. The work of these offices is considered important because it helps to choose the most feasible opportunities, which is one of the most principal responsibilities added to the consulting offices tasks, and helping them to choose the most efficient and best among a long comparison list. These offices can also provide many services, the most vital of which is preparing research, economic feasibility studies, and technical studies for various purposes, specializations and activities. These offices and consulting companies differ among themselves in terms of strength and influence according to a set of variables and standards. For instances, the criterion of the Curriculum Vitae (CV) that is rich in similar work and it is a main criterion in evaluating these offices, as well as the age of the consulting office, the degree of

international and local classification, and the type of experts who are used in the process of evaluation as they are the components of the strength enhancers of these offices.

Scientific Methodology

Significance

The issue of determining mechanisms and guidelines for selecting consulting companies in general and airport management companies in particular is gaining a special watchfulness. Its carefulness arises from the economic and social importance of Najaf Airport in the first place, and the other aspect is the sensitivity of the issue of selecting the best and most qualified company. As the issue of evaluating the performance of companies and offices may be the key and the first secret to future success. Thus, the appropriate company based on the well-studied standards will be reflected in the performance of the target of all these operations, which is Najaf Al-Ashraf International Airport.

Objectives

These mechanisms and guidelines aim to introduce the policies and procedures followed by the Najaf Al-Ashraf Governorate, represented by the governorate administration, the governorate council, and administrative and financial experts from the University of Kufa in selecting international consulting companies in airport management to guide them in the process of referring Najaf International Airport for investment, and designing a computerized program that supports the selection of companies in a scientific manner based on the criteria that have been reached.

Problem statement

After long suffering with the spread of administrative and financial corruption and the lack of adoption of scientific foundations in managing some infrastructure components, including airports, it has become necessary to establish scientific foundations and standards through which competent entities are selected to manage and operate airports, including Najaf Al-Ashraf Airport. Since we agree that weak management opens doors for the financial waste, wasted efforts and time, and the project cannot achieve its own goal. The following question can be asked to express the main problem:

- Will setting criteria for selecting consulting companies and management and operating companies for Najaf Al-Ashraf Airport, in accordance with local and international standards, contribute to achieving high efficiency in performance?

Hypotheses

1. Using scientific standards that are formulated in a manner similar to international standards and from an experienced advisory committee will enhance the achievement of goals, mainly eliminating administrative corruption, which has caused a great waste of efforts and time.
2. The use of business intelligence, especially decision support, will provide transparency and objectivity in selecting companies, in addition to the fact that decision support will be collective, relying on expert evaluation dignitaries.

Theoretical Framework

General requirements and considerations

1. Determining the responsible party for approaching consulting companies.
2. Determining the responsible entity for selecting consulting companies and managing their contracts.
3. Consideration should be given to selecting consulting companies before approaching them for signature.
4. The information provided by the consulting company about the airport management company must be true, accurate, fair and not misleading.
5. The consulting company should set technical standards by highly qualified and experienced practical experts to evaluate airport management companies.
6. Dealing with all competitors for the management of Najaf Al-Ashraf Airport fairly and impartially, and avoiding any practical arrangements that may prevent the effective application of the principles of equality and equivalent opportunities among the competitors.
7. Avoiding any type of future business partnerships between the consulting company and airport management companies.
8. Maintaining the confidentiality of all information related to competitors and airport management information.
9. Impartiality and independence in all processes for selecting airport management companies.
10. Applying accuracy in all procedures related to the process of setting selection criteria for companies specialized in airport management.
11. The process of setting standards for selecting an airport management company is carried out according to precise and scientific procedures and based on the recommendations of a specialized scientific committee.
12. Disclosing the number of experts used by the consulting company, their names, academic records, and CVs.
13. The consulting company provides scientific details to the Najaf Al-Ashraf Governorate Office about the evaluation and selection mechanism, documented with accurate and scientific forms and statements.
14. Preventing any document to be removed from the archive without an official permit from the competent official.
15. Preparing a technical, economic and administrative study explaining the work mechanisms of the consulting company for each offer submitted by airport management companies.
16. Setting specific dates for provided work without exceeding the agreed limits.
17. The following considerations must be taken into account when selecting between competing consulting companies:
 - Choosing companies with high quality and reputation.
 - Applying transparency in the selection process.
 - Giving consulting companies the opportunity to compete in offering their services and presenting themselves.

Criteria for selecting consulting companies in the field of airport management

1. The number of experience years of the consulting company in the field of airport management should not be less than five years.
2. The number of airports that the company worked with or implemented projects.
3. The number of countries that the company worked in.
4. The number of projects that the company implemented.
5. The cost of consulting services.
6. The consulting company must be registered in government departments and provide proof of this along with similar businesses, a documentation of incorporation certified by the country of origin, and authenticated by the Iraqi Ministry of Foreign Affairs.
7. The good financial position and reputation for the consulting company.
8. Classification of the company rank according to specific categories (first category, second category, third category and ...etc).
9. The companies registered in their country must have international or local classification licenses where such licenses are certified and accredited in Iraq.
10. The consulting company meets quality requirements.
11. Qualifications of consultants working in the consulting office, as well as technicians and administrators.
12. The time limit for performing the duties and tasks assigned to the consulting companies.

The above criteria form can be formulated according to a scientific evaluation form subjected to relative weights, and the evaluation process relies on a five or seven-point Likert scale, as assigned in the form below:

No.	Criterion	Completely available	Available	Neutral	unavailable	Completely unavailable
1	First Criterion					
2	Second Criterion					
3	Third Criterion					
.....					
10	Tenth Criterion					
	Relative weights					
	Degree of acceptance or rejection					

No.	Name of the evaluator and expert													The result

1	Evaluator (1)												
2	Evaluator (2)												
3	Evaluator (3)												
4	Evaluator (4)												
5	Evaluator (5)												
6	Evaluator (6)												
7	Evaluator (7)												
8	Evaluator (8)												
9													
10													
	Final average												

Selection process

The selection process should include the following steps:

1. Preparation of terms of reference.
2. Preparing the cost estimate.
3. Announcing the opportunity.
4. Organizing a short list of consulting companies.
5. Arranging and issuing invitations for submitted proposals (which must include: the invitation letter, instructions for consultants, terms of reference and draft of the proposed contract).
6. Receiving offers.
7. Evaluating the technical proposals: Considering quality, reputation, and experience in airport management affairs.
8. Studying, presenting, or discussing publicly the offers of consulting companies.
9. Evaluating the financial offers.
10. Final evaluation of quality and cost.
11. Negotiations and award the contract to the selected company.

Additional requirements from companies

1. A copy of the authorization and signature approval of the company representative or the agency of an individual on his behalf.
2. Companies should obtain the (ISO-9000) certificate and according to what the formed committee considers appropriate and by agreement.
3. Providing a certificate of continuity of business for these companies.
4. A copy of the professional insurance document for the activity of these companies.
5. A CV of the consulting company and a presentation of similar work.
6. Setting relative weights of the criteria for evaluating consulting companies. The weights are determined by the formed committee by an official order from the governorate and based on scientific grounds, and the consulting company that obtains the highest points is the winner and has the right to choose the airport management company.
7. After selecting the consulting company, a committee is formed from the consulting company, administrative, technical and legal experts and the main parties (consulting company, University

of Kufa experts, and governorate experts) to follow up the selection of the aviation management company.

Qualifications of consulting companies

Airline consultants must meet the following criteria:


- 1- Aviation consultants must be persons who possess the following qualifications:
 - Bachelor's degree in civil engineering, construction engineering, or other similar or related scientific fields.
 - Master's degree in engineering in addition to a license to practice engineering.
 - At least fifteen years of gradual experience in the field of airport management, organization and engineering. Experience should include: preparing budgets, planning, and supervising capital improvement.
2. Aviation consultants must have good experience and knowledge about modern trends in the field of aviation. They should know the rules of the Federal Aviation Administration (FAA) and the rules of the International Aviation Organization (ICAO). Aviation consultants should also have good analytical skills to translate and interpret various sources of information and provide appropriate recommendations to their airline clients. Aviation consultants need to have a strong ability to communicate with the Federal Aviation Administration and the International Civil Aviation Organization to provide them with explanations and instructions clearly and comprehensively. Aviation consultants should also have good interpersonal skills to develop relationships with current, potential, or prospective clients.
3. Aviation consultants must first ascertain the needs of their clients before providing their services to them. That's why when hiring them, consultants should conduct an assessment of the airline's situation and then develop a business plan with them.
4. Some aviation consultants provide engineering assistance and consultation to designers in the aviation sector. Since aerospace engineering consultants work largely with big aerospace companies or with local government agencies at various airports, they must provide expertise in the design, appropriate use of space, and modern innovative construction techniques.
5. Aviation consultants must be sufficiently familiar with signals, flight warnings, take-offs, landings, and flight diversions.
6. Consultants should have knowledge of wind turbines, airspace analysis and radar.
7. Aviation consultants should be familiar with airspace management, ICAO instructions, performance-based aeronautical navigation (PNB) and area-based aeronautical navigation (RNAV) and other aviation techniques and regulations.
8. Aviation consultants should be familiar with the aviation curricula and instructions issued by the Federal Aviation Administration (FAA) and the rules of the International Aviation Organization (ICAO).
9. They should have experience in the fields of airport development, executive information systems, and electronic airport management.
10. They should have experience in the areas of strategic planning, infrastructure design and new land design that improve airport operations and customer service based on FAA instructions and controls of ICAO rules.

11. They should have experience in the field of accident analysis, recording and analyzing expert testimony in the field of aviation and related accidents.

12. Finally, aviation consultants should have experience in business development, business analysis, and strategic positioning development.

The practical work

A model was designed to evaluate consulting companies and airport management and operating companies using Microsoft Excel. The business intelligence method can be adopted if there are a large number of companies or more consultants for the evaluation. The design in the model included seven interfaces, the main one dedicated to showing all the results and evaluations of the companies, and the forms. The other six interfaces are allocated to the evaluation committee, which consists of six evaluators, and the following is the final interface of the results:

												
No	Name of the evaluator or expert											Result
1	Prof. Dr. Youssef Al-Taie											The company is not accepted
2	Ass. Prof. Dr. Mohamed Ghaly											The company is accepted
3	Ass. Prof. Dr. Maitham Al-Khaqani											The company is not accepted
4	Ass. Prof. Ali Al-Fadl											The company is accepted
5	Engineer Firas Al Khafaji											The company is accepted
6	Engineer Hisham Al-Mayahi											The company is accepted
7												
8												
9												
10												
Final Average												

The Table for the evaluators includes (10) criteria that can be increased. Each criterion has been agreed upon by the Companies Evaluation Committee, in addition to setting weights and the percentage of influence for each criterion relative to the importance and weight of this criterion. At the stage of entering the comprehensive data for the evaluation, each member of the committee puts the number allocated for the evaluation in the used Likert scale. In light of the selection of the standard and the relative weight of the standard, the direction of the impact of the standard becomes clear. As a result, the consulting companies are evaluated and one result is shown where the final decision is to accept or reject the company. This decision is made by a member of the evaluation committee in a computerized manner to avoid error, favoritism, or emotional tendency.

As a result, each member of the committee fills out his own form, and the evaluation result appears. Here, it is possible to extract additional results from the final evaluations and obtain an accurate decision in the case of closed answers (rejection or acceptance for consulting companies).

Equations

- The equation for extracting the direction of impact in Excel is:

$$=(D18+E18+F18+G18+H18)/5$$

- Equation for calculating acceptability:

(Very Acceptable) =

$$=((D17*\$B17) + (D16*\$B16) + (D15*\$B15) + (D14*\$B14) + (D13*\$B13) + (D12*\$B12) + (D11*\$B11) + (D10*\$B10) + (D9*\$B9) + (D8*\$B8)) * D7$$

- Final decision equation:

$$= IF (C17<2.5, "The company is accepted", "The company is not accepted")$$

Company
Code/HU48

Name of evaluator: Prof. Dr. Mohamed Ghaly

Decision Support System							Criterion weight
	Direction of impact	Totally unacceptable	Unacceptable	Neutral	Acceptable	Very acceptable	
		1	2	3	4	5	
The number of years of consulting experience in selecting the field of airport management and operation companies is not less than fifteen years	Positive				4		0.10
Number of consultations provided as similar work in the field of airport management and operation	Negative		2				0.20
Number of countries in which consulting companies have worked	Negative		2				0.15
The cost of consulting services to be paid by the						5	0.08

company investing in the management and operation of airports	Very positive						
The consulting company must be registered and provide similar work and a document of incorporation certified by the country of origin	No trace		3	4			0.10
List the good financial position and reputation of the consulting company that chooses the investing company for management and operation	Positive			4			0.14
The company must be on the list of consulting entrepreneurs and within the global classification	Positive			4	5		0.05
The consulting company meets any quality requirements	Positive			4			0.05
Qualifications of the staff and consultants working in the consulting company	Very positive				5		0.08
Determine the time limit for performing the duties and tasks	Very positive				5		0.05

3.2	0	1.4	0.9	7.04	6.5	1.00
The company is accepted						

Conclusions and recommendations

Conclusions

1. Setting standards for evaluating consulting companies and airport operating and management companies would reduce administrative problems between these companies and government agencies in Iraq.
2. Regulating the work of companies that manage and operate airports, including those applying for Najaf Al-Ashraf International Airport, will enhance transparency and loss of trust between the public and the government.
3. What was stated in the previous conclusion will reduce the cases of administrative and financial corruption resulting from lack of organization and direct management, since Iraq has many bad experiences in the field of direct management, which paved the way for bad management, whether financial or administrative in general.
4. There are great opportunities to build specific standards to Iraq by taking advantage of international and regional criteria and adapting those standards to suit this environment and its variables, especially political variables, and in a way that achieves independence for vital infrastructure such as airports, including Najaf Al-Ashraf Airport.
5. The previous administrations, starting from the year 2008, their performance was ruined by many defects and negligence due to the issue of mismanagement, which raised public opinion and the street against the local administration of the Najaf Governorate, and caused many demonstrations, some of which caused security violations through broken into the airport.
6. Using decision support technology helped a lot in giving initial indications about the decision to accept or reject consulting companies. The results were excellent and give the opportunity for future development.

Recommendations

1. Involve an airport management technical specialist in the formed committee with a legal person to review the standards and participate in this study to make it more sober based on his specialization.
2. Due to the importance and sensitivity of the topic, the confidentiality of all information and ideas presented in this study must be maintained to ensure the success of the project.
3. Develop a timely practical program for the next step (the stage after this study) that shows the responsibilities of each individual, the timelines, and the commitment to them.
4. Reviewing the general requirements and necessary considerations in selecting consulting offices and seeking the opinion of the technical experts mentioned in No. (1) of the recommendations.
5. Formulating an evaluation form for consulting offices that includes criteria for selecting companies and consulting offices and testing that form practically on a hypothetical case to ensure its success.

6. Design a detailed form explaining the (selection mechanisms) for consulting offices based on the criteria form supported by the timelines and maximum time frame for selection.
7. Discussing the additional requirements imposed on the targeted consulting offices and the extent to which it can be achieved.
8. Discussing alternative solutions if the above criteria do not apply to any consulting office or the consulting offices do not accept the opportunity and discuss reducing the ceiling of conditions to include the largest possible number of additional offices.
9. Computerizing the specified standards for companies specialized in managing and operating airports to ensure decision support.
10. Forming a technological work team specialized in the software industry to build an advanced system of detailed criteria for differentiation between companies.

References

1. (Administrative Archive of the Najaf Governorate Council, 2017).
2. (Archive documents of the General Secretariat of the Council of Ministers of Iraq, 2017).
3. (Safan, 2016).
4. (The Comprehensive Reference for Excel Functions, Professional Guide, 2011).
5. (Hassan & et al., 2019).
6. (<https://najafinvestmentcommission.gov.iq/>)
7. (<https://www.cowi.com>)
8. (<https://www.arup.com>)
9. (Evaluation Criteria Use of evaluation criteria for procurement of Goods, Works, and Non-Consulting Services using RFB and RFP , July 1, 2016)