

# **A PROPOSED SCHEME FOR AN ARAB QUALITY ASSURANCE AGENCY IN THE FIELD OF COMPUTING & INFORMATION TECHNOLOGY**

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## **Abstract**

Over the past few years scientists, researchers and experts from the Arab world and distinguished experts from all over the world in the field of information technology have been meeting annually at the Arab International Conference on Information Technology. Some of those experts had been trained in the field of quality assurance in higher education. This group was trained to perform external reviews and evaluations at the subject level and program level. Evaluations also could take place at the module level.

The evaluation at the subject level consists of three stages: the self-evaluation, the review visit, the external evaluation report. The module evaluation reviews the course contents and materials, the student work, and the instructor evaluation.

This paper proposes an establishment of a group of academic reviewers in the field of information technology with regional teams. The teams will perform review missions of certain programs at volunteered universities. The paper also proposes the establishment of review groups within national borders to perform module evaluation. This paper also proposes an annual meeting to discuss the outcomes of the review missions and the module evaluations. During this meeting good practices could be shared and standards could be set.

This paper will also discuss in details the steps and the procedures to establish this group and nominates certain universities and experts to be champions for quality assurance.

## **1.0 Introduction**

Academic quality can be described as optimizing the availability of the learning opportunities by students in order to help achieving their award. It also involves providing appropriate and effective teaching, support, assessment, and learning opportunities. Quality assurance refers to a range of review procedures designed to safeguard academic standards and promote learning opportunities for students of acceptable quality. Acceptable quality includes among other things: an institution's provision should be "fit for purpose"; should make effective use of resources; should offer its stakeholders value for money; etc... but it is increasingly agreed that it is important to promote improvement of quality, not just to ensure that quality is maintained but also quality is enhanced. Quality enhancement can be defined as taking deliberate steps to bring about continual improvement in the effectiveness of the learning experience [1, 2].

The core aspects of the student learning experience can be divided into two parts: The curriculum – its structure, aims, intended learning outcomes and types of assessment; The promotion and support of effective learning – to include types of teaching and learning; provision of student support services,

library and IT facilities; measures to involve students in monitoring and enhancing the institution's educational provision; and relevant training and development activities for staff and students.

Over the last decade, the average GDP annual growth of Arab economies has been modest, 0.5%, compared to about 3% for developed economies and 7% for new SE Asian economies [3]. This caused a major concern for the whole region, because it will take the region over 140 years, at these rates, to double its average of standards of living. While it will take developed countries 23 years and SE Asian countries 10 years for doubling its average of standards of living.

The Arab countries are in dire need of reforms in order to improve levels of economic growth. It is believed that higher education is the leading place to start reforming the process. The higher education community in the Arab region is very aware of the challenges around them and would like to exert maximum efforts to fulfill its mission. However, the number of universities in the Arab region has been increasing at a huge rate specially after the establishment of private universities.

From only 10 universities in the 1950's, the number of Arab universities has been doubling every 11 years on average, reaching 175 universities in 1996, and it is still growing at higher rates. Also, student enrolment is following a similar pattern and has reached a total of above 3 million in 1996.

This increase in volume whether at the university level or at student enrollment level was not matched in resources. For example, while the volume of total Arab student enrolment increased by 35% during the period of 11 years to 1996, the 1996 average expenditure per student was, in constant dollar terms, less than 90% of that in 1980 [3]. This required universities to optimize the use of the limited available resources through innovative efficient and reliable systems.

Since new universities are being established with a variety of missions and target constituencies, the quality of these universities must be known to students, parents, employers and funding agencies. Independent peer reviewers on the quality and effectiveness of the offered programs must be conducted to guarantee and maintain international standards. The universities themselves need to be regularly informed, by independent peer reviewers and professional bodies, on the quality and effectiveness of their programs, the extent to which they fulfill their own stated aims and objectives and how their programs compare with those of local, regional and international competitors.

Achieving excellence in strategically selected fields could be a very cost-effective route to spearheading educational reform and supporting accelerated economic development in areas that are important to integration in the regional and global economies. Information technology is seen around the globe as the main instrument to take the region from its dark stage and weak economy situation into prosperity. In addition, it does not take natural resources to build an IT industry; all it takes is a good educational system that produces well trained IT work force. Thus, a big investment is needed in information technology higher education systems. With this in mind, the fields of information technology had been selected as the focus of the first component of UNDP project.

A UNDP project to assist Arab universities in higher education reform was launched in order to enable them to implement, and demonstrate the outcome of, a model pilot system, by creating regional awareness with regard to the feasibility and importance of the continuation and expansion of the two systems, and by proposing a working model for their regional continuation.

This paper is organized as follows: section 2 discusses ACIT aims and meetings, section 3 talks about the UNDP Quality Assurance Project, section 4 talks about the assessment of the quality of higher education in the Arab region, section 5 talks about proposed Arab quality assurance agency, section 6 discusses the future plans and activities of this quality assurance agency,

## **2.0 The International Arab Conference on Information Technology**

This age have gone through tremendous advances in telecommunications and information technology accompanied by a revolution in computer technology. This advancement in information technology and its excessive speedy networks resulted in an easy and quick exchange of information not to mention a large-scale in disseminating knowledge and exchanging of scientific information and research in various fields.

Arab scientists and researchers in the field of Information technology have been meeting annually for the last six years. This annual gathering is held under the name of the International Arab Conference on Information Technology (ACIT). ACIT is a technical scientific specialized conference. It is held annually in the Arab homeland. All the bodies of ACIT emerge from the Colleges of Computer and Information Society (CCIS), which is stemming from the Association of Arab Universities, whose General Secretariat is hosted by the Suez Canal University in Egypt. This annual conference is considered to be the official scientific conference for the Colleges of Computer and Information Society. Zarka Private University in Jordan has been selected to be the permanent residence for its General Secretariat.

ACIT General Secretariat was established in November 2000 at the first conference and is in charged with following up the future and development of the conference; cooperation with sponsoring and supporting universities and institutions in order to promote it and realize its objectives; and annual cooperation with host university to organize the conference and make it successful.

The International Arab Conference on Information Technology as stated in its bylaws aims at: encouraging individual and jointly-done research, arranging symposiums in the field of information technology, coordinating links of Arab, and acquainting Arab scientists with each other. ref

Fifty two Arab universities from fourteen Arab countries are members in the Arab International Conference on Information Technology [4].

During the conference, ACIT Steering Committee holds its annual meeting chaired by the Secretary General. Also during the conference, the General Assembly for the Faculties of Computers and Information Society at the Arab World holds its meeting.

The 2000 International Arab Conference on Information Technology (ACIT'2000) was held at Zarka Private University, Jordan. The conference included presentations of 39 contributed papers distributed among 35 universities from 20 different Arab and foreign countries. Issues related to quality assurance were discussed such as: lack of integrated Information networks in most Arab countries, lack of accurate and updated textbooks in Arab universities, the poor cooperation and coordination among Arab universities and research centers in the same country and with other countries often leading to duplicity in work [4].

The 2001 International Arab Conference on Information Technology (ACIT'2001) was held at Jordan University of Science and Technology. The conference included presentations of fifty papers representing 13 Arab and foreign countries. In ACIT 2001, issued related to quality were discussed such as choosing university text books, cooperation among Arab researchers, promoting scientific information research, activating the role of Arabic in this field and preparing a unified dictionary of computer terminology, encouraging the private sector to play a more comprehensive role in academic

institutions, encouraging scholars, professors, and specialists to write and translate books on informatics, and establishing Arabic scientific network [4].

The role higher education institutions in the Arab countries (universities, colleges and, research centers) in the field of information technology is to work on: gearing research at specialized colleges and departments including that of graduate students towards innovation, introducing modern and updated textbooks, adopting the methodology required for activating the role of the academic community and research centers in production sectors, and exerting serious efforts for the exchange of expertise and experience.

The 2002 International Arab Conference on Information Technology (ACIT'2002) was held at University of Qatar, Qatar. The conference included presentations to 150 contributed papers distributed among 35 different Arab and foreign countries. A scientific journal was born, the International Arab Journal of Information Technology, at this conference. In addition to that, a new Arab scientific society was also born in the conference, Arab Society of Information Technology [4].

The 2003 International Arab Conference on Information Technology (ACIT'2003) was held at Arab Academy for Science and Technology and Maritime Transport, Egypt. The conference included presentations to 109 contributed papers distributed among 25 different Arab and foreign countries [4].

The 2004 International Arab Conference on Information Technology (ACIT'2004) was held at Mentouri University of Constantine (UMC), Algeria. The conference included presentations to 92 contributed papers distributed among 22 different Arab and foreign countries [4].

The 2005 International Arab Conference on Information Technology (ACIT'2005) is being held at Al-Isra Private University, Jordan [4].

The Colleges of Computer and Information Society (CCIS) which is stemming from the Association of Arab Universities published its first official journal, the International Arab Journal of Information Technology (IAJIT). ref IAJIT is a specialized, refereed, and indexed journal that is published by Zarka Private University, Jordan, in English on a quarterly basis.

The aims of IAJIT are to provide a forum for an exchange of original contributions in the field of information technology, to promote the new developments and use of information technology, and to assist the academic staff from Arab and foreign institutions on publishing research work and studies in information technology through a scholarly publication.

### **3.0 UNDP Quality Assurance Project**

A Project, " Promotion of Quality Assurance and Institutional Planning at Arab Universities" sponsored and funded by the Regional Bureau of Arab States in collaboration with the United Nations Development Program was conducted in 2002. The project's development objective was the introduction in Arab universities of independent systems of quality assessment of programs with reference to internationally accepted criteria, procedures and benchmarks.

In the first year of the program (2002), Computer Science programs in 15 participating universities (in 12 countries) were reviewed. In addition to an individual report on each university's provision, the program also leads to an overview report that highlights areas of regional strength, weakness and needed reform for the higher education sector in the Arab region.

The method used for review was a modified version of Academic Subject Review as developed for implementation in 2000 by the Quality Assurance Agency for Higher Education (the QAA) in the United Kingdom, [5]. This method was itself a direct development of the earlier Subject Review method used to review academic disciplines at UK universities over the period 1992 to 2001. Full details of the process of subject review can be found in the Project's Handbook for academic review [6] with a summary follows:

Academic subject review takes place according to the published Handbook. It places responsibility on the university to evaluate and report on the academic standards of its programs of study and the quality of learning opportunities. This evaluation takes place within the agreed framework for review. This framework, described in the Handbook, includes the use of external reference points to establish and improve the academic standards. In most Arab states, the academic standards are prescribed and /or accredited by the Ministry of Higher Education or an equivalent central body. Computer Science curricula are often strongly influenced by the specifications of the Computer Society and the Association of Computing Machinery (ACM). In the UK the QAA has published a wide range of materials designed to provide a background against which the reviews can take place, for example subject benchmark statements and a code of practice. With regard to the reviews carried out in the context of this project, each university was asked to identify its external subject reference points so that its academic standing may be judged.

### 3.1 The Academic Subject Review process

Subject review is a peer review process. It starts when institutions evaluate their provision in a subject in a self-evaluation document and prepare a program specification for each named award-bearing program. The self-evaluation and the program specifications are submitted to the Project for use by a team of reviewers. The reviewers are academics and practitioners experienced in external scrutiny and review processes, drawn from the Arab region and the UK. They read the document and visit the university to gather evidence to enable them to report their judgments on the academic standards, the quality of learning opportunities and the ability of the university to assure and enhance academic standards and quality. Review activities include meeting staff and students; scrutinizing students' assessed work, reading relevant documents, and examining learning resources. The team gives an oral summary report to the university at the end of the review visit and prepares the written report.

### 3.2 End of Project Situation

By the end of the project, fifteen universities, representing all 12 Arab countries, had participated in the project, thus acquiring first hand experience in implementing quality assurance. Each university had generated a data profile of its main activities, as well as having access to profiles of other participating universities. Each university had one of its academic programs reviewed and assessed in detail, internally and externally, revealing major areas of strength, weakness and needed lines of reform action. Universities and departments had become familiar with the structure stages and requirements of the new system with two staff members thoroughly trained and experienced in the implementation of each. Participating countries and universities had thus acquired the capacity to evaluate the new systems and develop them into sustainable institutional structures, both individually and through regional collaboration [7].

## **4.0 Assessment of the Quality of Higher Education in the Arab Region**

### **4.1 Present Situation**

The ability of Arab universities to address the quality issue varies between countries and between universities in the same country. For the majority of public universities face long bureaucracy while newly established private universities face the problem of limited resources. Moreover, most universities are new to the idea of quality assurance.

### **4.2 Assessment of the Quality of University Education**

Arab universities all have their internal regulations and procedures of quality control with regard to such aspects of education as approval of courses and curricula, admissions and graduation, administration and marking of examinations, review and approval of new faculty applications, review and approval of faculty promotions. However, national or regional Arab professional associations have not yet, evolved to the point where they assume such vital responsibilities.

A new trend in the Arab countries are experimenting in quality assessment of programs and institutions such as the United Arab Emirates, Sudan, Palestine, Saudi Arabia, and Jordan. The Jordanian experience in the field of information technology has been a shining star in the region where all IT programs were assessed annually over the last few years with complete internal and independent external reviews, using international criteria and procedures. Other countries tried to set up systems for independent quality assessment process but with limited success.

### **4.3 Capacity Building and Future Sustainability**

The agency's approach should focus on building the capacities within member universities for implementing the new quality assurance system and also acquiring the capabilities for the continuation and further development.

## **5.0 Proposed Arab Quality Assurance Agency**

Arab governments have been trying to establish their national quality assurance agencies over the last few years. Courageous attempts were made, but the outcomes are still minimum. Most of the times, these agencies reside in the ministries of higher education. These agencies are not independent agencies and they can play two roles: accreditation and evaluations. National quality assurance agencies struggled in trying to balance their work and coping with political pressure.

The amount of work national quality agencies are facing is so great with limited resources. The number of staff involved is limited and is not well trained to perform fair, transparent and open evaluations. The evaluators are not trained to perform their duties. The international consultants are often unfamiliar with the educational system and do not have enough time to spend in the country or in the university to justify their reports. These quality assurance agencies tried to accredit new programs and universities and at the same time review current and existing programs and universities. Great efforts are made but again too little.

The Arab League and Arab governments called for an establishment of regional Arab quality assurance agencies but real steps are still in the making. The UNDP called for an establishment of such agency and made efforts to train the core staff for such agency over the last four year. The status of the educational system in the Arab world justify the creation of such agency.

Higher education systems in the Arab world vary from country to country, in terms of the level of development, the economic conditions, and historical backgrounds. Out in the west (Morocco, Algeria, Tunisia, Lebanon, and Mauritania), the French higher educational system is in place while in Egypt and Syria another system is also running. Other countries follow the American credit systems. The Arab higher education systems are also under strain because of the difference in growth between expansion and allocated resources.

Due to the large number of different programs and subjects in tertiary education in the Arab region and the lack of knowledge and number experts in the field of quality assurance in higher education, a model of an Arab quality assurance agency must be established. This establishment will raise awareness and develop a culture of quality assurance.

As an outcomes of UNDP quality assurance in higher education project, thirty faculty staff members specialized in computing and IT had received training on the concepts, criteria and structure of quality assessment of academic programs and had organized a complete process of internal self-assessment of their respective programs in preparation for external reviews of the same programs. Fifteen out of the thirty faculty staff members received training as external reviewers and had participated as team members in the external reviews of the (15) Computer Science programs.

The majority of the trained faculty staff members are well involved with ACIT as most of them either serve on the scientific committee, the steering committee, the technical committee or the editorial board of either the International Arab Conference on IT or the International Arab Journal on IT. Thus, the majority of this group attend this annual meeting which is usually held in December each year.

This group of trained quality assurance reviewers could be the nucleus of the Arab Quality Assurance Agency on Information Technology (AQAAIT). This group could hold its annual meeting in conjunction with ACIT. During this meeting they could review the year's activity and review operations and set up plans for the coming year. Issues related to quality assurance and enhancement could be raised and tackled. Training workshops on quality assurance process, missions and activities could be conducted. Agenda for the up coming year of program reviews could be set and review teams could be established. A database of trained experts could be created and shared by member universities.

AQAAIT should reside in a country with leading efforts in quality assurance in IT and computing. A private university offers better services for this agency as was the case with ACIT. A general secretary and a steering committee should be established right away in order to lead the efforts in creating and organizing this agency.

The agency should direct its emphasis on establishing model systems that can be emulated and further developed by the countries of the Arab region. The immediate beneficiaries should be the member universities in ACIT.

## **6.0 Proposed Future Activities**

### **6.1 AQAAIT Strategy**

AQAAIT aims to strengthen intra-regional links, exchanges and collaboration, in the culturally and economically vital field of IT higher education while acknowledging and accommodating the diversity of historical backgrounds, economic conditions and approaches to university education among member countries and universities.

AQAAIT aims to undertake an independent peer review assessment of the quality of undergraduate programs in Computing and IT at the member universities. The process should start with self-assessment followed by external assessment of each program. Both assessments should be undertaken with reference to the stated aims and objectives of the each program and through application of international assessment criteria and benchmarks.

Self-assessed programs should be externally reviewed by qualified reviewers from AQAAIT. On the completion of the review process, each department will be provided with a detailed review report on the outcome of the review. At the annual meeting, an overview report that highlights major areas of strength, weakness and needed reform that of concern to the region as a whole, in the computing and IT fields will be published.

6.2 The activities of AQAAIT will lead to the following:

- Adopting internationally established systems, criteria and procedures for quality assurance process, with appropriate adaptation to suit local requirements and conditions.
- Relying on a high level of regional networking and collaboration, underpinned by regular coordination meetings and group discussions at least annually.
- Regular dissemination of information on the quality assessment and evaluation outcomes in the region with a view to the creation of regional awareness with regard to its benefits and the potential for its further development and institutionalization in the region.

## 7.0 Conclusion

Over the past few years scientists, researchers and experts from the Arab world and distinguished experts from all over the world in the field of information technology have been meeting annually at the Arab International Conference on Information Technology. A group of experts in computing and IT were trained by UK QAA team and had participated in self-assessment and external assessment activities. This group will form the nucleus of an Arab quality assurance agency on IT (AQAAIT). Due to the expertise available in the field of computing and IT fields and the impact these field have on the economy of the region, a creation of an Arab quality assurance agency is of great interest.

This paper proposed an establishment of AQAAIT with a specialty in computing and IT programs. The teams will perform review missions of certain programs at volunteered universities. AQAAIT will hold it annual meeting in conjunction with ACIT. During this meeting good practices could be shared and standards could be set.

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## **Appendix A Arab Universities Participated in the UNDP Project**

1. Jordan University, Jordan
2. Zarqa Private University, Jordan
3. Palestine Polytechnic University, Palestine
4. The Islamic University of Gaza, Palestine
5. Sana'a University, Yemen
6. The University of Science & Technology, Yamen
7. Al-Akhawayn University, Morocco
8. Mohamed V University, Morocco
9. University of Science and Technology, Algeria
10. Helwan University, Egypt
11. Damascus University, Syria
12. Lebanese University, Lebanon
13. Sudan University for Science & Technology, Sudan
14. University of Bahrain, Bahrain
15. Ajman University of Science & Technology Network, UAE

## Appendix B ACIT Universities and Organizations Members

1. H. Shoman Foundation, Jordan
2. Ain Shams University, Egypt
3. Al-Ahliyya Amman University, Jordan
4. Al-Azhar University-Gaza, Palestine
5. Al-Balqa' Applied University, Jordan
6. Al-Hussein Bin Talal University, Jordan
7. Al-Isra Private University, Jordan
8. Al-Ma'arif University College, Iraq
9. Al-Nahrain University, Iraq
10. Al-Quds Open University, Palestine
11. Al-Quds University, Palestine
12. An-Najah National University, Palestine
13. Applied Science University, Jordan
14. Arab Academy for Science & Technology, Egypt
15. Assiut University, Egypt
16. Bagdad University, Iraq
17. Cairo University, Egypt
18. Damascus University, Syria
19. Electronics Research Institute, Egypt
20. Foundation of Technical Education for Scientific Affairs, Iraq
21. Halab University, Syria
22. Helwan University, Egypt
23. International University of Africa, Sudan
24. Iraqi Commission for Computers And Informatics, Iraq
25. Irbid Private University, Jordan
26. Islamic University of Lebanon, Lebanon
27. Jordan University of Science & Technology, Jordan
28. King Khalid University, Saudi Arabia
29. Mansoura University, Egypt
30. Mentouri University of Constantine, Algeria
31. Minufia University, Egypt
32. Misr University for Science & Technology, Egypt
33. Mutah University, Jordan
34. Naif Arab University for Security Sciences, SA
35. Omdurman Islamic University, Sudan
36. Palestine Polytechnic University, Palestine
37. Sana'a University, Yemen
38. Sadat Academy for Management Sciences, Egypt
39. Seventh of April University, Libya
40. Suez Canal University, Egypt
41. Sultan Qaboos University, Oman
42. Teshreen University, Syria
43. The Islamic University of Gaza, Palestine
44. Umm Al-Qura University, SA
45. United Arab Emirates University, UAE
46. University of Aden, Yemen
47. University of Al-Anbar, Iraq
48. University of Bahrain, Bahrain
49. University of Qatar, Qatar
50. Yarmouk University, Jordan
51. Zagazig University, Egypt
52. Zarqa Private University, Jordan