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A proposed Innovative Model for Quality Management System Improvement

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ABSTRACT

Quality of education becomes an essential and vital target, where higher education should aim at forming the graduates with good personality and enriching their intellectual abilities, considering the education as a long-life learning and must not be regarded as means of obtaining diplomas and tickets for the job market. Quality education has become critical for any nation where the country's progress is closely linked to its economic growth, which is determined by its growth rate, knowledge and information, not by its financial capacity. Recently, most educational institutions offer their educational services without paying attention to quality. Therefore, it was necessary to have quality assurance standards so that the educational institution could provide its service by seeking some form of internal or external accreditation. The accreditation in education is the process by which the agency or association assesses a teaching institution or a program of study and officially recognizes it as having satisfied and exceed certain predetermined requirements and criteria. Accreditation can not only ensure the quality of an educational institution, but also promote public trust and accountability. The accreditation guarantees the increase in the recognition of ratings and facilitates the mobility of the academic staff. To ensure the quality of education, the efforts of teachers and students must combine together, in addition to good and accurate material. However, institutions seeking external assessment and accreditation often face an inherent danger. This danger is that more emphasis is placed on working to produce documents, quality assurance policy documents than on demonstrably implementing effective means of ensuring academic quality.

Keywords :- Quality Assurance, Accreditation, Education.

I. INTRODUCTION

It is an obvious fact that the world has seen tremendous expansion in higher education over the last hundred years, with higher education transforming itself from an elite organization to a system of mass participation. Increasingly, more and more people, including a fair number of older students, are seeking higher education, which is often associated with better careers and higher employment opportunities. For many people, a university education is the only way to improve their standard of living, both socially and materially.

Education quality has become a universal goal and striving for it has become essential for any country that would not be pleased to be a dependent one. The economist Paul Romer demonstrated that economic growth is determined not so much by the growth of physical capital and labor as by the stock of knowledge and its rate of growth.

The 1990s can be called the "decade of quality in higher education". There are more people involved in exploring research, exploration, auditing, application, analysis, control, evaluation, and writing to the topic of all time.

This inevitably has led to more knowledge and the deepest understanding of the guidelines and quality practice of quality in the sector."[1]. The notions of quality originated from business practices. Many of the concepts are borrowed directly from business e.g., Continuous Improvement, Total Quality Management, etc. But whereas the organizational processes in business large, amenable to measurement and control, and are predictable in behavior, in education this is far from being the case. Many processes in education, especially at the university level, take place deep within the intellect of the people involved and are in most cases not easy to understand, let alone amenable to measurement and/or control [2].

Deming's quality management philosophy is based on the premise that a company's productivity and quality increase as its employees become more competent. But the reality of the workplace also dictates that there has to be accountability, in order to economies the resource utilization and also to give a direction to the organization's response to market conditions [2].

Due to university inefficiencies, pressure is sometimes applied to universities to establish strong management methods. Unfortunately, this has the effect of treating academic staff more like employees rather than independent thinkers of a future vision. [3] The goal of improving teaching and student learning It is not a luxury, even for so-called third-world universities, for aspiring to higher standards of educational quality. These universities may not have sufficient resources, and the difficulties they face may not be easy to overcome, but completely ignoring quality assurance and neglecting self-evaluation procedures may lead to stagnation or worse. Even the old institutes must be careful not to rely too much on their traditions and past reputation. Towards a generally accepted definition of quality, a number of recognized higher education bodies have formulated quality standards and guidelines. In general, quality in education may be defined as specifying a mission and worthwhile learning objectives and enabling students to achieve them. Specifying worthwhile learning objectives involves articulating academic standards to meet (1) society's expectations and the demands of the government, business, and industry; (2) students' aspirations; and (3) the requirements of professional institutions. To achieve these objectives, it may require a fruitful course design, an effective learning strategy, professional teachers, and a suitable learning environment.

II. PROBLEM DEFINITION

The problem of Research is that many educational institutions and universities seek to obtain academic accreditation, which requires good quality management that is capable of distributing the special tasks of the university, scheduling tasks, monitoring and tracking the flow and flow of work, in addition to, there is no unified system for an intelligent information system which deals with all aspects of quality assurance management process in higher education institutions.

In Egypt, there are two main pillars of actions each one has its own eight criteria according to the National Authority of Quality Assurance and Accreditation of Education (NAQAAE).

Accreditation As maintained by many authorities in education, quality assurance is in most cases encouraged by non-stop self-assessment and by seeking some form of internal or sometimes external validation or accreditation. The words accreditation and validation are often used alternately, but for some associations and agencies, there are significant differences between the two terms. Where the validation is concerned with output criteria such as student portfolios, examination scripts, course work, etc., but accreditation is concerned with input criteria such as the nature of the content,

the quality and quantity of academic staff, information, and technical resources. To accredit is officially to recognize a person or organization as having met a standard or criterion. Accreditation implies verified progress to improve the quality to be over the minimum standards specified by the accreditation centre and officially recognizes it as having met certain predetermined or exceed requirements and standards of educational quality. These agencies set basic standards intended to reflect the qualities of a well-designed educational program. The agencies develop procedures to determine whether educational programs and institutions meet these standards. In addition to establishing criteria, accrediting associations have the responsibility for visiting and evaluating institutions and awarding accreditation to those programs and institutions that meet their criteria. Accreditation has two fundamental purposes: to assure the quality of the institution or program and to assist in the improvement of the institution or program.

There are two basic phases of educational accreditation:

1-Accreditation of HEIs, and **2-Education Quality Accreditation.**

Accreditation of HEIs (Higher Educational Institutions) indicates and verifies that the entire institution has met certain accreditation standards of educational quality. **Education Quality Accreditation** assesses both institutional effectiveness and student learning outcomes and it suggests that each of an institution's parts, such as its academic departments or degree program, contributes to the achievement of the institution's general educational objectives. In addition to the educational offerings of the institution, other characteristics are also checked and evaluated, such as Governance and administration, recruitment practices, financial status, institutional resources, admissions and student staffing processes, and relationships with external communities. The main goal of institutional accreditation is to ensure the quality of an educational institution through the application of strict standards and evaluation criteria. External evaluation can also serve as an incentive to draw the attention of hesitant universities to quality assurance measures.

III. RESEARCH QUESTIONS

Since we are proposing to design a framework for quality accreditation model (FQAM) to measure the performance and quality of any educational organization with its entire processes, so this model must obtain answers for the following questions:

1) How much data will higher education institutions need? and how it could be managed and automated?
2) What are the criteria required for accreditation of educational institutions?
3) What are the types of IT applications and services used in higher education institutions?
4) How to propose a smart model for enhancing educational institutions' performance and measuring its quality?
5) What are the techniques and tools needed for such a model?
6) What are the Challenges facing this model?

IV. RESEARCH OBJECTIVES

In this paper, a system for managing quality assurance of higher education is established which aims to develop a general framework based on computer modelling to automate most of the processes involved in quality assurance management in higher education institutions from our perspective, this proposed system must ensure and facilitate many tasks in the institution. Some of these objectives are given in the following sequence:

1) Designing a smart model for measuring the quality of educations. This model is based on quality and accreditation standards.
2) Develop a quality management system in addition to a good control, tasks scheduling, monitoring, workflow tracking.
3) Develop and execute IT service management.
4) Increase competitive advantage through cost reduction, growth, and suppleness.
5) Enhance IT value through business, IT operational, goal alignment to improve internal user satisfaction.
6) Improve services' level by assigning roles and responsibilities.
7) Adjust the cost with the service level provided.
8) Provide a level of service that meets business needs and fits with the demands of the user.
9) Put a set of measurable performance metrics and indicators.

V. METHODOLOGY

Since we propose to design a smart model to measure and evaluate any educational organization according to NAQAAE, fig.1 will demonstrate the framework of the quality accreditation model (FQAM): The implementation of FQAM will be designed according to the following model with inputs and its entire components
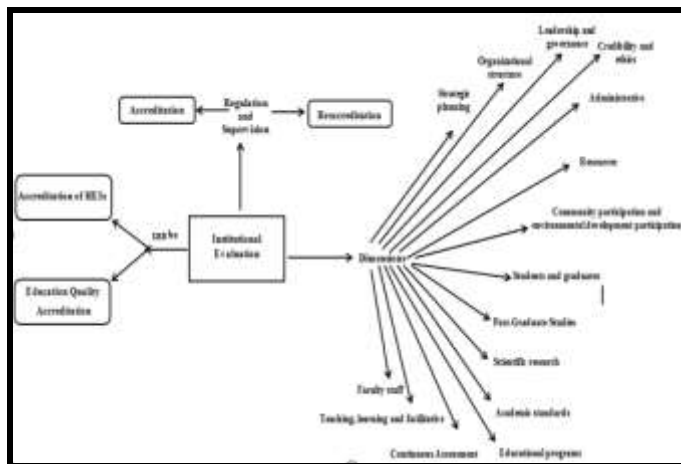

Fig. 1 Framework of Quality Accreditation Model (FQAM)

Actually, this research based on the proposed FQAM as illustrated in fig.2 will be implemented in two stages,

preparatory stage for the start-up of IT Administration Committee works then the implementation of the model.
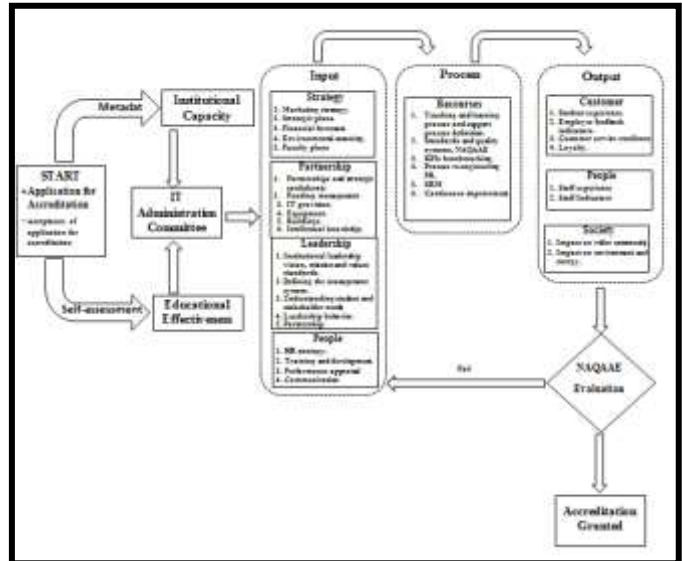

Fig. 2 Stages of Proposed Model

Stage one: Based on many global experiences taking into consideration the nature of the education system in Egypt and its historical role locally and regionally, it is decided that the process of evaluation and accreditation of educational institutions in the ARE will adopt two basic axes: **1.** accreditation of HEIs and **2.** education quality accreditation. Each of them has its own standards and criteria for institutional or education quality accreditation and then transforms all hard documents into digital ones to allow the model to be implemented.

Stage two: in this stage, the model will be implemented; all transformed standards and criteria to digital from the previous stage will be used as the input of our proposed FQAM.

In the input part of FQAM, the inputs of the model are based on four groups of key information which are:

A. Strategy:
1) Marketing strategy.
2) Strategic plans.
3) Financial forecasts.
4) Environmental scanning.
5) Faculty plans.

B. Partnership:
1) Partnerships and strategic confederate.
2) Funding management.
3) IT provision.
4) Equipment.
5) Buildings.
6) Intellectual knowledge.

C. Leadership:
1) Institutional leadership vision, mission and values standards.
2) Defining the management system.

3) Understanding student and stakeholder needs
4) Leadership behaviour.
5) Partnership.

D. People:
1) HR strategy.
2) Training and development.
3) Performance appraisal
4) Communication

In the processing part of FQAM, the model will analyse the information groups that had been input to evaluate and measure the institution's recourses.

E. Recourses
1) Teaching and learning process and support process definition.
2) Standards and quality systems of NAQAAE
3) Key Performance Indicators (KPIs) benchmarking.
4) Process re-engineering (PR).
5) Storage Resource Manager (SRM.)
6) Continuous improvement Process (CIP)

In the outcome of FQAM, in this step, the prosed model will demonstrate the influence of the accreditation process on both three beneficiaries' groups and the impact on its components. The influenced groups are presented next:

A. Customers
1) Student experience.
2) Employer feedback indicators.
3) Customer service excellence.
4) Loyalty.

B. People
1) Staff experience.
2) Staff Indicators.

C. Society
1) Impact on the wider community.
2) Impact on and energy.

In the end, the outcomes of the model will present to the NAQAAE Auditors. If the institution meets the accreditation criteria, the certificate of accreditation will be issued. The Authority will announce such grants by adding the name of the institution to the register of institutions approved by the authority's records, and by electronic means, as well as notifying the ministries concerned of a copy of the decision with access to all.

If the outcomes show that there are minor shortcomings in meeting certain criteria, please decide on the accreditation decision and the educational institution determines the period required to meet the shortcomings not exceeding the period stipulated by the law.

VI. RELATED WORK

Although there exists extensive literature on the atomization of quality assurance applied to higher education, very few references effectively implement it as a software tool. However, the existing systems cannot be considered a comprehensive quality assurance information system as they focus on specific processes such as quality assessment courses and curriculum specifications, or student evaluation processes. In addition, they need additional efforts to be a fully automated system. Another system is the ENU QAS [4]. The ENU QAS refers to 'the European network university QAS'. The ENU proposed it as a framework for a QAS in any virtual university in Europe. This system is mainly built on managing quality in open e-learning and distance learning In [5], web-based quality assurance and assessment in the technical education system were proposed. However, this system aims to provide the answers to the system user questions via automated search on the web. It can be classified as a data mining system that works on quality assurance data According to ENU, a QAS consists of the policies, attitudes, actions, and procedures necessary to ensure that quality is being maintained and enhanced. QAS has been applied to courses, degrees offered, and learning content, technology, learning methods, and services. One of the fundamental flaws of this system is that it depends primarily on quality management in e-ODL, which means that e-ODL nature depends to a great extent on the nature of the regular education applied in most universities Al-Farabi system is a Web-based system that is used currently in Mansoura University, Egypt, as a quality assurance management system. This system is accessed directly. However, the system is just a Web-based system to create and store documents and files relating to the process of quality assurance management. NAQAAE stands for national authority for quality assurance and accreditation of education in Egypt. This system is accessed directly. However, the system is only a web system to create and store documents and files related to the quality assurance management process. NAQAAE stands for national authority for quality assurance and accreditation of education in Egypt. This agency acts as the first and only legislator with all applicable standards and laws relating to the quality of education. If NAQAAE is compared with the system that is applied at Mansoura University, it will be wider and larger. In addition, the evaluation process is included in this system. There is the main module of the system which is concerned with the quality evaluator and reviewers. This module is to blame for all review activities and standards. However, the system is taken into account as an organizer among the analysis method stakeholders. In addition, the institution exerts a lot of effort to obtain the required documents that are necessary to build its quality annual report Accreditation has offered quality control for engineering education [6].

ABET [7] presented a new criterion for quality assurance and accreditation. Then it applied it through a multiyear study on US engineering education. Early results from this study are positive and, as more results occur, should maintain permanent progress of the accreditation process, applied it through a multiyear study on US engineering education. Early results from this study are positive and, as more results occur, should maintain permanent progress of the accreditation process. Another study is presented in [8] for exploring perceptions and experiences related to the approval of US institutional accreditation in three Canadian universities. In addition, the author in [9] proposed new software to manage

the quality process in education. However, this software package is intended just for the Stevens Institute of Technology to clarify the motivation, the curriculum, the program analysis plan, the first challenges, and therefore the results up to this time. It also contains some consideration as an ability model for an undergraduate cyber-physical system engineering curriculum. Another system was proposed, the main objective of which is to explore the effect of Malaysian public colleges that apply the quality criteria on satisfaction, institutional image, and loyalty.[10]

In [11] a new model for the quality assurance of digital educational material that is more suitable for adult education is proposed. This model accepts the software quality standard ISO/IEC 9126 and takes into account adult learning theories. Finally, a good overview of e-assessment activity in higher education has been presented in [12].

VII. CONCLUSION

Providing educational service to a higher education organization is not an easy role especially within the current situation of transformation to digital curriculum, which is considered a great challenge to ensure its quality and to enable the premise accreditation.

The aim of designing FQAM model is to manage quality assurance and to keep the organization accreditation based on accurate standards and criteria that facilitate quality assessment. Also, to assure the quality of all inputs (strategies, partnership, leadership, people and other resources, processes, and finally the outputs.

This model will provide the stakeholders with materials fit to quality standards, also guarantee the decision-maker with maintained and enhanced educational organization which has the ability and confidence in granting labor market with qualified graduates.

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