

USE OF INFORMATION SYSTEM IN HIGHER EDUCATION: AN APPROACH TO OF SELF ASSESSMENT REPORT BY HEC (QUALITY ENHANCEMENT CELL) FOR HIGH EDUCATION

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Abstract— The key to achieve high quality education is through the quality assurance. Higher education commission has developed processes for the assessment of the academics program's quality. The department of Quality Assurance has established Quality Enhancement Cell which works under specified Criterion. The aim is to organize collected data to produce useful information for QA users. Currently QEC is preparing Self Assessment Report through their predefined Performa and manual of standards to help academic institutions. The main problem of preparing this report is the use of manual methods, which is the cause of producing reports with repetitive errors and obviously, cumbersome to manage. The solution to this problem is, as one may have observed in this era, rapid move towards automation. I have applied Management information system techniques by using software development tools and database integration and widely used reporting tools. Using above mentioned tools and MIS techniques will enable QA and users to perform their job effectively, reduce the repetitive information, save users time and enhanced clarity. Further we utilized the decision support system to helps user to do more precise information for the decision making this will enable multiple users to work in parallel performing their jobs accessing from anywhere anytime according to their own convenience which will help them complete their tasks in considerably less time this process have a big room for system enhancement system management more graphical reports more structural changes by the help of software development tools.

I. INTRODUCTION

From now on and affiliations are in a race to complete their ability to remember the ultimate goal of making as a result of the market allegations in general, the new century. In this way affiliations try to push the level of agility through the initiative to develop the technology necessary to be more profitable and very convincing in the face of the dynamic stability of the market. With the real purpose of ending this, and various current affiliations, either medium or large evaluation, confirmed to the cycle of the element of interest of the new organization and obtained information from the systems sectors. In the middle of 10 years back, a high rate of financial affiliation sometimes used in management information systems to enable the course of action of organizations, and what is needed to continue to adjust the speed of reading that Extension[1].

Data plan is a set of individuals and information and processes, and the data of innovation that cooperate to collect, process, store and also give the expected support of the Data Assembly, "which Shows that the information system is to organize social events, data, methods and advancement that exhibition together to gather, process, store and give information yield anticipated that would enhance and quicken the methodology of fundamental leadership.

The mission of an advanced education foundation is to plan work force to the most elevated amount of learning around then in history [2][3][4]. Colleges ought not to be only an impartial setting, but rather the place in which to make and share learning, an inventive and productive performing artist in collaboration with the monetary, regulatory, and social environment. The bolster got by the choice takers, whether they are beat administrators, supervisors set on various levels (minister, senior member and so forth.) counselors and different aides lies principally in helping them to conquer the points of confinement of learning with respect to the issue, conceivable choices for activity and techniques for investigation utilized as a part of the choice [5].

The basic leadership prepares in an association or business ought to be arranged and determined in

Manuscript Received 10-9-2016; accepted: 2017; date of current version June- 2017.

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a far reaching, dependable, and straightforward way [6].

Administrators arranged with data about their significant hierarchical societies, interrelated with the learning exchange, can alter their insight administration procedures to make their associations more proficient, and to assess and move ICT (Information and Communication Technologies) in compelling methodologies

Quality and all around coordinated basic leadership is essential in the achievement of any association. They require fruitful usage of choice bolster apparatuses to enough educate the choice procedure, additionally other attractive qualities, for example, creative ability and inventiveness [6].

An association's capacity to take great choices is generally imperative notwithstanding developing worldwide rivalry, and the bigger vulnerability from presentation to a further number of contenders. Advanced education foundations, similar to the associations from monetary zones, are stood up to recently with expanding weights to enhance the nature of instruction procedures and administration, yet with various components particular to scholastics. There ought to be mulled over the college self-governance, even in money related issues or different structures as indicated by open and scholarly duties. Along these lines, colleges try to apply increasingly the gathered information, put more assets in apparatuses that permit them to gather and oversee data straightforwardly, and include showing staff, understudies and nearby group in basic leadership forms. The present paper is an augmentation of our most recent studies and distributions [7][8].

'Quality' is a term which has always be confused with other concepts. The word quality has a root from the Latin word "quails" meaning 'what kind of'. With a variety of meanings. Quality is something for you knowingly known. But there are things that are better than others.[1].

From the above examinations, you will comprehend that esteem is indistinct and setting focused. It reaches out from meaning "standard" to 'faultlessness'. Both are altogether settled in their diverse qualities operationalized in individual, institutional, and, as you will see later, national practice. "Rules can be described with respect to a base "limit" by which execution is judged" [2].

It is quite possible to have higher education institutions to have a common understanding in formulating to have teaching and research standards with high quality.

The administration measurement of value is most likely more likened to the instructive methodologies. We realize that not at all like physical products, administrations are vaporous to the degree that they can be expended just the length of the action or the methodology proceeds

Conspicuous issue of value had been distinguished in the advanced education in the Medium Term Development Framework (MTDF)[9]. In this manner, to upgrade the nature of yield and productivity of the advanced education learning frameworks, an instrument of foundation of QECs has been created by the Quality Assurance Committee to enhance the guidelines of nature of advanced education in a sorted out route with consistency crosswise over establishments.

QEC arranged SAR to survey an efficient procedure of gathering, looking into and utilizing important quantitative/subjective information and data from different and various sources about instructive projects, with the end goal of enhancing understudy learning, and assessing scholastic and learning measures.

In order to achieve the resulting reports the process of completing SAR is complicated. The main problem of preparing this report is the use of manual methods, which is the cause of producing reports with repetitive errors and obviously, cumbersome to manage. The solution to this problem is, as one may have observed in this era, rapid move towards automation [10][11]. The solution to this problem is, as one may have observed in this era, rapid move towards automation. I have applied MIS techniques by using software development tools and database integration and widely used reporting tools. Using above mentioned tools and techniques will enable QA and users to perform their job effectively, reduce the repetitive information, save users time and enhanced clarity [13].

II. LITERATURE REVIEW

a. Higher Education

In a general public brimming with assorted qualities, belief systems and feelings, advanced education implies diverse things to various individuals. The pluralism of perspectives is very inescapable and some would opine it ought to resemble that as it were. As far as the level, advanced education incorporates school and college instructing inclining towards which understudies' advance to accomplish higher instructive capability. Advanced education grants top to bottom information and seeing in order to propel the understudies to new boondocks of

learning in various strolls of life (subject spaces). It expands the scholarly forces of the person inside a restricted specialization, additionally gives him/her a more extensive viewpoint of the world around. In a general public loaded with differences, philosophies and suppositions, advanced education implies diverse things to distinctive individuals. The pluralism of perspectives is very unavoidable and some would opine it ought to be similar to that just. Regarding the level, advanced education incorporates school and college educating inclining towards which understudies' advancement to accomplish higher instructive capability. Advanced education grants top to bottom information and seeing to development the understudies to new wildernesses of learning in distinctive strolls of life (subject spaces). It grows the scholarly powers of the single person inside a restricted specialization, additionally provides for him/her a more extensive point of view of the world around

As indicated by Ronald Barnett (1992) there are four overwhelming ideas of advanced education [14]:

- a. Higher training as the creation of qualified HR.
- b. Higher instruction as preparing for an examination profession.
- c. Higher training as the proficient organization of educating course of action.

Higher education as an issue of expanding life possibilities. Interestingly, all these four thoughts of advanced education are not specific; rather they are consolidated and give a general picture of what higher is in advanced education. On the off chance that we take a gander at the exercises of schools and colleges, we will understand that educating, examination and augmentation structure the three fundamental capacities of advanced education.

'Quality' is a much-debated term. The word quality originates from the Latin word *qualis* signifying 'what kind of'. With an arrangement of suggestions and aims, it has been alluded as a 'elusive idea' [14][15]. To represent to the elusive and inconspicuous nature of significant worth and the perplexity associated with it various makers have insinuated the very alluded to expressions of Parsing.

This intimates that quality means diverse things to distinctive individuals. The British Standard Institution (BSI) defines quality as "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or

implied needs" [6]. The author recognized five distinctive ways to deal with characterizing quality [17]:

- In terms of excellent (surpassing elevated expectations and passing a required standard);
- In terms of consistency (displayed through "zero imperfections" and "getting right the first run through", making quality a culture);
- As wellness for reason (which means the item or administration meets the expressed reason, client determinations and fulfillment);
- As esteem for cash (through proficiency and adequacy); and
- As transformative (in term of subjective change).

Quality has a couple of focal thoughts around which the entire idea rotates: Quality as outright, Quality as relative, Quality as a procedure, and Quality as society.

When looking at quality and total, it has been granted and is considered the most important criterion to imagine. For example the image "Mona Lisa" by Da Vinci, the pyramids of Egypt, the Taj Mahal and the work of special and specific needs. In terms of everything, they joined with a higher 'brand qualities,' the situation is great and topical conditions. Educational foundations, for example, Oxford, Cambridge and Stanford University to the west of this standard are the overall quality, but wearing moderation can be a perception in all cases. Quality also determines the relationship that the way in which something or association can react proportionately. You can measure the quality here regarding some details.

The adherence to "thing subtle element is truly the base conditions for quality, yet not the satisfactory condition".The sufficient condition is consumer reliability and past" [17].

Proposes that to attain nature of an item or administration, it must experience certain courses of action and fit in with the procedural prerequisites. In this way, quality is the result of frameworks and methods set down for the reason. The keep going one - quality as a society - perceives the essentialness of authoritative perspective of value as a methodology of change, where every element is concerned and recognizes the significance of value. In instructive establishments we are especially concerned with the recent, however all different thoughts of value excessively have their particular spots.

From the above exchanges, you will comprehend that esteem is vague and setting focused. It reaches out from implying "standard" to 'enormity'. Regulated both dramatically in the specific attributes activated in individual and institutional, as we will see later, national practice. "Models can be described on" limit "rule to judge the implementation of" [19]. In this association, quality is evaluation with respect to an arrangement of standard referenced models, (for instance, the HEC Criteria) that are manufactured around what is ordinary at the base and past. At the other side of the continuum is the considered esteem flawlessness (like what Green and Harvey calls as fabulous). Spectacularness is an execution period of particularity that is one of a kind from various others and develop as show of 'zero flaw' and biggest measure of satisfaction of the partners. In cutting edge instruction, our objective is to achieve the "standard" and move towards 'gloriousness'.

II. DIMENSIONS OF SOFTWARE QUALITY

The attributes of programming as an immaterial item are more predictable with advanced education. The product quality measurements broadly utilized as a part of programming building are: correctness, unwavering quality, productivity, uprightness, ease of use, viability, testability, expandability, movability, reusability and interoperability [18]. Owlia and A spin wall apply these quality measurements to advanced education, which are given in Table 1[19].

Dimensions	Definition in higher education
Correctness	The extent to which a programme/course complies with the specified requirements
Reliability	The degree to which knowledge/skills learned is correct, accurate and up to date
Efficiency	The extent to which knowledge/skills learned is applicable to the future career of graduates
Integrity	The extent to which personal information is secure from unauthorized access
Usability	The ease of learning and the degree of communicativeness in the classroom
Maintainability	How well an institution handles customers' complaints?
Testability	How fair examinations

Table.1: Software quality dimensions of higher education [10]

Dimensions in Higher Education’s Service Quality

The administration measurement of quality is likely more similar to the instructive courses of action. We realize that dissimilar to physical merchandise, administrations are vaporous to the degree that they can be expended just the length of the movement or the procedure proceeds. In this way, there is interwoven status of creation and utilization. Accordingly, benefits can't be put away and are perishable. The buyer is likewise a vital piece of the administration process. In this way, in advanced education, this framework is more material as the demonstrating learning conditions are more similar to an organization. The accompanying measurements of administration quality [20]:

- a) *Dependability*: The administration is done in the way it is guaranteed.
- b) *Responsiveness*: The administration is completed immediately as indicated by the requirements of the clients.
- c) *Capability*: The staff of the administration supplier has the information and aptitudes required for conveying the administration appropriately.
- d) *Get to*. It concerns the area, opening hours, and so on.
- e) *Obligingness*: How well mannered, neighborly and aware the representatives are.
- f) *Correspondence*: It is the way toward keeping the clients educated in a dialect that they could comprehend furthermore listening to them.
- g) *Believability*: How reliable, reasonable and legit the administration supplier is.
- h) *Security*: Opportunity from threat, dangers or uncertainty.
- i) *Understanding the client*: The exertion of the administration supplier to comprehend the requirements and needs of the individual clients.
- j) *Effects*: Physical articles that are required for completing the administrations, for example, offices, gear, and so forth.

IV. A CONCEPTUAL FRAMEWORK

In view of the survey of writing on the three separate methodologies to quality in cutting edge training [13] present a hypothetical framework that spreads six criteria to depict quality estimations. These are physical assets, capability, state of mind, substance, conveyance and dependability as demonstrated in Table 2[14]. These measurements are characteristic of the regions that ought to be of concern to guarantee quality in advanced education.

Dimensions	Characteristics
Tangibles	Sufficient supplies/offices Present day gear/offices Straightforward entry Outwardly engaging environment Help administrations (convenience, sports...
Competence	Sufficient (scholastic) staff Hypothetical information, capabilities Commonsense information Up and coming Showing ability, correspondence
Attitude	Comprehension understudies' necessities Ability to offer assistance Accessibility for direction and exhortation Giving individual consideration Enthusiastic, affability
Content	Significance of educational program to the future occupations of understudies Viability Containing essential learning abilities Fulfillment, utilization of machines Relational abilities and group working Adaptability of learning, being cross-disciplinary
Delivery	Successful presentation Sequencing, opportuneness Consistency/Fairness of examinations Input from understudies Empowering understudies
Reliability	Reliability Giving substantial recompense Keeping makes a guarantee to match, to the

Table 2: Quality dimensions in higher education [11]

V. QUALITY SYSTEMS VIEW

Each enlightening establishment is a component structure and should be found in its own particular uniqueness and totality for quality organization [21]. Keeping in mind the end goal to research the distinctive parts of nature of advanced education establishments, it is key to comprehend the frameworks methodology to instruction. The idea of a framework is a hypothetical deliberation, and can be characterized as a sorted out unitary entire made out of a set of reliant, interrelated and connecting synergetic components or sub-frameworks and portrayed by identifiable limits from its ecological supra-framework. In like manner the parts/sub-frameworks (which are free

themselves) in a coordinated/comprehensive way structure the framework. In this manner, the entire is not simply an aggregate of the sub-frameworks, however an all encompassing representation of every last one of attributes. What the entire can do/speak to, the sub-framework can't. To explain it in useful contact, useful organizations presented during the open window, which has a type of entry environment vital to the framework, and that experience has changed to provide a small number of cultures in the ground. In this way we can consider that the foundations of advanced education has, without the window of information, a window for change and a performance of sub-chassis. As open frameworks based exceptionally on the ground or external constraints, and the institution of higher education relies excessively on a regular trade with natural ingredients. Schematic representation of vision systems that can be associated with an educational institution. Contributions to the structure of human resources (both substitutes and teachers), and material resources with respect to the establishment of the resources of the money involved. Through actions and activities related to the program structure sectors, organization and help subsystem useful then change support, and returns as part of their graduates for employment and information development Through the production of screening, financial and progress, and so on.

VI. QUALITY ASSESSMENT MODELS

As there are distinctive implications and translations of value, there are diverse models of value certification also. Over the world, foundations take after distinctive models of value certification; especially nation particular and establishment particular models. These models are basically process situated and stress on the advancement of an arrangement of value certification. There are five mainstream models of value confirmation: Baldrige criteria, ISO 9000-2000, Capability Maturity Model, Six Sigma and Total Quality Management [21]. We will talk about each of these in point of interest to get a review to have an understanding of distinctive models and criteria received in these models.

- In the United States, and the award for the Malcolm Baldrige National Quality is the most important lift of the waiver of implementation by the National Institute of Standards and Technology (NIST) administered [17]. American Society for Quality Assistants in the Bonus Association. To pay for the quality of care and see the achievements of quality, manufactured Congress this waiver in 1987. It is expected standards unbeliev ability implementation direction to assist affiliations

using a systematic approach to the execution of the final organization to Realize: Delivery constantly improve the quality of replacements and stakeholders, which contributes to the quality of training and reliable security improvement of general authoritative viability and capacities

- Organizational and singular learning The 2007 criteria for execution flawlessness in preparing have seven important orders and a couple sub-classes that fundamentally focus on learner-centered grandness. These are dense nearby the point qualities/weight in Table 11. A brief portrayal of the classes is according to the accompanying [22]:
- Leadership: The authority classification inspects how an association's senior pioneers manage and maintain the association. The way an association's administration addresses the moral, lawful and open obligations is likewise inspected.
- Strategic Planning: In this class an association's vital targets and activity arrangements are inspected. It additionally examinations how vital targets and activity arrangements are conveyed, changed and advancement is measured.
- Students, stakeholders, and market focus: the breakdown of this class how to decide the conditions and desires Association, and the trend for replacements and stakeholders, and markets. In addition, the enthusiasm here is the collaboration with replacements and stakeholders. Calculates that rely on replacements, and lead to a loan and is performing stakeholder analysis and reliability alike.
- Knowledge measurement, analysis and management: This category analyzes how to choose a society, combines surveys, and improves its data and information and learning resources. It additionally inspects how the association audits hierarchical execution.

a. Workforce Focus:

This classification analyzes an association's capacity to arrange, oversee and create workforce to use their maximum capacity; furthermore survey workforce capacities and ability to assemble an environment for superior.

b. Process Management:

This classification concentrates on an association's center capabilities and work frameworks, and analyzes how it plans, oversees and enhances its key methods to accomplish authoritative achievement and maintainable quality. It likewise analyzes institutional status to face crisis

circumstances.

c. results:

This is the classification of comes about that inspects an association's execution in all the over six classes and changes in key zones – understudy learning, budgetary procurements, staff and staff results, leadership[23].

VII. INFORMATION TECHNOLOGIES AND TEACHING LEARNING PROCESS

Making Students Independent in their Studies Utilizing information advancements understudies can pick about their reviews, learning time, place and assets in an unrivaled way. Understudies can work in additionally steadfast conditions, look for assistance from instructors and partners, and give their learning encounters and thoughts in nostalgic and beneficial style.

The improvement of superior registering and correspondence is making new media, for example, the Www and virtual realities [24]. Subsequently these new media engage new kind of messages and experiences, for instance, interpersonal associations in imm3ersive produced circumstances prompt to the advancement of virtual gatherings. The innovative sorts of instructional technique drew in by these rising media and experiences propelled the odds of partition direction and at present virtual guideline and killed the limits of detachment and time. New and imaginative learning experiences would be redesigned and engaged by these advances, as by virtual gatherings, which exist by relationship over the globe through overall arrangement of machines round the clock. The public offer of experiments allow social occasion of the type of presentation of the government in the preparation of the detachment. Division includes preparation and depends on the state of advancement of the use of information to make the process more productive and adjust the individual, to give the basis of more exploratory rules and make the installation and so much More compelling, and change all access faster and more assets more equal. These views are common to expand educational resources of quality and measurement. Teachers and learners can work with others in remote locations.

A group of learners can be extended to integrate for any useful purpose any person wishing to obtain the data and that could not be avoided by policies or account.

And it can give real access to specialists in colleges, research labs, and a group of

businessmen, government offices and places of political action.

Data innovations can advance the chances of rebuilding the instructing learning methodology. These can change showing and adapting by offering choices to the instructor gave data, access to for all intents and purpose boundless assets and opportunities for certifiable correspondence, cooperation. The phases of this process as described by author are, “developing awareness – recognizing that something is wrong or different [25]; exploring alternative–researching for new ideas from other institutions and acknowledging that change is needed;

- making a transition–leaving the old methodologies behind (or drastically changed);
- attaining combination putting the pieces from the move stage back together; and
- Making a move putting new thoughts into operation”.

This technology can work within a level of education or institutional and at least one of the stages of work at the same time. Sites and customary offer can get a chance to be the basis of learning and mixed media on the internet for learners of detachment experiences. You can pay for taking online resources and institutions distract attention from the instructions to learn from the teacher to the learner. Can make the learning environment through everyone through learning set bouquets. Systems can make the teaching conditions and plot of the only logical part of course, and help learners learn. Which are?

- Regard for identity;
- Support in choice making;
- Flexibility of outflow and accessibility of data;
- Commonality of obligation in characterizing objectives, arranging and directing exercises and assessing [26].

Learning may occur all the more successfully and rapidly in educative situations where instructor and learners are interested in one another to cooperate and trade data and encounters in a benevolent manner. The author finished up in a study "Openness from educator expanded their [learner's] longing to talk about issues or themes of premium... these talks extended their [learner's] [27].

Understanding of the substance and aided them in arranging the data inside an important setting in their own lives". Educative situations can improve and shape the showing learning methodology to accomplish the coveted objectives. There is a regular inclination for understudies to learn and

learning can quicken, in intelligent and empowering situations. Quickening the empowering situations may be mental atmospheres and understudies' collaborations can make them. Cooperation’s of understudies can make learning environment more viable and significant and 'much of learning happens in a compelling environment'. Learners may get quick input and fortification through web-based learning.

The mental design of such support and anticipation likewise impacts the potential for any given conduct and/or figuring out how to happen. Fancied adapting dependably obliges access to subjective and most recent data assets and web affirms the expanded access to such assets at understudies' pace. Besides, author says "there is no denying that online courses open new instructive access to the non-customary and geologically scattered understudies [28]. The on-line setting gives a level of adaptability and comfort not gave by conventional classroom courses”.

Web and WWW give learners most recent important data at their own pace and they can structure a virtual group of learners at worldwide level. Showing associations are embracing data and correspondence advances uncommonly the machines, World Wide Web, remotely coordinating and instructive TV in view of their expense adequacy, access and adaptabilities of decisions.

VIII. RESEARCH METHODOLOGY

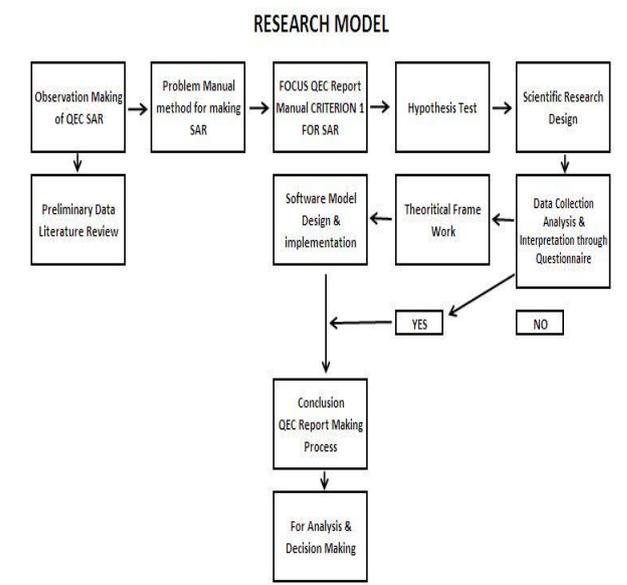


Figure.1: Research Method

IX. METHOD OF RESEARCH

This research is aimed that of the process of Self Assessment Report gets automated by using technology, for example through user friendly software then this will help in enhance the process of QA Reporting for HEC. Therefore this research is a Descriptive Research in which the method of research is Observational Research. Since the respondents in this research work in a natural environment, this method is convenient in assessing multiple users performing their jobs. Utilizing expressive research philosophy contributes a considerable amount to the exploration, for example,

- Descriptive research uncovers issues or irregular conditions so that healing measures might be founded. This would help in giving suggestions for circumstances where change might be required.
- Descriptive research makes conceivable the forecast without bounds on the premise of discoveries on winning conditions, relationship and on the premise of individuals toward a specific issue.
- Descriptive research gives a superior and more profound comprehension of a marvel on the premise of a top to bottom investigation of the wonder.
- Descriptive research gives a premise to basic leadership.

a. Research Design

The Research Design followed for this thesis is Quantitative Research Design.

Reasons for choosing this design:

- This design helps in identifying& controlling extraneous factors also.
- This design is efficient in using available resources.

b. Software Details

The key factor of any project is to determine the requirements. In this case we gathered the requirements of QEC users. Users have a manual to follow in order to complete the SAR Report. The report details are as follows:

c. Self Assessment Report Manual BY HEC [30]

Every program must have a mission, quantifiable destinations and outcomes for graduates. Results incorporate competency and undertakings graduates are relied upon to perform subsequent to finishing the program. A key arrangement must be

set up to accomplish the program goals. The degree to which these goals are accomplished through consistent evaluation and changes must be illustrated.

Standard 1-1: The program more likely than not reported quantifiable goals that support Faculty/College and foundation statements of purpose.

- Document institution, college and program mission statements
- State program destinations. Program instructive targets are proposed to be statements that depict the normal achievements of graduates amid the initial quite a while taking after graduation from the program.
- Describe how every goal is adjusted to program, school and foundation statements of purpose.
- Outline the principle components of the vital arrangement to accomplish the program mission and targets.
- Provide for every target how it was measured, when it was measured and changes distinguished and made. Table 4.1 gives an arrangement to program targets evaluation.

Criterion 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

Objective	How measured	When measured	Improvement identified	Improvement made
1.	*Appendix (C)			
2.	-do-			
3.	-do-			
4.	-do-			
5.	-do-			

Table 4.1: Program objectives assessment

* Using Questionnaire provided in Appendix C

Standard 1-1: The program more likely than not reported results for graduating understudies. It must be shown that the results support the program goals and that graduating understudies are equipped for playing out these results.

Describe how the program results support the program targets. In Table 4.2 demonstrate the

results that are adjusted to every goal. An example of such a table is appeared in Appendix D

Program Objective	Program Outcomes			
	1	2	3	4
1				
2				
3				

Table 4.2: Outcomes versus objectives

- Depict the methods for surveying the degree to which graduates are playing out the expressed program results/learning destinations. This ought to be proficient by the accompanying:
 1. Conducting an overview of graduating seniors each semester.
 2. Conduct an overview of graduated class at regular intervals.
 3. Conduct an overview of businesses like clockwork.
 4. Carefully planned inquiries asked amid senior activities presentations. These inquiries ought to be identified with program results.
 5. Outcomes examinations

A sample of the structures for such studies is given in Appendix C. The information acquired from the above sources ought to be broke down and displayed in the evaluation report. It is prescribed that the above studies ought to be conducted, outlined and added to the self-think about evaluation report. Offices ought to use the consequences of the overviews for enhancing the program when they are accessible. A case takes after:

Standard 1-3: The consequences of program's evaluation and the extent to which they are utilized to enhance the program must be reported.

- Depict the moves made in view of the consequences of occasional appraisals.
- Describe real future program changes arranges in view of late evaluations.
- List qualities and shortcomings of the program
- List critical future advancement gets ready for the program.

Standard 1-4: The department must evaluate its general execution periodically utilizing quantifiable measures.

- Introduce understudies enrolment (undergrad and graduate) during the most recent three years showing rates of respect understudies, understudy staff proportion, normal graduating grade point normal per semester, normal time for finishing the undergrad program and steady loss rate.
- Indicate rate of employers that are emphatically happy with the execution of the office's graduates. Utilize employer's survey.
- Show the middle/normal understudy assessment for all courses and the % of personnel granted greatness in educating grant.
- Present execution measures for research exercises. These incorporate journal publications, financed undertakings, and meeting distributions per workforce every year and show the % of staff granted greatness in research grant.
- Present execution measures for group administrations. This may incorporate number of short courses every year, workshops and classes composed.
- Indicate staff and understudies fulfillment in regards to the authoritative administrations offered by the department. Utilize workforce and understudies reviews.

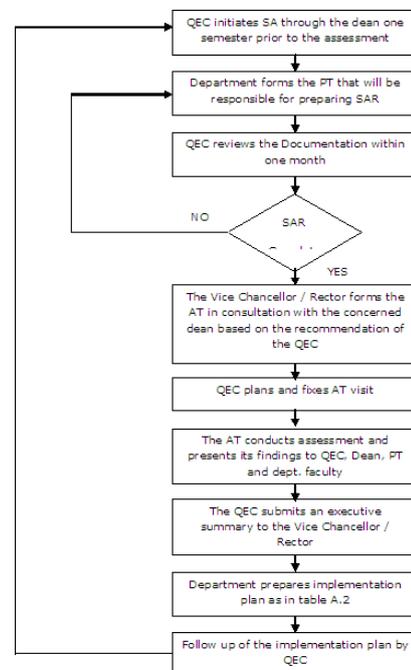


Figure .2: Self Assessment Procedure

- QEC: Quality Enhancement Cell
- PT: Program Team
- SA: Self Assessment
- SAR: Self Assessment Report
- AT: Assessment Team

d. Software requirement

It can be operateable by any window environment by any browser after connecting with live IP, it very light that's why we need to have a web hosting service in order to provide the required functionality for the website

e. Hardware requirement

Version	Windows XP SP3 (32-bit version only)? Windows Vista Windows 7 (32-bit and 64-bit versions supported)* Windows 8 Windows 8.1
Processor	At least 1 GHz
RAM	At least 512 MB
Additional software	DirectX v9.0 or above

Easily accessible from anywhere
User authentication and password protection Managers and QEC directors given the authorization to change all the aspects of SAR report The director is working with are also given the authorization to access the whole report but with the exception of few section which are in read only mode.

f. Software design

Software design is the procedure by which an operator makes a detail of a product ancient rarity, proposed to achieve objectives, utilizing an arrangement of primitive segments and subject to limitations. Software design may allude to either "every one of the exercises required in conceptualizing, encircling, actualizing, appointing, and eventually adjusting complex systems"[30] or "the action taking after necessities particular and before programming, as ... an adapted programming building process"[30]. Programming configuration ordinarily includes critical thinking and arranging a product arrangement.

The figure explains main components of ESAR Design. Application interacts with the four graphical user interfaces (GUI) sequentially. GUI component establishes two way communication with database components (that comprises related tables) once all the required data is stored in database, user initiates the process of generating report (an ultimate components of ESAR) this final result will also be saved.

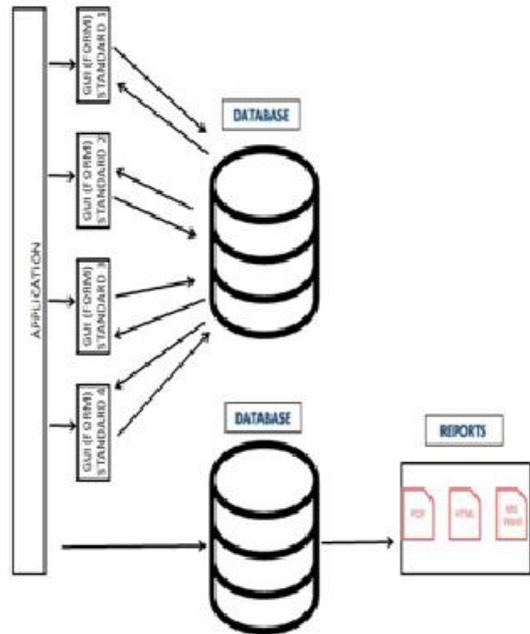


Figure.3: Database Management System

g. Implementation

In our case we have written an application in C#. This application is producing the results of SAR user requirements. For the users, graphical user interface is given to guide him through the whole process in order to complete the report. The graphical user interface is designed using the forms given in Manual SAR. The data entered by the users is saved in database MSSQL. (ie...institution's detail, Mission, Program Mission, Objectives and Outcomes...etc). This data is saved in tables that are associated with each other by relationship manipulated through the database functionality and is used in generating Reports.

h. Database

A Relational database is a mechanized database whose association is locked in around the Relational model of information, as proposed author. This model driving forces information into no less than one tables (or "relations") of portions and zones, with a Primary key for each one line [32]. In light of current circumstances, every segment sort depicted in a database has its own particular table, the lines tending to occasions of that substance and the fragments tending to the trademark qualities portraying each one occasion. Since every one section in a table has its own specific fascinating key, pushes in various tables that are related to it can be associated with it by securing the primary line's stand-out key as a normal for the discretionary line (where it is known as a "remote key"). Code exhibited that data associations of subjective flightiness can be addressed using this clear arrangement of thoughts.

Going before the presence of this model, databases were typically dynamic, and each tended to be dealt with an extraordinary mix of records, chains, and pointers. The straightforwardness of the Relational model incited its soon changing into the uncommon kind of database.

The different programming structures used to keep up social databases are known as Relational Database Management Systems (RDBMS).

Fundamentally all Relational database frameworks use SQL (Structured Query Language) as the tongue for tending to and keeping up the database.

i. Normalization

Data normalization is a methodology in which data attributes inside a data model are composed to expand the union of entity types. As such, the objective of data normalization is to decrease and even dispose of data repetition, an imperative attention for application developers in light of the fact that it is staggeringly hard to store questions in a social database that keeps up the same data in a few spots. More elevated amounts of data normalization are past the extent of this article. As for phrasing, an information pattern is thought to be at the level of standardization of its minimum normalization element sort [31].

By reviewing SAR Report two MAIN entities are prominent. These prominent entities are potential tables to have relationship with each other. These two main entities are 'Objectives' and 'Outcomes'. In order to find the degree of relationship each a record of one table matching the record(s) of another one is the result to find the exact relationship between two. In this case the relationship is one too many from each side. Therefore, in order to achieve one single row as a result of a query a bridge table must be used this bridge table contains the ID's of both objectives and outcomes table. After this process a user can view any of the fields in these tables to perform a given task. Furthermore, in order to view filtered results criteria can also be added to the queries for viewing certain desired results.

j. Usability

One of the main emerging areas in computer is HUMAN COMPUTER INTERACTION (HCI). It provides ways and means to enhance Interaction Human and Computer [46]. There is a vast room for HCI in the application. Usability is one of the features of HCI that provides us ways and means to enhance QEC user's job of processing SAR using this application. Following are main features explained, helped us in designing this application.

Convenience is the ease of use and learn ability of a human-made thing. The question of use can be an item application, site, book, mechanical assembly, machine, process, or anything a human partners with. A usability study might be coordinated as a fundamental occupation work by a comfort master or as a discretionary business work by organizers, particular creators, promoting staff, and others. It is comprehensively used as a piece of client devices, correspondence, and learning trade things, (for instance, a cookbook, a chronicle or online help) and mechanical dissonances, for instance, a door handle or a mallet[22].

Accommodation consolidates frameworks for measuring usability, for instance, needs analysis and the examination of the gauges behind a product's clear profitability or style. In human-machine coordinated effort and programming building, accommodation contemplates the elegance and clarity with which the correspondence with a machine framework or a website (web convenience) is arranged. Usability shifts from customer satisfaction and customer encounter in light of the fact that accommodation furthermore considers handiness. The essential idea of convenience is that an item composed with a summed up clients' brain research and physiology as a main priority is, for instance:

More proficient to utilize takes less time to achieve a specific assignment less demanding to learn—operation can be adapted by watching the article.

Complex machine frameworks find their route into regular life, and in the meantime the business is soaked with contending brands. This has made convenience more prevalent and generally perceived lately, as organizations see the profits of asking about and making their things with customer arranged procedures as opposed to advancement arranged strategies. By comprehension and investigating the cooperation thing and customer, the usability can moreover give learning that is unattainable by ordinary association organized statistical surveying. For example, in the wake of watching and conversing with customers, the ease of use master may perceive required value or design imperfections that were not anticipated. A system called coherent demand does this in the consistently happening association of the customers claim encompassing.

In the client focused configuration ideal model, the item is planned considering its proposed clients at all times. In the client determined or participatory configuration standard, a percentage of the clients get to be real or accepted parts of the outline group. The term easy to use is regularly utilized as an equivalent word for usable, however it might likewise allude to openness. Usability portrays the

nature of client experience crosswise over sites, programming, items, and situations.

There is no understanding about the association of the terms ergonomics (or human factors) and ease of use. Some consider accommodation the item specialization of the greater purpose of ergonomics. Others see these subjects as extraneous, with ergonomics focusing on physiological matters (e.g., turning a passage handle) and ease of use focusing on mental matters (e.g., seeing that a gateway can be opened by turning its handle).

Comfort is similarly central in webpage change (web convenience). As demonstrated by Jakob Nielsen, "Investigations of client conduct on the Web discover a low resistance for troublesome outlines or moderate locales. Individuals would prefer not to hold up. What's more they would prefer not to figure out how to utilize a landing page. There's no such thing as an instructional course or a manual for a Web webpage. Individuals must have the capacity to handle the working of the site promptly in the wake of filtering the landing page for a couple of seconds at most. "Something else, most easy clients just leave the site and scan or shop somewhere else.

ISO characterizes usability as "The degree to which an item can be utilized by indicated clients to attain defined objectives with adequacy, productivity, and fulfillment in a detailed connection of utilization." The saying "usability" additionally alludes to strategies for enhancing usability amid the configuration process. Convenience expert Jakob Nielsen and software engineering educator Ben Shneiderman have composed (independently) around a structure of framework worthiness, where ease of use is a piece of "usefulness" and is made of[17].

k. *Learn ability:*

How basic would it say it is for customers to complete essential errands the principal event when they experience the setup?

l. *Efficiency:*

Once customers have taken in the framework, how quickly would they have the capacity to perform errands?

m. *Memo ability:*

When customers return to the framework after a period of not using it, how easily would they have the capacity to re-make ability?

n. *Blunder:*

what number bumbles do customers make, how extraordinary are these mix-ups, and how easily would they have the capacity to recover from the Error?

o. *Fulfillment:*

How enchanting would it say it is to use the configuration?[29].

Usability is frequently connected with the functionalities of the item (cf. ISO definition, underneath), notwithstanding being singularly a normal for the client interface (cf. schema of framework agreeableness, additionally underneath, which differentiates handiness into Usability and utility). Case in point, in the connection of standard shopper items, a vehicle failing to offer an opposite apparatus could be viewed as unusable as per the previous view, and ailing in utility as indicated by the recent perspective.

Convenience is a non-useful necessity. Similarly as with other non-practical prerequisites, Usability can't be specifically measured yet must be evaluated by method for aberrant measures or qualities, for example, for instance, the quantity of reported issues without breaking a sweat of utilization of a framework.

p. *Profits of usability:*

- The key advantages of convenience are:
- Higher incomes through expanded deals
- Expanded client productivity and fulfillment
- Diminished advancement costs
- Diminished backing

Usability investigation is the name for a set of strategies where an evaluator investigates a client interface. This is rather than Usability testing where the Usability of the interface is assessed by testing it on genuine clients. Usability investigations can by and large be utilized ahead of schedule as a part of the advancement transform by assessing models or details for the framework that can't be tried on clients. Usability assessment techniques are by and large thought to be less expensive to actualize than testing on clients.

q. *Usability inspection methods include:*

- Cognitive walkthrough (task-specific)
- Heuristic evaluation (holistic)
- Pluralistic walkthrough
- Heuristic Evaluation

Heuristic assessment is an usability building technique for discovering and evaluating usability issues in a client interface outline as a major part of

an iterative arrangement prepare. It incorporates having somewhat set of evaluators assessing the interface and using saw ease of use benchmarks (the "heuristics")[49]. It is the most popular of the comfort examination frameworks, as it is quick, poor, and basic. Heuristic assessment was produced to support in the configuration of machine client interface plan. It depends on master analysts to find usability issues and after that classify and rate them by a set of standards (heuristics.) It is generally utilized focused around its speed and expense viability. Jakob Nielsen's rundown of ten heuristics is the most generally utilized as a part of industry. These are ten general standards for client interface plan [29]. They are called "heuristics" in light of the way that they are all the more in the technique for proven principles than particular convenience rules.

r. *Perceivability of structure status:*

The framework ought to dependably keep clients educated about what is continuing, through honest to goodness feedback inside sensible time.

s. *Coordinate amidst structure and this present reality:*

The framework should talk the clients' dialect, with words, expressions and contemplation's without a doubt comprehended to the client, rather than structure planned terms. Take after honest to goodness conventions, making data show up in a run of the mill and honest to goodness inquire.

t. *Customer control and opportunity:*

Users consistently lift structure works by foul up and will require an unmistakably checked "emergency path" to leave the undesirable state without hoping to experience a made talk. Unfamiliar and re-endeavor. Consistency and gauges: Users ought not to need to consider whether unmistakable words, conditions, or activities mean a comparable thing. Take after stage traditions.

u. *Blunder anticipation:*

Even better than anything botch blunder messages is a watchful course of activity that keeps an issue from happening regardless. Either renounce inclined conditions or check for them and present customers with a confirmation choice before they concentrate on the improvement.

v. *Acknowledgment as opposed to overview:*

Minimize the customer's memory stack by making request, exercises, and decisions unmistakable. The customer should not have to review information beginning with one bit of the exchange then onto the going with. Rules for usage of the structure should be perceivable or successfully retrievable at whatever point fitting.

w. *Versatility and viability of utilization:*

Accelerators—unnoticeable by the learner client may as regularly as could be expected under the circumstances animate the correspondence for the expert client with the true objective that the framework can appreciate both new and experienced clients. Permit clients to tailor constant activities.

x. *Cleaned and coordinate game plan:*

Dialogs should not to contain information that is superfluous or now and again required. Each *additional* unit of information in a discussion opponents the material units of information and reduces their relative conspicuous quality. Help customers see, *examine*, and recover from goofs: Error messages should be passed on in plain vernacular (no codes), completely demonstrate the issue, and extremely prescribe a reply.

y. *Help and documentation:*

Even at any rate it is better if the system can be used without documentation, it may be urgent to give assistance and documentation. Any such information should be not hard to seek after, focused on the customer's task, rundown strong strides to be done, and not be extravagantly wide. Subsequently, by making sense of which standards are harmed, the ease of use of a device can be resolved. For confirmation stage testing method is utilized which as the accompanying points of interest.

z. *Testing:*

The unit test structure that you utilize and Visual Studio IntelliSense will manage you through making unit tests for a code extends. To keep running in Test Explorer, most systems require that you add particular credits to distinguish unit test strategies. The structures likewise give a path—typically through attest articulations or technique properties—to demonstrate whether the test strategy has passed or fizzled. Different traits distinguish discretionary setup techniques that are at class introduction and before every test strategy and teardown strategies that are pursued every test strategy and before the class is pulverized. The

AAA (Arrange, Act, and Assert) example is a typical method for composing unit tests for a strategy under test [30].

- The Arrange section of a unit test strategy introduces questions and sets the estimation of the information that is breezed through to the technique under test.
- The Act area summons the strategy under test with the masterminded parameters.
- The Assert segment checks that the activity of the strategy under test behaves as expected.

As far as the maintenance is concern the proposed practice is to allow report users to submit their suggestions / complains to developers / programmer. This would help developers / programmer to initiate the process of modifying or adding functionality to the application based on user feedback.

X. CONCLUSION

Quality assurance is a gateway to High quality education. In order to assess the programs quality Higher education commission has developed predefine Criteria processes. The department of Quality Enhancement Cell which works under those specified Criterion. This Criterion is met using forms with relevant data. Consequently, this resulted in an enhanced interaction with QA users using E-SAR. One of the other major advantages of it is in the form of better organized report. Therefore, the major issue for QA users of following QEC processes can considerably be facilitated using this application. In fact, repetitive errors are better managed with it. The remaining CRITERIONS are still left for future works which will eventually automatize the whole SAR Report. In future, alternative design technique of HCI can be employed to provide user with more enhanced interaction with these criterions.

ACKNOWLEDGEMENTS

Authors are grateful to the Department of Computer Science, Institute of Business Management-IOBM, Karachi, Pakistan to carry out this work.

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