

Establishing and Designing the Scientific Publication and Arbitration System for the research program of the Deanship of Scientific Research at Northern Border University

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Summary

This study aimed to design and create an integrated database for the management of scientific publishing operations at Northern Border University, as it is one of the requirements of the integrated database to meet all the needs of the university's members of researchers by submitting their research proposals, and uploading all data to the research team, the expected budget and implementation steps, and academic requirements Through which the university publishes its research supported in global databases, and this includes the follow-up steps by the researcher, the stages of arbitration, the uploading of academic documents, the selection of approved journals, the design of the contract formula and financial supplements, up to the final publication, the delivery of documents, and the completion of the publication status in a regular manner. The research team relied on both the analysis and experimentation methodologies in realizing the requirements of the regular university, and the results of this were the design of successive screens and the establishment of relationships and the different stages of scientific publication, leading to the final approval of the management of the Deanship of Scientific Research at the University of Northern Borders, and the delivery of the final publication status to the financial department to complete the audits Financial and final disbursement of researchers' dues.

Key words:

Scientific research, database, publication, arbitration system.

1. Introduction

A database can be defined as an organized and accurate set of structural information or data that has been stored in an electronic form or in an integrated computer system, and the control of a database is usually under full management known as the database management system, through which the data is collected and linked to the management system Databases with other associated applications, often referred to as an integrated system known as a database. [1,4].

There are many types of databases, which are common, where data is formatted as rows and columns in blocks of strings composed of table shapes to enable programmers to process and query data with high efficiency, and then can access the data and be able to manage and modify it as well as update and control it in different ways Structured like most similar databases that use SQL to write and query data [2].

SQL is a programming tool used by all relational databases in order to query, manipulate and define data simultaneously, and therefore in order to provide data access control. SQL was first developed by IBM in the 1970s and Oracle was a major contributor to that project, which led to the implementation of that SQL standard, and SQL prompted a lot of expansion from similar companies such as IBM, Oracle, and Microsoft [1.4].

Historically, databases have undergone drastic and comprehensive developments since the early 1960s, and mobility databases, such as a hierarchical set of databases, which relied on a tree-like model and allowed head-to-end relationships), as well as network databases, which is a more flexible model that allows relationships Multiple) between database groups, which at the time were the only systems used in data storage, retrieval and processing [2,5] During the eighties, many relational databases appeared, which became popular, followed by the emergence of object-oriented databases during the nineties, and nowadays A set of SQL databases as a result of the growth of the Internet globally, with the emergence of the need for speed, and the need for accurate processing, which led to the emergence of cloud databases and many forms of databases that work independently through data collection, storage, retrieval, management, use and dissemination when needed [2, 6].

Accordingly, self-driving databases are a stage that represents future databases that are needed by institutions and organizations that need to use the best form of database technologies available and that depend on high-performance capabilities when operating and managing that technology [3].

Self-driving databases seek to apply cloud-based technology and e-learning to organize and manage work through many tasks required to better manage databases, as these operations are to manage control, security and backup procedures, as well as updates and associated administrative tasks [3,5,9].

A properly designed database gives us access to accurate up-to-date information, because the right design is essential to achieving our goals in working with the database and investing the time required to learn the principles of good logical design.

2. Objectives, Problems and Methodologies of the study

2.1 Objectives of the study

The objectives of this study can be summarized as follows:

- Introducing databases specialized in the field of scientific research.
 - Knowing the needs of research institutions and universities in the requirements of designing and creating an integrated database in scientific research.
 - Designing the stages of submitting research plans and their components.
 - Designing integrated screens that include all stages of scientific research, starting with submission, completion of data, initial arbitration, contracting, and completion of quality procedures and academic accreditation.
 - Identifying the stages of academic auditing of scientific publication through standardized electronic procedures.
- 0 Final audit by the Deanship of Scientific Research and completion of final acceptance or final publication.

2.2 The Study Problem

The problem of the study is the lack of an integrated automated system for all scientific publications at the Northern Border University, as the currently available system is not an integrated system as it only allows the submission of research plans, the upload of personal data, the work team and the proposed budget, but it lacks academic follow-up processes for all publications Academic procedures, arbitration procedures, contracting, auditing publication requests, follow-up of documents delivery, and ensuring actual and real publication in a way that achieves a distinguished classification for the university in the approved global databases.

2.3 Study Methodology

The study was keen to apply the standards of each of the analytical method to know the academic requirements and implementation stages of scientific publication for the Northern Border University as well as the internal procedures followed and related to the unified regulation for scientific publication in Saudi universities, which is an academic and financial reference for all procedures for submission, arbitration, review and academic and financial auditing. Experimental in designing screens and

relationships between data elements to build and design a database.

3. Databases in research institutions and universities

There are many different types of databases, and the best database for a particular research or university institution depends on how the institution intends to use the data. Fig.1 depicts a general view of Databases in universities and research institutions.

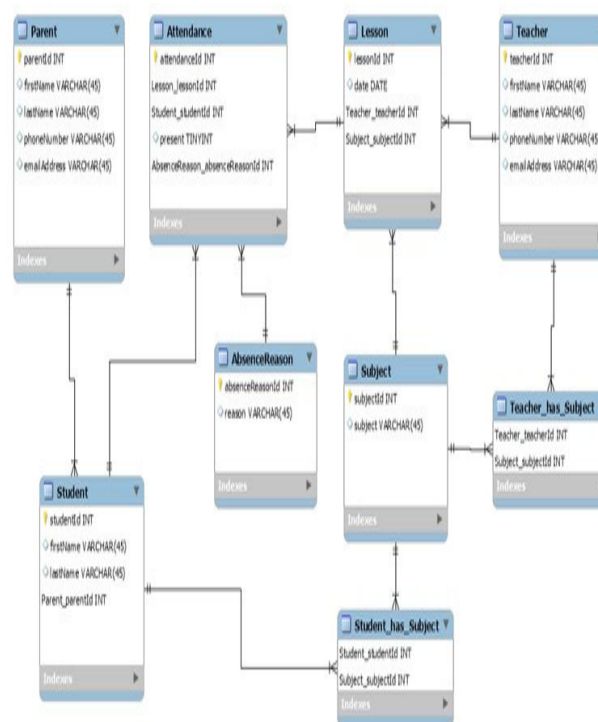


Fig.1 Databases in research institutions and universities

3.1 Databases in organizations

In general, relational databases were prevalent during the eighties, during which the elements that contain column and row forms were organized, through which it was possible to provide an updated technology to manage the linked databases more efficiently and organized, in addition to the ability to obtain information completely and regulator [3,7,9, 12, 13]

Databases are objects that represent the information available in databases through object-based, threaded programming.

- Distributed databases, which consist by designing two or more files in different locations in the database, so that the data can be stored by multiple

computers available in the location or distributed over different networks.

- SQL databases. Which allows building relational relationships, which are becoming more widely used through their applications.
- Databases based on graphs and statistics.
- OLTP databases.
- Open source database,
- Multi-series databases.
- Self-driving databases, which are cloud databases that use machine learning capabilities to configure and operate the database, prepare backups, perform all updates and related administrative tasks.

3.2 The importance of using databases in university institutions

In Northern Border University, also abbreviated as NBU, the databases play an extremely role as all information being exchanged depend on them. In addition, the government of Saudi Arabia has launched a vision till 2030 and it is called “2030 Vision”. This vision emphasizes the importance of Digitalization and part of it focuses on Digital Transformation which means the government shifts all its transactions into digital forms. Hence, the summarization of the importance of databases in NBU is as follows:

- Using databases to create an integrated series of files and records that make up the database, in addition to the ability to modify, edit, save, retrieve and publish [9].
- The ability of databases to manage data more simply and accurately by enabling users to carry out data storage operations in an organized manner and then the permanent ability to access it [10].
- The ability of recent databases to ensure the security of data and its management in a way that ensures the confidentiality of information, regulates its circulation, and does not tamper with its contents [12].
- The ability to respond permanently to the requirements of beneficiaries and operators.
- Capability of the database to permanent maintenance procedures and the addition of new tasks.
- Developing an integrated system for managing scientific publications and arbitration.

4. Managing scientific publications and arbitration

The integrated automated system for managing scientific publications, quality and academic accreditation

means the existence of systems that are completed with the application system for research projects and arbitration, so that they depend on the basic data entered for each scientific research project submitted, and its management is integrated with all publication and quality processes, and this includes financial follow-up processes and forms of approval of publication and final approval in a manner Automatic, as well as the stages of review and financial audit. Fig. 2 illustrates the ideal scenario of the integrated system for managing scientific publications and arbitration.

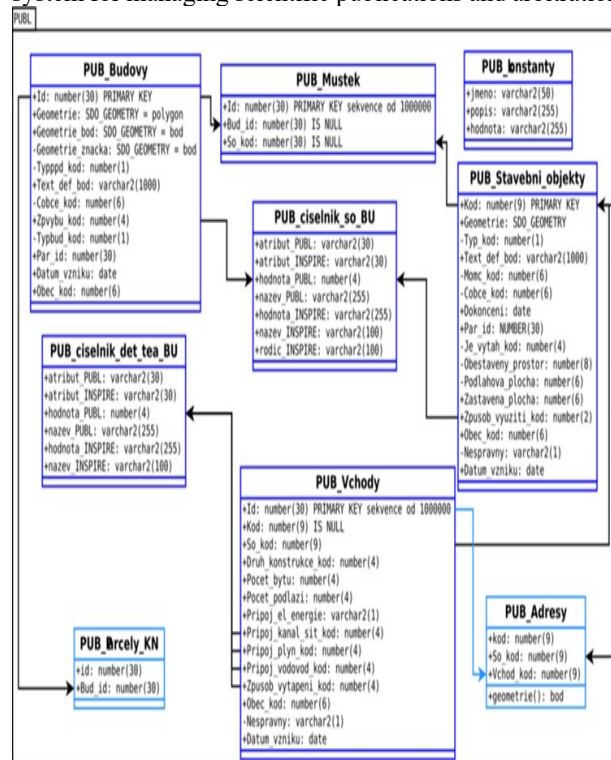


Fig. 2 integrated system for managing scientific publications and arbitration

4.1 Database implementation procedures

The system of scientific publishing and quality begins when contracting and approving the final and approved budget after the signature of the President of the University, which includes the following:

- 1- Keep a signed copy of the contract including the budget attached to the system that the publishing advisor and the accountant can view
- 2- The inclusion of the contract date is an important element that enables the system to activate the basic contract clauses, which are (first report - final report).
- 3- The researcher's submission of the first periodic report after the fourth month of signing the

contract is a prerequisite to allow the researcher to start requesting publication according to a screen matching the form of a request to publish a supported scientific research (included with the report in both Arabic and English), in the event that the researcher did not submit the first report of the fourth month To start the contract, the researcher receives a message that he is unable to access the publication request. As soon as the researcher submits the first periodic report, the researcher is allowed to:

- 4- Being able to access the supported scientific publication request screen
- 5- When entering the publication request form, the researcher finds the complete research data from the system (the title of the research - the research course - the name of the researcher - the college - the department - the project number).
- 6- Only a researcher is allowed to fill out a maximum of 3 screens (3 journals) upon request for publication, and he has the right to request one or two journals. He is also allowed, after 30 days from the first request, to request 3 new journals, and it is compulsory for the researcher to include all the following data per journal:
 - journal title
 - Publisher
 - The printed international standard serial numbering P.ISSN (the researcher is obliged to write down at least one numbering, either printed or electronic, and he has no right to leave both of them unrecorded)
 - E.ISSN International Standard Number for Electronic Journals
 - Link to the journal's website
- 7- In the event that the researcher requests a specific journal, during the same research cycle, another researcher requests that the system alert the researcher that he is the researcher No. 2 to request this journal, as well as the researcher applying for the same journal No. 3 and both are allowed to request publication.
- 8- In the event that the researcher requests the journal and is the researcher number 4 for its request in the same research cycle, the system does not allow him to request and alerts him that his request is legally rejected for exceeding the upper limit of the request
- 9- Based on the researcher's access to his account, submitting the research to his request, his two requests, or his three requests is tantamount to his approval of the following deanship conditions:
- 10- Not to start publishing procedures until after obtaining the approval of the Deanship to publish in a journal conforming to the standards of

scientific publication in accordance with the Web of Science system.

- 11- I am fully aware that the approval of publication by the Deanship of Scientific Research is not binding on the scientific councils for academic promotion.
- 12- Not to submit more than three journals in one application, provided that I submit a similar number of applications after a month has passed from the date of submission.
- 13- I am fully aware that the number allowed to apply for publication in one journal is no more than three researchers during the research cycle, and in the event that I submit my application and it is rejected by the Deanship of Scientific Research, my right to publish in this journal will forfeit.
- 14- For researchers in the field of Arabic language and Islamic studies, the researcher acknowledges after publishing in a refereed journal issued by a recognized academic entity within the Kingdom of Saudi Arabia and the Gulf Cooperation Council countries, except after the approval of the Deanship of Scientific Research.
- 15- A message appears to the Dean's advisor that the researcher submits a publication request by entering as a manager to follow up on electronic publication requests on a daily basis. After checking each journal separately, the following data is available to the scientific publication advisor.

4.2 Academic Review Procedures

NBU follows the best practice in the academic review procedures and these procedures are:

- 1- Publication in the journal is accepted, as it is within the Web of Science for the year () - and is not plagiarized, and the place of publication is: ()
- 2- Publication in the journal is accepted even though it is not part of the Web of Science (specializing in Arabic language - Islamic studies) - a court issued by a recognized academic entity within the Kingdom of Saudi Arabia and the countries of the Gulf Cooperation Council.
- 3- It is not accepted to publish in the journal for the following reasons:
- 4- The stage of accreditation of the Deanship's advisor for scientific publication, quality and academic accreditation (save and transfer to the dean's deputy)
- 5- The stage of accrediting the Vice Dean of Scientific Research (once the vice dean is approved, the system allows the application to reach the Dean of Scientific Research)

- 6- Approval of the Dean of Scientific Research (once the Dean is approved, the system allows the response to be sent to the researcher and to the Dean's advisor for information and knowledge)
- 7- Thus, the researcher is answered with verification, acceptance or rejection through the electronic form only through his account through the electronic response with the report of the Deanship of Scientific Research and the approval of the Undersecretary of Scientific Research - Dean of Scientific Research).

4.3 Completing the publishing process

As soon as the researcher wishes to notify the Deanship of Scientific Research of the publication status, a screen is assigned to him for that under the title "Famishment of publication" with two icons (final acceptance - final publication), where the researcher chooses one of them, and the system is obligated to upload the following academic documents:

- 1- Final report in word format
- 2- The poster in word format
- 3- The research submitted to the journal in word format
- 4- A pdf copies of the research paper - acceptance letter - correspondence with the journal with the final acceptance in pdf form
- 5- The publishing link of the research paper on the Internet of the journal approved by the Deanship.

The scientific publishing advisor checks these documents and informs him with a sign inside a box, which means that they are filled out correctly.

4.4 Report of the scientific research advisor

A report on the status of the audit is to be filled out for the scientific publishing advisor, including its validity, accuracy, and the researcher's commitment to writing:

- 1- The authority name of the university in a correct manner
- 2- The obligation to attach the work team in accordance with the contract without deleting or adding without the approval of the Deanship of Scientific Research
- 3- Commitment to publish in the approved journal and through the approved link only.
- 4- Save all previous files on the system automatically.
- 5- In the event of a defect in the implementation of publishing operations, the subject is presented to the Dean of Scientific Research to take the necessary action, either directly or through the decision of the Deanship of Scientific Research

Council - or through the decision of the President of the University.

- 6- In the event of a defect in the publishing processes, the system is not opened for disbursement and financial review permanently.
- 7- The academic report shall be submitted in the event of the validity of the audit to the Vice Dean of Scientific Research for accreditation and guidance to the Accounting Department.
- 8- Reports of default and recurrence cases, including:
 - Query for defaulters.
 - Preparing a list of prohibiting the supply of a waiver request, and it includes all principal researchers who have an unexpired contract in the case of final disbursement from the Dean. (very important)
 - A detailed financial report that includes basic data including: name of the principal investigator - address - college - research course - phone - e-mail - IBAN - bank name. Any subsequent specialized reports.
 - The name of the researcher participating in the contract and the budget appears in the event that no reward is allocated to him
 - The contract is displayed and printed in PDF format (according to the request of the Deanship of Scientific Research)
 - The inability and possibility of deleting or adding researchers with the knowledge of the principal researcher - but with the knowledge of the Deanship (Dean's Committee) it means here that the only body for deletion and addition is the Dean's Committee because there are cases of deletion and addition subsequent to the contract and with the approval and approval of the Deanship Council and the approval of the President of the University on the minutes of the meeting. The Dean's Committee to implement the decision.
 - Activating the selection of publication cases for participating researchers and assistants when selecting the work team so that it includes the following cases (participant researcher, for whom a reward is allocated and his name appears in the final publication - a participant researcher and is allocated a reward for him, and his name does not appear in the final publication - a participant researcher with no reward and his name appears in the publication Final - Assistant (Masters) and a reward is allocated to him and his name appears in the final publication - Assistant (Masters) and a reward is allocated to him and his name does not appear in the final publication)
 - Journals request screen in Arabic and English with the availability of the WEB OF SCIENCE

link to make it easier for the researcher to choose <http://mjil.clarivate.com> (for help)

- It is not saved and sent by the researcher to request publication until after choosing to agree to the detailed declaration, provided that an SMS text message - email to the researcher - an alert on his page after the final approval in its stages (Advisor for Scientific Publication, Quality and Academic Accreditation - Vice Dean of Scientific Research - Dean of Scientific Research)

- Emphasizing that upon completion of the academic audit, the Vice Dean of Scientific Research is transferred to the Vice Dean of Scientific Research, who, once approved, allows the system to proceed to the next stage, which is the financial audit.

- The financial audit is carried out according to the form attached to its financial stages, and the financial documents are attached, each in a specific file (bonds - management - financial report - quotations - invoices - receipt minutes - quotations minutes - financial disbursement form (repeated), that is, it is allowed to upload more than one exchange form due to different exchange rates payments according to the terms of the contract)

- Accreditation from the Undersecretary of Scientific Research for Financial Audit (there are cases of accreditation from the Undersecretary according to a supported scientific research accreditation form)

- Final accreditation (with a detailed decision according to a supported scientific research accreditation form).

5. Conclusion

In this study, comprehensive evaluation was conducted to establish a robust system based on the university requirements and needs. The current system contains some issues and those ones make it hard for the Deanship to continue relying on it. The proposed system provides all functions that are needed to run the business smoothly and seamlessly too. It is designed as the web-based system and works from anywhere and around the clock too. It provides all required tools for researchers, reviewers, and staffs as well.

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