INTEGRATED INFORMATION PLATFORM FOR INFORMATION ABOUT INDIAN UNIVERSITIES

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ABSTRACT

Nowadays, universities are highly in need of an integrated university information system (IUIS) to increase the efficiency and effectiveness of the business processes in university administration which are eventually getting complicated due to an increase in this need. For this purpose, firstly literature survey has been done on connectivity issues and best practices of IUIs. The target architecture for an integrated information system whose principle is the coupling of existing systems and the definition of global views on them. The services defined on those views can be used for high-level information services in the web or for the definition of workflows in the university administration. In terms of system architecture, development tools, functional modules, and database design, and the core module of training program making in postgraduate training management was highlighted as an example to discuss the principles and methods in the construction of departmental business systems and informatization under the digital campus environment.

Keywords – Integrated University Information System, Strategic Connectivity, Physical Connectivity, Logical Connectivity, Organizational Connectivity.

[1] INTRODUCTION

With the deepening of education reform, the scale of postgraduate enrollment has been expanding, and the data to be recorded and processed in the training management work has increased exponentially. To standardize management and improve the level and efficiency of postgraduate training management, many universities have established postgraduate management systems and related teaching support platforms one after another to realize the collection, processing, and statistical functions of basic teaching information, which reduces the manual processing work of management personnel,

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improves the working efficiency and brings great convenience to teachers and students of the whole university. It reduces the manual work of management staff, improves work efficiency, and brings great convenience to the teachers and students of the school. Although it is obvious that the integration process helps to perform business processes smoothly, it should not be forgotten that in order to obtain a satisfactory IIS, all of the integration matters considered under logical, physical, organizational, and strategic connectivity issues should be considered.

A. Scope

The aim of this study is to propose a roadmap for an integrated university information system (IUIS) based on connectivity issues for administrational needs. For that purpose, first, a literature survey is conducted about the connectivity issues for an IIS and then about the best practices of IISs in universities. Secondly, a university in Turkey has been analyzed in detail and a roadmap for an IUIS is proposed as a case study[3,4]. This study intends to draw on the development experience of other perfect systems, compare the more popular system development technologies, analyze the specific needs of the postgraduate training process.
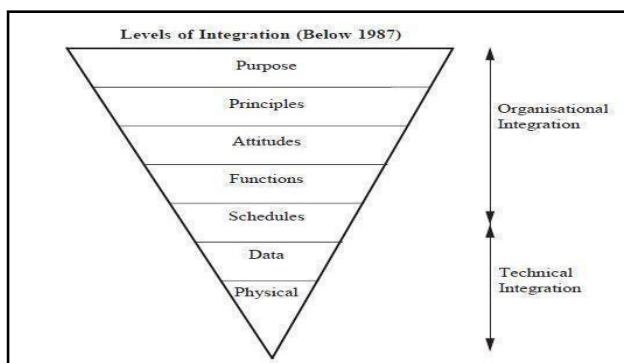

Fig. 1 Levels of Integration

B. Current Status of Research

Although the current university networked teaching management model has improved, it still lacks a lot of rationality and humanized design. Based on the above considerations, the development of an artificial intelligence-driven teaching management information system suitable for various needs is particularly important for improving the efficiency and quality of managers and enhancing the image of the school. For example, the British scholar Aithal and others mentioned that some institutions in the UK and France have built information technology earlier, and each university focuses on the construction of a web platform in the academic affairs network management system[5]. Through decades of development, they already have a perfect and mature teaching system, teaching service system, office system, library system, campus entertainment system, and so on.
These system platforms have had a great impact on students, teachers, administrators, and community residents, facilitating students' spare time, improving office efficiency,

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improving learning environments and methods, and accelerating the pace of transformation of an information-based society. The digital campus is better than UEAS Academic Affairs Management System, which combines the advantages of both and builds a better application system, deploying C/S computing mode for parts that need a lot of calculations, such as data import and data analysis, and B/S computing mode for parts that do not need too many calculations, such as information query and display. The C/S computing mode is open to a few users who need it, and the B/S computing mode is developed for all users of the system.

Many schools have established student information management systems, which provide a solid foundation for modern network education. The technical aspect of the management information system led to innovation and reform of the traditional office model, thus creating a previously unavailable, new form of efficient modern office model.

[2] LITERATURE SURVEY

This paper focuses on the design and implementation of the digital campus academic affairs management system of colleges and universities and analyzes and discusses each functional module in the digital campus academic affairs management system of colleges and universities, which has a certain innovative value and has certain reference significance for the development of the digital campus academic affairs management system of other colleges and universities[6]. In addition, computers can be used to select elective subjects for college teaching and carry out teaching assessments, which greatly saves the work pressure and work content of administrative teaching staff. Computer network technology allows each student to choose elective subjects independently through the computer, which provides sufficient autonomy for students and greatly improves work efficiency, allowing teaching staff to have more time to deal with other things and meet the needs of students at different stages.

A. Connectivity Issues

The most important dimensions of designing an IIS are strategic, physical, logical, and organizational connectivity issues which are comprehensively discussed in the following subsections[1-3].

[1] Strategic Connectivity: In accordance with Tillquist (2012), it is indicated that strategic connectivity has an important role in the successful integration of business operations. In this manner, organizations should incorporate strategic connectivity through their electronic channels in order to disseminate information and knowledge among their organizations. At that point, it is obvious that organizations need a winning integration strategy.

[2] Physical Connectivity: As indicated by Wainwright (2004), physical connectivity stays at the basement of the system integration process (Fig.1). By this perspective, major technical advances in operating systems, databases, network and communication technologies, and standards, have all contributed to the adoption of the distributed client-server technical architectures.

[3] Logical Connectivity: In an organization, there may be various information systems

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that should communicate with each other. Several problems may arise related to this communication. One of them is the cause of data redundancy which is due to keeping the same data in separate databases of different information systems that have different logical infrastructures.

[4] Organizational Connectivity: An organization is a social unit of people that is structured and managed to meet a need or to pursue collective goals (BusinessDirectory.com, 2014). Organizational readiness is an important success factor for the change management processes.

B. Optimization of Integrated Information

The system uses an on-demand B/S technology architecture. This system also uses a J2EE-based development framework and runtime environment to maximize the inclusion and integration of existing and to-be-built applications(Fig 2). For example, provide the data sharing center with authoritative data such as basic information, training, and degrees of graduate students; extract basic information about teachers and workers from the data sharing center; and additional information such as postgraduate payment and accommodation to ensure the consistency of the data. It simplifies the processing mode of business process integration between systems, simplifies the difficulty of cross-system interface integration due to changes in business requirements, and achieves loose coupling between systems. The server is usually a high-performance PC, workstation, or minicomputer with a large database system such as Oracle or SQL Server. The B/S architecture has three main components: client browser, application publishing server, and database server.

The basic functions of the digital campus teaching management system are realized, and on this basis, through the exploration of the construction of digital campus teaching management system in higher education institutions, an employment-oriented digital campus structure is formed, combining the characteristics of higher education institutions, with comprehensive and reasonable planning, highlighting the services for teachers.
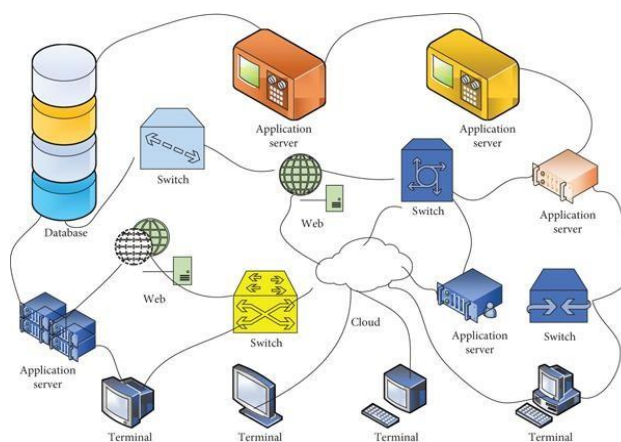

Fig. 2 Integrated Information System

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[3] Comparative Study on Integrated Information System

S.No.	Author	Year	Proposed Work	Results
1.	M. N. Habib, W. Jamal, U. Khalil, and Z. Khan	2005	Standardize management, and improve thelevel and efficiency of postgraduate training management.	It can be concluded that the scale of postgraduate enrollment has been expanding, and the data to be recorded and processed in the training management workhas increased exponentially.
2.	R. G. Hadgraft and A. Kolmos	2004	Emerging learning environments in engineering education.	The integration process helps to perform business processes smoothly, it should not be forgotten that in order to obtain a satisfactory IIS, all of the integration matters considered under logical, physical, organizational, and strategic connectivity issues should be considered.
3.	Batini, C., Lenzerini, M., & Navathe, S. B	2006	A comparative analysis of methodologies for database schema integration.	Intends to draw on the development experience of other perfect systems, compare the more popular system development technologies.
4.	C. A. Bonfield, M. Salter, A. Longmuir, M. Benson, and C. Adachi	2008	Transformation evolution?: education 4.0, teaching and learning in the digital age.	Analyze the specific needs of the postgraduate training process in the light of the overall construction of our university digital campus

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5.	D. Jackson and S.Meek	2011	Embedding work-integrated learning into accounting education: the state of play and pathways to future implementation.	The development of an artificial intelligence-driven teaching management information system suitable for various needs is particularly important for improving the efficiency and quality of managers and enhancing the image of the school.
6.	Below, L. J.	1987	The meaning of integration. In Proceedings of the 4th European Conferenceon Automated Manufacturing.	To better prepare students for future work, augmented by widespread measurement of their performance using graduate employment metrics.
7.	U. O. Matthew, J. S. Kazaure, and K. Haruna	2006	Multimedia information system (MIS) for knowledge generation and ICT policy framework in education.	Data consistency and accurate reporting which require database integration and access to data from a single authorized source are two main issues.
8.	Bertazzoni, N., Ponti G. & Ravaioli,S.	2008	Integrated information system for Higher Education.	The basic functions of the digital campus teaching management system are realized, and on this basis, through the exploration of the construction of digital campus teaching management system in higher education institutions.
9.	P.Paul, P. S. Aithal, and A. Bhuimali	2009	Environmental informatics and educational opportunities in post- graduate level Indian potentialities based on international scenario.	Integrated testing intends to verify whether the performance of the application system can meet the relevant regulations of users can learn the outstanding problems.
10	I. C. Utomo, S.Rokhmah, and I. Muslihah	2012	Web-based distributionof Zakat, Infaq, and Shodaqoh.	Struts technology architecture based on J2EE architecture is designed with high efficiency and reusability, which makes the system have good maintainability

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				and portability.

[4] CONCLUSIONS

The common problem of universities is the existence of various heterogeneous information systems which cause data inconsistency and redundancy, and difficulty in the application of businessprocesses in university administration. Therefore, the university information system needs integration to increase efficiency, effectiveness, and compatibility between subsystems andto provide consistent data flow four main connectivity issues, strategic, physical, logical, and organizational, should be considered during this integration process. This study aimed to propose a roadmap for an IUIS based on these connectivity issues for administrational needs.

For this purpose, first, the related literature survey is conducted and then the existing information systems of the university are analyzed as a case study. Secondly, based on the literature survey and the findings of the analysis, a roadmap for an IUIS is proposedcovering strategic, logical, physical, and organizational connectivity issues. The graduate student management information system adopts the concept of "big platform and small application" in the design of a digital campus system. The struts technology architecture based on J2EE architecture is designed with high efficiency and reusability, which makes the system have good maintainability and portability. While managing the system, the only data format standard belonging to the graduate system was established, which lays the foundation for the later digital campus integration construction, simplifies the steps of sharing data, and

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improves the operational efficiency of the system. This study focuses on the technical solution design for the needs of a single application system of the postgraduate management information system. The digital campus construction will have a large amount of personal information about the transmission, the vast majority of which can be said to carry confidential information, and the orientation of information also requires communication and coordination between school departments and authorization.

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