CHALLENGES AND DIRECTIONS FOR TRANSITION TO THE CONCEPT LIBRARY 3.0 OF THE NATIONAL INSTITUTION UNIVERSITY LIBRARY "ST KLIMENT OHRIDSKI" BITOLA

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Abstract: The changes and the challenges brought by the Digital era have strong influence in every domain of the human life. The development of the Information technology and the Internet makes the digitalization inevitable part for functioning of the institutions and organizations in the field of education, health care, government, industry and others. The digitalization enables the huge amounts of information to be easily and quickly accessible for the users. Especially interesting are the changes in the educational institutions where the information is the key element in the process of studying and research. Besides the access to huge amounts of information, the digitalization also provides possibility for every user to add new content in terms of description or interpretation of already existing digital subject, as well as defining Meta data that would help in some advance research. As well as the educational system the libraries have found themselves in the whirlpool of the new information and web technologies that define their development as well as the transformations that arise from that. The new web services being developed from version 1.0 to 5.0 and their advanced applications made the libraries to implement those tools, and they can offer to their users easier and faster approach to the information needed. Every web generation creates its own generation of libraries and therefore today we recognize the concept of the Library 1.0 2.0 3.0 0.4 and the concept Library 5.0 The University of "St. Kliment Ohridski" in Bitola has an important mission to develop and improve the educational process and scientific research work. In that context, the University library "St Kliment Ohridski" in Bitola as inseparable part of the university holds an important role in realization of these two processes as a source of information and accumulated knowledge. In order to respond to these kinds of challenges it needs to hold pace with WEB technologies and advanced applications that are being offered by those technologies. The first step was to approach to the process of Digitalization, by what the library's materials would become accessible to mobile devices by internet. In this paper we present ideas and directions that would help the University library in the process of its transition to the concept Library 3.0, which will respond to the contemporary needs and challenges of every person as well as the whole community in order to be competitive in the modern lifestyle.
Keywords: IT, WEB technologies, Digital libraries, Library 1.0, Library 2.0, Library 3.0.

1. INTRODUCTION

The fast development of the IT in great measure influences every aspect of the modern living, changing the way of thinking in this modern age changing the space where they work, and the way of work. The use of computers and the internet enabled progress in the activities that directly depend on timely and true information. All these things contributed for a fast and inclusive transition from conventional approaches of information, to new modern approaches which are massively using the new technologies. The information and the manner of approach to the one has suffered huge changes because of the development of the information and communication technologies. This transition has not passed even the libraries. The conventional library by application of the computers and the internet has started the transition to Digital library. Digital transformation (DT) firstly can be defined as organizational change, which is achieved by use of technologies in the areas such as operation models, models of cooperation with the community, providing services and management with information.(Mazurek,2019). Although the original definitions have identified the concept for DT with traditional definition for digitalization the use of digital technology itself it is not sufficient for DT, but especially important factor are the academic librarians whom in the process of DT are included as experts. They create services and programs for the information and digital literacy, digital services, data analyses, innovative methods of teaching and learning resources (Longmeir & Murphy,2021). DT is very closely related with the development of the WEB technologies and their advanced applications, therefore every WEB generation creates concept of library which implements applications and services that are offered by that generation.

2. WEB TECHNOLOGY, DEFINITION AND GENERATIONS

WEB technology concerns different tools and techniques which are used in the process of communication between the different types of devices through the Internet. In the far 1989, Tim Berners Lee, British scientist creates global Hypertext space where every reachable information in the network will be marked with unique Universal identification of the document (UDI). World Wide Web is simply defined like universe of globally network reachable information Berners - Lee, 1996). It represents a system of connected hypertext documents which are accessed through Internet. By WEB search engineer can be accessed to web pages that can contain text, pictures videos and other multimedia forms but also to navigate among them through hyperlinks. The main goal of this creation is to create mutual space of information, where the people will communicate and share information and in that manner they will develop the network. We will make a short presentation of the WEB generations with their main characteristics.

WEB 0.0 - Development of WEB

World Wide Web is created in 1989 in CERN by the British scientist Tim Berners -Lee. This Web allows the user to watch the static web site, reachable through hyperlinks.

WEB 1.0 - Read - only web

This generation of WWW is introduced to the public in 1990/91.In these past days the introduction of the Internet, WWW was place where objects were set, searched and objects were found on the network. The network does not allow interaction among the users, but it becomes of an interest for great number of users. To 1999 the network has approximately 3 million web sites, which is a huge amount of information. In order to be accessible these information there is the need of applications for searching and access to the information which leads to Read – only Web can be upgraded by web searching applications.

WEB 2.0 - Social (Read - Write) network

If WEB 1.0 was connecting people through the information, then the WEB 2.0 connects the people among themselves. Internet users are becoming active participants in the web, their interaction and possibility to give personal contribution in the development of the network, are becoming an important creator and not only consumer of the content of the Web. This led to development of different social platforms like Wikipedia, Facebook, YouTube and many others.

WEB 3.0 Semantics (Read-Write-Execute) network

The transition from WEB 1.0 to WEB 2.0 was huge, but transition of WEB 2.0 to WEB 3.0 was greater. By increasing the quantity of the data present on the network, besides the internet users, also the applications appear as users of information and they themselves are interrelated with other applications in order to do complicated functions for their goals. The knowledge stored on the Web is more qualitatively connected, like never before and the information acquired gain on value. Web applications can interpret information in a manner acceptable for the people, to create efficient analyses and to offer possibilities like never before. However, in the age of WEB 3.0, although the applications can connect the data and to perform functions with them, these applications still cannot provide complete context of data, nor they can understand the relevance of the ones; and they cannot bring complex decisions based on the data.

WEB 4.0 - Ultra intelligent web

The evolution of the WEB 3.0 to WEB 4.0 is not clearly defined, in a certain period they even overlaps, approximately the period in which the development of the WEB 4.0 is taken from 2020 to 2030. This ultra-intelligent Web will integrate the progress of the artificial intelligence, nanotechnologies, telecommunication and possibility to decide which content will be overtaken for machine processing. The network is adapted to more present mobile environment, by relating all the mobile devices from the real and virtual world in real time. By enabling communication among different mobile devices is created the new concept of Symbiotic network.

WEB 5.0 - Intelligently - emotional (symbiotic) Web

The rise of virtual devices that predict our needs based on our behavior, without many designations, announce the arrival of the new intelligently - emotional Web. WEB 5.0 which will include applications which will be able to interpret information at more complex levels, emotional and logical level. This would be a network which will work in real symbiosis with everyday life, undoubtedly organically interrelated with what we do. The artificial intelligence not only enables the computers to communicate like people do, but also enables them to independently think, reason and react in same way like people do. WEB 5.0 will be focused on the person, allowing to the web sites to convey a different experience for different people, having the ability to perceive the emotions of the person and to respond in a suitable way. At the moment WEB 5.0 is a vision for not so far future, but the time will show what the development of this technology will bring.

3. THE LIBRARIES AND THE DEVELOPMENT OF THE WEB TECHNOLIES

The conventional libraries are collections of different holders of information which are accessible to their members, the ones that can be borrowed or used in the library. With the advent of the Internet it is facilitated the access to information which are in digital form and more massive use of the mobile devices that have Internet access which has changed the habits of the people. The libraries faced a new challenge to keep pace with the development of the Digital era, but also to respond to the needs of the new users, who now have access to the information only with one click on their mobile phone and to start transformation to Digital libraries. In order to become more accessible the library contents for the new users should be presented in digital form i.e. to be digitalized and that meant that the conventional library began its transformation to Digital library. Development of the WEB technologies and advanced applications determine greatly in which direction would the library develop in the future. We will present a short overview how each WEB generation was creating a new concept of the library.

Library 1.0

Conventional libraries can be defined as Library 1.0.This defines the manner in which the sources of data are kept in the library, on the shelf or on the computer. Books are borrowed and after the use are returned to the library so the next user can borrow them. Library 1.0 allows only reading of its materials, similar as in WEB 1.0 where websites are accessible for read-only.

Library 2.0

The notion Library 2.0 for the first time is used by Michael Casey in 2005. He suggested that WEB 2.0 applications have applicable value for the libraries, for the library services that are led by the technologies, as well as in their management. Also there is the necessity the libraries to establish strategy for constant change in accordance with the development of the web technologies, as well as promoting of the higher participation of the users. Since 2015 by application of the internet and WEB technologies in the libraries there is the concept Library 2.0. By using the social platforms is enabled interaction with the users. Services of the library are becoming more interactive. The active user becomes an important component of the Library 2.0.The flow of information and ideas is achieved in both directions from the library towards the users and vice versa, and all that contributes for improvement and development of the library services. The user becomes co participant and consultant in the library, and we can say that the concept Library 2.0 is user-oriented community in the electronic space.

Library 3.0

The use of the new technologies like semantic web, cloud computing, mobile devices as well as the federal search engine systems, greatly facilitate the development, organization, and sharing of the user generated content which is happening in the libraries among the users, experts and librarians. The most prominent characteristic of the WEB 3.0 is the semantic web that offers the opportunity for sharing, searching and organization of the web accessible information and generating of information in simple way. Actually there is a goal to make the internet data machine readable. That is enabled by coding of semantics of the data, by using the technologies which are Resource Description Framework (RDF) of the original data and the Ontology web language (OWL). This integrated semantics offers significant advantages like reasoning and work with heterogenic data sources. Necessary condition for the library to transform the concept Library 2.0 to Library 3.0 is its contents to be machine readable and that means that the one should digitalize its contents.

4. THE PROCES OF DIGITALIZATION IN THE NATIONAL INSTITUTION UNIVERSITY LIBRARY "ST. KLIMENT OHRIDSKI" BITOLA

The strategy of digitalization, digital archiving and management with the digital objects is passed by the National and University library "St Kliment Ohridski" – Skopje (NUB) which is an institution of national significance and takes a central place in functioning and development of the Library system in the Republic of North Macedonia.

By creating the "Strategy for digitalization of the special collections in NUB in order to enable protection and access to Macedonian written cultural heritage" was started the process of digitalization in 2010.When the first collections of the digital objects were created, the need to create "Strategy for digitalization, digital archiving and management of digital objects" as a successor of the processes included in the previous strategy. This strategy goal is to work on and to establish the regulations for establishing and maintaining of the digital collections, information on metadata, nomenclature, formats and types of digital objects, to work on and to describe the processes of disposition, evaluation and procedures during the possible migrations of the digital objects, copyrights and regulation of the copyrights, internet presentation of the digital collections as well as equipping of the digitalization department and the equipment needed for the digitalization process.

As a part of this Library system of Republic of North Macedonia and the University library " St Kliment Ohridski "-Bitola in accordance with the recommendations and the existing strategies of NUB starts the process of digitalization of the collections of the Macedonian cultural heritage by realization of the projects" Digitalization of

the cultural activities in Bitola through the pages of the periods in NUB " St Kliment Ohridski "- Bitola: in the period from 1955(2020) and Digitalization of the cultural activities in Bitola through the pages of the periods in NUB " St Kliment Ohridski "- Bitola: in the period from 1956 to 1975 (2021) financed by the Ministry of Culture of Republic of North Macedonia. In the team that prepared and realized these two projects I was actively involved as an expert in the field of Informatics.

The basic operations in the process of digitalization of the library material are scanning, digital taking of photographs, scanning and converting of micro films in digital form, putting metadata on digital document, processing in OCR((Optical character recognition) software for text recognition and generating of XML(Extensible Markup Language),database for searching collections and complete control of the digitalized material, archiving of the digital documents and creating of electronic search in the database by many basis and creation of interface.

As a result of this two projects a great quantity of materials from the periods in NUB is being scanned. In the process are included the magazines "Bratstvo", "Makedonija", "Nova Makedonija","Politika","Prosveta"and "Trudbenik". For presenting of this processed materials it is being established a website (http://nuub.hopto.org/greenstone3/library/collection/col22/browse/CL1),where the same materials are accessible for searching in magazines, year of publishing and the title of the article. The most of the phases needed are realized, as scanning of the material and for some objects it is applied the method of microfilm and its conversion in digital format, metadata are created for digital objects in accordance with the Strategy of digitalization(NUB).In order to finish this process of digitalization completely, it is left to make an optical processing in OCR software which the text from the digital objects will generate XML format and in that way the digital object would be machine readable and also accessible through the modern methods of more complicated processing.

Because of the economic and political conditions created by the Corona crisis and the newest war on the territory of Ukraine as well as in the world in our country too this process of digitalization in NUB is being slowed down, but the employees in cooperation with the academic staff of the university continuously and dedicatedly work on finding financial means for buying software which will digitalize completely this material and it would make it accessible for more complicated processing which are being done by the web applications.

5. CONCLUSIONS

The digital transition in the libraries is a complicated process and it is an essential necessity in the contemporary work of the libraries. It is an expensive and long process that includes many phases in the digital processing of the library materials and the need of the professional human resources. With the digitalized materials the library and its services are accessible for wider auditorium and therefore the plans and the policies should be integrated in all the factors of the society, for more efficient use of the knowledge that is kept in the libraries. Besides this very important benefit of the digitalization is the protection of the library material that is susceptible on the toll of the time so it is used the digital replica of the original material.

On the contrary on the difficulties arising from the political economic situation in which we are today, we consider and we suggest that of great importance it is this process to continue to complete realization of the already included library material with complete realization of these two projects and same thing to be applied on the rest of the library material, and in that way we can keep the pace with transformation of the University library in Bitola to the concept Library 3.0

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