International Journal of Engineering Research and Advanced Technology (IJERAT)

DOI: 10.31695/IJERAT.2023.9.8.4

E-ISSN : 2454-6135

Volume.9, No. 8
August - 2023

Exploring the role of artificial intelligence in the advancement of e-governance

Intisar Mohsin Saadoon[1*], Rasha Thamer Shawe[1], Farah Neamah Abbas[1], and Muntaha Shokah[2]

[1]Department of Computer Science, College of Education, Mustansiriyah University, Baghdad, Iraq

[1]Department of First Class Teaching, College of Basic Education, Mustansiriyah University

Baghdad, Iraq

ABSTRACT

E-governance is one of the applications of information and communication technology. Therefore, it represents the interaction of government, business, electronic employee, and citizen with each other, and these interactions produce homogeneous and heterogeneous databases. Heterogeneous databases are sloppy, unprocessed, and bulky. Dealing with and analyzing these types of data sets takes time, effort, cost, and a clear strategy for data analysis. The aim of this research is to find out the impact of artificial intelligence technology on improving the performance and productivity of organizations by automating processes and its effective role in improving services in e-government. The data entered into smart systems is generally classified into six types: a set of recorded data, a set of text data, images, audio, video clips and other data. This classification shows that each type of data set can be analyzed by appropriate mining techniques such as core data mining, text mining, image, audio and video data mining, etc. which helps identify the needs of citizens and services in the form of multimedia (text, image, audio, video, etc.). In this research, the virtual library was taken as a model for digital governance.

Keywords: Artificial Intelligence**,** E-Governance, Digital governance, Deep Learning, NLP, Neural Networks.

1. INTRODUCTION

E-governance is a platform for using Internet technology in exchanging information and services and carrying out transactions with the general public, trades, and other government transactions. Where the need for governance was imposed due to financial crises that require re-adjusting administrative performance, monitoring workflow, and achieving transparency and justice . [1] The definition of the term governance is a way to exercise the powers of good governance according to scientific translation, or in other words, it is the system through which companies are managed and their business is controlled. [2] IFC has defined it as the sum of the game that is used to run a company from the inside.

In order to make the old systems (manual or traditional) work with the electronic governance system, it must be converted into a modern system through re-engineering the system process. The wide spread of the new system is carried out through the development of new common standards and specifications. Attention should be paid to changing safety methods, depth of service and service completeness. To implement the project, different government departments have to coordinate internally with each other. So there are different differences between the old system and the modern system. Therefore citizens, government and other stakeholders must take initiatives to address and eliminate these gaps as a priority to get full use of ICT for strong e-governance.

Artificial intelligence is the branch of computer science that is concerned with making machines behave intelligently and building computer systems with intelligent characteristics that qualify them to learn new concepts and tasks that respond to surrounding conditions, and are able to interact with humans with sound and image [3], is an attempt to create intelligent machines through the careful study of computer programs and appropriate hardware. AI offers potential efficiencies and cost savings to government [4]

The basic capabilities of intelligence are:

- Responding to situations quickly and very flexible
- Recognizing the relative disability of the different elements of the case
- simulating human intellect in machines that think and act like humans

-Understand the ambiguous or contradictory message

- Searching for similarities between situations despite the differences that may differentiate them, etc

Electronic governance is one of the applications of artificial intelligence[5]. It is a protection and immunity system that contains different principles, mechanisms, laws, and methods to maintain all internal and external systems. This is done by applying them to workers, identifying strengths and weaknesses, and finding ways to develop strengths and address weaknesses. Of the laws, regulations and principles that ensure the application of participation, transparency, accountability, oversight, equality and the application of the law in public administration

2. ARTIFICIAL INTELLIGENCE

Creating an AI system requires careful engineering of machine capabilities and traits to surpass human potential. To comprehend the way AI is powered, one must analyze its various subdomains such as robotics, natural language processing etc., and apply them to different industries for better productivity.

E-governance brings significant changes to institutional operations and has been implemented with Artificial Intelligence in a variety of organizations, with virtual libraries acting as a model showcase.

2.1 Virtual Libraries

Virtual Libraries provide students and scholars with convenient access to a wealth of knowledge. They enable users to search for digital documents, journals, books, images and more on their computer or mobile device quickly and easily[6]. All files are stored in the cloud so that they can be accessed from any location at any time – no physical library required! Virtual libraries feature advanced search capabilities including keyword filtering as well as sorting by media type or publication date to make finding information fast. With this technology's ever-growing popularity among educational institutions worldwide it is becoming increasingly important for educators everywhere to stay up-to-date with current virtual library offerings available today.

As universities move towards increasing reliance upon technological solutions such as remote learning due Covid 19 pandemic restrictions , web based research has also become commonplace . To support increased demand & facilitate data retrieval needs there's been an emergence of online encyclopedias/tomes known colloquially as 'virtual libraries' containing vast amounts data ranging from scholarly articles /journals right through multimedia applications like films & videos etc Accessed via internet connection these eC(electronic) resources give professionals unparalleled speed& convenience when accessing pertinent data within seconds compared days taken usually needed if traditional paper archives had been consulted.

Virtual libraries are remote libraries of a collection of electronic resources that provide direct or indirect access to a systematically organized collection of digital items. It provides backup to keep information, sharing between devices and users, and secure data storage solutions for easy file access, backup, and sharing. It is open access to a comprehensive digital library of resources. In the form of: e-books, magazines, online databases, media, and remote access to thousands of resources.

Virtual libraries have their services fully automated. Its resources and services are fully computerised. Thus facilitating human activities, saving human resources , time, and thus reducing human intervention in the library such as cataloging, user registration, shipping and lending of books, etc.

Here it becomes clear that AI plays a fundamental role in automating libraries, especially digital and virtual libraries.

DOI : 10.31695/IJERAT.2023.9.8.4

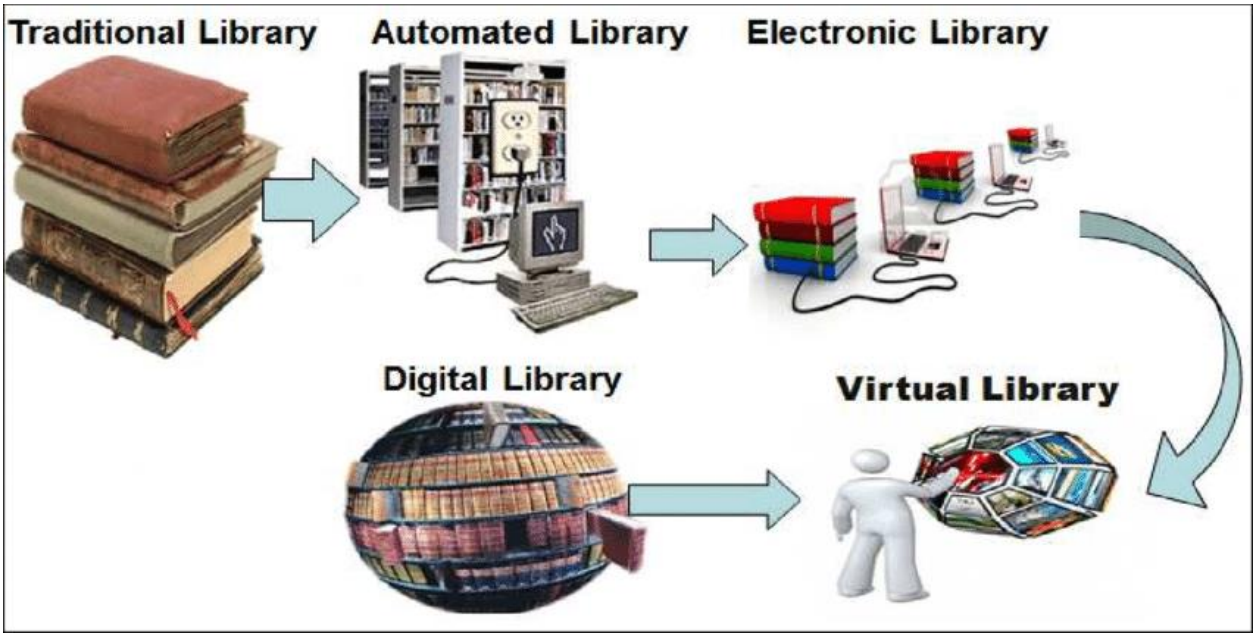

Figure1. Sequences from Traditional Library to Virtual Library [7]

The digital library provides the same services as the traditional physical library, [8]along with other services. It may have additional features as well, but it takes advantage of users' initiatives to understand the libraries. A digital library means a library without walls. Resources are available in digital format. There is no paper, thumbnail, etc. Resources are held locally or can be accessed through a computer network. Figure 2 shows the basic structure of a digital library.

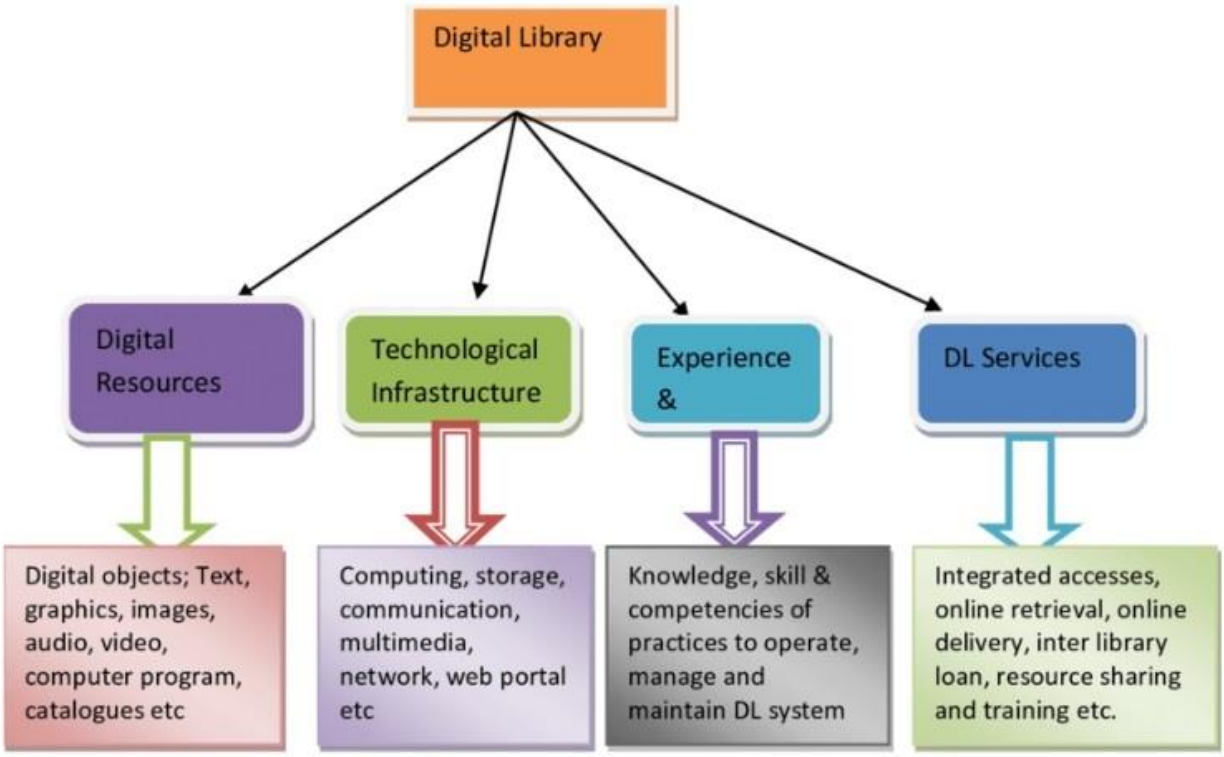

Figure2. Basic Structure of Digital Library [9]

2.2 Advantages of virtual libraries

The main advantages of virtual libraries are as follows[10] [11] [12]:

1. Quick online access to publications

DOI : 10.31695/IJERAT.2023.9.8.4

2. Enhances research capabilities

3. Cost-effective information sourcing

4. Streamlined search processes[13]

5. Increased data accuracy

6. Reduced printing expenses

7 .Flexible distribution methods

8 Improved collaboration ability

9 Greater global reach

10 Instant updates & notifications

11 Enhanced library management tools [14]

12 Robust preservation of resources

2.3 Disadvantages of virtual libraries

The most important disadvantages of virtual libraries are as follows [15] [16] [17]:

1. Restricted access to materials

2. No physical interaction with library staff [18]

3. Technology vulnerable to outage or damage

4. Limited knowledge of search criteria

5. Risk of data breaches and cybercrime

6. Unavailable rare publications

7. Poor alignment with user's needs [19]

8. Difficult navigation interface

9. High cost for extended services [20]

10. Misuse by unauthorized users

11. Weakness in proposing alternatives

12. Weak technical support

3. CONCLUSION

The benefits of artificial intelligence to government are very important. Artificial intelligence has an important role to play and has a profound effect on how citizens access government services, streamlining processes and improving the user experience. It provides an effective way for governments to improve operations while enhancing citizen engagement.

Employing artificial intelligence techniques has an important and Positive impact on the successful transition to digital government services and quality improvement. E-Government services benefit from leveraging the latest developments in AI to ensure they remain relevant and effective. This allows citizens to access quality services with ease, modernizing government delivery for a better future.

REFERENCES

[1] Introduction for Negp retrieved frohttps://en.wikipedia.org/wiki/National_eGovernance_Plan

[2] Dr. Muttaya Koganurmath, "VIRTUAL LIBRARY: AN OVERVIEW" , THEME PAPER, 5th International CALIBER - 2007, Panjab University, Chandigarh, 08-10 February, 2007

[3] Sangram services details retrieved from https://cscservices.mahaonline.gov.in

[4] https://en.wikipedia.org/wiki/Artificial_intelligence_in_government

DOI : 10.31695/IJERAT.2023.9.8.4

[5]https://astrialibrary.com/advantages-and-disadvantages-of-digital-libraries-in-education

[6]Mehr, Hila ,"Artificial Intelligence for Citizen Services and Government" ash.harvard.edu. (August 2017).

[7] Jamil Itmazi "The Importance of Digital Libraries in the Palestinian Universities", Conference: the 2nd International Conference on ICTs for Education and Training (TICET 2013) At: Hammamet-Tunisia ,Volume: TICET 2013

[8] Ahmad, D., Lutfiani, N., Ahmad, A. D. A. R., Rahardja, U., & Aini,. Blockchain Technology Immutability Framework Design in E-Government. Jurnal Administrasi Publik: Public Administration Journal, 11(1), 32-41. Q. (2021).

[9] Manoj Kumar Verma, Social Networking Sites (SNSs): An Emerging Tool for Librarians to Provide Effective Library Services in Digital Era, In International conference proceedings on "Emerging Technologies and Future of Libraries: Issues & Challenges", Shinde, G.S. et al. (Eds.), organized by Gulbarga University, Gulbarga on 29-31st January 2015; New Delhi

[10] Adeyemo, A. B., & Ojo, A. K. (2015). Improving Information Acquisition via Text Mining for Efficient E-Governance. International Journal of Computational Linguistics Research, 6(1), 23-29.

[11] Agrawal. R., Thakur. V. and Chauhan. R., (2017). Enterprise Architecture for e-Government In Proceedings of the 10th International Conference on Theory and Practice of Electronic Governance (ICEGOV'17), ACM, New York, NY, USA.

[12] Athalye, S.M. (2013). E-Governance: Issues and Challenges. Episteme: an online interdisciplinary, multidisciplinary & multi-cultural journal, Bharat College of Commerce, India

[13] Australian Govt.(2007), The Australian Government Business Process Interoperability Framework.

[14] Bhanti, P., Kaushal, U. & Pandey, A. (2011). "E-Governance in Higher Education: Concept and Role of Data Warehousing Techniques", International Journal of Computer Applications, Vol. 18, No. 1, pp. 0975–8887, 2011.

[15] https://attaa.sa/library/view/646

[16] Arora, J. (2004). Network-enabled digitized collection at the Central library, IIT Delhi. The International Information & Library Review, 36(1), 1-11

[17] Bing, W. (1998). Digital Library: Definitions, Impacts and Related Problems. The Journal of the Library Science in China, 6.

[18] Comfort, Ilesanmi Titilayo. ―Digitization of Journal Collections in Libraries: A Case Study of Kenneth Dike Library, University of Ibadan, Nigeria‖. Journal of Interlibrary Loan, Document Delivery & Electronic Reserve, 23(1). Pp35-45.

[19] Deb, S. (2006). TERI integrated digital library initiative. The Electronic Library.

[20] Hirtle, P. B. (2002). The impact of Digitization on special collections in libraries. Libraries & Culture, 37(1), 42-52.

*Author for correspondence: mail:Dr.intisar_muhson@uomustansiriyah.edu.iq

DOI : 10.31695/IJERAT.2023.9.8.4