Advances in Dynamical Systems and Applications.
ISSN 0973-5321, Volume 17, Number 1, (2022) pp. 311-318

https://www.ripublication.com/adsa.htm

Business Intelligence Systems and Knowledge Management

Hanady AL-Zagheer[1], Elturabi Osman Ahmed[2], Osama E. Sheta[3], Mohmmed S. Adrees[4]

[1]Applied Science Private University, Jordan
**zegaier@asu.edu.jz*

[2] ALBaha University, KSA
ahabeeb@bu.edu.sa

[3] Zagazig University, Egypt
uelshata@zu.edu.eg

[4]Al Baha University, KSA
midrees@bu.edu.sa

Abstract

Knowledge management is one of the contemporary intellectual developments, and information technology is the backbone of modern communications. Effective knowledge management is the optimal investment of intellectual capital within a system that handles knowledge on the basis of a system of modern communications linked to the information network (Internet) translated into information technology. Information and communication technology contributes a prominent and important role in consolidating and managing knowledge based on a strategy and within a homogeneous role that collects, classifies, and organizes , storing, and distributing it, relying on modern communication systems, which in turn play a prominent and essential role in strengthening knowledge management with its ability to create information and participate in enriching the knowledge balance, accelerating the pace of renewal, increasing the exchange of knowledge and enhancing the essence of wisdom that is the pillar of contemporary societies. Within the environmental developments, possessing effective and sound knowledge is a weapon for

anticipating the future and its manufacture in light of the information revolution and its technologies.

Keyword(s): Business Intelligence, Knowledge Management, , Information Technology.

1. INTRODUCTION

Artificial intelligence has become an umbrella term for applications that perform complex tasks that once required human input, such as communicating with customers online or playing a game of chess. The term is often used interchangeably with its sub-fields, which include machine learning and deep learning. However, there are differences. For example, machine learning focuses on creating systems that learn or improve their performance based on the data you consume. It is important to note that although all machine learning is AI, not all AI is machine learning [12].

To get the full value out of AI, many companies are making significant investments in data science teams. Data science, an interdisciplinary field that uses scientific and other methods to extract value from data, combines skills from fields such as statistics and computer science with scientific knowledge to analyze data collected from multiple sources.

2. HOW CAN ARTIFICIAL INTELLIGENCE (AI) HELP ORGANIZATIONS?

The main principle of AI is to simulate and transcend the way humans perceive and interact with the world around us. Which is fast becoming the cornerstone of innovation. Now that AI is equipped with many forms of machine learning that recognize patterns in data to make predictions, AI can add value to your business by:

A. Provide a more comprehensive understanding of the wealth of data available

B. Rely on predictions to automate highly complex and routine tasks.

3. WHAT ARE THE DRIVING FACTORS FOR THE ADOPTION OF ARTIFICIAL INTELLIGENCE?

There are three factors driving the development of AI across industries:

A. It provides easy and affordable high-performance computing. The abundance of business computing power in the cloud has enabled easy access to affordable high-performance computing. Prior to this development, the only computing environments available for AI were not cloud-based and cost prohibitive.

B. Having large amounts of data available for learning. AI needs to learn from a lot of data to make correct predictions. The emergence of different tools for collecting disaggregated data, in addition to the ability of organizations to easily and affordably store and process this data, both structural and unstructured data, has led to more organizations being able to create and train AI algorithms.

C. Applied artificial intelligence technology provides a competitive advantage. Companies are increasingly realizing the competitive advantage of applying AI insights to business goals and making them a business-wide priority. For example, targeted recommendations provided by AI technology can help make better decisions faster. The many features and capabilities of AI can reduce costs, reduce risks, speed up time to market, and much more.

4. BENEFITS AND CHALLENGES OF ACTIVATING ARTIFICIAL INTELLIGENCE

There are many success stories that prove the value of artificial intelligence. Companies that add machine learning and cognitive interaction to traditional business processes and applications can dramatically improve user experience and enhance productivity.

However, there are some obstacles. Few companies have deployed AI on a large scale, for several reasons. For example, if they do not use cloud computing, AI projects are often very expensive. They are also complex to construct and require expertise in high demand with insufficient supplies. Knowing when and where to integrate AI, as well as when to turn to third parties, will help reduce these difficulties.

5. BUSINESS INTELLIGENCE (BI) AND KNOWLEDGE MANAGEMENT

Information technology is a tool capable of managing, storing, and transferring structural knowledge. It can support us in our efforts to store knowledge in the human mind or in documents that are available to all employees of an organization [5]. in the knowledge management process; All of the absorption, creation, coordination, storage, transmission and dissemination of knowledge on the assistance provided through information technology. the use of information technology to support knowledge management clearly affects the outcome of knowledge collaboration within an organization [3]. explained that specific methods such as data mining can be useful for an organization in obtaining valuable information from databases, especially when applied to a field such as marketing, customer relationship management and e-commerce. In addition, knowledge that can grow internally and externally can be managed effectively through the use of information technology as well as the ability to increase the dynamic capabilities of the company.

Hence, information technology plays an important role in determining the success or failure of the application of a knowledge management system [9]. Although coding and translating knowledge concepts is not entirely new to the world and organizations, on the contrary, coding training methods, organizational policies, routines, procedures, reports, manuals, etc. have been conducted for years. Only through advances in information technology can an impetus be given to accelerating the development of knowledge management. The growth of information management has therefore been closely related to information and communication technology. Accordingly, it was found that information technology plays an important role in the implementation of the information management system [15].

Too many, there does not seem to be any difference between "knowledge management" and "information technology." This makes sense when it comes to non-informational lists. For IT marketers, the scanner is a key knowledge management technology because it is essential for knowledge management. Therefore, most of what is referred to as knowledge management is in fact nothing but information management. In this field, dealing with things (data or information) is information management, and working with humans is knowledge management. As we know, information management relates to documents, computer-based design drawings, spreadsheets, and program codes. It means ensuring the provision of entrances, security, transportation, and storage. It deals exclusively with clear and unambiguous representation [7].

While knowledge management on the other hand, characterizes value in originality, innovation, quickness of mind, adaptability, intelligence, and learning. And it seeks to activate the capabilities of the organization in these aspects. Knowledge management is concerned with critical thinking, innovation, relationships, patterns, skills, cooperation and participation. It supports and supports individual learning and group learning. It strengthens synergy between group members and encourages their sharing of experiences, successes, and even failures. Knowledge management may use technology to increase communication, encourage conversation, share content, and negotiate meaning.

In order to understand the reality of knowledge management, we must look more realistically at the past and the present. In the past, there were many societies that practiced knowledge management in one way or another without this label being known to their practices. Today, many societies have taken official steps in this aspect and introduced knowledge management programs. However, these societies are still unable to fully integrate "knowledge management" into their societal activities and decisions [2].

And behind it all, innovative opportunities will be created through ever-evolving information technology and software solutions. And applications of artificial intelligence will allow the computer to act as a partner for knowledge workers, adapting their actions to the behavior of the beneficiaries by predicting the information they may need.

Accordingly, it is clear that knowledge management can contribute to laying the foundations of the information society through a better exchange of ideas, allowing greater use of the available mental resources and a better possibility for innovation and development. Finally, despite the great similarity between the two terms, they are not two sides of the same coin, they are two different terms. Knowledge management operates at the abstract level more than information management. This makes its formal association with interest and tangible property difficult to collect and explain, but this does not diminish its strategic importance in any way [1].

Information technology is the main driver in the formulation of both total quality and knowledge management. Where technology provides new tools that have brought about a major transformation in the success of organizations' business, knowledge exchange and management.

Finally, in the field of enterprise resource planning systems, data warehouses for CRM and ERP, an effective infrastructure for knowledge management systems. Where many tools have been developed such as knowledge maps, XML and network sites to create the technological infrastructure necessary for knowledge management.

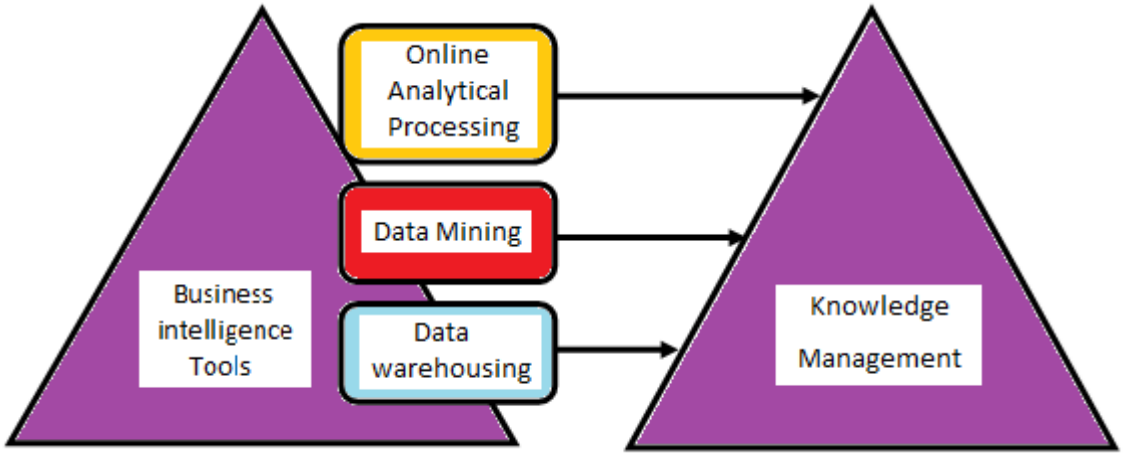

Figure (1) Business intelligence and knowledge management

6. CREATING THE RIGHT KNOWLEDGE CULTURE

Making the most of AI, and avoiding the issues that prevent successful implementations, means creating an overall culture among teams that fully supports the AI ecosystem. In this type of environment:

A. Business analysts work with data scientists to define problems and goals

B. Data engineers manage the data and the data platform, fully operational for analysis

C. Data scientists prepare, explore, visualize, and model data on a data science platform

D. IT engineers manage the critical infrastructure needed to support data science at scale, whether on-premises or in the cloud

E. Application developers deploy models in applications to create data-driven products

7. ARTIFICIAL INTELLIGENCE AS AN IMPERATIVE AND COMPETITIVE STRATEGIC ADVANTAGE

AI technology is an imperative strategic technology that works to obtain greater efficiency, new revenue opportunities and enhance customer loyalty. It is also rapidly becoming a competitive advantage for many organizations. With AI, companies can

get more done in less time, create personalized and engaging customer experiences, and predict business outcomes to increase profitability.

But artificial intelligence is still a new and complex technology. To get the most out of it, you need expertise in how to create and manage AI solutions at scale. The AI project requires more than just hiring a data scientist. Companies must implement tools, processes, and management strategies to ensure the success of AI technology [6].

8. CONCLUSION

The paper deals with the issue of knowledge management in light of its use of information and communication technology techniques, the latter of which has become the issue of employing artificial intelligence in the management of organizations more than necessary due to the competitive advantages it provides in a highly competitive organizational environment, but the issue of its employment in the administrative process has become inevitable imposed by the logic of The age of information and the digital revolution, where the concept of artificial intelligence and the use of its tools in knowledge management took a different approach compared to what was the management of organizations in the past, where the interest is now more in the management of technologies, by ensuring the provision of appropriate information networks and their good management, as well as protecting them from operations Penetration to ensure the confidentiality of information and data, and to work on maintaining them constantly, so that organizations ensure their survival and continuity.

ACKNOWLEDGEMENTS

The researcher are grateful to the Applied Science Private University, Amman, Jordan, for the full financial support granted to this research project.

REFERENCES

[1] Baldanza, C., Stankosky, M.A. (1999), "Knowledge management: an evolutionary architecture toward enterprise engineering", paper presented at International Council on Systems Engineering (INCOSE), Mid-Atlantic Regional Conference, September, 15.

[2] Al-Gasaymeh, A. S., Kaddumi, T. A., & Qasaimeh, G. M. (2021). Measuring risk exposure in the banking sectors: Evidence from gulf cooperation countries. Journal of Financial Economic Policy.

[3] Aljanabi, M., Shkoukani , M. & Hijjawi, M. (2020) Ground-level Ozone Prediction Using Machine Learning Techniques: A Case Study in Amman, Jordan. Int. J. Autom. Comput. 17, 667–677. https://doi.org/10.1007/s11633-020-1233-4.

[4] Balluck, K. (2001), "Contractors told of opportunities U.S. set to boost tech spending", *Washington Post*, November 2, pp. E5.

[5] Bob Weinstein. Feb 23, (2000). “EIPs provide single point of access for company information”. TechRepublic.

[6] Calabrese, F. (2000), "A suggested framework of key elements defining effective enterprise knowledge management programs", Engineering Management and Systems Engineering, The George Washington University, Washington, DC.

[7] Christopher C. Shilakes and Julie Tylman. (1998). "Enterprise Information Portals," Merrill Lynch.

[8] Collaboration + Retrieval + Analysis," DataPro Industry News, available at

[9] Cross, R., Baird, L. (2000), "Technology is not enough: improving performance by building organizational memory", *Sloan Management Review*, Vol. 41 pp.69-78.

[10] Davenport, T., Prusak, L. (1998), *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston, MA.

[11] Firestone, J.M., Mc Elroy, M.W (2003), *Key Issues in the New Knowledge Management*, Executive Information Systems Inc., Alexandria, VA.

[12] Haddad, M. (1999), "The hidden cost of software for the contracting organization", George Washington University, Washington, DC.

[13] Haddad, M., La Salle, A. (2003), "Additional costs and risks in software acquisition projects", *The Journal of Applied Business Research*, August.

[14] Hansen, M.T., Nohria, N., Tierney, T. (1999), "What's your strategy for managing knowledge?", *Harvard Business Review*, March/April, pp.106-16.

[15] Hammouri, Q., Abu-Shanab, E.A. (2020) Major factors influencing the adoption of cloud computing in Jordan. International Journal of Technology and Human Interaction. 16(4), pp. 55–69

[16] Heidi Collins. (2003). "Enterprise Knowledge Portals" American Management Association, 1st edition, ISBN: 0814407080

[17] http://gartner5.gartnerweb.com/public/static/datapro/industry/indnews28.html.

[18] Hummingbird Communications, Inc. (2000). Whitepaper on Enterprise Information Portals available at: http://www.hummingbird.com/

[19] International Data Corporation. (1999). http://www.idc.com/

[20] Joseph M. Firestone, (1999) "Enterprise Knowledge Management Modeling and Distributed Knowledge Management Systems," available at http://www.dkms.com/White_Papers.htm.

[21] Joseph M. Firestone, (2002) " Enterprise Information Portals and Enterprise Knowledge

[22] Karen Shegda and Allan Tiedrich. (1999). "Knowledge Management = Access +

[23] KPMG Consulting (2003), *The 2002/2003 KPMG's European Knowledge Management Survey*, KPMG Consulting, London.

[24] Makkinejad, B. (2005), "Application-specific knowledge bases", *Cross Talk the journal of Defense Software Engineering*, June, available at: www.stsc.hill.af.mil/crossTalk/2005/06/0506Makkinejad.html .

[25] Newman, B., Conrad, K.K. (1999), "A framework for charactering knowledge management methods, practices, and technologies", paper presented at Choosing Knowledge Management Technology Panel, at Santa Clara, CA, February.

[26] Plumtree Software, Inc. (2001) "Corporate Portal," Plumtree Software.

[27] Portals," available at http://www.dkms.com/ EKPandEIP.html.

[28] SA-CMM® (2002), Software Engineering Institute Carnegie Mellon University, Pittsburgh, PA, Software Acquisition Capability Maturity Model V1.03 (2002).

[29] Siemers, R., and Inc. Arc Partners (2000), "KM: what's in it for your firm", *American Banker*, February 11.

[30] Skyrme, D.J., Amidon, D.M. (2000), "New measures of success", *The Journal of Business Strategy*, Vol. 19 pp.64-7.

[31] Stankosky, M.A. (2000), "A theoretical framework: KM world", *KM World Special Millennium Issue*, KM World, Amsterdam.

[32] Stankosky, M.A. (2003), *The System Dynamics of Knowledge Management*, George Washington University, Washington, DC.

[33] Wayne Eckerson. April (1999). "Business Portals: Drivers, Definitions, and Rules," The Data Warehousing Institute, Gaithersburg, MD.

[34] Wiig, K. (1997), "Knowledge management: where did it come from and where will it go?", *Expert Systems with Applications*, Fall, pp.14.