



INFORMATION SEEKING ENVIRONMENT IN THE 21ST CENTURY

**AUWAL MAGAJI ABUBAKAR; DEBORAH SARAH GADO; AISHAT MUKHTAR
KURABAU**

*Department of library and Information Science, Kaduna Polytechnic,
Kaduna.*

Abstract

Information is a very crucial ingredient for the progress of humanity and development of a nation. With the advent of technology, information has become easily available making it easier for one to access information globally. Human beings seek information in order to satisfy their information needs (Bharadwaj & Khan, 2016) thus making this study relevant since it seeks to find out the information seeking environment of human beings.

Introduction

Information seeking as defined by Marchionini (1997) refers to a process in which individuals engage with a purpose so as to to change their state of knowledge. He further explains information seeking as a fundamental human process which is closely related to problem solving and learning (Marchionini, 1997). Information seeking is an activity or process of attempting to obtain information. Information seeking can be further explained as a process whereby an individual engages in purposeful or deliberate information seeking in order to satisfy their need for new information for any purpose and in that process he or she interacts with different sources of information (Kolarić,A , Stričević,I., 2016).

Information environment refers to the aggregate of individuals, organizations, and systems that collect, process, disseminate, or act on information

Categories of information seeking environment

The information environment is made up of three interrelated dimensions or categories: physical, informational, and cognitive (<https://itlaw.wikia.org>).

The Physical Dimension.

The physical dimension is composed of the command and control systems, and supporting infrastructures that enable individuals and organizations to conduct operations across the air, land, sea, and space domains. It is also the dimension where physical platforms and the communications networks that connect them reside. The physical dimension consists of: human beings, Command and control facilities, newspapers, books, microwave towers, computer processing units, laptops, smart phones, tablet computers, or any other objects that are subject to empirical measurement. The physical dimension is not confined solely to military or even nation-based systems and processes; it is a defused network connected across national, economic, and geographical boundaries.

This is where the information environment overlaps with the physical world. It comprises of information systems and networks. The key characteristics of physical dimension include: computers and communication systems, and supporting infrastructures. The physical properties of the information environment include: people, places, things, and capabilities of information infrastructure and adversary information capabilities.

The Informational Dimension.

The informational environment is where information is collected, processed, stored, disseminated displayed, and protected. It links physical and cognitive dimensions. Its key characteristics include: information content and flow, information quality.

The informational properties of the information environment consists of those networks and systems where information is created, processed, manipulated, transmitted, and shared. It includes those properties relevant to the electronic collection, transmission, processing, storage, and display of information. These properties may be electronic or human-to-human or a combination of both. Informational environment dimension describe the formal and informal communications infrastructure and networks, kinship and descent relationships, licit and illicit commercial relationships and social affiliations and contacts that collectively create, process, manipulate, transmit, and share information in an operational area.

Examples of informational properties include :

- (a) Specification, capacity, configuration, and usage of information infrastructure and capabilities.
- (b) Technical design of information infrastructure.
- (c) Networks of human-to-human contact used for the transmission of information
- (d) Social and commercial networks that process and share information and influence (kinship and descent linkages, formal and informal social contacts, licit and illicit commercial affiliations and records of ownership and transactions, etc.).
- (e) Content and context.

The Cognitive Dimension.

The cognitive dimension comprises the mind of the decision maker and the target audience. This is the dimension in which people think, perceive,

visualize, and decide. Cognitive dimension environment refers to the individuals' or groups' information processing, perception, judgment, and decision making. Defining these influencing factors in a given environment is critical for understanding how to best influence the mind of the decision maker and create the desired effects. As such, this dimension constitutes the most important component of the information environment.

Cognitive dimension is a dimension of intangibles like morale, unit cohesion, public opinion, situational awareness. Its key characteristics include: perceptions, emotions, awareness, understanding, individual and cultural beliefs, norms, vulnerabilities, motivations, emotions, experiences, morals, education, mental health, identities, and ideologies .

The cognitive properties of cognitive information environment are the psychological, cultural, behavioral, and other human attributes that influence decision making, the flow of information, and the interpretation of information by individuals or groups at any level in a state or organization.

Types of Information systems

Information systems include: transaction processing systems, management information systems, decision-support systems, and executive support systems.

Transaction Processing System (TPS)

Transaction processing systems are used to record day to day business transactions of an organization (Laudon & Laudon, 2015). They are used by information seekers who are at the operational management level. The main objective of a transaction processing system is to answer the following routine questions such as (Laudon & Laudon, 2015);

- How printers were sold today?
- How much inventory do we have at hand?

- What is the outstanding due for John Doe?

By recording the day to day business transactions, the information seekers at management level are able to make highly structured decisions since the information produced from the transaction processing system is very detailed (Laudon & Laudon, 2015)..

Transaction processing systems are the most valuable to an organization. The reason behind this statement is that they help the operational managers control all of the basic activities and transactions that take place within the organization (Laudon & Laudon, 2015).

Examples of transaction processing systems include;

- **Point of Sale Systems** – records daily sales
- **Payroll systems** – processing employees' salary, loans management, etc.
- **Stock Control systems** – keeping track of inventory levels
- **Airline booking systems** – flights booking management

Management Information System (MIS)

Management Information Systems (MIS) are used by tactical managers to monitor the organization's current performance status. The output from a transaction processing system is used as input to a management information system (Laudon & Laudon, 2015).

The MIS system analyzes the input with routine algorithms i.e. aggregate, compare and summarizes the results to produced reports that tactical managers use to monitor, control and predict future performance (Laudon & Laudon, 2015).

It includes (Laudon & Laudon, 2015):

- **Sales management systems** – they get input from the point of ale system

- **Budgeting systems** – gives an overview of how much money is spent within the organization for the short and long terms.
- **Human resource management system** – overall welfare of the employees, staff turnover

Decision Support System (DSS)

Decision support systems are used by senior management to make non-routine decisions. Decision support systems use input from internal systems (transaction processing systems and management information systems) and external systems.

The main objective of decision support systems is to provide solutions to problems that are unique and change frequently. Decision support systems answer questions such as;

- What would be the impact of employees' performance if we double the production lot at the factory?
- What would happen to our sales if a new competitor entered the market?

Decision support systems use sophisticated mathematical models, and statistical techniques like probability, and modeling to provide solutions, and they are very interactive (Laudon & Laudon, 2015).

Examples of decision support systems include (Laudon & Laudon, 2015):

- **Financial planning systems** – it enables managers to evaluate alternative ways of achieving goals. The objective is to find the optimal way of achieving the goal. For example, the net profit for a business is calculated using the formula Total Sales less (Cost of Goods + Expenses). A financial planning system will enable senior executives to ask what if questions and adjust the values for total sales, the cost of goods, etc. to see the effect of the decision and on the net profit and find the most optimal way.

- **Bank loan management systems** – it is used to verify the credit of the loan applicant and predict the likelihood of the loan being recovered.

Executive support systems

A) Artificial intelligence techniques in business

Artificial intelligence systems mimic human expertise to identify patterns in large data sets. Companies such as Amazon, Facebook, and Google, etc. use artificial intelligence techniques to identify data that is most relevant to the information seeker (Laudon & Laudon, 2015).

Amazon uses artificial intelligence techniques too to suggest products that you should buy also based on what you are currently getting. Google also uses artificial intelligence to give you the most relevant search results based on your interactions with Google and your location.

These techniques have greatly contributed in making these companies very successful because they are able to provide value to their customers (Laudon & Laudon, 2015).

B) Online Analytical Processing (OLAP)

Online analytical processing (OLAP) is used to query and analyze multi-dimensional data and produce information that can be viewed in different ways using multiple dimensions (Laudon & Laudon, 2015). Like for instance a company sells laptops, desktops, and Mobile device. They have four (4) branches A, B, C and D. OLAP can be used to view the total sales of each product in all regions and compare the actual sales with the projected sales. Each piece of information such as product, number of sales, sales value represents a different dimension (Laudon & Laudon, 2015).

The main objective of OLAP systems is to provide answers to ad hoc queries within the shortest possible time regardless of the size of the datasets being used (Laudon & Laudon, 2015).

Conclusion

The information plays vital role in this digital environment as a result of the technological advancements and changing information needs of the users. Technology has dominated all spheres of human activity and the libraries are not an exception one. The availability of information in the electronic media has created an opportunity for global access to information thus changing the information environment. E-resources are very important in the current electronic era as per requirements of the information seeking individuals in libraries since its easily accessed and its researchable nature of e-resources.

References

- Bharadwaj & Khan, 2016).Bharadwaj,V & Khan, J. (2016). "INFORMATION SEEKING BEHAVIORS IN ELECTRONIC ENVIRONMENT." International Journal of Research - Granthaalayah, 4(12), 132-136. <https://doi.org/10.29121/granthaalayah.v4.i12.2016.2401>.
- <https://itlaw.wikia.org>. Information environment.
https://itlaw.wikia.org/wiki/Information_environment
- Kolarić,A, Stričević,I. (2016). Information seeking behavior for decision making in everyday life: a pilot study on adolescents, Libellarium, IX, 2, 275 – 308
- Laudon, K. C., & Laudon, J. P. (2015). Management information systems (p. 143). *Upper Saddle River*: Pearson.
- Marchionini, Gary. 1997. Information seeking in electronic environments (Cambridge Series on Human-Computer Interaction). doi:10.1017/CBO9780511626388. <https://doi.org/10.1017/CBO9780511626388>