



Transformative perspectives of information technology in library automation and Artificial Intelligence in management system

Aparajita Sharma¹, Dr. Manjulata Sao², Dr. HD Diwan³

¹ Librarian, Govt. Dr. W.W. Patankar Girls P.G. College, Durg, Chhattisgarh, India

² Assistant Professor, Department of Commerce, Dr. W.W. Patankar P.G. Girls College, Durg, Chhattisgarh, India

³ Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India

Abstract

With the fast communication, data processing, and update information availability through world wide web / Internet, the Information and Communication Technology (ICT) has made round the clock accessibility of Library Resources for knowledge gaining to readers / users. The study indicates that the traditional libraries have been changed in an accelerated way and transformative pattern with the utilization of new Information and Communication Technologies, Digital and Generative Artificial Intelligence (GAI) based systems, e.g. Library Information System (LIS), Library Management System (LMS) through Automated Library establishments. The Library Management System (LMS) performs automatic operating system through Data Base Retrieval and Structural Query Language (SQL), Communication and Relational Database Management System (RDBMS) comprises Various programmes to form structures. The application of GAI in Library increases the efficiency of Library performance in activity, services and management practices.

Keywords: Library activities, automation system, information technology, library management, library services, ISO – standards, transformations, AI in library and readers performance

Introduction

Libraries are centers of information resources and utilized by individuals and societies / communities / institutions members who are acquainted with and like to learn and preserve knowledge. In physical form, the library is a nodal point of collection, storage and dissemination of knowledge through books or documents and digital versions. The library has some inherent ability to maintain the records of social, cultural, technical growth and changes of human endeavors in various aspects with many types of contemporaneous media prevailing in society and country. The application of Information Communication Technology (ICT) in library's routine work activities performs significant role, particularly in Library resources and services provided by the library. Also, communication and computing technologies have been promoted the high values of Digital library, Virtual library and Hybrid library, significantly since library is a service institution and it requires high and sophisticated performance in the Library and Information Services.

Methodology

The aim of the study is to interpret and analyses the Transformations of Conventional Library of an organization or Institution etc. in terms of e-resources, automation, utilization of new Information Communication Technology (ICT) and Artificial Intelligence applications and its significance. Under methodology, a critical and perspective review of literature has been carried out, the detailed information's collected, interpreted and analyzed regarding the transformations of library functions, activities affected by new approaches of ICT. The interpreted and analyzed details have been presented in form of Tables and Flow diagrams.

Literature Review

Rajeshwari S. Matoli (2019) [7] discusses that advancements in Information and Communication Technology (ICT) have transformed traditional static libraries into dynamic way. Modern methods of information management and the evolution of storage media have created new opportunities for both librarians and users. Christopher, Ogar & Yusuf, Dushu. (2018) [2] examines how information technology has transformed library and information services in academic institutions. The study emphasizes the shift from traditional, passive models to dynamic, user-centred, technology-driven environments. IT has expanded resource collections, improved access and quality, and removed spatial and time barriers. Mallikarjuna (2024) [1] study work examines the integration of AI in academic libraries, showing its impact on library management, resource use, and research support through tools like NLP, ML, image recognition, and data analytics. Bikramaditya. (2025) recent studies emphasize the transformative role of Artificial Intelligence (AI) and Machine Learning in modern libraries, enhancing user services through intelligent decision-making. Akinola (2022) [4] examines the transformative role of ICT in managing academic library services, enhancing functions like lending, circulation, cataloguing, and digitization. It proposes integrating ICT skills into library curricula and increasing investment in infrastructure. Rathour, S. S., & Dewangan, O. (2024) [5] emphasises LMS as vital tools for automating cataloguing, circulation, member management, and resource monitoring, thereby improving efficiency and user experience. Araya, Tsega & Mengsteab, Ass. (2020) [6] Studies indicate that manual library systems face issues like inefficiency, record loss, and space shortages, especially in developing countries. To overcome these, web-based Library Management Systems (LMS) are proposed to automate cataloguing, circulation, and member management. A. P, Shanmugam & A, Ramalakshmi &

Ganeshan, Sasthri & S, Baalachandran (2020) [8] highlights the pivotal role of Library Management Systems (LMS) in transitioning traditional libraries into efficient digital platforms. LMS addresses challenges such as manual book searches, database maintenance, and report generation delays by offering automated solutions.

Information Technology – Perspectives-

The traditional libraries have been modified in an accelerated way with the fast development and modernization by new technologies of Computer-Generated System. The Information and Communication Technology (ICT) plays an important role in the functions of library activities e.g. LIS (Library Information System), Library Management Systems (LMS), Electronic Resource Management System (ERMS), Automation, Library Networking, Services, Reprography, Library Indexing, Resource Discovery, Data Communication Network, Dissemination, Acquisition, Circulation, Classification, Cataloguing, Virtual Reference Service etc. It utilized Library Aris (Ohio Software) for Barcode Generation, Zebra Search engine and server (Perl Language), Green Stone (Repository Software, Java Language), ALICE Library Automation Software (Soft Link) and Library Software's – Dspace (2002), Green Stone (1997), Koha (2000), Durpal (2001), E- Granthalaya (2003), FFEDORA (2003), WEBLIB (2004) etc.

a. Library E Resources

At present, the electronic resources are also known as Information Resources (IR). Basically, the word E – resources used to all the products / materials, provided by a library by means of the computer network. An E-resources is defined as a resource which requires computer access or any electronic product that delivers a collection of data, library materials, of e-products. The invasion of internet has changed the functions of library and its services to users. It affects the library activities like procurement, organize, display and issue in e-form of Books, Journals, Newspapers, Thesis, Dissertations. According to the Library and Information Technology Glossary the term Library E-Resources, used to describe all of the Information products that a library provides through a "Computer Network". The E-resources includes both the online resources through internet and offline resources like CD-ROMs, PDF etc. Electronic Devices. The E-resource comprises Encyclopaedia, Magazine, Newspaper, journals, Articles published in online Version and accessed on Internet Devices. Commonly, it contains Digital Collection of Data, Bibliographic Databases, E-References, Books, Search Engines, Full Textbooks, Institutional Repositories, E-Thesis, E-Journals etc. The e-resources are not owned by libraries and have only access rights for these only. The ownership of e-resources lies with the providers of e-resources (e.g., journals). Online Databases are not proprietary; the ownership of the printed resource materials are owned by the library. The publishers, vendors, aggregators provide the e-resources to the libraries through business and access models. The advantages of e-resources are manifold:

1. It saves money and space as compared to printed models.
2. It can be accessed from anywhere and anytime by users and library.

3. The storage space and binding expenses of library resource materials is not required.
4. Through a single interface, hypertext and links in e-resources, a large number of resources can be searched (e.g., e-journals, online e-books etc.).

b. Library E- Database

A storage of data is known as a Database. The data can be defined as the raw numbers or letters stored in a computer which exhibits facts about things. The database refers to a machine-readable file of records. It is required to enable access to stored data, and it can provide information from structured data managed by special software. Both in the physical form or in its logical form, the data is useful only with the concerned context. In a database, the collection of records may be in numeric, textual, or image-based data. It is available and accessible via WWW, known as online database. The important databases utilized in libraries include: Bibliographic, Full Text, Hybrid, Numeric and Multimedia databases.

a. Bibliographic Database: It comprises bibliographic records and organized digital collections of references to publish literatures of a particular subject or general records of bibliography. The bibliographic database covers a wide range of subject domains e.g. INDMED, AGRICOLA, ERIC, PUBMED, MEDLINE, SCIBASE, Pub Science etc. The bibliographic database contains References, but Full Text of Article is not included in it. Mostly the e-bibliographic data bases provide citations which displays basic publication information about the Article or Resources material like Title, Author, Date, Source of publication etc.

b. Full Text Data Base: It includes citations, actual content of Articles referred to the article citation. The article may be in HTML or PDF format. It saves time of user locating full text of an article. The full text Database can be defined as "The e- database which provide access to the full text of the articles published in journal are called as full text database", e.g. JSTOR - <https://www.jstor.org/>. Elsevier Science, ESDC Direct. Scholarly etc.

c. Hybrid Data Base: It contains references of articles and full text articles both e.g. Willson Web, Omni File, Historical Abstracts (History) Scholarly, EBSCO Host Academy Search Premier (ASP), Social Sciences Abstracts Full Texts by Wilson Web, etc.

d. Numeric Database: Mostly the Numeric Database prepared for numeric data of Statistics, Financial, Census, Economic indicators work etc. e.g. Census Information, G.O.I., Bureau of Labours Statistics etc.

e. Multi-Media DataBase – The Images, Audio – Visual Information, Art Works, Classical Works, Video, Image Databases, Photographic Contents etc. included in Multi-Media Data Bases for users.

c. Institutional E- Repositories

The Institutional Repositories mainly provide the associated metadata regarding the documents. It is an online database which is capable to access the digital collections of theses,

dissertations, e-prints etc. belonging to an institution. This digital repository has capability to capture, index, store, disseminate and preserve e-thesis and dissertations of the institute. e.g. IISc (Indian Institute of Science) – the repository known as ePrints@IISc (Source: <http://eprints.iisc.ernet.in>). Research Thesis Platform provided by Shodhganga @ INFLIBNET Centre in open access.

d. E – Library Consortia

The Library Consortia is an association or co-operative organization or network, constituted to procure and share journals. It provides access to e-resources. e.g. UGC-INFONET Digital Library Consortium (<http://ugc-infonet.ac.in>), INFLIBNET, Gandhinagar), DELCON – Electronic Library Consortium (<http://delcon.gov.in>). The subscription to e-journals through consortia saves money. Also, the INDEST-AICTE Consortium is an open-ended proportion to accredited and affiliated institutions.

e. Digital Library and Services

Basically, a digital Library is an online collection of Digital Resources, that can be accessed through the internet in an easy mode. It is defined by Digital Library Federation (DLF) as “Digital Libraries are organizations that provide resources to select structures, offers intellectual access to, interpret, distribute, preserve the integrity of an ensure, the persistent over time of collections of digital work, available for use by a defined community or a set of community.” The library network utilizes the interlinking of library services and resources. The digital library setup has emerged out with Information Technological Growth. According to Bargman the Digital Libraries are a set of electronic resources and associated technological capabilities for creating, searching and using information. The Digital Libraries are constituted and organized by a community of users to support the information needs of community, and the content of Digital Library includes data, metadata which illustrates in various ways. The digital libraries are extension and enhancement of Information storage and Retrieval Systems of digital data of any medium. The metadata is considered as structural data, and it is a data about data. It consists description of information of objects e.g. Books, Periodicals, Journal, Webpages etc. Digital Library System (DLS) is a software system mainly based on an Architecture and provides all kinds of functionality required by a digital library. The user’s interface with a digital library through the corresponding Digital Library System (DLS). It has digitalized collections by information management tools and series of library activities and services.

Library Automation and ISO Standards

a. Library Automation: Library Automation is the application software by using computers in functions, activities and services of Library e.g. Dolphin 43 is an integrated and multiuser Library Automated Software. The code system in Automated Circulation Section uses Pattern Recognition Technologies (PRT). The selection of software for Library Automation depends on the factor of cost, up to datedness, and hardware utilized all major functional activities of Library can be performed by Information Retrieval System. It enables fast communication participation in Networking System for

resource sharing to other library networks e.g. Union Catalogues.

- b. Automated Library:** An automated library can be defined as a library where a computer system is used to manage the functions of the library, e.g.: (i). Acquisition, (ii). Cataloguing, (iii). Circulation (iv). Serials control, (v). Public access and recognition.
- c. Library Automation Softwares (LAS):** To perform the functions and activities of automated library, the application software is known as Library Automation Software (LAS). It is mainly based on web architecture and facilitates access to other servers over the internet. The modular approach of LAS comprises four generations or time periods: (i) Module-based system (MBS), (ii) UNIX and DOS based system, (iii) Integrated system based on Relational Database Structures (RDBMS), (iv) Library Management System (LMS). The system allows accessing multiple information sources from a single-window user interface and supports digital archiving.
- d. Library Automation and ISO Standards (Indian and International Codes):** The library standards comprise quantitative and qualitative norms defined as the pattern of an ideal model procedure based on criteria either measured in instrumental or an assessment of library infrastructure and services. Library standards are useful in the planning and management of various kinds of libraries, set-up, and future developments. The Indian Standards Institute (ISI), which is now known as Bureau of Indian Standards (BIS), has developed many standards since 1960 (Table I(a)). The International Standardization Organization (ISO) has formulated some standards related to infrastructure buildings, library services, and library management. Under Technical Committee (TC 46), it includes documentation, articles, records, archives, etc. (Table I(b)).

Library Management

The library management evolves the efficient work management of various services by utilizing the resources and activities to provide services. Library management of the organizational institutes is primarily related with the managing library resources involving the manpower, machine techniques, materials, and money. The financial budgetary expenditure is limited and acts as a service provider. Its activity is limited and acts as service provider of the institution concerned. Since Library is a vital part of any institution, it needs proper skilful management techniques for optimum utilization of its resources. The functions of library management under POSDCORB (Luther Gullick, L. Ur wick) have been described in Table (II) and illustrated in Fig (II).

a. Fundamental Management Functions

The five fundamental functions of management had been given by Henry Fayol (1841–1925). It includes: 1. Planning, 2. Organizing, 3. Staffing, 4. Leading, 5. Controlling. The managerial activities and universally applicable five functions—effective planning, developing staffing personnel, co-ordinating and leading with

communication and services, and controlling the system by performance and effective managing techniques/processes.

b. Library–Seven Elements Functions– (POSDCORB)

The Seven functions of library are known as elements of management (Luther Gulick & L. Ur wick, 1937) as POSDCORB (fig), It includes –

- a. Planning (P):** Plans worked out as broad outline activities, needs, methods to fulfil the aim of Organization / Institute.
- b. Organizing (O):** The establishment and structural setup of various Sections, Divisions with certain objectives and purposes.
- c. Staffing (S):** The Human Resources Personnel workings, Training of Staff and positive work environment.
- d. Directing (D):** The task of making decisions from Top to Bottom and one end to another end instructions.
- e. Co – Ordinating (CO):** To carry out the aspects of works of the Institutions / Organization and important work allotment to be performed by the personnels of the library system.
- f. Reporting (R):** The current works / activities up to date progress of system- information's, keeping through Records, Reports etc.
- g. Budgeting (B):** The fiscal Planning or Budgeting monetary controls, funds & accounting the annual budget of Library System.

c. Components of Library System – Trinity of Library (According to Ranganathan)

The books and information resources are knowledge storage of library, and it provides services to the users / patron / readers. The library system constitutes by three components – Books (Live resources), Service providers (Staffs) and Readers (Users), known as “Trinity of Library” (Ranganathan,1931). It resembles knowledge container / storage house, knowledge gainer (Reader), Service Facility Provider (Library Staff) through these components' library makes avenues for perpetual self-education learning centre.

Library System and Management

With the growth and development in technology the digital libraries has been widely accepted in the world. Since library is one of the major important segment/units in Educational and Research establishments / Institutions, it needs proper management techniques and skills. Some standard sets of skills are necessary at various execution levels of Library and Information Services. In general, the management is the act of managing personnel, machines, money, materials, resources to fulfil and get the target of the organization / Institutions or its segment units. Depending upon the size and type of Library the functions and activities have been conducted and controlled as a unit segment. Basically, the library system is a dynamic and development process by which the structural framework of Library is built. Inheritance the functional structure of library acts for efficient and effective utilization of its resources by the reader / user of the library, by means of manpower, machine

– material, and money expenditure since libraries are established for providing services to users / readers of Organizations / Institutions. Library management can be defined as the adaption of principles, rules, norms and techniques of management with efficient and effective way of Library Resource Materials (Information Sources), Machinery, Human Resources, New technology and Monetary Funds to achieve goals of objectives of Library system. The Library Management System (LMS) performs the automatic operating system to manage, organize the routine library functions. Through integrated database retrieval connected to SQL Server. The Database Management System (DBMS) utilizes Structured Query Language (SQL) as a medium of communication. The Relational Database Management System (RDBMS) comprises various programmes that guides to organize and the manipulate data in a Relational Database. The relational instance and relation schemes form the Structure of relation or set of attributes.

Module of LMS (Library Management System)

Library is an important centre in providing access to information for learning, education, and training. A library is considered as a system with its various sections which act as its components. Since a system is a set of related segments and components constituting a complex, Big large unit. The resources contain manpower, machinery, establishment, and resource materials. These entities components are integrated to utilize and fulfil the aims/tasks/objectives. It has sub-systems also, e.g., Acquisition, Circulation, Reference, Patronization, Administration sub-systems etc. The main objective of a library system is to collect, store, organize, retrieve, and make availability of information resources to the users. The various sections include: 1. Acquisition,2. Technicalprocessing,3. Circulation,4. Reference,5. Periodicals,6. Maintenance,7. Administration,8. Finance Section. The technical processing comprises classification, cataloguing, arrangement of reports, materials and resources. The Library Management System (LMS) is an integrated system, mainly based on Relational Database Architecture (RDBA) where files are interlinked. Such interlinking of files permits addition, deletion, and other required changes in one file, automatically activating the appropriate changes in related files. The LMS is an essential tool for effective stock/resource management, library activities, and library user services.

- 1. System Features:** The Library Management System is essentially a Library Automation system, and it needs: (i) General system requirements, (ii) Functional requirements for Library Automation Software. The main characteristics of LMS depend on three factors since, (a) it is based on Web Centric Architecture and external supports for multiple user / multitasking operating system (RDBMS). (b) The LMS should be compliant with UNICODE Standard for multilingual support and RFID for inventory management. (c) The LMS needs to support multiple Hardware Architecture (MHA) in terms of Server, Network, Infrastructure, PC Workstation, and Peripheral Devices.
- 2. Functional Elements:** In Library Management System the Functional Requirements includes (a) Authority Control (b) Bibliographic Control, (c) Online Public

Access Catalogue (OPAC), (d) Circulation, (e) Acquisition Control (f) Serials Control, (g) Digital Media Archive System (DMA), (h) System Administration (Table -)

a. Generative AI Techniques (GAI and ICT)

AI has emerged as new inventions of Information and Communication Technology (ICT), particularly in Library resources, services and management. The AI can be defined as “It is a technology that enables machines be to have the abilities to plan, learn, reason, problem solving, move and be creative to some extent (Heath, 2018). The AI is considered as the development and programming of computer or machine intelligent abilities, similar to Human beings to solve the problems. The traditional AI known as Narrow or Weak AI and performs a specific work or task. The Generative Artificial Intelligence (GAI) can produce original ideas or information without performing special programmes. The Generative Artificial Intelligence (GAI) considered as Deep learning Models or Machine Learning Models used to evaluate numerical data, images, speech, and complex data categories. The AI functions carried out by analysing the recent – current data with algorithms and produces new content, creates original new idea or information’s. The Generative AI models use Neural

Networks to identify the patterns and structures within the existing data to generate new and original content.

b. Utilization of AI in Library Management

The Artificial Intelligence tools can be utilized effectively in library management. It has the ability to creativ innovative applications and work out vital directions, strategies, and increase the efficiency of library management practices, particularly in the areas of Library Automation, Content Creation, Optimization, ICT, provisions of user services, by improving the library functions.

Discussion and Conclusion

The library acts as a Service Provider Unit (SPU) of the organizations, institutions concerned, and library commonly adopted POSDCORB function elements of Library Management. The library automation and standards (ISO) are useful norms in planning and management of library. The library e-resources do not require any physical space and save the space. It can be accessed on the internet all over the world and users may download the library e-materials, articles, and contents. The application of AI in library has become a significant aspect of technology to increase the efficiency of library services, works, activities, and library content management.

Table 1: Automated Library–Elements & Functions (Generalized)

S. No	Library Services Elements	Library Functions / Activities (Description)
I	Acquisition	Acquisition / Accession list, Ordering, Receipting, Order File, Report, Claiming Fund Accounting, Enquiries (Status of Order), Reports & Statistics
II	Cataloguing/ Classification	Data Entry, Authority Control, Downloading Records from Databases, OPAC and other catalogue form, Online Access & Online Catalogue, Public Access Interface, at Access from Remote users over the Internet catalogue card / label products, Retrospective Conversion
III	Circulation	Setting parameters to reflect (Loan Policies, opening time etc.), Issue & Return, Renewal, Fines, Reservation, Borrower file Maintenance, Enquiries, Reports, Statistics, Utilization of Stock etc.
IV	Serial Management	Ordering (Placing and Renewing Subscriptions), Receipting individual issues of Journals, Claiming, Serials Check in-out and claiming, Union / Holding List, Binding, Fund Accounting, Cataloguing New Titles, Circulation Control of issued items or circulated items, Accounting, Budgetary, Statistics, Report, Scheduling planning reports
V	Administration Management	Accounting, Budgeting, Word Processing, Mailing, Scheduling, Statistics, Report, Planning, Tools and Analysis of Statistical Information
VI	Reference	Bibliographic Listings, Library Instructions, Public Access
VII	OPAC	Simple and Advanced Searching, Boolean Search, Field Based Search, (Author, Source, Subject Based) Browsing – Field based Hierarchical personalized OPAC, SDI, CAS, Reservation, DDS, Outstanding Subject Downits, urts etc.
VIII	Other Services (SDI, CAS)	Preparation of User Profile, preparation of Document Profile, Matching, Notification to the user, Packages, KOHA, SOUL, SLIM, ZI, Libsuite, E-Granthalaya.

Table 2: ISO Standards – International Standard Organization (Information & Documentation)

S.No.	ISO Standard No.	Description
I.	ISO – 1179:2003	Document Storage Requirements for Archive and Library
II	ISO – 14416:2003	Requirements for Binding of Books, Serials, Paper Documents, Journals, Periodicals for Archive and Library use, method and material
III	ISO/TR – 20983:2003	Performance indicator for Electronic Library Services
IV	ISO- 2789:2006	International Library Statistics
V	ISO-5127:2001	Library Information, Electronic Collection, Document, Catalogue
VI	ISO- 11620:1998	Library Performance Indicators
VII	ISO-TR/11219:2012	Qualitative Documentation, Basic Statistics, Library building space
VIII	ISO- 18185-4:2007	RFID Radio Frequency Identification

Source: ISO, 2022

Table 3: IEEE Codes and Standards

S. No	IEEE Number Code	IEEE Standard	Description
I	IEEE 802.16	WiMAX	A series of Wireless Broadband Standard, known as Wireless MAN, Commercialized by WiMAX
II	IEEE 802.3	Ethernet	A collection of Standard and Protocol (Physical Layer and Media Access Control - MAC) wired

Ethernet Networking			
III	IEEE 802.4	Token Bus	A popular standard for Token passing LAN, used Co-axial Cable and Bus or Tree Architecture, LAN
IV	IEEE 802.5	IBM Token Ring	Introduced by IBM in 1984, standardized in IEEE (1989). Physical and Data Link Layer Network Technology uses special 3 Bytes Frame (Token)
V	IEEE 802.11	Wi-Fi	It is a set of Technical Standards for LAN, Physical Layer and MAC (Media Access Control), provides standard for wireless LAN (Wi-LAN)

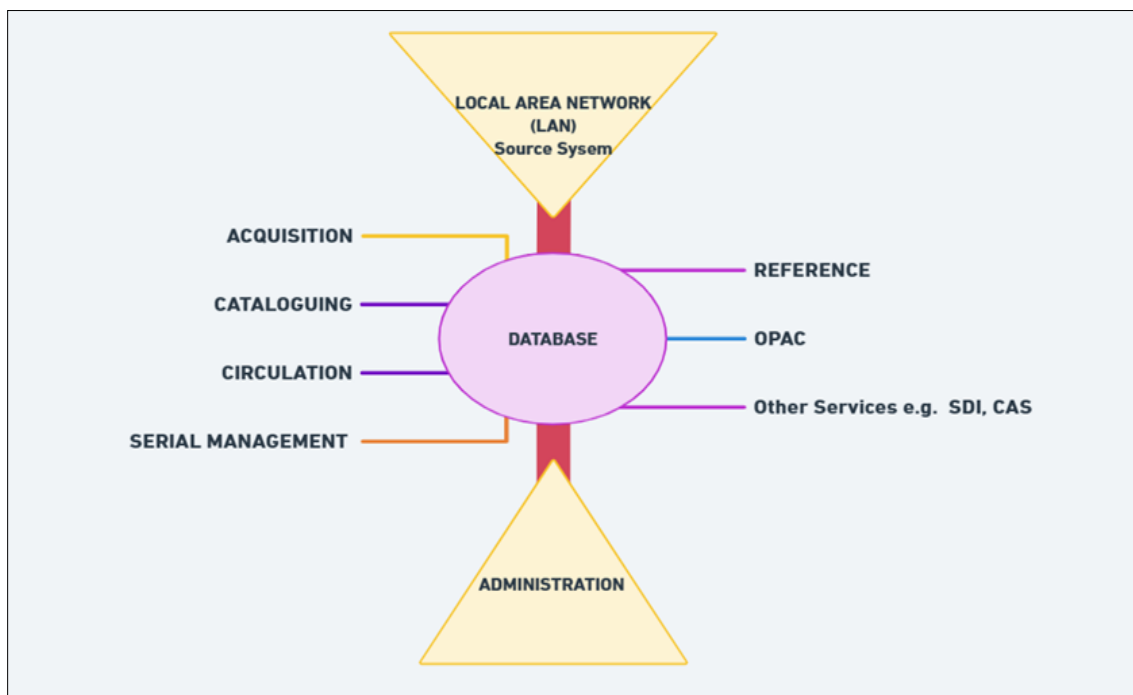
Table 4: Library Management – Seven Elements /Function Of (Posdcorb)

S. No	Seven Elements (Functions)	Description
I	Planning (P)	Preparing the plan and establishing objectives/targets, defining the analytical processes of functional work.
II	Organizing (O)	Making the process of collection of library resources, raw materials, tools, capital for targeted goal in a properly organized way.
III	Staffing (S)	Taking services of qualified persons at various levels of organization for short and long terms.
IV	Directing (D)	Managerial functions with effective and efficient manner to get the objectives.
V	Co-ordinating (Co)	Management to tie-up the interdependence of matter & issues in the targeted work.
VI	Reporting (R)	Information about performance, achievements, statements for a specific period of work to the general public knowledge.
VII	Budgeting (B)	It is a planned allocation of financial input, sanctions for resources and maintenance of controlled budgetary accounts for financial years.

Source: Luther Gulick and L. Ur wick

Table 5: Generative AI Technolgies (GAI) (Tool Types and outcome inference)

S. No.	Data Categories (Nature)	Tools (Types)	Outcome / Inference
1.	Texts	Chat GPT, Replika, Jasper, Youchat, Sudowrite, copy AI, Write Sonic, Deepseek, Gemini, Slider	It Can Provide the answer to complex queries based on public information.
2.	Text and Images	DALL – E, DALLE – 2, Google, Imagery, Stable Diffusion, make – A, Craiyon, Mid Journey, Mip- NeRF	It produces realistic photos based on text inputs.
3.	Software Programmes	Git Hubs, Co – Pilot, Tabnine, Deep Code, Intellicode by Microsoft, Replits Writer, Source AI, AI21, Studio and Amazons Code.	Mainly generates lines of codes based on text input.
4.	Audio	Google, La MDA, Bard, Apple Siri, Microsoft Cortana, Samsung Bixby, IBM Watson Assistant, Sound Hounds, Alexa, Librivox, Wit ai.	It responds to audio prompt, and generative action like starting an application, playing music etc.
5.	Music	Amper Music, Alva, Amadeus Code, Googles, MagMeta, Ecrett Music, Humtap, Boomy, Melodrive, Mubert and Sony’s Flow Machines	Produces Music, Based on the textual prompts.



(Functions and Activities)

Fig 1: Lan Automated Library (Schematic)

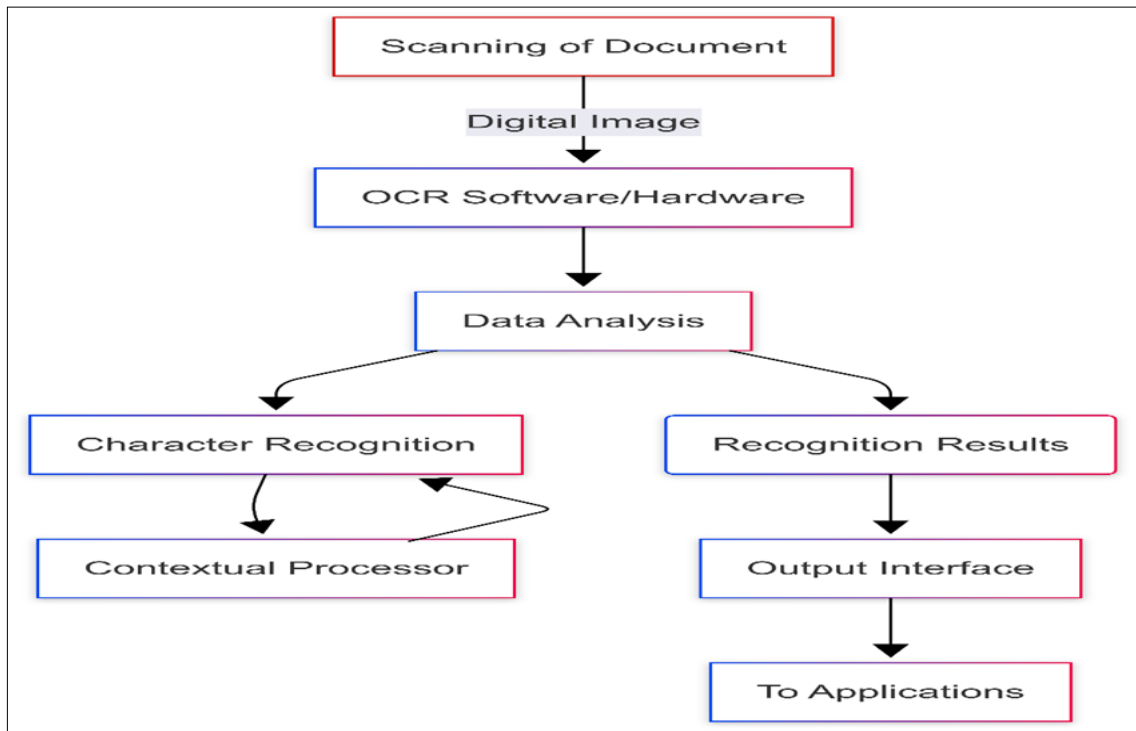


Fig 2: Digital Library (OCR Technology) (Schematic)

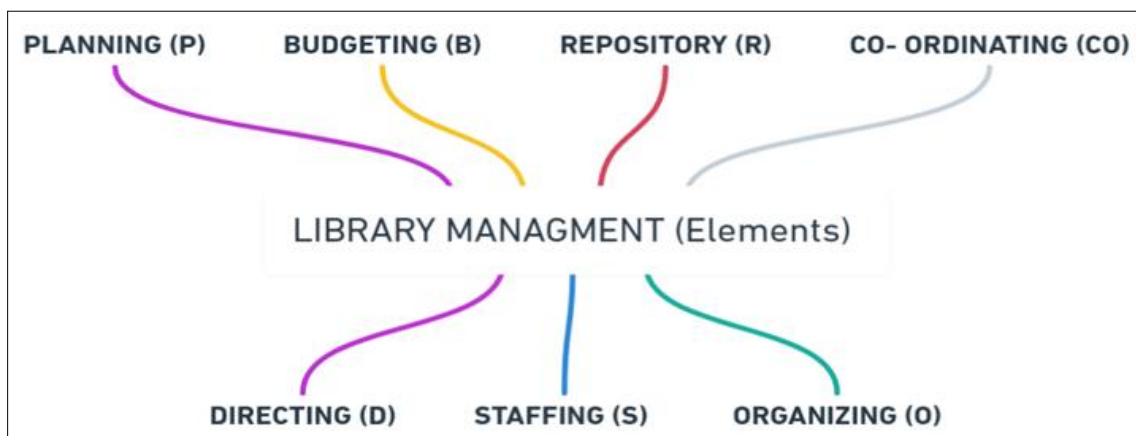


Fig 3: Library Management – Posdcorb – Configuration

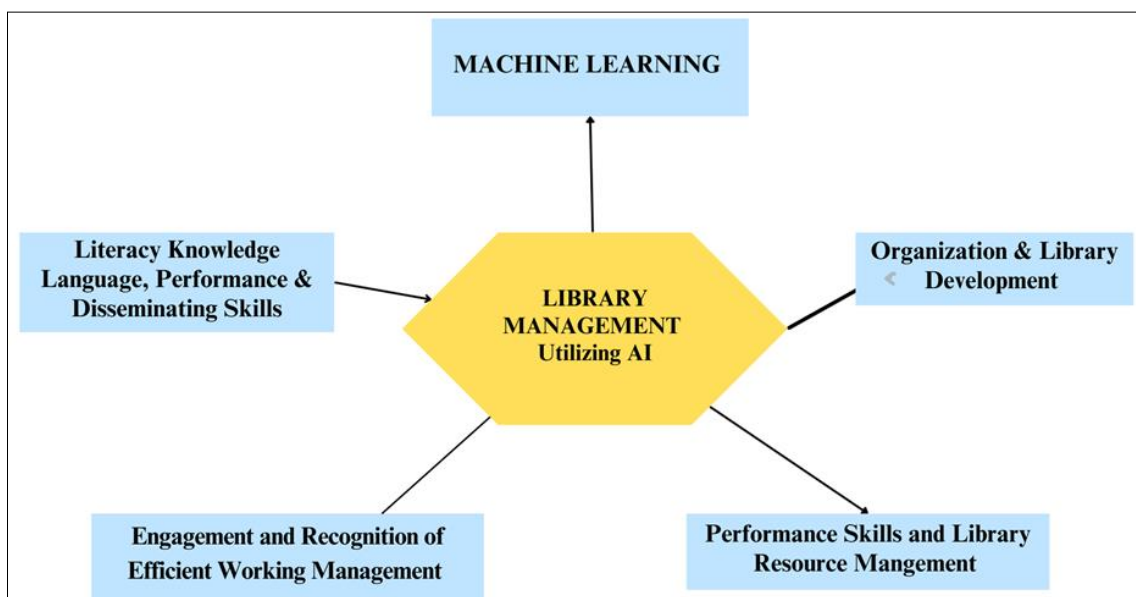


Fig 4: Library Performance and Management (Application of AI Technology)

References

1. Mallikarjuna C. An Analysis of Integrating Artificial Intelligence in Academic Libraries. *DESIDOC J Libr Inf Technol*,2024;44(2):124-9.
2. Christopher O, Yusuf D. Transforming Library and Information Services Delivery Using Innovation Technologies. *Libr Philos Pract (e-journal)*, 2018, 1-18.
3. Barman B. Artificial Intelligence and Machine Learning in Libraries: Transforming Information Access and Management,2025:1:1-7. doi:10.3254/rgujssr.v1i1.4.
4. Akinola SA. Management of academic library services in the 21st century digital dispensation. *Alexandria*,2022:32(2-3):90-104. doi:10.1177/09557490231217714.
5. Rathour SS, Dewangan O. Library management system. *Int J Novel Res Dev (IJNRD)*,2024:9(5):1-10. Available from: <https://www.ijnrd.org>
6. Araya T, Mengsteab A. Designing Web-based Library Management System. *Int J Eng Res*, 2020, 9. doi:10.17577/IJERTV9IS100131.
7. Matoli RS. Impact of ICT on college librarian and library services in changing environment. *J Adv Libr Inf Sci*,2019:8(2):71-6.
8. Shanmugam A, Ramalakshmi A, Sasthri G, Baalachandran S. Library Management System. *J Xi'an Univ Archit Technol*,2020:12:743-53. doi:10.37896/JXAT12.11/29777.
9. American Library Association. *Glossary of Library Terms with selection of Terms in Related Fields*. Chicago: American Library Association, 1983.
10. Bandre BM. Application of Management Techniques in skills in libraries. *Int Res J Sci Eng*,2020:7:710-3.
11. Nair RR. *Accessing Information through Internet*. New Delhi: Ess-Ess Publication, 2002.
12. *Biblio Tech*. Available from: <http://www.biblio.tech.com>
13. Sharma A. *Fundamentals of Library Resources, Information System and Technology*. Aditi Publication, 2025, 224.
14. Chaudhary GG. Digital Libraries and Reference Services, Present and Future. *J Doc*,2002:58(3):224.
15. Kishore A. *A Conceptual Approach to Library and Information Science*. 2nd ed. New Delhi: AKB Publication, 2020, 528.
16. Sharma A, Diwan D. Integration of artificial intelligence for optimum utilization in academic library management. *Int J Commun Inf Technol*,2025:6:41-5. doi: 10.33545/2707661X.2025.v6.i1a.114.