INTEGRITY EDUCATION

OPERATIONAL EXCELLENCE

THE ENGINE DRIVING ORGANIZATIONAL GROWTH AND SUSTAINABILITY

COMMANDER (Dr.) L. K. JAIN (Retd.)

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Editor:
Commander (Dr) L. K. Jain (Retd)
Vice President Operations, Rishihood University,
Sonipat, Haryana.

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The Engine Driving Organizational Growth and Sustainability

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About the Book

Operational Excellence: The Engine Driving Organizational Growth and Sustainability

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Operational excellence is a strategic approach that focuses on optimizing processes, reducing inefficiencies, and enhancing overall performance to achieve sustainable growth. It involves the systematic implementation of best practices, continuous improvement, and innovation to deliver high-quality outcomes while minimizing waste and costs. By aligning organizational goals with efficient processes, operational excellence fosters agility, adaptability, and resilience, enabling organizations to respond effectively to changing market dynamics and customer needs.

A key component of operational excellence is a culture of continuous improvement, where employees at all levels are empowered to identify inefficiencies, suggest solutions, and contribute to process enhancement. This approach enhances productivity, improves service delivery, and ensures customer satisfaction. Furthermore, leveraging technology, data analytics, and automation enables organizations to monitor performance, identify trends, and make data-driven decisions that promote long-term sustainability.

In academic institutions, operational excellence enhances resource management, student services, and administrative processes, ensuring a seamless learning environment. In the corporate sector, it drives competitiveness, innovation, and profitability. Ultimately, operational excellence is not merely about achieving efficiency but also about building a sustainable and adaptive organization capable of thriving in a dynamic environment. By embedding operational excellence into their core strategy, organizations can achieve long-term success, resilience, and growth.

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TO WHOM SO EVER IT MAY CONCERN

It is with great pleasure and intellectual fulfilment that I write the foreword for the book *Operational Excellence: The Engine Driving Organizational Growth and Sustainability*, edited by Dr. L. K. Jain, Vice President Operations, Rishihood University. This insightful volume offers a comprehensive exploration of operational excellence as a transformative framework for organizations striving for long-term success, efficiency, and adaptability.

Dr. Jain has expertly articulated how operational excellence goes beyond conventional management techniques to encompass strategic alignment, process optimization, continuous improvement, and innovation. The book emphasizes the importance of embedding a culture of excellence across all levels of an organization, where every stakeholder is empowered to contribute to systemic improvements. This inclusive approach enhances productivity, minimizes waste, and fosters customer satisfaction and stakeholder engagement.

A notable strength of the book lies in its focus on the integration of technology, data analytics, and automation, which are essential for driving smart decision-making and sustaining competitive advantage in today's rapidly changing global landscape. The book also addresses how operational excellence plays a crucial role in academic institutions—enhancing governance, student services, and resource efficiency—as well as in the corporate sector, where it supports innovation, sustainability, and profitability.

This book will serve as a valuable resource for management students, academic researchers, administrators, and professionals. It provides not just theoretical insights but also practical strategies for driving continuous improvement and achieving resilience in both academic and industrial contexts.

I commend Dr. Jain for this timely and well-researched contribution. His work provides an important framework for those who seek to lead change, cultivate excellence, and drive sustainable growth. I am confident that this volume will inspire deeper academic engagement and practical implementation of operational excellence principles across sectors.

My heartfelt congratulations to the author for this significant achievement.

Abhay Kumar

Prof. Abhay Kumar,
Vice Chancellor
Pratap University Jaipur,
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rishihood university

| Prof (Dr) Shobhit Mathur
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10 July 2025

Message

It gives me great pleasure to extend my heartfelt congratulations on the publication of *Operational Excellence: The Engine Driving Organizational Growth and Sustainability*, edited by Dr LK Jain Vice President – Operations at Rishihood University.

Operational excellence is a vital pillar for any institution striving for long-term impact, efficiency, and relevance. This book arrives at a time when organizations must reimagine their internal processes, governance structures, and delivery mechanisms to remain adaptive and purposeful. The insights presented in this volume offer a rich blend of conceptual depth and practical wisdom, making it a valuable resource for leaders in academia, industry, and the public sector.

The author brings to this work his vast experience from the Indian Navy and over four decades in institutional management. His keen understanding of systems thinking, discipline, and operational strategy is clearly reflected in the thoughtful curation of this volume.

We believe in creating and sharing knowledge that fosters leadership and excellence at Rishihood University. This book stands as a testament to that vision. I am confident it will leave a lasting impact on readers and practitioners alike

Prof (Dr) Shobhit Mathur
Vice Chancellor

rishihood university

| Sahil Aggarwal
| Co- Founder & CEO
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10 July 2025

Message

It gives me immense pleasure to extend my heartfelt congratulations on the publication of *Operational Excellence: The Engine Driving Organizational Growth and Sustainability*, edited by Dr LK Jain, Vice President – Operations at Rishihood University.

This book addresses a vital need of our times—creating organizations that are not only efficient but also resilient and purpose-driven. In an era marked by rapid change and growing complexity, operational excellence is no longer just an internal function—it is a strategic enabler of sustainable growth. This volume brings together thoughtful perspectives, real-world experiences, and actionable frameworks that will serve as a valuable guide for leaders across sectors.

Dr. Jain's extensive background in the Indian Navy and educational administration brings a unique and pragmatic lens to this work. His ability to combine structure with innovation reflects in the curation of this timely and relevant book.

At Rishihood University, we believe in nurturing leadership rooted in purpose, systems thinking, and social impact. This book aligns beautifully with our vision and commitment to institutional excellence.

I am confident that this contribution will inform, inspire, and influence professionals and institutions alike.

Sahil Aggarwal
Co- Founder & CEO

Acknowledgement

Writing and Editing *Operational Excellence: The Engine Driving Organizational Growth and Sustainability* has been a journey of reflection, research, and collaboration. I wish to express my sincere gratitude to all those who supported and inspired this work.

First and foremost, I am especially grateful to my colleagues Dr Rama Nand Malviya, University Librarian, Rishihood University and Mr Madhvendra Abhinandan, Assistant Librarian, Rishihood University, whose encouragement and guidance have been invaluable throughout this journey.

I am thankful to the many professionals, industry leaders, and academicians whose insights and real-world experiences have shaped my understanding of operational excellence. Their commitment to continuous improvement and sustainable growth forms the backbone of this book.

My heartfelt thanks to colleagues and collaborators who encouraged me to explore this subject deeply and share it with a wider audience. I also acknowledge the institutions and organizations that provided the environment and opportunities to apply, test, and refine these ideas over the years.

A special note of appreciation goes to my family and friends- for their patience, understanding, and steadfast support throughout this endeavor.

Above all, I dedicate this work to the changemakers and leaders striving each day to make their organizations more efficient, agile, and impactful. May this book serve as a meaningful guide in your pursuit of excellence.

— Commander (Dr) L. K. Jain (Retd)

Editor

Preface

Operational excellence, once regarded as a specialised managerial doctrine, has now become an imperative for every institution that aspires to thrive in an era defined by volatility, complexity, and heightened stakeholder expectations. The present volume - Operational Excellence: The Engine Driving Organizational Growth and Sustainability - grew out of that conviction. Conceived as an interdisciplinary forum, the book assembles research and practice-based reflections from scholars and professionals who examine how continuous improvement, data-driven decision making, and an inclusive culture of innovation can be embedded in organisations of every type—corporate, public-sector, academic, and non-profit. By integrating strategic insight with operational detail, the chapters map pathways that lead from incremental efficiency to enduring, sustainable value creation.

Dr L. K. Jain opens the collection with a scene-setting essay, Achieving Operational Excellence in Educational Institutions and Business Organisations: A Strategic Driver for Sustainable Business Growth (Chapter 4). He argues that excellence is less a destination than a disciplined habit of aligning people, processes, and purpose. The surrounding chapters show how that habit is cultivated in diverse settings:

In Challenges and Future Trends in Technology and Automation for Operational Excellence (Chapter 1), Tushar Anand and Sneh Krishna discuss robotics, RPA, and AI as levers that eliminate waste while augmenting human creativity. Mr Praveena, Dr Rekha G. N., Mr Cassin Rodrigues, Mr Mahesh Kumar B., and Mr Naveen Kumar explore consumer-centred supply chains in Unveiling Customer Perception and Satisfaction: A Deep Dive into Chain Retail Marketing (Chapter 2), linking client insight to lean operations. Risk awareness is sharpened by Dr Shalini Kumar in Risk Management and Operational Resilience (Chapter 3), which translates ISO and COSO frameworks into agile practice. Sustainability metrics are foregrounded in Sustainability and Environmental Considerations in Operational Excellence (Chapter 4) by Commander (Dr.) LK Jain (Retd) explores how operational excellence in educational institutions and business organizations serves as a vital strategy for achieving long-term sustainable growth and competitiveness. Dr Jeevan Deep Sehgal extends excellence to the human domain in Beyond the Office—HR Innovation, Driving Excellence & Sustainable Social Impact (Chapter 6), showing how employee empowerment anchors continuous improvement. Heritage meets modernity in Cultural Semiotics of Colour in Indian Educational Spaces: From Gurukuls to Smart Campuses (Chapter 7) by Dr Amit Kumar Das and Dr Arjun Kumar Singh, reminding readers that operational decisions are also cultural statements. Financial stewardship is re-examined by Shubham Sharma in Enhancing Operational Excellence: Complementing Traditional KPIs with Financial Ratios (Chapter 8), blending analytics with strategic dashboards. Dr Sakshi Vermani Rishi deepens the resilience discourse in Building Operational Resilience: Principles and Practices (Chapter 9), emphasising

scenario planning and organisational learning loops. Knowledge services form our second thematic pillar. In *Performance Measurement and Assessment in Public Library Management* (Chapter 10), Ms Ruchi Prasad and Ms Mamta Sharma design a balanced-scorecard for service excellence. Srikanth H. G. then demonstrates incremental refinement in *Enhancing Library Services Through Kaizen* (Chapter 11). The technological backbone of these transformations is analysed by Dr Payal Chakraborty and Dr Chandrasen Jangde in *The Role of Integrated Library Systems (ILS) and Emerging Technology* (Chapter 12) and by the same authors together with Dr Sarita Mishra in *The Role of Technology and Automation in Transforming Operational Excellence* (Chapter 14). Community-centred perspectives are provided by M R Ramesh in *Driving Growth and Sustainability Through Operational Excellence in Library Management* (Chapter 13) and by Husaini Musa, Goshie Rhoda Wusa, and Isiaka Chika in *Managing Integrated Library Systems (ILS) for Effective Digital Service Delivery in University Libraries* (Chapter 15). Finally, Archana Ranjan offers a sector-specific illustration of lean fashion logistics in *Fashion Forward: Operational Strategies Driving Sustainable Growth* (Chapter 16).

Collectively, these sixteen chapters illuminate three recurring themes. First, technology is a catalyst, yet real transformation relies on people who can interpret data, challenge assumptions, and steward change. Second, operational excellence and sustainability are not parallel ambitions but mutually reinforcing imperatives; ecological intelligence lowers cost while boosting reputation. Third, context matters. Whether optimising a manufacturing line, a public library, or a university campus, excellence emerges only when global best practices are adapted to local culture, regulation, and stakeholder expectations.

We believe this volume will serve executives re-designing value chains, librarians implementing smart systems, faculty developing lean curricula, and researchers charting the next frontier of operational scholarship. Each reader is invited to test the frameworks, replicate the metrics, and adapt the case studies to their own environment. In doing so, they will confirm the book's central premise: operational excellence is not an isolated function but the engine that powers sustainable growth, organisational learning, and societal well-being.

— Commander (Dr) L. K. Jain (Retd)
Editor

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Managing Integrated Library Systems (ILS) for Effective Digital Service Delivery in University Libraries: A Review of Current Practices and Perspectives

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Abstract

Integrated Library Systems (ILS) have become indispensable tools in the digital transformation of academic libraries, enabling institutions to manage core functions such as cataloging, acquisitions, circulation, and online access to resources. This review explores current practices and perspectives in the management of ILS for effective digital service delivery in university libraries. As the demand for seamless, user-centered digital services continues to grow, effective operation and integration of ILS have become crucial for ensuring timely access to knowledge, optimizing staff workflows, and enhancing user experiences. The paper examines various types of ILS, including both proprietary and open-source platforms, and evaluates their roles in supporting digital services such as Online Public Access Catalogs (OPAC), remote authentication, and e-resource management. It also reviews how university libraries have adopted different strategies to manage ILS, including vendor partnerships, cloud-based deployment, staff training, and interoperability with other digital platforms. Challenges such as budget constraints, lack of technical expertise, and system incompatibility are identified, alongside best practices observed in institutions with successful implementations. The paper further discusses the relevance of theoretical models such as the Technology Acceptance Model (TAM) and the Information Systems Success Model in understanding user satisfaction and system effectiveness. This review concludes by highlighting the need for continuous assessment, user feedback, and adaptive management strategies to ensure that ILS remains a viable tool in delivering high-quality digital library services in university settings.

Keywords: *Integrated Library system, service delivery, digital services, university libraries*

Introduction

Integrated Library System (ILS) is comprehensive, automated platforms designed to manage and streamline the core operations of libraries. These systems typically integrate various functional modules such as cataloging, circulation, acquisitions, serials control, and Online Public Access Catalog (OPAC) into a single interface, enabling libraries to maintain bibliographic records, manage user data, and track resource circulation digitally. As libraries increasingly transition from physical to hybrid or fully digital service models, ILS have become essential infrastructure supporting both internal workflows and external user services. Let us look on the definitions of ILS from different perspectives:

Integrated Library System (ILS) is defined as centralized digital platforms designed to coordinate and automate core library functions through a single interface. "An ILS is a set of interrelated modules that handle the cataloging, acquisition, circulation, serials control, and OPAC functionalities of a library, often using a unified database" (Library Technology Reports, 2020). The system ensures efficient resource tracking and service delivery by combining multiple operational tasks into a single system environment. According to *Digital Library Perspectives* (2023), "ILS platforms are now evolving into digital service environments, enabling real-time access, metadata harvesting, and seamless integration with external discovery tools." This shift is increasingly important as libraries transition into hybrid or fully digital models. Furthermore, *International Federation of Library Associations and Institutions* (IFLA Reports, 2021) describes ILS as "a critical infrastructural tool in academic libraries, facilitating both internal administrative control and external user services through structured workflows and database management." With modern enhancements, these systems now incorporate APIs, support mobile access, and allow cloud-based deployment for greater scalability and sustainability. In essence, ILS serve not only as automation tools but also as digital gateways that support both librarians' workflows and users' access to resources.

In academic libraries, ILS play a critical role in digital operations by facilitating access to electronic resources, enabling self-service options for users, supporting interlibrary loans, and offering remote access to scholarly materials. Through OPACs, users can search for and access resources beyond physical boundaries. Additionally, modern ILS platforms often incorporate or integrate with discovery layers, federated search engines, and digital repositories, making them central to digital information management. Cloud-based ILS solutions have further enhanced

accessibility and reduced the burden of local system maintenance, allowing for scalability, real-time updates, and enhanced user engagement.

The rapid rise of digital services driven by the demand for 24/7 access, remote learning, and virtual scholarly collaboration has compelled academic libraries to reassess their service delivery frameworks. However, the literature on the management and optimization of ILS remains fragmented, with studies often focusing on isolated components or single-system implementations. As a result, there is a pressing need for a consolidated review that maps out prevailing practices, assesses challenges, and draws out strategic insights.

This review, therefore, aims to: synthesize existing literature on the management of ILS in university libraries; explore how ILS platforms support digital service delivery; and identify gaps, challenges, and future directions for improving the efficiency and impact of ILS in academic digital environments.

Theoretical Background

The effective management and adoption of Integrated Library Systems (ILS) in university libraries can be understood through the lens of several foundational theories in information science and systems adoption. These theoretical models provide a conceptual foundation for evaluating the usability, impact, and evolution of digital systems within academic environments. Therefore, we are going to consider only three models for the effective adoption of the ILS in university libraries. These include:

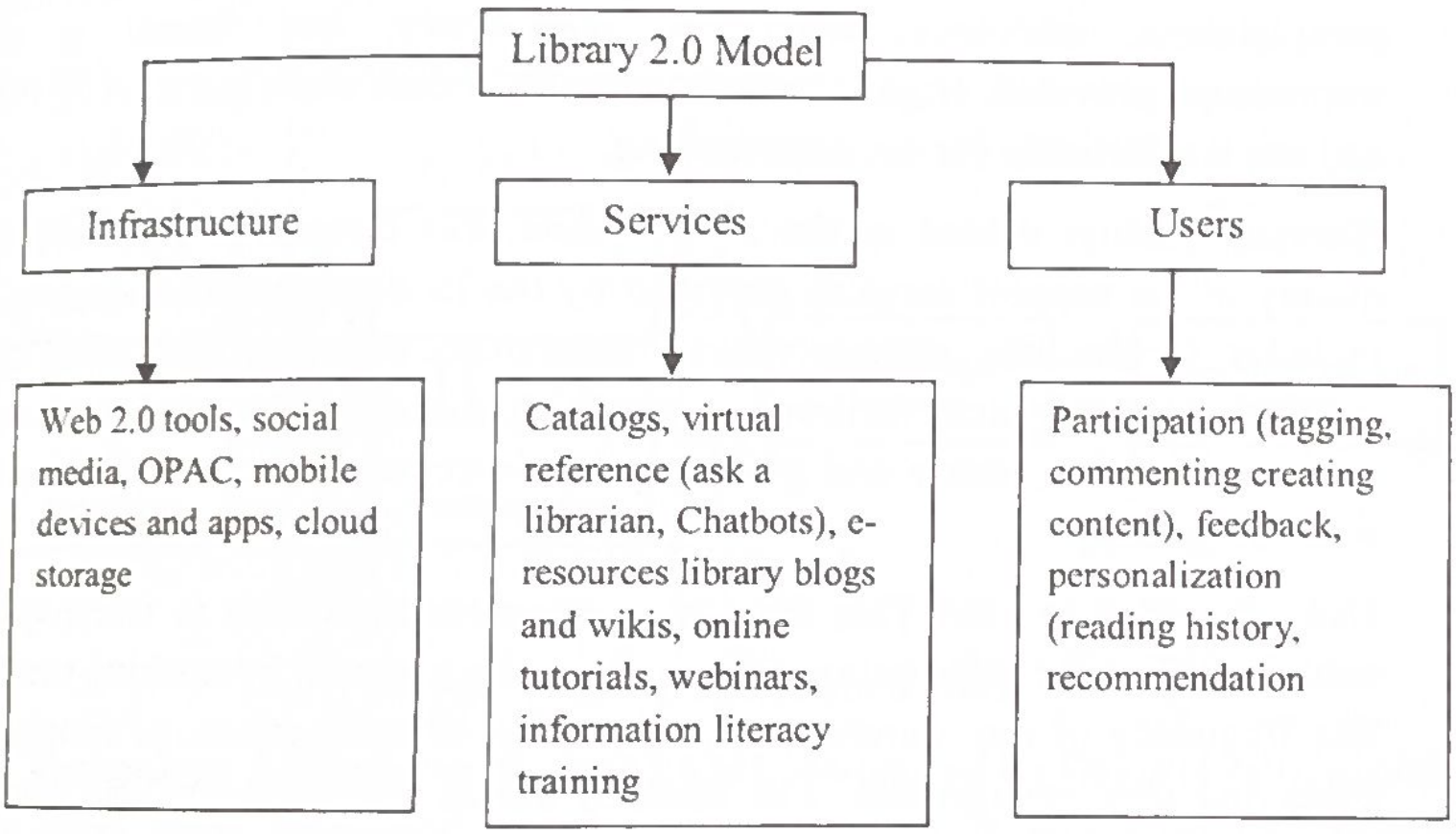
The **Library 2.0** model is particularly relevant in framing the shift toward user-centered digital library services. It emphasizes interactivity, participation, and continuous innovation in how services are delivered to users. "Library 2.0 promotes a participatory approach in which user's influence library services, technologies, and interfaces, especially through online tools and platforms" (Casey & Savastinuk, 2007). In the context of ILS, this theory supports the inclusion of features like personalized user accounts, online renewals, and user tagging, all of which enhance interactivity and user satisfaction.

Miller notes that the phrase "Library 2.0" was originally introduced by Michael Casey on his Library Crunch blog. This concept refers to the integration of interactive, collaborative, and multimedia web technologies into digital library services and collections (Vikas, 2022). The idea of Library 2.0 can be better understood through its core components and defining features, which include:

1. Infrastructure (web 2.0 tools, social media, opac, mobile devices and apps. cloud storage

2. Services (catalogs, virtual reference (ask a librarian, Chatbots), e-resources library blogs and wikis, online tutorials, webinars, information literacy training
3. User (participation (tagging, commenting creating content), feedback, personalization(reading history, recommendation)

Diagram: Three layer Library 2.0 Model



The diagram above is a three-layer model of library 2.0 illustrates how modern library services are built on a foundation of web 2.0 technologies like social media, interactive catalogs, and mobile platforms. These technologies support user-centered services such as virtual reference, e-resources access, and digital literacy tools. At the top , users actively engage by participating, giving feedback, and creating content, making the library a dynamic, interactive environment.

The Information Systems Success Model "The success of digital library systems like ILS can be measured by how well these systems deliver accurate information, maintain reliability, and provide responsive support to both users and staff" (Petter et al., 2008). These dimensions are directly applicable to evaluating the performance and impact of ILS in academic libraries.

The model was introduce by DeLone and McLean, initially proposed in 1992 and updated in 2003, identifies six key dimensions that contribute to the overall success of an information system.

1. System Quality: This dimension refers to the desirable characteristics of the information system itself. It assesses how well the system performs its functions, its ease of use, reliability, efficiency, flexibility, and user-friendliness. A high-quality system is generally free of bugs, intuitive to navigate, and responsive to user input.

2. Information Quality: This dimension focuses on the quality of the output generated by the information system. It evaluates aspects such as accuracy, completeness, relevance, timeliness, consistency, and format of the information provided. High information quality means users can trust the data and use it effectively for decision-making.

3. Service Quality: Added in the 2003 update, this dimension addresses the quality of the support services provided by the IS department or vendors. It includes factors like responsiveness, assurance, empathy, reliability, and tangibles (e.g., physical facilities, equipment). Good service quality ensures that users receive timely and effective assistance when encountering issues with the system.

4. Use / Intention to Use: This dimension measures the extent to which users actually utilize the information system. It can be assessed by tracking metrics like frequency of use, duration of use, number of transactions, or simply by observing user engagement. The updated model also includes "intention to use," recognizing that a positive predisposition towards using the system is a precursor to actual use.

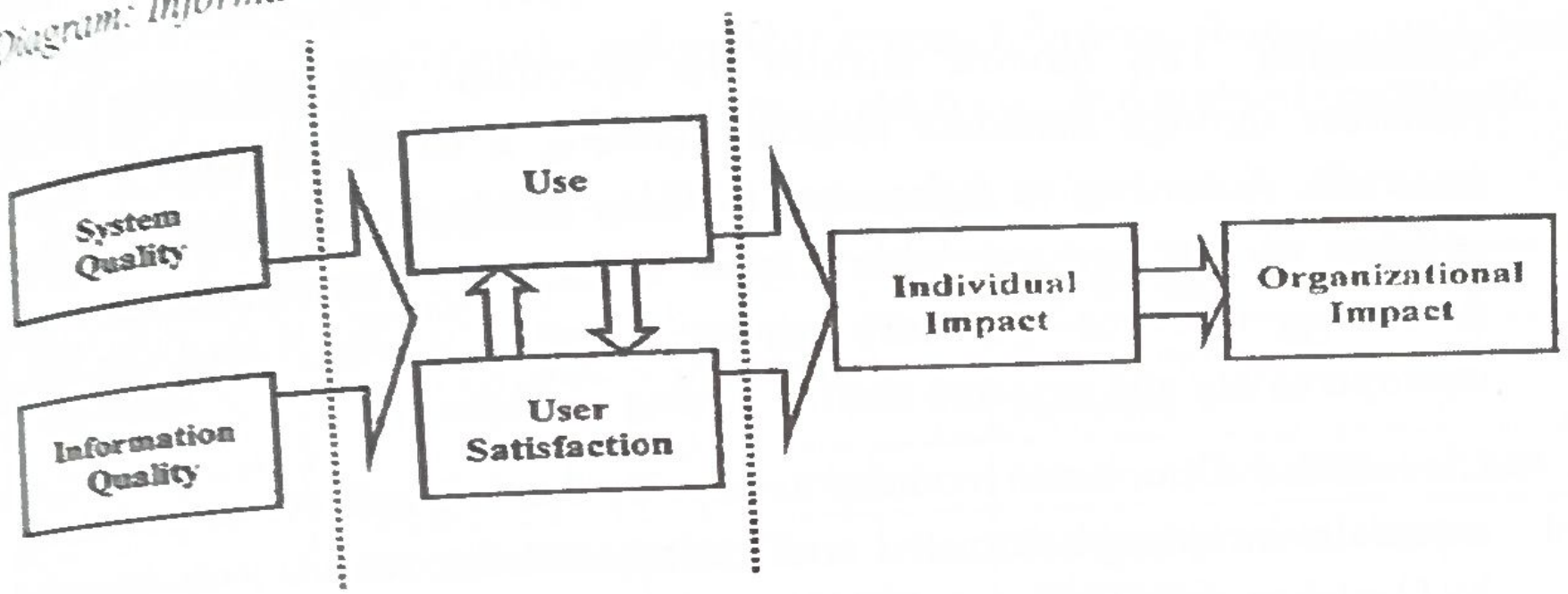
5. User Satisfaction: This dimension gauges the level of contentment users experience with the information system and its associated services. It's often measured through surveys that ask users about their satisfaction with various aspects of the system, information, and support. High user satisfaction typically leads to greater adoption and continued use.

6. Net Benefits (Individual and Organizational Impact): This dimension represents the ultimate goal of implementing an information system. It measures the positive impacts or benefits derived from the system's use. These benefits can be:

    i. Individual Impact: Improved decision-making, enhanced productivity, increased job effectiveness, and better understanding of tasks for individual users.

The DeLone and McLean model suggests that system quality, information quality, and service quality directly influence both system use and user satisfaction. In turn, system use and user satisfaction lead to net benefits for individuals and the organization. The model is iterative, meaning that the perceived benefits can also influence future perceptions of quality and usage.

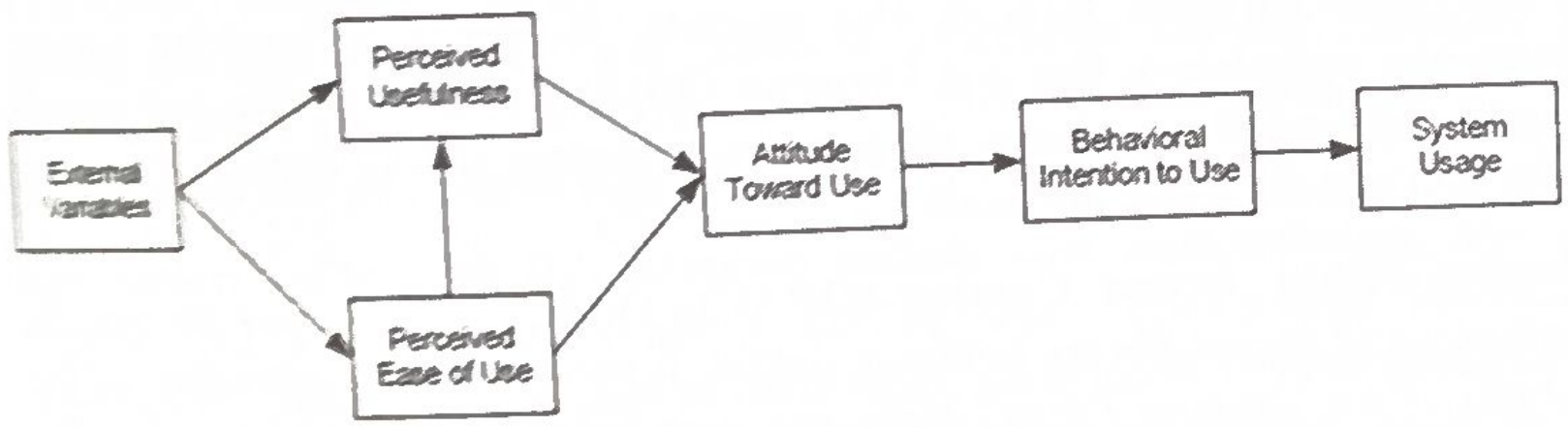
Diagram: Information System Success Model



Source: (Delone and Mclean 2003)

The Technology Acceptance Model (TAM), introduced by Davis (1989), explains how users come to accept and use technology. It is based on two primary constructs: perceived ease of use and perceived usefulness. "In library systems, TAM helps in understanding why staff and users adopt or resist ILS based on their perceptions of how easy the system is to use and how well it enhances their tasks" (Venkatesh & Davis, 2000). Effective ILS management, therefore, requires an emphasis on user training, intuitive interface design, and workflow alignment.

Diagram: Technology Acceptance Model



(Source: Ma and Liu 2004)

Together, these frameworks help explain how ILS are adopted, managed, and experienced within academic settings. They also serve as a guide for evaluating implementation strategies, improving user satisfaction, and designing future system upgrades.

Components and Functions of ILS

In university libraries, the integration of core library modules is fundamental to delivering efficient and seamless digital services. These modules automate traditional functions, thereby enhancing access, user experience, and resource management.

1. **Cataloging**: This module enables the systematic arrangement of library resources through metadata creation, making it easier for users to locate materials. According to Agbo et al. (2021), "cataloging modules support the creation of standardized bibliographic records, ensuring consistency and facilitating resource discovery across digital platforms." This enhances interoperability and resource sharing among institutions.

2. **Circulation**: Circulation modules manage the lending and returning of library materials, including automated notifications and fine calculations. As noted by Oyelekan and Olorunsola (2020), "automated circulation systems improve user engagement by offering real-time information on item availability and due dates." This functionality ensures smoother borrowing processes and improves accountability.

3. **Acquisitions**: This module deals with the procurement of library resources—both print and digital. It tracks budgets, orders, and vendor performance. "Digital acquisition tools help libraries maintain transparency and control over collection development, aligning purchases with institutional needs" (Iroaganachi & Nkiko, 2022).

4. **Serials Management**: Managing periodicals and journal subscriptions is made more efficient through this module. It assists in tracking issues, renewals, and claims. Eze and Uzoigwe (2018) stated that "effective serials control is vital for academic libraries as it ensures timely access to current research and academic publications."

5. **Online Public Access Catalog (OPAC)**: OPAC allows users to search, browse, and access library holdings online. It serves as the digital face of the library. "An intuitive OPAC increases user independence and reduces the burden on library staff by offering self-service options for resource location and reservation" (Ibrahim & Yusufu, 2021).

6. **User Account Management**: This module handles user profiles, borrowing history, authentication, and personalized services. "Through user management systems, libraries can offer customized services and ensure secure access to digital resources" (Ahmed & Bala, 2019).

Collectively, these modules form the backbone of integrated library systems (ILS), enabling university libraries to offer reliable, user-centered digital services that support learning, teaching, and research.

Adoption and Implementation of ILS

Integrated Library Systems (ILS) come in various types based on their deployment model, source code availability, and vendor origin. Libraries choose a type based on their budget, technical capacity, customization needs, and scale of operations.

Below are the main types of ILS used in libraries:

Type	Examples	Key features
Open-source	Koha, Evergreen, NewGenLib	Free, customizable, community-supported
Proprietary	Alma, Sierra, Symphony, Voyager	Vendor support, stable, high cost
Cloud-Based	Alma, Koha Cloud, POLIO	Scalable, remote access, low maintenance
Locally Hosted	Koha (self-hosted), Symphony	Full control, IT-dependent
Custom/Modular	National libraries, large consortia	Highly flexible, integration-focused

The adoption of Integrated Library Systems (ILS) has evolved significantly, with institutions increasingly weighing the merits of open-source versus proprietary platforms. Open-source systems such as Koha and Evergreen have seen growing popularity due to their flexibility and community-driven development. According to Breeding (2021), "libraries increasingly seek open-source solutions to reduce dependency on commercial vendors and enhance customization capabilities."

Conversely, proprietary systems like Ex Libris Alma and Innovative's Sierra offer robust commercial support and seamless integration features. "Despite higher licensing costs, proprietary systems appeal to institutions requiring enterprise-level functionality and guaranteed support services" (Zhu & Shen, 2020).

Key factors influencing ILS adoption include cost, customization, and vendor support. As Rehman and Shafique (2022) note, "open-source ILS solutions significantly lower the total cost of ownership, particularly in developing countries where budgetary constraints are prevalent." However, customization needs and ongoing support often sway decision-makers toward commercial solutions.

ILS platforms are central to modern digital library services. They facilitate remote access to e-resources, enhance user experience via online public access catalogs (OPACs), and support integration with institutional repositories and discovery layers. As Islam and Akter (2021) affirm, "ILS acts as a backbone for digital library functions, enabling seamless interaction between users and library resources regardless of physical location."

Modern ILSs are increasingly integrated with digital repositories and tools like Primo, VuFind, or DSpace, enabling holistic search experiences. "Such integration reduces information silos and promotes discoverability of both licensed and open-access resources" (Chisita & Chiparausha, 2023).

Merits and case studies

ILS implementation has led to enhanced efficiency, user satisfaction, and real-time access to resources. As Ayankola et al. (2023) highlight, "the automation of circulation, cataloging, and acquisitions has significantly improved service delivery in university libraries." Notable examples include some of the universities that have implemented ILS in the libraries:

1. The University of Ilorin Nigeria, which adopted Koha and reported improved access and reduced operational overheads. "Since migrating to Koha, the library recorded a 40% increase in catalog usage and faster circulation processing" (Okon & Udo-Anyanwu, 2020).
2. The Bodleian Libraries at the University of Oxford implemented Ex Libris Alma, a cloud-based proprietary ILS, as part of their digital transformation. "Ex Libris Alma has allowed Oxford's libraries to manage both print and electronic resources through a single unified interface, increasing efficiency and enabling collaborative workflows" (Bodleian Libraries, 2021). The system supports integration with discovery layers like Primo, enhancing access to vast collections and digital archives.
3. The Central Library of IIT Delhi, one of India's premier technical institutions, implemented Koha as part of its move toward digital transformation and resource integration. The decision was driven by the need for a cost-effective, customizable, and scalable ILS. IIT Delhi reported that the implementation enhanced its ability to manage both physical and electronic collections through a centralized system. The system allowed for better OPAC services, remote access to e-resources, and integration with institutional repositories. Additionally, the institution used RFID integration with Koha to enable self-check-in/check-out and streamline circulation processes. "The successful

integration of RFID and Koha has transformed our library service model by reducing manual workload and increasing user autonomy" (Gaur & Tripathi, 2021).

4. Jawaharlal Nehru University (JNU) implemented Koha to streamline cataloging, serials, and circulation. It also enabled greater transparency and user satisfaction through real-time OPAC access. "Open-source solutions like Koha have given academic libraries in India an affordable way to automate core services without being locked into expensive vendor licenses" (Kumar & Singh, 2019).

5. The University of Hyderabad adopted NewGenLib, a home-grown ILS designed for Indian libraries. The system supports Unicode, making it useful for multilingual cataloging in Indian languages. "NewGenLib is developed by Indian professionals and meets the contextual needs of Indian university libraries with support for regional languages and local metadata standards" (Rajput & Patil, 2018).

Challenges in the Adoption and Implementation of Integrated Library Systems (ILS)

Integrated Library Systems (ILS) have become vital to the automation and digital transformation of academic and research libraries. However, despite their benefits, the adoption and implementation process is fraught with several challenges. This section explores five critical challenges as identified in the literature:

1. Budget Constraints

One of the most pervasive challenges faced by libraries particularly in developing countries is limited financial resources. The initial costs of ILS software (especially proprietary systems), along with hardware, network infrastructure, training, and maintenance, often exceed the budget allocations for libraries.

Rehman and Shafique (2022) emphasize that "many libraries in developing countries struggle to adopt robust ILS platforms due to insufficient funding, leading them to settle for suboptimal or outdated solutions." Even with open-source options like Koha, expenses related to customization, hosting, and human resources remain significant.

Moreover, financial constraints also affect long-term sustainability. As Islam and Akter (2021) note, "the inability to maintain annual service fees, especially for proprietary systems, can lead to discontinued upgrades and service disruptions."

2. Staff Resistance to Change

Resistance to organizational change is a common barrier to the successful implementation of new technologies, and ILS is no exception. Many library staff members are accustomed to traditional, manual systems and may be hesitant to adopt new tools that disrupt their routines.

According to Okon and Udo-Anyanwu (2020), "staff resistance often stems from fear of job redundancy, lack of involvement in decision-making, and the anxiety associated with learning new technology." This resistance is particularly pronounced among older or long-serving employees who may not see the need for automation.

Effective change management strategies, including participatory planning and communication, are often lacking. "Resistance can be mitigated through inclusive planning, continuous sensitization, and demonstration of the benefits of ILS," argue Ayankola, Okusaga, and Lawal (2023).

3. Lack of Technical Skills

The successful deployment and operation of ILS platforms demand technical competencies that many library staff members may not possess. Tasks such as system installation, database management, customization, troubleshooting, and integration with other digital tools require specialized skills.

Aliyu and Yusuf (2022) observed that "a critical barrier in Nigerian academic libraries is the absence of adequately trained personnel to manage open-source or even commercial systems beyond basic use."

This lack of expertise affects not only day-to-day operations but also the library's ability to harness the full potential of the system. In many cases, institutions are forced to hire external consultants, which adds to operational costs and slows down internal capacity building.

4. Integration Issues with Legacy Systems

Libraries often operate with legacy systems, including cataloging databases, user records, and circulation modules that may not be directly compatible with modern ILS platforms. Integration with these legacy systems is typically complex, time-consuming, and prone to data inconsistency.

Zhu and Shen (2020) note that "legacy system integration is a major technical hurdle, particularly when institutions lack detailed documentation or standardized metadata schemas." This issue can severely limit the scope of system interoperability and disrupt library workflows.

Furthermore, legacy system data formats may not align with the modern relational database structures used in ILS, necessitating elaborate conversion procedures that increase implementation timelines and costs.

5. Data Migration and Cybersecurity Concerns

Data migration is one of the most delicate phases in transitioning to a new ILS. It involves transferring existing bibliographic, user, and circulation data from old systems to the new platform. This process is often fraught with risks such as data loss, duplication, and corruption.

As Chisita and Chiparausha (2023) report, "poorly managed data migration efforts can lead to incomplete records, broken links in digital repositories, and extended downtime that affects library operations."

In addition, the cybersecurity risks associated with online and cloud-based ILS platforms have become increasingly prominent. Unauthorized access, data breaches, and malware attacks can jeopardize sensitive user data and digital collections. Breeding (2021) asserts that "while cloud ILS solutions offer scalability, they also introduce new vectors for cyber threats, requiring libraries to adopt robust data protection strategies."

These concerns are compounded in institutions lacking dedicated IT security teams or proper cybersecurity policies. Data protection becomes particularly critical in contexts where libraries host sensitive academic or research data.

Recommendations

1. Libraries should adopt open-source ILS with adequate technical and community support.
2. Continuous staff training and digital literacy programs should be prioritized.
3. Regular evaluation and collection of user feedback should be institutionalized.
4. ILS should be integrated with emerging technologies like AI, blockchain, and discovery systems.
5. African academic libraries should provide alternative to power supply
6. Regular maintenance and update of infrastructure should be considered.

Conclusion

The Integrated Library System (ILS) remains a critical component in the effective delivery of digital library services, streamlining core functions such as cataloguing,

circulation, acquisition, and user access. Its role in enhancing the efficiency and accessibility of information cannot be overstated, particularly in the context of the evolving digital landscape. However, the success of ILS implementation hinges not only on technological capabilities but also on the adoption of sound management practices. Proper planning, staff training, user engagement, and policy alignment are essential to ensure that ILS platforms are both sustainable and responsive to institutional needs.

Looking ahead, there is a pressing need for further research in emerging areas such as cloud-based ILS solutions, which offer scalability and cost-efficiency; user experience design, to improve system usability and engagement; and the seamless integration of ILS with institutional repositories, to enhance resource discoverability and knowledge management. Advancing these areas will contribute to the continuous improvement of digital library services and ensure they remain relevant and impactful in the years to come.

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ABOUT THE BOOK

Operational Excellence is a strategic approach that focuses on optimizing processes, reducing inefficiencies, and enhancing overall performance to achieve sustainable growth. It involves the systematic implementation of best practices, continuous improvement, and innovation to deliver high-quality outcomes while minimizing waste and costs. By aligning organizational goals with efficient processes, operational excellence fosters agility, adaptability, and resilience, enabling organizations to respond effectively to changing market dynamics and customer needs.

A key component of operational excellence is a culture of continuous improvement, where employees at all levels are empowered to identify inefficiencies, suggest solutions, and contribute to process enhancement. This approach enhances productivity, improves service delivery, and ensures customer satisfaction. Furthermore, leveraging technology, data analytics, and automation enables organizations to monitor performance, identify trends, and make data-driven decisions that promote long-term sustainability.

In academic institutions, operational excellence enhances resource management, student services, and administrative processes, ensuring a seamless learning environment. In the corporate sector, it drives competitiveness, innovation, and profitability. Ultimately, operational excellence is not merely about achieving efficiency but also about building a sustainable and adaptive organization capable of thriving in a dynamic environment. By embedding operational excellence into their core strategy, organizations can achieve long-term success, resilience, and growth.

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