

# Empowering Libraries, Connecting Communities

Innovation, Collaboration and Entrepreneurship



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Imran Khan

Meeta Rathod V  
Meghana Sanjeeva

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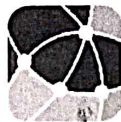
## **Innovation, Collaboration and Entrepreneurship**

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**Imran Khan        Meghana Sanjeeva**

### *Managing Editor*

**Akhtar Parvez**



**GLOBAL ALLIANCE  
PUBLISHERS**

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2/25, First Floor, Arun House, Ansari Road  
Darya Ganj, New Delhi-110002

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Articles published in this book are submitted to the MANLIBNET 2023 International Conference on *"Empowering Libraries, Connecting Communities: Innovation, Collaboration and Entrepreneurship"*, organized by the Institute of Management Technology, Ghaziabad in association with Management Libraries Network (MANLIBNET) during October 5-7, 2023

All data, views, opinions, etc., published in this book are the sole responsibilities of the concerned authors. Neither the publisher nor the editors are in any way responsible for them.

This book is published by the Management Libraries Network in association with Global Alliance Publishers.

*Regd Office*

**GLOBAL ALLIANCE PUBLISHERS**

*A Division of Raghav Books Private Limited*

2/25, First Floor, Arun House, Ansari Road

Darya Ganj, New Delhi-110002

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E-mail : gabdinfo10@gmail.com

ISBN: 978-93-92711-06-0

Laser Typeset: Gaurav Graphics

## Foreword

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With great enthusiasm, I introduce the conference proceedings for "Empowering Libraries, Connecting Communities: Innovation, Collaboration, and Entrepreneurship." This conference marks a significant milestone in our ongoing exploration of the profound change occurring within the realm of libraries and their crucial role in society.

Libraries have always been bastions of knowledge, serving as repositories of our collective wisdom and heritage. However, libraries have evolved far beyond their traditional role in today's rapidly changing world. They have embraced innovation as a guiding principle, recognised collaboration as an essential strategy, and celebrated entrepreneurship as a driving force for positive change.

In this conference, we come together as a community of scholars, librarians, educators, and visionaries to examine and celebrate the ways in which libraries have metamorphosed into dynamic and inclusive centres of empowerment. Libraries have expanded into digital domains, embracing emerging technologies to serve their communities better.

The papers within these proceedings reflect the rich tapestry of ideas, initiatives, and experiences that have emerged from collective wisdom and thought. They explore the innovative ways libraries harness technology, such as artificial intelligence, virtual reality, and data analytics, to enhance access to information and provide immersive learning experiences.

As you read through these conference proceedings, you will discover a wealth of insights, best practices, and case studies that exemplify the remarkable journey libraries have embarked upon.

I congratulate the contributors for their valuable work. I congratulate the IMT Ghaziabad Library and Management Libraries Network for creating a platform to exchange these ideas. Together, we embark on a journey to shape the future of libraries, one that is inclusive, technologically advanced, and deeply connected to the communities they serve.

May these proceedings serve as a source of inspiration, a reference for best practices, and a catalyst for further innovation. Undoubtedly, this will contribute significantly to the ongoing dialogue about how libraries can continue to empower individuals and connect communities in an increasingly dynamic and interconnected world.

Vishal Talwar  
Director  
IMT Ghaziabad

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# **Empowering library services through local level quality assessment of catalogues: opening the doors of innovation, collaboration and entrepreneurship in Assam**

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## **Abstract:**

Cataloguing is a core concept associated with the library and information science since the very beginning. With the expansion in the domain and the advent of information communication technology, the techniques of library cataloguing have also developed in different ways. Machine Readable Catalogue (MARC) is widely used in the academic libraries of Assam. The quality of records with MARC-21 bibliographic standards is directly proportional to information retrieval. Research suggests local-level assessment of Library catalogues to improve and maintain the quality of catalogues in the libraries. From this research, it is found that the existing MARC-21 records available in web-OPAC of the academic libraries of Assam need some more detailed approach to fulfil the information requirement of the users. This study also revealed a need for more library professionals in academic libraries, and single-headedly librarians could not concentrate properly on the cataloguing part. Many libraries outsource students and other firms to execute the cataloguing process in the present scenario. One important fact that came to our notice is that a proper system must be used to evaluate the library catalogues during the institution's assessment by various bodies like NAAC. So there is a scope for innovation to automate the rule-based validation of the library catalogues. This paper portrays the potentiality of improving the quality of library services through local-level quality assessment of the catalogues. Also, it

discusses the scope of innovation, collaboration and entrepreneurship in the field of cataloguing in Assam.

**Keywords:** Quality assessment of catalogue, empowering libraries, library catalogue, local level quality assessment, catalogue quality of Assam.

### **Introduction:**

Cataloguing is a core concept associated with libraries. The primary aim of cataloguing is to keep detailed records of the available information in the library and to arrange the available document systematically so that users can easily access it.

Use of computers in information processing brings some revolutionary development in cataloguing. Computers enable inter-operability, and data manipulation, which advocated cooperative cataloguing, copy cataloguing etc., among the libraries and information service platforms. The computers and integrated library management software use the machine-readable catalogue (MARC). The MARC standard is the representation and communication of bibliographic information developed and maintained by the Library of Congress (Haynes, 2018). MARC 21 format is one of the popular standard exchange formats that adhere to ISO 2709 standards and are used in most countries.

The librarians have been spending a lot of time, money, and labour to accomplish the task of cataloguing (Bapte, 2015). Evaluation is considered a tool for continuous improvement. Through proper evaluation of catalogue, we can identify the significant and frequent errors made by the cataloguers. Thus prevention can be emphasized in those cases.

This paper intends to assess the quality of the catalogues in the college libraries of Assam and discuss how the doors of innovation, collaboration and entrepreneurship in Assam can be opened in this regard.

### **Literature review:**

Draper & Lederer (2013) stated that once a document is added to the library's catalogue with proper MARC format, the visibility of the document increases. Orbih&Aina(2014) opined that whether the retrieval system is a card catalogue or an automated catalogue called an Online Public Access Catalogue (OPAC), the basic procedures for preparing the materials are similar and specific standards must be followed. The American Society for Quality states that quality can have two meanings: (1) the characteristics of a product or service that bear on its ability to satisfy stated or implied needs, and (2) a product or service free of deficiencies (Paiste, 2003). Chapman & Massey (2002) pointed out that the overall quality of a catalogue depends on a combination of factors, i.e. accuracy, consistency, timeliness and functionality.

Akidi&Omekwu( 2019) in their study assessed the cataloguing and classification practices of the National Library of Nigeria in the digital age from a bibliographic control perspective Chandrappa&Harinarayana (2018) assess the quality of catalogue records of university libraries in Karnataka by customised adaptation of Zeng's (1993) categorisation system of errors in catalogue records. The methodology facilitates comparisons among the oldest three university libraries in Karnataka. Chandrappa et al.(2021) in their study about the importance of the MARC21 control field and its effective implementation in university libraries OPACs in Karnataka. Van Kleeck et al.( 2017) evaluated the quality of existing bibliographic records (mainly vendor supplied) for e-resource collections as compared with records for the same collections in OCLC's WorldShare Collection Manager (WCM). Findings are that WCM records better support user tasks by containing more summaries and tables of contents; other checkpoints are primarily comparable between the two source record groups. In their study, Chandrappa et al.(2021) revealed that libraries' web OPACs under study had given scant attention to control fields; 001 and 003 were the two tag numbers used extensively. Overall, university libraries need to focus more on controlling field data elements in their OPACs.

A few earlier studies discussed the entrepreneurial opportunities, collaboration and innovation scopes in the library environment (Aithal et al., 2016; Tarullib et al., 2014; Butt and Ahmed, 2022). However, only some studies explore these opportunities and scopes primarily based on cataloguing services.

Chapman and Massey (2002) and Hider and Tan (2008) suggested that there is a need to perform research at the local level to determine the quality cataloguing attributes that would best serve a specific library's user population.

During our review process, it is observed that only a few researchers in India are working in this field, and there is a need for local-level assessment in Assam. The information requirement of the users during the retrieval process needs to be explored in the existing studies. Moreover, studies have yet to be observed that assess the catalogues of Assam to discuss the scope of innovation, collaboration, and entrepreneurship evolving with the present situation.

### **Objective:**

Quality practices in libraries have a crucial influence on improving the standard of the parent institute. Studies revealed that Assam's college libraries are gradually moving towards the web-OPAC mode. The retrieval efficiency of a catalogue is directly proportional to its quality. The objectives of this study are-

- To identify the MARC 21 fields those are locally preferred by the users to search a document and their availability in the catalogues.
- To assess the library catalogues by using Zeng’s categorization system of errors and to identify the areas where precautionary measures required.
- To explore and explain the scope of innovation, collaboration and entrepreneurship among the college libraries for a more effective catalogue.

**Data and methodology:**

A survey among 150 users was conducted to understand what information the local users require on the catalogue. Catalogue records of six college libraries affiliated with Dibrugarh University and Gauhati University of Assam and accredited by NAAC with a minimum B grade are downloaded. While collecting the data, only those catalogues with MARC-compatible records are selected and captured through the web-OPAC of the library. Collected files are in .mrc format and later converted to .csv format using Marcredit for analysis. Marcredit and Microsoft office excel, with different add-in provisions like ‘Fuzzy lookup’ etc., are used for general and primary records investigation. Other administrative information about the libraries is collected from the library websites or through personal interviews over the telephone. Data of the libraries for the current study is presented in Table 1 -

**Table 1 :**

*Details of the data collected from the colleges*

<b>Name of the College</b>	<b>Address</b>	<b>Year of establishment/ Affiliated to</b>	<b>NAAC Accreditation with</b>	<b>Name of the Library</b>	<b>Total catalogued records</b>	<b>Code for the study</b>
Jagannath Barooah College (Autonomous)	Jorhat, Assam	1930/ Dibrugarh University	‘A’ Grade	Krishna Kanta Handiqui Library	36406	C-1
Arya Vidyapeeth College (Autonomous)	Guwahati, Assam	1958/ Gauhati University	‘A’ Grade	Central Library	22470	C-2

B.H. College	Barpeta, Assam	1966/ Gauhati University	‘A’ Grade	BH College Library	16682	C-3
Pandu College	Guwahati , Assam	1962/ Gauhati University	‘B’ Grade	Pandu College Library	16918	C-4
SPP College, Namti	Sivasagar , Assam	1970/ Dibrugarh University	‘B’ Grade	SPP College Library	12255	C-5
Bahona College	Jorhat, Assam	1966/ Dibrugarh University	‘A+ Grade’	Bahona College Central Library	12619	C-6

Fifty common titles are taken from the catalogues, and Zeng’s categorization system of errors is used to identify different types of errors. Based on this analysis, the areas where precautionary measures are required are traced, and some suggestions are made.

### **Analysis and discussion**

#### **1. Locally preferred MARC-21 tags and their availability in the catalogues**

A survey was conducted among 150 college library users to know about the specific bibliographic information of a document. They usually prefer to search for their required documents through the OPAC. Based on their response, the following are those bibliographic criteria in descending order of the preference of the users-

Title

Author

Chapter name i.e. summary note

Subject

General information i.e. general note

Sub-title

Publication details

The survey also found that though the college library users need more idea on DDC or classification of the documents, they expect that the OPAC should direct them to the location of their required information. So classification number can be considered a preferred criterion as giving the document a systematic and distinct location on the shelf is essential. Additionally, 14.6% of the respondents often and 12% sometimes utilise the ISBN to search for books in the library.

So, locally preferred MARC-21 tags are – 245, 100, 505, 650, 500, 245, 260, 082 and 020. As there is no hard and fast rule to use the minimum or maximum number of MARC 21 tags in the catalogue, the number of MARC 21 tags used by different colleges varies. Again within the same catalogue, the used tag for different documents varies. In the catalogue we have analysed, the common MARC 21 tags utilised by all the libraries are 000(LDR), 001, 005, 008, 020, 082, 100, 110, 245, 250, 260, 300, 650, 942, 952, 999. Table 2 List of tags used in at least 90% of the catalogue records and the immediately following tag to them are presented.

**Table: 2**

*List of tags used in at least more than 90% of the records of the catalogue and the immediate next tag to them*

C-1		C-2		C-3		C-4		C-5		C-6	
Tags	% of utilization	Tags	% of utilization	Tags	% of utilization	Tags	% of utilization	Tags	% of utilization	Tags	% of utilization
245	100	245	100	245	99.99	653	111.04	040	100	300	100
650	100	300	99.96	260	99.37	245	100	245	100	653	100
541	100	260	99.74	100	99.08	041	99.72	100	98.41	700	100
082	99.57	082	99.74	082	98.92	100	99.71	250	96.32	852	100
300	99.67	100	92.43	300	98.74	082	98.26	260	95.60	245	99.52
260	98.74	<b>650</b>	<b>68.25</b>	250	95.46	365	96.53	300	93.81	500	99.52
041	98.63			650	94.02	300	96.48	082	93.03	082	96.99
100	98.62			<b>041</b>	<b>60.47</b>	260	96.12	650	90.18	110	96.99
020	94.73					<b>250</b>	<b>88.37</b>	<b>020</b>	<b>0.01</b>	100	96.64
<b>250</b>	<b>83.75</b>									490	96.64
										024	96.08

										040	96.08
										041	96.08
										600	96.08
										650	96.08
										260	94.00
										<b>250</b>	<b>77.50</b>

Our analysis found that none of the libraries use the preferred tag 505. The libraries use tags 245, 100, 505, 650, 245\$b, 260, and 082 in more than 90% of the documents. Tags 500 and 020 are used in very less of records while cataloguing. Interestingly 020 is present in only 0.01% of total records C-5, and only C-6 utilise the tag 500. The tag 020 is present in 65,076 records (55.44% of the total records in all the colleges) but interestingly, out of these 65076, 49093 no. (75.43%) are only contributed by two colleges(C-1 and C-4). The tag 020 is utilised by C-1 and C-2 in 94.73% and 86.38% of their total records, respectively. It means that though % of utilisation of tag 020 is more than 50%, it is not uniform in all the colleges. In some colleges, the tag for ISBN no. is used extensively, whereas some colleges are given very scant attention towards utilising this tag.

## 2. Assessment of the catalogue quality

Libraries spend time, money and human resource to catalogue the available resources. In this era of information explosion, duplication of work can be prevented by MARC standards (Das, 2004). Duplicate records in a catalogue means reproducing a record that already exists and is added as a separate record. Samuel (2022) opined that duplicate records make the catalogue data dirty. This kind of record reduces efficiency, affects decision-making and library automation, and increases expenditures of time and fees.

The sample catalogues have entries ranging between 12255 to 36405 with various duplicate records percentages. Duplicate records in the sample data range from 3.16% to 21.19%.

### Figure 1:

*Size of the catalogue didn't influence the % of duplicate records.*

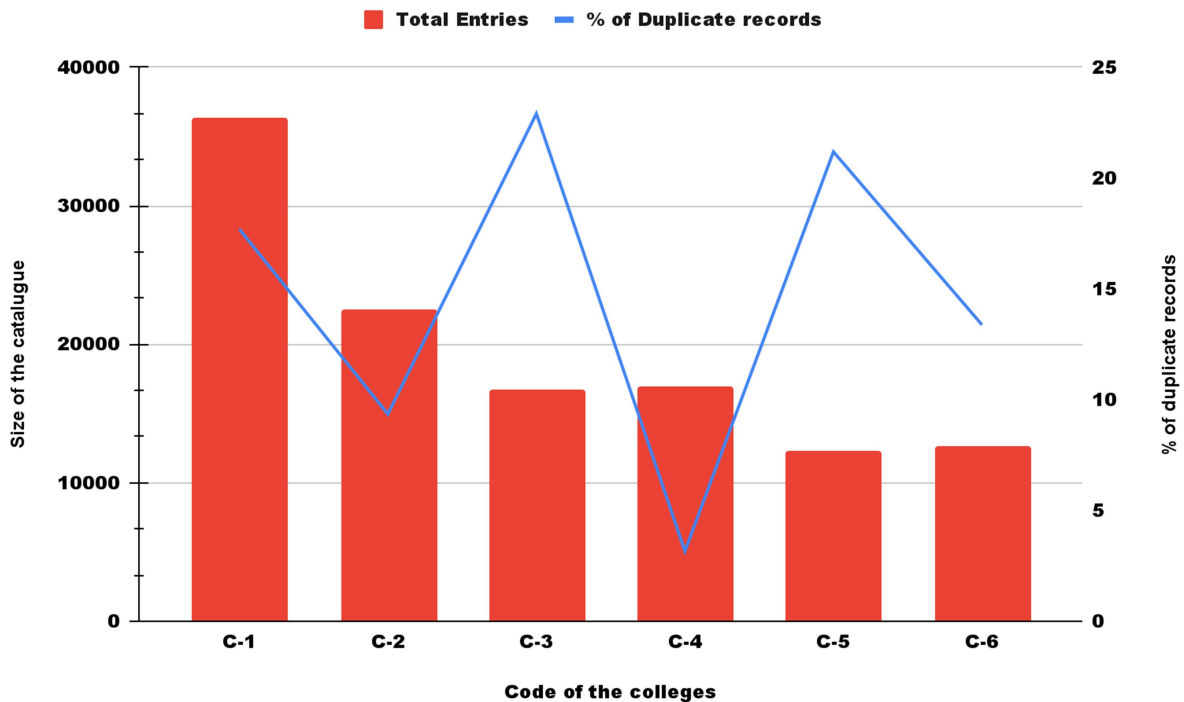


Figure 1 shows that the size of the catalogue records did not impact the % of duplicate records. The awareness and carefulness of the cataloguers can reduce the % of duplicate records in the catalogue.

The technical details of the bibliographic record, such as the correctness of the data, error rates, and utilization of fields; the adherence to standards, the cataloguing process, including the workflow, training and performance, and administrative support and accessibility constitutes the quality of a catalogue (Snow, 2011).

Zeng(1993) categorized the errors into three categories i.e. –**Format errors**, **Content errors** and **Editing and inputting errors**. Each catalogue record of the 50 common titles from all the catalogues are checked manually and listed them according to the category. The following types of errors are considered during the analysis for accuracy-

1. Format error

- Incorrect field tag (FE-1)

- Incorrect subfield tag (FE-2)

- Incorrect indicator (FE-3)

- Incorrect missing punctuation and space (as required by AACR-2) (FE-4)

- Absence of required tag (FE-5)

2. Content error

- Incomplete entry (CE-1)

Misplace of entry (CE-2)

Incorrect content (CE-3)

Inconsistency between transliterate entry and vernacular data (CE-4)

Inappropriate/mixed content (CE-5)

Other error (CE-6)

3. Input and editing error

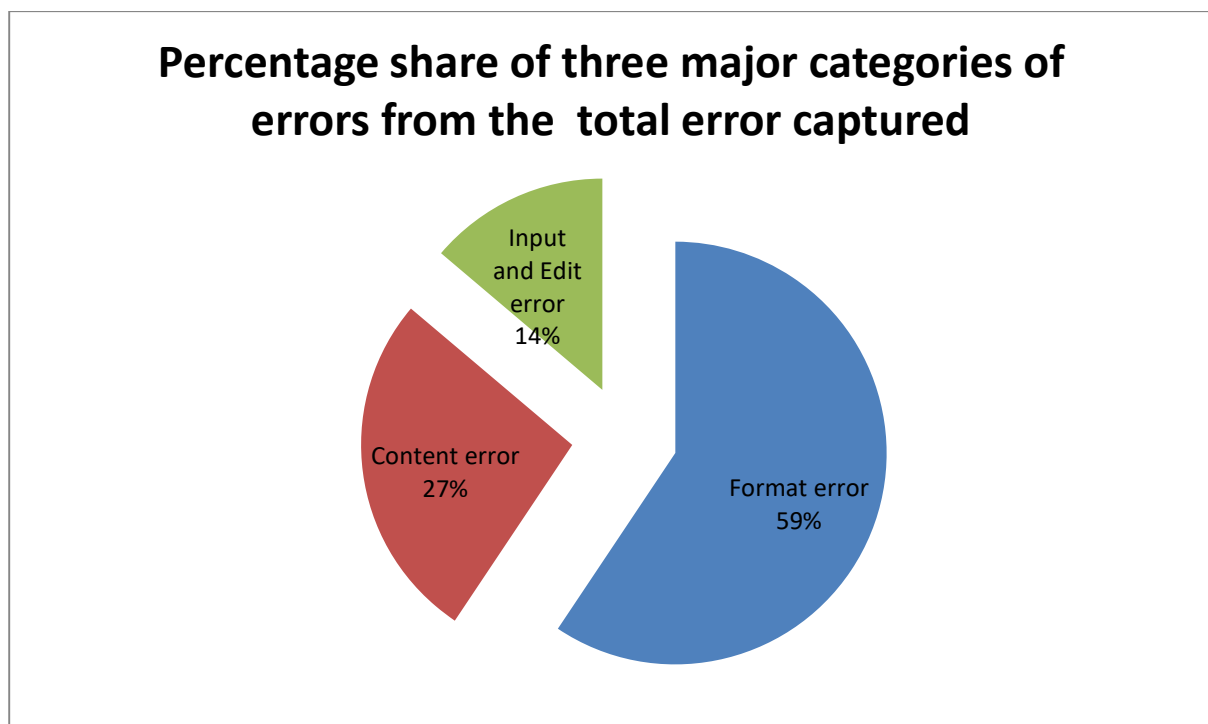
Inadequate space (IE-1)

Spelling mistake (IE-2)

Incorrect upper and lower case (IE-3)

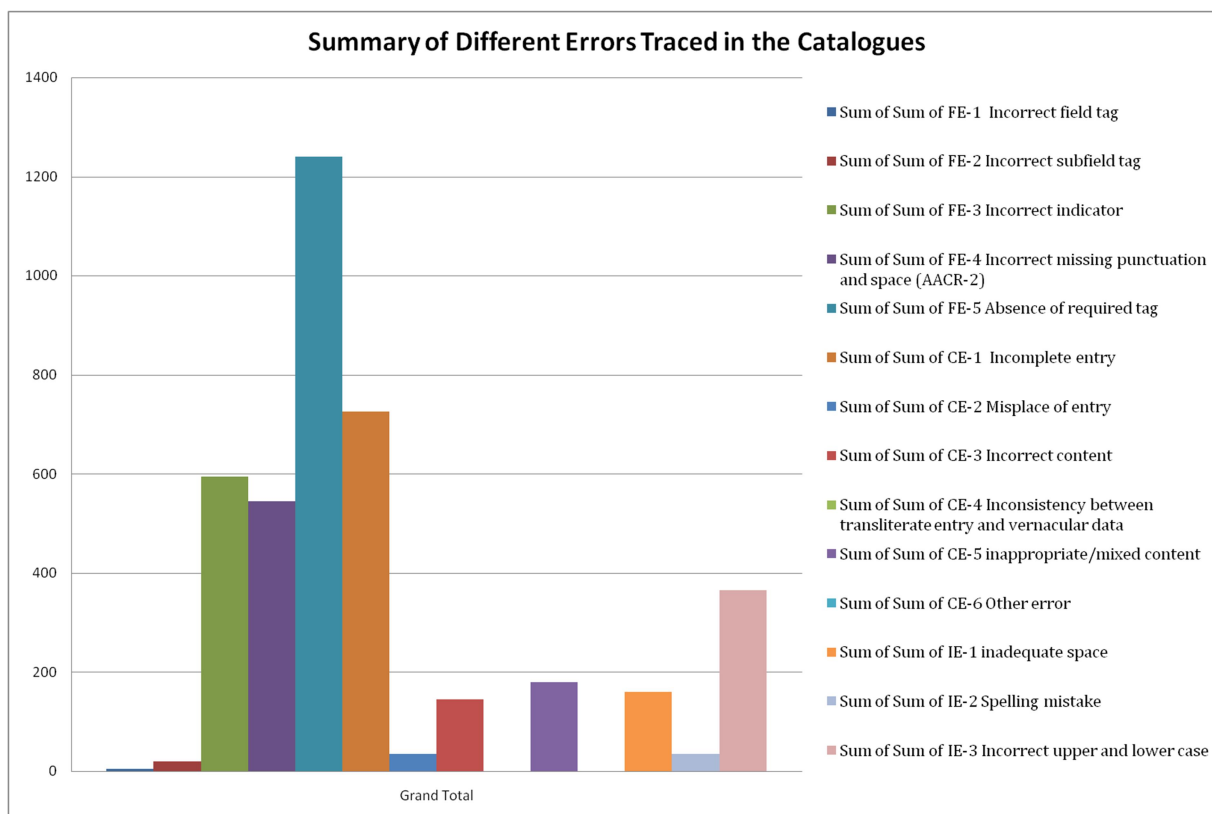
**Figure 2:**

*Percentage share of three categories of error in the total error captured*



**Figure 3:**

*Summary of different errors traced in the catalogues*



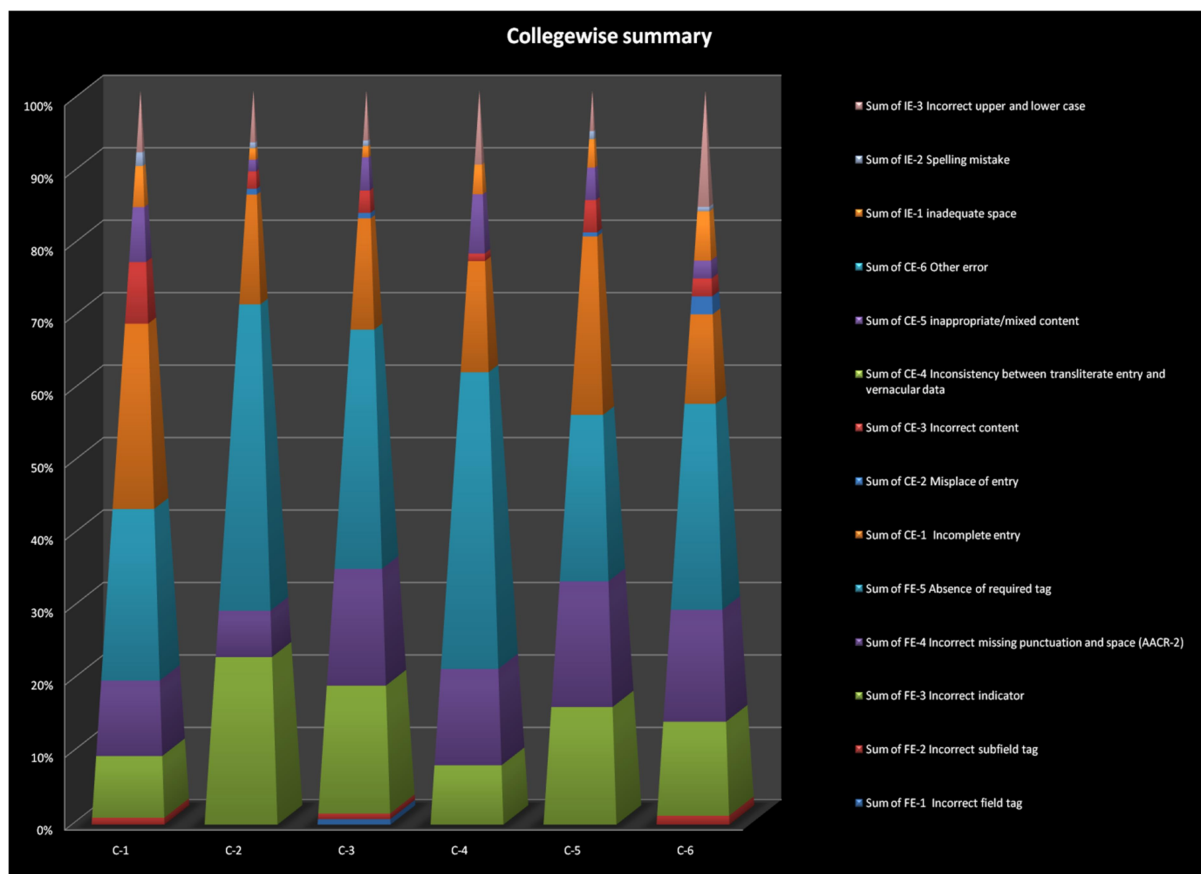
Different categories of errors affect the catalogue differently, and categories were weighted according to their influence. A format error was given a score of three, a content error a score of two, and an editing and input error a score of one (Zeng, 1993).

Figure 1 shows that 59% of the total errors in the catalogues belong to the format error category, which is a matter of concern. From the summary of the different errors traced in the catalogues visualized in Figure 3, it is observed that the absence of a required tag in the records to fulfil the local level requirement of the users is the most frequent type, followed by incomplete content and incorrect indicator.

In Figure 4, the college-wise summary of different types of errors is visualized using a 100% stacked pyramid graph. The areas with significant concern are distinctly highlighted in the graph. The authorities of the libraries can take precautionary measures in the sensible areas. For example, in C-5, extra care should be taken in using required field tags, proper use of indicators, punctuation and space as required in AACR-2, and entries should be made entirely. Incomplete entries in the records are visible in the graph of C-5.

**Figure 4:**

*College summary of errors traced in the records*



Different libraries are transliterating the vernacular titles differently, and due to the lack of one uniform standard, it is difficult for the researcher to declare any of them right, partially correct or partially wrong.

Our study found that Librarian is the only permanently sanctioned staff member in the library with a library and information science degree in the college libraries of Assam. There is no post of cataloguer in the libraries, and it is not compulsorily required to have a library and information science background to appoint as an assistant librarian or library staff in the college libraries of Assam. So due to a lack of education and training, the library staff, except the Librarian, need to be qualified to perform the task of cataloguing and classification. However, they are found to do so. The librarians also have many other responsibilities, so they cannot solely concentrate on cataloguing the documents. The lack for permanent staff is a significant problem in the academic libraries of Assam (Boruah, 2020). It is seen that some libraries hire library science students on a contractual basis or outsource firms to perform the task of cataloguing in their institute. In all these cases, there is the possibility of compromise in the quality if proper supervision is not there.

### **3. Scope of innovation, collaboration and entrepreneurship in the present scenario**

#### **3.1. Innovation**

Technology, innovation, and creativity are all merging to create a localized, online social space that brings our physical library services and experiences into an online environment. Next-generation catalogues allow library professionals and users to interact, collaborate, and enhance core library functions (Tarullib et al., 2014).

In this era of technological advancement, there needs to be an automatic system for quality assessment, i.e. rule-based validation of the catalogues. In contrast, the library is an essential criterion for assessing the colleges. Thus there is a scope for innovation for automatic quality assessment tools for the college libraries of Assam.

In the college libraries of Assam, catalogues are in English, but along with the English resources, there are many documents in vernacular languages. During our study, different English transliterations are observed for the same vernacular title. So there is a scope for innovation of a uniform style of transliteration of words/letters for the vernacular languages to English.

There is a scope for research and innovation in to develop a system such that when a library acquires a book or document in the library, the ILMS automatically perform the duplicate check and captures the standard catalogue from the publisher or service provider as per the requirement of the library with a single entry of the unique id, i.e. the ISBN.

#### **3.2. Collaboration**

MARC-21 and ICT allow libraries to integrate and share tangible and intangible resources with other libraries and information providers through proper networking (Aithal et al., 2016). Collaboration among the libraries not only saves the institute's time, effort and money but also helps set up a quality standard. From the local level assessment of the catalogues, it is seen that cataloguing the vernacular titles is a significant issue in libraries. Moreover, another major issue is the need for more time and professional staff for detailed cataloguing. In contrast, a good percentage of the library's total collection is expected. Therefore, there is a scope for collaboration in developing a uniform transliteration style for cataloguing vernacular titles and cataloguing standard titles in college libraries. This will lead them to maintain quality and save time, money and effort.

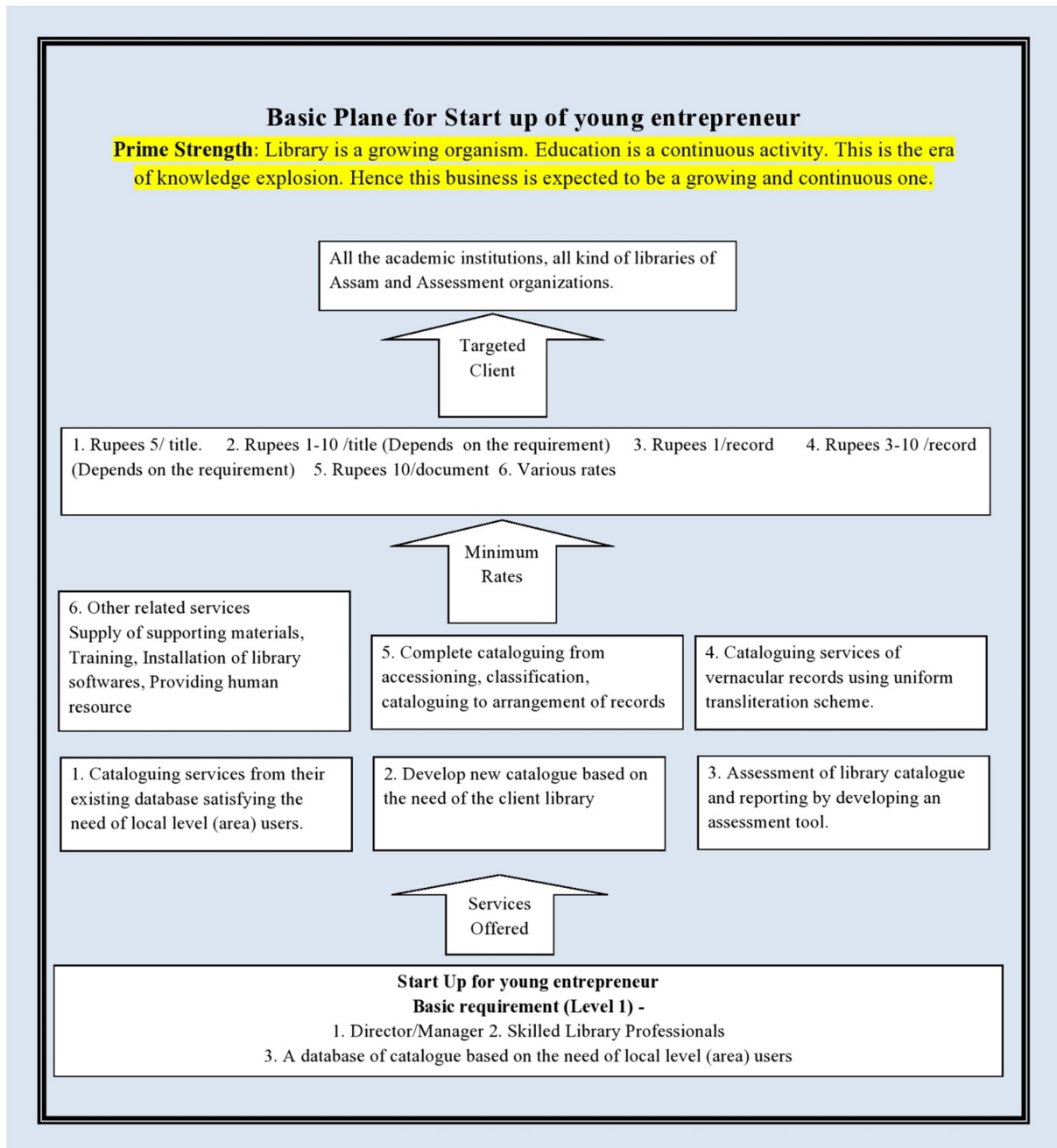
#### **3.3. Entrepreneurship**

The MARC standard also enables libraries to use commercially available library automation systems and services to manage library operations, including cataloguing (Das, 2004). Many existing papers mentioned entrepreneurial opportunities from cataloguing (Batthini, 2014;

Elonye&Uzuegbu, 2013). Mazumder (2017) welcomed the new generation of professionals of Assam as entrepreneurs offering paid Koha services etc., including cataloguing, and advocated how it will help to face the problem of lack of trained professionals in the libraries in Assam. He also mentioned that this entrepreneur could fulfil the need of local level commercial vendors.

**Figure 5:**

*Basic plane for start up*



From our study, it is revealed that the libraries of Assam gradually started to adopt the web-OPAC services in their libraries, they are hiring /outsourcing people / firms to perform the task of cataloguing, yet the quality is not up to the mark. It is seen that colleges have standard titles up to 40%. As the library is a growing organism, teaching-learning is a continuous process, and the government will set up more colleges with the increasing demand in Assam, so the scope of business will grow with time.

Figure 5 portrayed the basic plane for start up. Entrepreneurs can start their journey with standard titles. In Assam, 721 colleges (both Govt. and private) offer bachelor's degrees. Our study exposes that the colleges are already trying outsourcing (by hiring contractual employees or firms), and quality could be better. If they can develop a standard catalogue and begin to sell it to the colleges at a minimum price, it will attract the college libraries because, firstly, it will save their time; secondly, quality will be better, and thirdly, it will be cost-effective. Out of 721 colleges, if they can make a deal with 100 colleges with at least 1000 titles in common and they catalogue one book at a low price of 5 rupees, they can do a business of 500000 from the standard titles only. Not only colleges but the cataloguing firm can also sell their product and services to publishers, distributors, etc.

Assam has lakhs of books and other documents in vernacular language; the entrepreneurs can develop and patent a union catalogue of all the titles with a standard transliteration style.

They can also supply other cataloguing-related tools to the parties along with the cataloguing services.

The entrepreneurs can also develop an assessing tool, or they can commercially execute the assessment task of the college library catalogues and rank them in regular intervals, which will help the institutes portray their excellence to the public or users.

The entrepreneurs can also create a hub of cataloguers where interested and qualified professionals can join and serve the college and other bodies as human resource providers.

## **Findings**

i. MARC-21 tags 245, 100, 505, 650, 500, 245\$b, 260, 082 and 020 are identified as locally preferred tags for information retrieval. Though the college libraries of Assam are partially fulfilling the requirement but there is a gap. None of the library is using the tag 505. Tag 500 is used by only one college. The use of tag 020 is also needed in the libraries. So, to maintain a minimum standard, the college libraries of Assam should consistently use the locally preferred MARC21 tags that are identified in our research.

- ii. Availability of duplicate records is a significant weak point in the college libraries of Assam. The librarians should be careful in this regard. There should be a proper, systematic, disciplined workflow for cataloguing with dedicated staff. If the human resources or other service providers are outsourced, there should be proper instruction from the library about developing the catalogue.
- iii. Apart from the proper use of locally preferred tags, precautionary measures should be taken in using indicators to prevent incomplete entries and in the proper use of punctuation marks, space and upper and lower case in the catalogues.
- iv. There are scopes of innovation for automatic quality assessment tools for the existing records, uniform style of transliteration of vernacular languages to catalogue documents and a system that can automatically perform the duplicate check as well as input the standard catalogue from the publisher or service provider as per the requirement of the library with a single entry of the unique id, i.e. the ISBN.
- v. Library collaboration can enhance productivity and save time, effort and money. There is scope for collaboration among the college libraries of Assam for developing a uniform style of transliteration for cataloguing vernacular titles, cataloguing standard titles to save time and money, and sharing human resources to overcome the problem of the absence of professional staff.
- vi. From the local level assessment of the catalogues, it is found that many entrepreneurial opportunities exist in the field of cataloguing-related services in Assam. The detailed quality catalogue can give an excellent business to the entrepreneurs. Other consultancy and catalogue-related services, a database of catalogues of regional publications and commercially developed assessment tools carry the massive potential for entrepreneurial endeavours in Assam..

### **Conclusion**

The college libraries of Assam use the MARC-21 bibliographic frameworks in their catalogues, which are accessible through OPAC and web-OPAC. It is also observed during our study that colleges are gradually adopting web-OPAC in their libraries. Rule-based validation must be practised regularly to develop and maintain standard catalogues in Assam's college libraries. This study brings light to the existing practice of cataloguing in the college libraries of Assam in terms of utilization of MARC-21 standard and their structure, i.e. the tags, subfield codes, and indicators. This local assessment of the catalogues reveals that there are many spaces where the libraries need to be more careful and scope for improvement. Users felt it could be better if the catalogues had more information on a

particular document, like indexing, proper class no., and ISBN No, among others. In India, Libraries have a significant role in obtaining better accreditation for their institute in NAAC assessment (Jange, 2021). Nevertheless, it is observed that the NAAC grade is not proportional to the quality of the catalogue. The knowledge and effort of the librarian and cataloguer influence the utilization of the MARC-21 tags in their catalogues. Based on the assessment and study of the cataloguing process, and organizational structure of the college libraries, it is also discussed in the paper how the present scenario carries the potential for innovation, collaboration and entrepreneurship for the college libraries and young library professionals. Further profound studies are suggested to provide a roadmap for practically executing these three aspects.

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