Chapter 03
Research
Methodology

3.1

Research Methodology: Theory and Rational

Introduction:

As management science becomes more collaborative and data intensive, library science also needs to align its services to its users in a better manner. The researcher in her professional career observed that, information technology has been one of the major factors causing changes in the way people communicate, locate, retrieve, and use information. It lead the libraries to be automated. Whenever services become automated there are certain basic housekeeping services that any automated software must have to offer similar library service experiences. On this premise the objectives of this research were as follows:

1. To the study the effectiveness and usage of library software in AICTE approved management Institutes in Mumbai.
2. To find out the available modules and their applicability in library softwares.
3. To analyze the cost effectiveness of these software's and after sales service for annual maintenance service from the company.
4. To study the advancements in technology and the user friendliness of these software's.

However the researcher also recognizes the fact that there is need to keep an eye on the development of new services that could be necessary in this category and move on to adoption of the same. These new opportunities would be identified through a detailed analysis about the implementation, usage and adaptability of Library software's in the AICTE approved Management institutes in Mumbai and if yes then which software is frequently used by the institute, there are some in-house software's developed within the institute along with the availability of software's which are available in the market to like Soul, libsuit, SLIM+++, SLIM 21 Advanced etc, to name a few. This study can be a baseline survey for finding out opportunities in the library software automation.

 On this backdrop the research methodology has been designed. In any applied science it is imperative to relevant reader views on board as these perspective may be the basis for establishment of the hypothesis that the author has about the subject matter basis her noticing , experiencing and believing that have been developed due to publish information that is available in the Library.

The study thus conceptualizes a methods enquiry about the different kind of stakeholders of the category and the subject matter. Thus, any research is a methodical and planned inquiry among the key stakeholders that leads to collection of imperative and meaningful data. An in-depth analysis of the data then can be change into information to create new opportunities into the category.

Every research is done with the help of primary data that is collected through surveys, and through secondary information that is available in open domain and in paid domains. Fusioning the different data types the researcher can establish relationships or predict events or explain the phenomena or identify new opportunities.

Given the topic of this research Use of Library Management Software(LMS), across AICTE approved management institutes in Mumbai City it is clear that the population of institution is finite. On this ground , the researcher also spoke to key stakeholders of library service users, i.e. the faculty and students in this doctoral research.

Research Methodology is the logical flow or steps that the researcher designs for as a possible way to find out the result of a given problem that the researcher feels/believes is present and needs to be addressed.

In this research the researcher took the following six steps to design the research methodology:

Step 1 : **Defining the Problem :** With the changing pace in Academia it is essential for an institute to every time enhance the quality and features of the library software so that it becomes much effortless to store the huge data with utmost convenience. Thus this research assess the usage of software's for the purpose of possible changes any institute needs to bring in so that the institute is able to offer library services through a most convenient manner. In this stage it was important to discuss with the decision makers, librarians and users of the services and review secondary data that is available in this category. The researcher accordingly had a discovery phase to define the problem in clear manner.

On this backdrop by nature, thus this research more descriptive and aims to assess the role of technology and application of the same to help develop next steps given that digital future is the most predicted environment of the future across different industries and academic libraries cannot be an exception. So, in this research given the role of software's and technology, a question on "Interactive Software" is also included and is not defined. Instead opinions are being sought from the stakeholders in order to develop a right road map ahead in terms of product configuration modules the area of library software.

Step 2: **Developing the design elements for addressing the problem definition**:

Given the problem definition of assessing the current usage of software to find out possible road map ahead the researcher they took following steps . The design elements being:

- **Research Objectives**: This is a logical fall out after the problem definition stage.The objectives that were developed were answering the key questions to help establish the relationships. Thus the objectives revolved around finding out the ownership f softwares, usage of modules in the software's and associated cost structures. It also had a specific problem occurrence section to find out about the challenges that library management team typically faces. These research objectives that are aforementioned thus helped to formulate the right research questions.

- **Type of research approaches employed**: Three types of research methodologies were employed for this data collection, secondary data review, qualitative informal conversational interviews with the stake holders and quantitative research through questionnaire . All the information that was gathered in the secondary and the qualitative phase was used in developing thee quantitative questionnaire. Since this research is more descriptive in nature a simple questionnaire was prepared for univariate analysis. This research methodology that was set up accomplished the research objectives of establishing ownership and usage patterns of the institutions in case of library software's and also pointed out few possible opportunitities for maximising the usage of books among the concerned fraternity as per the fther of library science.

- **Research Design and Formulation**: This is specific blue print of research that is to be conducted that specifies the approaches developed above.
  - **Secondary Data**: Here the researcher reviewed role of technology in library management .Several newspapers, journals, books, academic articles were used to help define the research problem.
- **Primary data unstructured**: For all the qualitative data informal conversations were set up with librarians , teachers and students. This discussion helped the researcher develop the quantitative questionnaire for librarians, teachers and students.
- **Primary data structured**: All quantitative data that was collected was through face to face interviews. Most of the data that is collected is categorical and ordinal in nature. Single code and Multi code questions were used along with a lot of open ended questions given that this is a baseline study as adoption of softwares is a fairly recent phenomena.

- o **Sampling Plan**: Mumbai is the study centre. There are totally 40 number of AICTE associated institutions in Mumbai . Out of which 40 institutions were targeted for librarians , faculty members and students. At an overall level 40 librarians, 200 faculty and 400 students are covered in this doctoral research. For students and faculty convenience sampling was adopted.

Step 3**: Field work and Data Collection:** This is a crucial and important step. There are data integrity issues that can come up. So the researcher herself ensured data collection across all the three sets of stake holders. However, in some case among librarians and faculty despite three visit if the data was not captured then the researcher emailed the questionnaire and sought an email response. But this was only in 30% of cases.

Step 4 : **Data Preparation and Analysis**: Further to data collection the researcher prepared a briefing note for the analysis team and conducted data entry and analysis using excel and quantum tools. Suitable based on statistical idea that can be used to the questionnaire was made by researcher . For knowledge and extracting more information from the data that is collected it was planned to use cross tabs, and code the open ended responses. In addition to tools such as Excel for data entry, Quantum for univariate analysis , SPSS was also used for Chi-square test for hypothesis testing during quantitative analysis. These different methods of analysis such as frequency analysis, descriptive statistics, cross tabulations that are used in this research have helped the researcher to come up with rich findings.

In this study following analysis types are taken

1) **Percentage analysis and T - tests**: This type of analysis is simple and helps the researcher to maintain basic accuracy of the data that is collected as well as presented in different questions across all different a banner points such as income, gender, SEC etc.T tests are simple because on reviewing of the basic tables at question to question level the significance findings get highlighted through basic tables.
2) **Cross tabulation** : This type of analysis is conducted across two different variables to derive deeper understanding of the relationships.
3) **Chi Square tests**: Because the variables in the hypothesis testing are categorical, chi square tests were conducted to establish significant findings compared to expectations on single questions.

Step 5: **Report Preparation**:

In the context of the objectives and the decisions that needs to be taken following chapterisation is being followed:

Step 6: **Managerial Implications**: Any research especially in the business context leads to managerial implications. In this report there are three sets of findings pertaining to three stake holders. As end notes in every stakeholder's findings managerial implications are presented. However , the researcher has also integrated the findings across segment and has worked upon an overall managerial implications chapter to give a road map ahead for software's, and library sciences as a domain given its important role in the society.

The Role of Research in any management discipline:

The role of research is significant in any management discipline. Following paragraphs will highlight the role of research in any management discipline:

1. **Understanding of user behavior**: An assessment of users through a systematic process will help understand users recent behavior with respect to product category and industry segment. This understanding is important to align all the challenges that the user is facing and bring about changes in the product configuration.
2. **Understanding of the new opportunities**: A detailed research like this will help to create solutions in response the user challenges . This problems faced highlights the weaknesses, and opportunities for the current software companies.

Given that software's are the new entrant in this domain, this primary research is expected to be foundational which can be reviewed as a baseline assessment of technology. The academia and technology development companies can take into considerations the findings and create necessary product configurations that definitely need to be adopted by educational institutions. At an overall level therefore an inferential approach to tackle the technology and role of technology in the digital world can be adopted to expand the role of library services in the near future.