Information Audit Model in Assessment of Library System and Services

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 Abstract: In the present paper an exhaustive study is presented, which was carried out to evaluate the Central Library system, though 5 step information audit model. Descriptive methodology was used, users were interrogated, questionnaire was distributed amongst the Librarians, usage statistics were taken into account, ERP analysis was performed and conclusions were drawn.

Keywords: Information Audit, Library System, Information Services

Introduction

Proliferation of information has led to information overload and users are at times confused to select the information sources to their need. The information is exponentially growing in various forms, formats and media. The ever increasing usage of electronic media, social networking, e-publishing have amplified the information flow and the state of affairs have become chaotic. Under such circumstances a need to evaluate the information becomes a high priority. The traditional tools are insufficient, new techniques/tools to evaluate the information are explored . Information Audit (IA) is considered as one of the best tool to gain control over the problem and help to assess the information overload. IA is an evaluation tool which can be very well applied to the Library and Information Science field to examine the entire information cycle from acquisition to dissemination and usage of information.

Genesis of the concept of Information Audit:

Information Audit is a coinage of terms "information" and "Audit". Audit is an aspect where in a particular entity or process is examined. The word audit is derived from Latin word "audire" which means to hear. In olden days the auditors used to hear the balance sheet and approve it. The American Accounting Association Committee on Basic Auditing Concepts as quoted by Raliphada and Botha (2006) **[1]** define an audit as 'a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain the degree of

correspondence between those assertions and established criteria, and communicating the results to interested users. According to Carmichael, Willingham and Schaller's (1996) an audit is '… an independent investigation of some particular activity'. Audits are performed to ascertain the validity and reliability of data. Audit is an essential management tool used for verifying objective evidence of processes. It is used for judging the effectiveness of process for achieving the defined target levels. Information audit is a type of an audit, which examines the information resources and services of a library or information unit.

Need of Information Audit:

Following figure shows the flow of information, which is helpful to propose the need of information audit. The problem is mainly of the distortions in the flow of information, which result in wastage of financial, physical, technological resources and human efforts, wastage of time and energy. An effective information management would lead to optimize the possibility of matching of user needs to the available resources. The entire information cycle is needed to be examined for effective dissemination of required information to the users and hence the need of Information Audit is proposed.
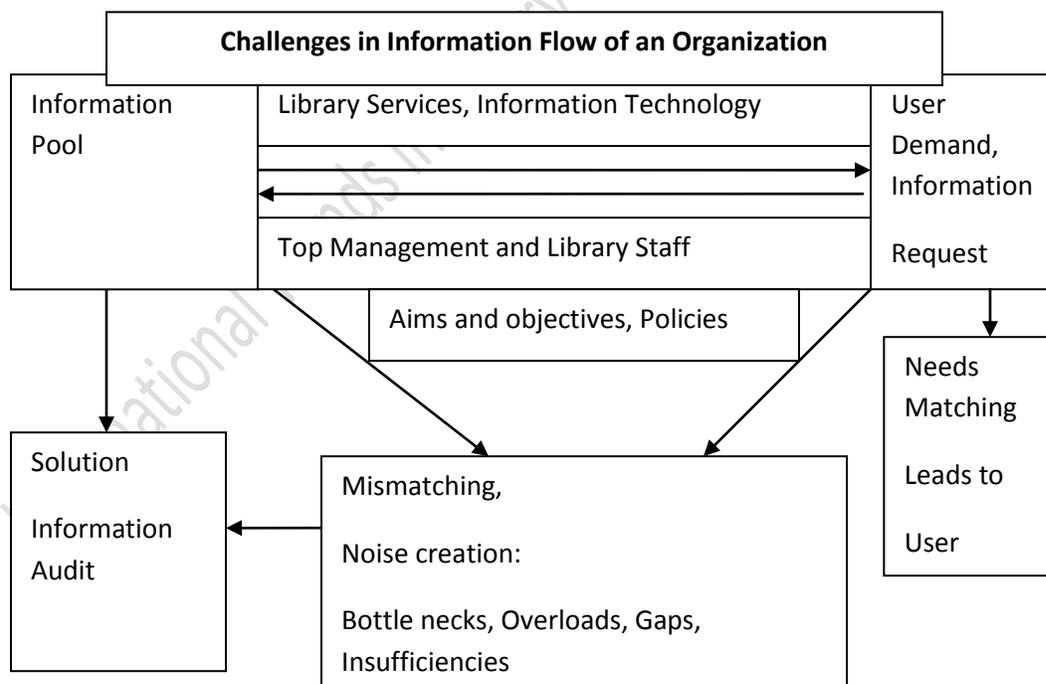

Fig. : Challenges in the Flow of Information

Information Audit plays a role of strategic significance as expected by many of the authors of IA methodologies. According to **Dubios (1995)[2]** following are the intentions of IA as :

i) Identifying resources, services and information flows ii) Verifying the existence of appropriate services iii) Rationalize resources iv) Controlling costs v) Improving marketability of services by increased visibility vi) Exploring the resulting improvements

Definition of Information Audit :

Elizabeth Orna (Orna 1999)**[3]** states the definition of Information Audit (IA) as developed by the Aslib IRM network group (1978) " …a systematic evaluation of information use, resources and flows, with verification by reference to both people and existing documents, in order to establish the extent to which they are contributing to an organization's objectives."

Hugh Parkes (1995) **[4]** discussed various aspects of information audit. they are illustrated here to develop better understanding of the concept

Criteria for good Information Audit:

A. Reliability and Quality	
1. Completeness	1.1 Sufficiency of information for needs (decision)
	1.2 Completeness of data (Capturing, processing, no redundancy)
	1.3 Seed / regularity of refreshes/ updates (time criticality)
	1.4 Criticality of completeness for decision making
2. Accuracy	2.1 Raw data accuracy
	2.2 Accuracy of classification (business and accounting rules, account pointing, point authorization fitting to information architecture)
	2.3 Accuracy of information processing, logic through all stages of information chain
	1.4 Edit checks employed

	2.5 Criticality of accuracy / degree of accuracy required
3. Validity	3.1 Authorization of data input (independently programmed procedure)
	3.2 degree of segregation of design functions and duties supporting data and information processing
	3.3 Independent validation of data (programmed procedures, frequency of such validations)
	3.4 Internal validity and continuity of validity between systems (regular / continuous validation of relationships between information / Data elements)
4. Timeliness	4.1 Availability of key information on time
	4.2 Timeliness of data processing/ information access (minute/ hour/ day)
	4.3 Criticality of timely information for decision making or service to be provided
5. Security	5.1 Exposure to data corruption
	5.2 Existence of multiple data/ information mapping algorithms
6. Consistency	6.1 consistency of aggregation and summarization (through out storage and processing chain)
	6.2 Consistency of internal logic, business and accounting rules applied
	6.3 consistency of compilation
7. Relevance	7.1 Comprehensiveness of information (complete, relevant, appropriate)
	7.2 Presentation medium/ media used
	7.3 Criticality of presentation media/ medium (usability)
	7.4 Degree of desegregation possible
8. Links to other data/ Information	8.1 Logical links (continuity of links/ relationships)
	8.2 Degree of interdependence required

B. Design Characteristics	
1. Architectural Designs	1.1 Efficiency of design of information architecture (accessible storage, timely update, fast retrieval)
	1.2 Suitable application of system and technology architectures linking to the information architecture via the communications architecture
2. Business / economic Issues	2.1 Cost vs opportunity, cost of gathering information.(preparation, storage costs vs. benefits)
	2.2 Cost of storage retrieval and transmission methods used
3. Accessibility	3.1 Centralized processing (impact on availability)
	3.2 Distributed Processing
	3.3 Ability to download data
	3.4 Efficient local design and architecture
	3.5 Flexibility of information processing to meet customer/ business/ management information/ costing/operational/ financial information needs
	3.6 Real time multiple service access at the same time
4.Generic	4.1 Potential for further uses of this information
	4.2 Inferential capability inherent in this information.(groupings, relationships, interfacing, knowledge based systems, expert systems)
5. Recoverability	5.1 Ease with which data can be regenerated / recovered/ accessed by alternate distribution channels in the event of accidental/ disaster deletion
	5.2 Criticality of data and speed of recovery required
C. Strategic importance	
	1.1 Strategic importance of data elements, combinations, aggregations
	1.2 Strategic importance of links to other strategic platforms/ interfaces
	1.3 Key reconciliation and congruency between systems (reasonableness, relationship continuity)
	1.4 Sensitivity of information between systems (access, complex linkages, risks)

Evolution of Information Audit Methodologies:

The concept of information Audit dates back to 1975, when Riley first time tried to built relation between IR system and cost – benefit model to devise first ever methodology of Information Audit based on cost- value model for information product scrutiny. Till 1980 nothing much happened. Qiunn (1979), Henderson (1980), Gillman (1985), Worlock (1987), Burk-Horton (1988) were the first generation authors of IA methodologies. Their approach to IA was to reduce the cost, eliminate the duplication and facilitate location of resources. Burk Horton's Infomap is the first modern methodology discussed in details and inclined towards current changing information environment. In 1990's the concept took proper shape when the stalwarts from various countries in information science profession like, Stanat(1990), Barker, Ellis (1990), Orna (1990), LaRosa (1991), Eddison (1992), Lubbe-Boon(1992), Hamilton, Anderson, Booth-Haines(1993) started facing the challenge of Information management and contributed the IA methodologies. These were followed by Robertson, Webb (1994), De Vaal- Du Toit, Guy St. Clair, Dubois (1995), Gibson (1996), Jurek, Swash (1997) , Buchannan and Gibb (1998) in developing the models or methodologies further and observed more of a managerial aspect incorporated in them. After them the followers like Elizabeth Orna (again in 1999), Susan Henczel (2000), Chaffy and Woods(2004), are the next generation authors who gave recognition to the concept of Information Audit and made it establish as one of the best managerial tool for information management. Woods focuses on information 'overload' in corporate sector as it leads to poor decision making. He talks of information audit, for the examination of information lifecycle and information management. The decade of 1990's has contributed a lot to get the concept of Information Audit deep rooted and many methodologies were evolved. The author has studied, 28 methodologies of information audit evolved since 1975.The information industry took a boom and information products were proliferated in those days. It is observed that during the period of 1991 to 1995, the maximum number methodologies were designed.
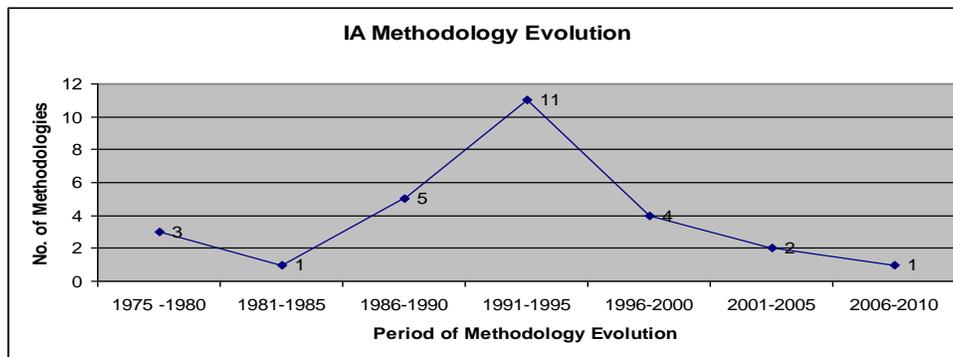
IA Methodology Evolution

No. of Methodologies (y-axis: 0, 2, 4, 6, 8, 10, 12)

Period of Methodology Evolution (x-axis: 1975 -1980, 1981-1985, 1986-1990, 1991-1995, 1996-2000, 2001-2005, 2006-2010)

Data points: 3, 1, 5, 11, 4, 2, 1

Fig: Evolution of Information Audit Methodologies

Information Audit Model:

Henczel Sussan of CAVAL Institutes, Melbourne Australia has a developed a managerial model for Information Auditing in the year 2001. In the conclusion of her study she has said that, both the librarians and consultants rated the information audit process highly as a means of identifying user needs, identifying gaps and duplications in existing services and resources and mapping information flows throughout the organization. **[5]** Her model consisted of Seven Stages. Considering this as a guideline the author has developed a 5 stage model for Information Auditing which is depicted below in the form of a diagram. The following model is presented here by incorporating the peculiarities of library and Information Centers, which emerged from the survey conducted by the author. The model comprises of five steps as i) Planning ii) Data Collection iii) Data Analysis and Evaluation iv) Suggestions and recommendations. **[6]**
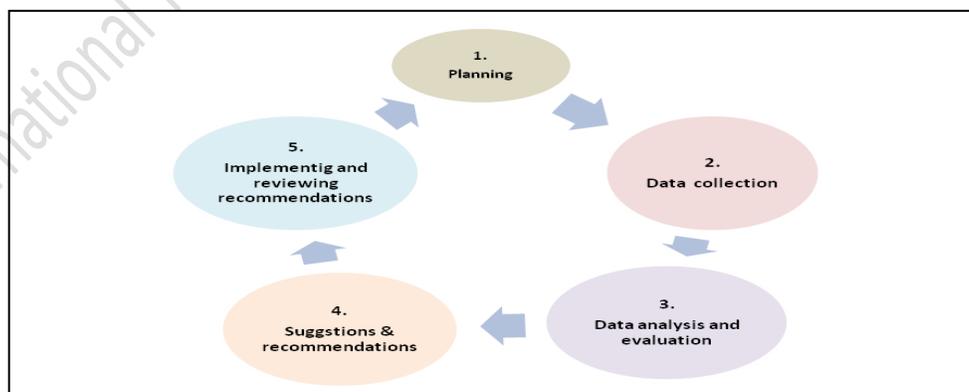

Fig : Model for Information Audit designed

Discussion of Case Study :

The Above model was tested at the Central Library of Sinhgad Technical Education Society. The author mainly evaluated the level of satisfaction of the teaching faculty of Engineering stream about the library resources, using the present five stage model of Information Audit.

The collection of the library consists of 54200 volumes. The teaching faculty surveyed was 198 which includes Assistant professors (102), Associate professors (55), Professors (41).

Satge 1. Planning : The college authorities like Principal, Vice-Principal, Library Committee Chairman and LC members were taken into confidence. A meeting was called to decide the objectives, scope, methodology and the time frame of the audit. An audit committee was selected, for which the LC chairman worked as the sponsor of the information audit process and the Librarians was one of the members. The team consisted of eight members, since there are eight core branches of engineering, one faculty from each branch was the member of the audit committee. The CL chairman and Librarians were the main persons involved in reporting for the audit. At this juncture external support or expertise was not felt as required. Survey was conducted questionnaire and interview techniques were identified as tools to gather the data. Time frame of 2 months was fixed.

Stage 2. Data Collection : Taking into account the scope of the organization and the selected sample, the survey was planned. Different duties were allocated to LC members as well as the supporting staff of the Central Library. A questionnaire was designed with the guidance of the Chairman of the audit committee and field work was planned. All the departments were approached and it was ensured that each faculty fills up the questionnaire. An inventory of important resources of central library was prepared on the basis of the library usage statistics. The users were interviewed with reference to their opinion about the library and required resources and services as well as the overall development of the Central Library which would be helpful for teaching.

Stage 3. data Analysis and Evaluation: The gathered data was entered in the computer using MS Excel spreadsheet in the library by the supporting staff and was supervised by the audit committee members for each department. The data was reviewed before entry

into the computer and gaps, missing links were clarified with the help of the audit team members. The edited data was coded using 0,1,2 values. The analysis was carried out using the expertise from the IT and Computer engineering department of the college and then evaluated by the Chairman of the audit committee and the Librarian.

Stage 4. Suggestions and recommendations: After the data analysis and evaluation, the suggestion were drawn which also considered the list of the faculty members submitted while interviewing. The data was interpreted and discuss in the committee for final draft to put before the Principal and Vice Principal.

They were initially communicated through HOD meeting and circular. A detailed repot was prepared using the balance sheets for Information resources and Information services were prepared and the report was presented before the Principal and the Founder-President for some policy decisions.

Stage 5. Implementing and Reviewing Recommendations : During the reporting stage an action plan to implement the recommendations was also discussed with the authority.

This was all about the implementation of Information Audit. Following are the results of the Information Audit.

Audit Data Analysis :

The results were discussed for the below mentioned categories as 1. Library development; 2.. Library Administration; 3. Library processes; 4. Automation and Digital Library ;

1. Library Development:

1.1 **Library Collection**: Engineering colleges were following norms laid by the apex body ; AICTE, New Delhi till 2013-14. For the academic Year 2014-15 UGC superseded AICTE. They specially had mandates for e-resources and other book collection also. Almost 98% faculty members used these resources for their further studies and projects. Print collection is hardly referred for international publications. National print periodicals were mainly used by 80% staff as CAS.74% people wanted IP based access to the library e-resources and OPAC facility.

1.2 **Library Services**: It is suggested that the library area and reading hall should be large enough to accommodate more users at a time, since the students are in the range of 1000 -2000 and even more. It is recommended that the libraries should have adequate space i.e. more than 600sq.mtrs, good lighting arrangements and have environment conducive for study. 60%users wanted services like Current Content, E-mail alerts, Ask a librarian services. 55% staff used DELNET document delivery service and 48% were happy about it.

1.3 **Library Building**: User were happy for the resource sharing facility at the Central Library. 86% users operated o the Central Library Card. But in their opinion the library building should be more approachable to all and in a central location. They were happy with the 24 hours timing of the library.

2. Library Administration:

The Library has vertical administrative structure. There is total 60% in Central Library divided into each sectional library.56% staff was happy with the supporting staff and 5% faculty was unhappy.

3.Library processes

The processes libraries are as mentioned below: a) Accessioning is done, using both the methods i.e. manual as well as by using computer. b) Dewey Decimal classification scheme (DDC) 19th Ed. With enhancement of 22nd ed is followed for book classification. C) Web OPAC is provided but only 15% faculty said they use OPAC. d) Shelving arrangement is according to call numbers e) Open access to the stacks for the faculty. f) Reservation facility is also offered.

4. Automation and Digital Library :

Engineering faculty uses SLIM 21 software for library automation and is gradually switching over to ERP designed and implemented by the Sinhgad Technical Educations Society called GEMS.

The Central Library has 30 PCs in Digital Library section at the 4th floor. 89% Faculty are using Digital Library facility. The institute is having fairly good technologically sound infrastructure for the Digital Library (DL). According to the faculty 2mbps speed of internet is slow and we need to add more databases to the digital collection.

Institutional repository may add value to the digital library and it should be developed in a thoughtful way to incorporate the all STES institutional publications. It is strongly recommended (88%) that all the faculty members' contribution should be collected and stored in the Institutional Repository.

Problems in Central Library elicited after Information Audit:

1. There are many resources available but the information is not spread properly.eg. Reference section list is not properly displayed; users are not aware of alternative resources.
2. Periodical collection is a serial collection the volumes and issues are missing and it has created gap in the collection.
3. The Reservation facility is not administered properly, which causes delay in dissemination to users.
4. There is lack of co-ordination and communication amongst staff regarding completion of information cycle.
5. There were problems in stacks as out of syllabus books, unused books, lack of compact storage space.
6. Acquisition policy and Weeding out policy is not properly drafted or executed. Discretion regarding the weeding out of books is not in the hands of local authority i.e. Librarian, this causes delay in decision or procrastination.
7. In the Digital Library hardware and software maintenance, internet speed are the major problems as the utilization is 200 users per day.
8. Library location is far away, this was a problem reported by 40% faculty.

Noted Strengths of Central Library during the Information Audit:

1. Resource sharing is well managed. Specially for post graduate information needs are satisfied very well. 89% users are happy with this facility.

2. Digital Resources are well managed and the DL is open till 12 mid night which is benefitting the students.

3. 24/7 Library with huge Reading Hall capacity is very much appreciated by 98% faculty members.

4. Library Building and infrastructure was much appreciated by 82% users.

Conclusions:

It is possible to conduct information audit on several other aspects of library and library services and also a specific criterion or a problem. It is necessary to conduct the information audit from time to time so as it helps in taking proper decisions and also for framing user oriented policies.

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