

Maximising the Value and Return on Investment (ROI) of Special Libraries: A Case Study of INMAS Library

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Abstract

The paper examines the concept of return on investment (ROI) in the context of special libraries. The aim of ROI is to establish a relationship between the special library and its host institution that could be expressed in quantifiable terms and which would satisfy administrators and demonstrate the library's economic value to the institution.

The value of a library to its parent institution is difficult to measure. Many different methods have been used to measure value, including return on investment (ROI), contingent valuation, and other explicit and implicit measures — essentially derived from library services and user satisfaction. This article describes major functions, activities and services of the INMAS library. It briefly touches upon both print and e-resources subscribed by INMAS library. The article outlines activities undertaken by INMAS library which are leading to cost saving and cost recovery, thereby, increasing return on investment (ROI).

This article elaborates on strategies used by INMAS library for effective promotion- for increased utilization of its resources, which shall in turn result in increased research output in form of various products and services and a better ROI. Lastly, this article outlines future endeavors of the INMAS library which shall ultimately result in increased ROI for the library.

Keywords: Return on investment (ROI), Cost benefit analysis, INMAS, DRDO, Cost Recovery, Consortia, E-journals, Patents, Collection Development, Usage statistics.

1. Introduction

Indian government spends an estimated `1285 billion on research and development. Most companies and R&D institutes, however, have no idea what they are getting for all this money. Only a few companies and R&D institutes measure any kind of return on investment in R&D.

Brown in one of the article has quoted that good many scientists and engineers think that, "it is impossible to effectively measure R&D productivity"¹. A majority of the researchers felt that "the very act of measurement is thought to discourage creativity and motivation among high-level professionals". Many feel that management should just "have faith" that R&D is a good investment, without trying to measure it.

Although R&D productivity is difficult to measure, many companies and R&D institutes are now putting pressure on their scientists and engineers to not only produce new products, processes and services, but to demonstrate their value to the organization. R&D measurement and evaluation systems are no longer an optional choice but soon becoming a mandatory requirement.

Dempsey² quoted "How much benefit does your institution, your user, receive for every rupees spent by the library? What's the annual return your institution realizes on what you spend on your library collection? Cost/Benefit Analysis and Return on Investment are measures often used by financial managers to gauge the efficiency and effectiveness of their budget policies.

Cost/Benefit Analysis³ can be explained as a process which can:

- ◆ Maximize benefits for a given cost
- ◆ Minimize costs for a given level of benefits
- ◆ Maximize the ratio of benefits over costs
- ◆ Maximize the net benefits (Present value of benefits over present value of costs)
- ◆ Maximize the internal rate of return (ROI)

Moreover, if we go back into history, when there were no electronic resources/journals and the job of library was only providing documents in physical format to its users, then one could easily measure productivity by the number of customer turnovers. This includes new customers coming in and out of your library; since data involved is quantitative, therefore, measuring it is fairly easy. But today we can also measure productivity through customer satisfaction, which can be quantified through customer questionnaires and surveys. Customer survey forms should be able to convert data from qualitative to quantitative. This can be done with the use of tabular checklist. Some of the ROI calculation questions which can form the part of checklist can be:

- ◆ Maximize the internal rate of return (ROI)
- ◆ How many citations in proposals, reports and articles are/were submitted by them?
- ◆ What % of citations are from the library e-collection?
- ◆ For each cited, how many others articles did you read/consult?
- ◆ How many proposals are submitted?
- ◆ What is the total monetary value of grants?
- ◆ How many hours in a typical week do you spend on:
 - Finding or accessing articles or books?
 - Reading articles or books?
- ◆ How access to e-resources has changed the way you work?

2. Performance Measurement through Return on Investment (ROI)

Institute of Nuclear Medicine and Allied Sciences (INMAS) is one of the prestigious life sciences laboratories under the aegis of DRDO, conceived for planning, researching and executing peaceful medical uses of Nuclear Energy under the benign patronage of late Pandit Jawahar Lal Nehru & Dr

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Homi J. Bhabha. In February 2011, INMAS will be completing 50 Years of its dedicated service to the Armed Forces and Nation.

The INMAS Library is an invaluable resource for students, researchers and faculties of medical and allied sciences. The library has over the years built a robust collection of over 11,046 books, 12,004 bound volumes, 238 current subscription to journals and news papers, and many other resources like student's project reports (1709), CDs and videos.

The library also provides access to the best of medicine & allied subjects related digital resources through its subscription to various databases consisting of scholarly and research relevant content. The INMAS library is an institutional member of DRDO E-journal Consortia. The collection of the library supports the research and educational needs in the nuclear medicine and allied sciences. User satisfaction is the current day approach to library service. To cope with this development, our library has stepped into library automation. INMAS library annual budget gradually increased from Rs 100 lakhs (2006-7), 175 lakhs (in2007-8), 184 lakhs (2008-9), 195 lakhs in 2009-10 and 209 lakhs (2010-11).

A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio. The return on investment formula⁴:

$$\text{ROI} = \frac{\text{Gain from Investment} - \text{Cost of Investment}}{\text{Cost of Investment}}$$

In the above formula "gains from investment", refers to the proceeds obtained from selling the investment of interest. Return on investment is a very popular metric because of its versatility and simplicity. That is, if an investment does not have a positive ROI, or if there are other opportunities with a higher ROI, then the investment should not be undertaken.

ROI in simple words is a quantitative measure expressed as a ratio of the value returned to the institution for each monetary unit invested in the library i.e., for every ` spent on the library, the institution received ` in return. Typical outputs which can easily be measured to calculate ROI include the number of:

- ◆ Research proposals written
- ◆ Papers published
- ◆ Designs produced
- ◆ Products designed
- ◆ Presentations made
- ◆ Books written
- ◆ Patents received
- ◆ Awards won
- ◆ Projects completed

Thus, ROI is one of other measures of the library's value⁵ which can be calculated by:

- ◆ Usage = implied value
- ◆ Stakeholder testimonials = explicit value
- ◆ Time & cost savings = contingent valuation

The data for calculating ROI can be collected by combining both quantitative and qualitative data like⁶:

- ◆ Usage = implied value
- ◆ Administrators interviews
- ◆ Library figures
- ◆ Research figures
- ◆ Faculty surveys

3. Past Studies

Griffiths argues that libraries should use contingent valuation for assessing benefits. Contingent valuation is a method for evaluating goods and services that are not priced. It involves assessing the effect of taking the service away. This could mean attempting to calculate the costs that would be borne by users if they could not use the library.

Special libraries such as those found primarily in the government and corporate sectors tend to focus their ROI metrics on time saved for employees by using library resources and expertise, increases in revenues, decreases in research and development expenses, productivity gains, and cost savings. Elliott, et al. (2007)⁷ describe the pros and cons of conducting an ROI or cost-benefit analysis. However, one of the disadvantages of ROI or cost-benefit analyses described by Elliott, et al. is that these metrics cannot be used for peer-comparison. Put bluntly, the library must show that the Internet has not rendered it obsolete.

A study by Weiner in 2009 makes a case for the library's contribution to the reputation of the university it serves⁸. The study finds that library expenditures are a significant predictor of institutional reputation. Libraries also contribute to the prestige of the institutions they serve, by helping to attract top researchers, faculty, and students.

Phase I was a case study, at the University of Illinois Urbana-Champaign, that was done with the library – funded by Elsevier and done by Judy Luther, a consultant⁹. Since the return on investment needs to come up with a quantifiable measurement, they looked at the role of the library's e-collections in the grants and grants income in the university. In Phase II, using the same methodology, for data collection but spreading it out around the world in eight universities, they tried to find return on investment.

It was discovered that:

- ◆ Faculty with more publications and citations obtain more grants.
- ◆ Faculty who publish more read more
- ◆ Faculty who receive awards read more

ROI must be articulated within the mission and objectives of the specific institution. E-journals are said to be primary source of information. There are various methods to measure the value of e-collections. They include: i) measuring usage through logs or vendor reports, ii) measuring purpose and value through surveys, iii) measuring perceived value through surveys or interviews, iv) calculating Return on Investment (ROI) using budget, income, and survey data. Both implicit and explicit methods of measuring value and quantitative and qualitative techniques have been used in studies that are demonstrating that e-journal collections improve research, help faculty be more productive, and are valuable for many purposes (Tenopir & King, 2007)¹⁰.

4. Initiatives Undertaken at INMAS

4.1 Collection Development: Zero-based Journal Selection/Subscription Process

We are probably the first Institution in India to introduce Zero based journal selection and subscription procedure. It was noted that at INMAS library same titles were being subscribed from 1993 to 2004, whereas many new departments and research projects have been initiated at the Institute during this period.

What actually we did was to widely circulate a note/circular among all scientists, doctors, researchers and technicians working at Institute requesting them to think as if the INMAS library is not subscribing to any journal, and therefore, requested them to send a list of only five journal titles, which they usually read and consult (in order of ranking).

Thus we collected data from all 18 Divisions at INMAS. A meeting of Head of Departments jointly with Library Committee finalised the list of 88 journals to be subscribed in 2007. Surprisingly this has resulted in 29 journal titles being discontinued from those subscribed in 2007. This exercise was repeated every year. 12 titles were discontinued from those subscribed in 2008, 10 titles were deleted in 2009 & 3 were deleted in 2010 and replaced by new useful titles. Thus, this exercise lead to better e-journal collection development, which was more useful and resulting in better research output at optimal cost¹¹.

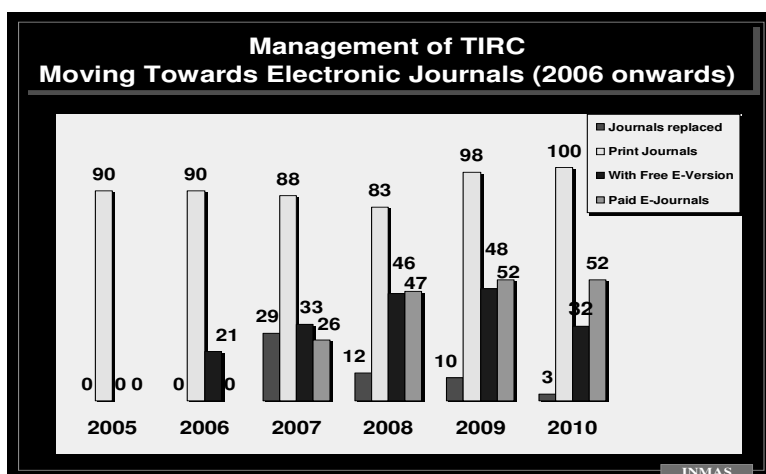


Figure1: Zero based journal selection procedure

4.2 Migration from Print to Electronics

E-resources journals help¹²:

- ◆ to work more efficient and increase productivity by faster access and more efficient searching
- ◆ to improve research and preparation of grant proposals
- ◆ to explore a wider range and greater volume of literature which leads to a greater understanding, making research and teaching more innovative, current and thorough
- ◆ to share articles
- ◆ to decrease number of trips to the library
- ◆ to save time for searching results
- ◆ to facilitate more resources are reviewed and better ones cited
- ◆ to result in more efficient access (from home, while travelling, etc.)
- ◆ to reduce the use of print content (convenience of electronic)
- ◆ to facilitate searching, reading & sharing blend together
- ◆ to support interdisciplinary exploration
- ◆ to result in better quality and more competitive research

It is possible to access electronic journal content in many ways; though in the end they all end up by either accessing the publisher's website or a licensed copy elsewhere. Librarians can go directly to each publisher's site or that of an intermediary who stores such information and make available the published material for the users. Alternatively the library can make use of an agent's gateway service to access the content. There are two modes to access e-journals:

- ◆ to result in better quality and more competitive research
- ◆ Authentication via IP address
- ◆ Authentication via User ID/password

E-Journal subscription was started at INMAS through host/publishers site. We at INMAS are presently subscribing to 54 e-journals directly through user ID and password. Since these are proprietary items the services are provided by:

- ◆ to result in better quality and more competitive research
- ◆ Lippincott William & Wilkins/OVID (A Division of Wolters Kluwer Health-India)
- ◆ ScienceDirect, Elsevier India Pvt. Ltd.

Table 1: Migration to Electronic Journals

Type	2004	2005	2006	2007	2008	2009	2010
No. of Print Journals	90	90	113	88	76	100	100
Free e-version with Print Subscriptions	0	0	21	33	46	48	32
No. of E-Journals Ovid Science Direct	0	0	0	12	21	20	20
	0	0	0	14	28	31	32
Total	90	90	113	114	125	151	152

* Besides this nearly, all freely available content of journals from open source sites like Pubmed, DOAJ, etc is being made available to users since 2005.

4.3 Joining DRDO E-journal Consortia

The rates offered to the consortium are lower by about 60 to 78 per cent depending upon the category of institution. The consortium offers lower rates of subscription from the vendors, not only because of combined strength of its subscribing members but also due to the eagerness of publishers to enter the Indian market.

INMAS library is fortunate to subscribe full text of ACM, ACS, AIAA, Elsevier, IEEE/IEL, Jane's, Science, Nature Publishing Group databases and 37 other journals by becoming a team member of DRDO E-journals consortia. We are thus able to provide wider choice of resources to our users without spending a single penny directly from INMAS library budget as the DRDO HQrs has made provision for separate budget from central funds for DRDO Consortia. Thus more relevant information leads to, time saving, in product development, by our scientists thereby increasing ROI.

4.4 Intensity of Usage and Cost Recovery

The recovery of cost incurred on e-resources subscribed can be judged in terms of intensity of usage of resources. Most publishers maintain detailed usage statistics for resources offered by them. The cost recovery is calculated on the presumption that if the e-resources were not available through the library consortium, articles downloaded from these resources by the users would have been sourced on ILL/ document delivery at a cost of US \$ 15 per article (average cost of article taken from a study conducted by the American Research Libraries)¹³.

4.5 Usage Logs and Vendor Reports

Most publishers maintain detailed usage statistics for resources offered by them. Comparative usage statistics help to optimise the usage and check misuse, if any. Both the publishers are required to submit COUNTER compliant usage/statistics on number of downloads (both full text and abstracts) in a given month, previous month, and cumulative for one year for every subscribed journal. The analysis of usage statistics of e-journals reveals consistent increase in usage for all e-resources from 2007 to 15th Dec 2010 as elaborated in table 2.

Table 2: Usage statistics of E-journals at INMAS library

SN	Title of E-journal (Impact factor)	Pub	2007	2008	2009	2010
1.	Advances in Anatomic Pathology*	OVID	16	10	12	11
2.	American Heart Journal (3.649)	SD	NS	17	19	12
3.	American Journal of Surgical Pathology* (4.062)	OVID	14	16	10	22
4.	Analytical Biochemistry (3.002)	SD	22	22	17	39
5.	Annals of Diagnostic Pathology (4.06)	SD	NS	17	32	37
6.	Applied Radiation and Isotopes (1.008)	SD	NS	10	19	24
7.	Archives of Internal Medicine (7.92)	OVID	NS	48	47	75
8.	Australian Radiology*	OVID	11	14	10	12
9.	Biochemical and Biophysical Research Communications (2.749)	SD	NS	18	24	40
10.	Biological Chemistry (2.752)	OVID	NS	19	19	38
11.	Bioorganic & Medicinal Chemistry (2.669)	SD	13	15	29	46
12.	Bioorganic Chemistry(2.125)	SD	NS	11	34	19
13.	Biosensors and Bioelectronics (5.061)	SD	NS	17	15	14
14.	Breast Journal, The* (1.61)	OVID	16	16	22	11
15.	Carcinogenesis (5.366)	OVID	19	19	27	49
16.	Cell (29.887)	SD	NS	16	38	46
17.	Cell Stem Cell (16.83)	SD	NS	12	17	19
18.	Chemical Biology & Drug Design (1.720)	OVID	NS	19	18	11
19.	Chemistry of Natural compounds	OVID	NS	21	18	24
20.	Clinical Endocrinology (3.358)	OVID	NS	24	31	48
21.	Clinical Nuclear Medicine (2.217)	OVID	15	42	31	39
22.	Current problems in Cardiology*	SD	13	13	12	10
23.	Cytokine & Growth factor reviews*	SD	15	11	13	12
24.	Diagnostic Molecular Pathology*	OVID	13	10	14	12
25.	DNA Repair (4.018)	SD	NS	11	15	19
26.	Endocrine Pathology (1.5)	OVID	18	32	27	41
27.	Endocrine Reviews (23.901)	OVID	NS	12	28	42
28.	Endocrinology & Metabolism Clinics of North America	SD	NS	16	29	39
29.	European Journal of Internal Medicine	SD	15	37	48	39
30.	European Journal of Medicinal Chemistry (2.031)	SD	NS	13	19	21
31.	European Journal of Radiology (1.915)	SD	16	19	25	49
32.	Free radical Biology & Medicine (4.813)	SD	NS	14	21	14
33.	Health Physics: The Radiation Safety Journal (30.902)	OVID	12	18	19	28
34.	Implant Dentistry*	OVID	13	14	10	11
35.	Inorganic Chimica Acta (1.713)	SD	NS	16	17	31
36.	International Journal of Pharmaceutical Medicine	OVID	NS	16	19	12

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37.	International Journal of Radiation Oncology/Biology/Physics (4.290)	SD	NS	10	24	47
38.	Journal of Bioscience & Bioengineering*	SD	18	12	13	10
39.	Journal of Clinical Endocrinology and Metabolism (5.799)	OVID	NS	14	37	32
40.	Journal of Computer Assisted Tomography (1.53)	OVID	NS	19	15	21
41.	Journal of Fluorine Chemistry	SD	NS	12	19	18
42.	Journal of Inorganic Biochemistry (3.663)	SD	NS	19	24	26
43.	Journal of Molecular Biology (4.472)	SD	NS	42	77	91
44.	Journal of Molecular Graphics & Modeling	SD	NS	17	13	11
45.	Journal of Neurochemistry	OVID	NS	16	14	29
46.	Journal of Nuclear Cardiology	SD	NS	19	19	14
47.	Journal of Pharmacokinetics and Pharmacodynamics (0.895)	OVID	NS	12	14	43
48.	Lancet, The (28.600)	SD	NS	19	34	42
49.	Life Sciences (2.583)	SD	NS	19	46	76
50.	Magnetic Resonance Imaging	SD	NS	10	21	35
51.	Methods (3.667)	SD	NS	18	13	20
52.	Molecular Cell	SD	11	15	31	28
53.	Nature (26.681)	OVID	NS	12	13	10
54.	Neuroimage (5.457)	SD	17	12	17	21
55.	New England Journal of Medicine*	OVID	NS	14	15	10
56.	Nuclear Medicine and Biology (2.478)	SD	NS	12	23	19
57.	Nuclear Medicine Communications(1.283)	OVID	12	19	18	29
58.	Oncogene (6.582)	OVID	11	10	17	19
59.	Pharmaceutical Chemistry Journal	OVID	NS	28	43	81
60.	Progress in NMR Spectroscopy*	SD	17	15	14	10
61.	Radiochemistry	OVID	NS	15	18	39
62.	Radiography*	SD	16	12	15	10
63.	Seminars in Nuclear Medicine (5.250)	SD	NS	19	21	35
64.	Seminars in Ultrasound CT and MRI	SD	NS	24	15	44
65.	Toxicology (2.919)	SD	12	15	19	24
66.	Trends in Biochemical Sciences (14.994)	SD	NS	19	14	24
67.	Trends in Cell Biology (13.527)	SD	22	19	31	46
68.	Trends in Endocrinology and Metabolism	SD	15	18	27	38

NS = Not Subscribed

* E-Journals Later Discontinued in INMAS library

Usage is an implicit measure of the value of the library collections and services. Both logs and vendor reports are factual measures of how many interactions occur with the library's e-collections. Although they do not show if something that was downloaded was useful (or even read), logs have the advantage of being automatically generated. The Ciber research centre at University College London has done many analyses with raw usage logs directly supplied by online systems or from

libraries. Analysis of usage logs requires computing expertise. COUNTER-compliant vendor reports, on the other hand, are provided directly to libraries by their vendors that participate in the COUNTER standard. The reports are provided in a standard format and show a summary of that library's use on a specific online platform¹⁴.

4.6 Increasing the Reliability of Connectivity and Minimising Downtime at INMAS

Availability of adequate Internet connectivity and bandwidth are crucial for optimal use of e-resources. At INMAS, we provide internet access to e-journal to our users by username password and also through leased line. The major advantage of username password connectivity is to enable authorized users to search and download relevant research articles not only in campus but also at home or during outstation holidays.

4.7 Promoting Electronic Information Products & Services

Effective promotion can serve many purposes, including establishing communication, raising awareness of what is on offer, providing guidance and, to some extent, providing user education. It is the INMAS libraries' responsibility to ensure that the use of its information sources, resources and services are maximized to benefit its users; hence, the necessity for marketing of these available resources. INMAS library markets its e-resources through:

- ◆ to share articles
- ◆ Branding: A library 'logo' or 'branding' is created
- ◆ List of journals, e-books and subject guides are compiled and mailed to users
- ◆ Banners, posters, brochures, bookmarks, etc are prepared and E-Mailed to users
- ◆ Vendors and publishers also sponsor these materials (sometimes)
- ◆ Writeups and advertisements are published in in-house magazines like newsletters (both in print or electronic formats)
- ◆ Users are encouraged to review databases and become 'Library Ambassadors'
- ◆ Face to face interaction is conducted in the form of training programs, personal visits, launch events, user meets, library stalls, etc
- ◆ Installing electronic monitors and plasma displays in the library
- ◆ Organisation of an e-resource themed morning or afternoon tea for potential users

4.8 Training of Library Staff & Users

Training programmes are a crucial requirement that a library has to fulfill to facilitate optimum use of subscribed e-resources. Training programmes act as a bridge to facilitate better communication amongst user members and service providers.

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User support for electronic journals appears to take more staff time than support for print journals. The introduction of e-books and e-journals required regular training of library staff with the new facilities so that they in turn could train and help library users to access the facility. INMAS library regularly organizes a Trainers Training Programme for accessing the e-books and e-journals. Elsevier and Ovid publishers also provide training on e-journals to enable trainers to impart training to all users for optimum utilization of this facility. We at INMAS have initiated on a continuous basis highly focused and interactive half-day users training programs thrice a year¹⁵.

Staff is the key success factor for all activities. One must remember that training adds 'value' to any transaction with your customer and we:

- ◆ to share articles
- ◆ Make sure that new staff is introduced and trained on how to use the databases in any induction training.
- ◆ Invite current staff to attend refresher training.
- ◆ Encourage staff to use the e-resources for their own study and professional development.
- ◆ Take advantage of any/all vendor training sessions.

The web-based search and browse interfaces allow a user to conduct his/her own search without the help of an intermediate, i.e. a librarian/information scientist. In the near future, soft copies of home made e-tutorials will also be made available for users education through the DRDO website.

4.9 Other Initiatives

- ◆ Invite current staff to attend refresher training.
- ◆ Users Participation at Book Fairs/Exhibitions enables users exposure to a wide variety of books which in term helps to save his/her time.
- ◆ Collection Enhancement through Interlibrary Loan though DELNET/DRDO libraries enables users to get the document/required information through sister libraries without actually spending money on its purchase.
- ◆ Collection Development: Regular Weeding out and establishing a Storage Room. It helps to save the time of user through making collection younger and useful/relevant.
- ◆ Collection Development: Users Participation ("Suggest a Book" or "Comment"). Customer is the King and his voice should be heard.

5. Key findings

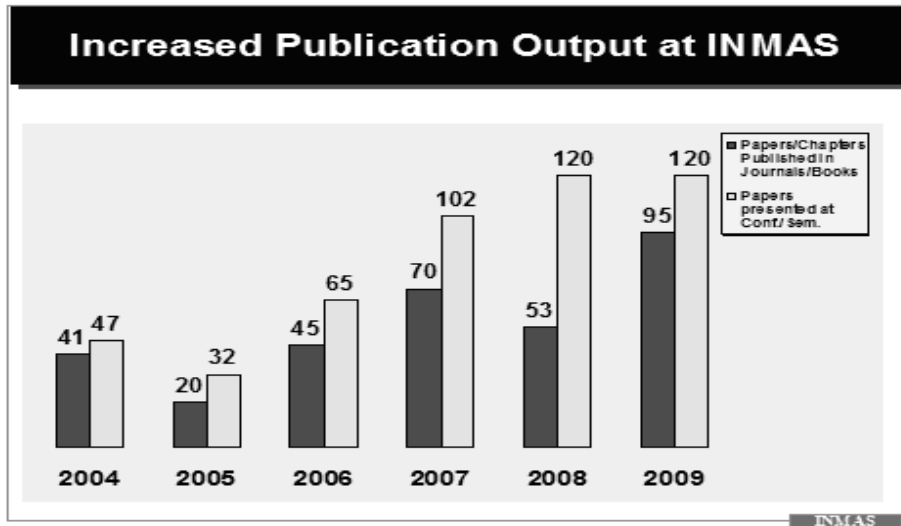


Figure 2: Publication output at INMAS

Figure-2 shows that there has been a gradual increase in:

- ◆ Papers/chapters published in journals/books by INMAS employees
- ◆ The number of paper published was 41 in 2004, which gradually increased to 95 in 2009
- ◆ The number of papers published in conferences also increased gradually from 47 in 2004 to 120 in 2009

This clearly indicate positive ROI- i.e. the number of publication increased with increase in e-journals subscription by INMAS Library.

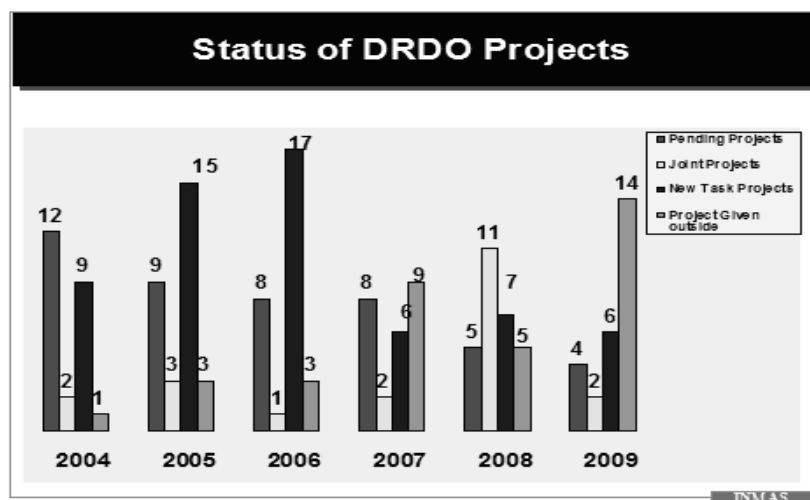


Figure 3: Projects (Work) at INMAS

Figure-3 summarize the status of DRDO projects at INMAS:

- ◆ There were 12 pending projects on which INMAS was working in 2004, these were gradually reduced to 4
- ◆ The number of joint projects (with outside Institutions) however remain highly variable, which increased from arrange of 1-3 in 2004-2007 to 11 in 2008 and again reduced to 2 in 2009
- ◆ Similarly, new task projects undertaken varied between 6-17 during the period of survey
- ◆ The projects given to outside agency showed a incremental increase from 5 in 2004 to 14 in 2009

These figures clearly indicate a positive ROI, since the number of pending projects decreased considerably, and new projects initiatives increased.

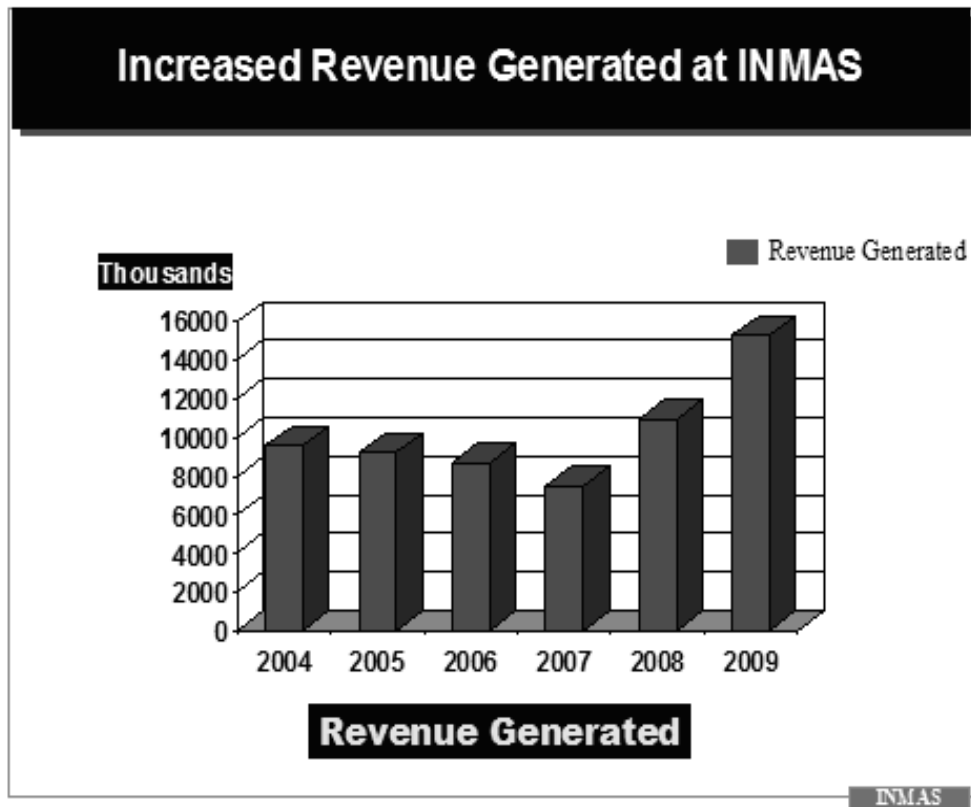


Figure 4: Revenue generated at INMAS

Figure-4 shows a considerable and gradual increase in amount of revenue generated at INMAS by providing various services to its clientele. This reflects towards a positive ROI growth for the Institute.

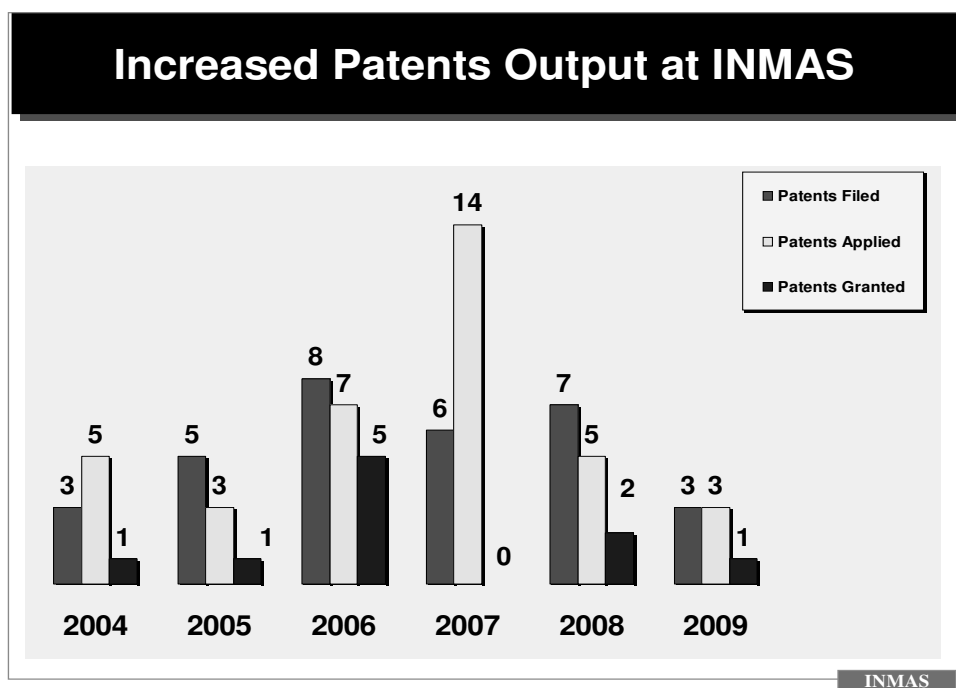


Figure 5: Patents Output at INMAS

Figure-5 highlights patents output at INMAS:

- ◆ The number of patents filed in 2004 were 3 which gradually increased to 7 in 2008
- ◆ Similarly, the number of patents applied, which were 5 in 2004 peaked up to 14 in 2007
- ◆ Number of patents granted remained nominal during the survey period. However, it showed a biggest leap during 2007

All the above figures indicate a positive growth by the institute and therefore, a positive ROI.

6. Future Endeavours

The INMAS library plans to take up the following endeavours in the near future

- ◆ to enhance document collection in electronic format at INMAS as per users feedback.
- ◆ to organise workshops on Biomedical Information Sources & Services for users benefit.
- to make attempt to join Medical library Consortia (Non-DRDO) of Ministry of Health & Family Welfare, India.

7. Conclusion

Libraries all over the world face the challenge of demonstrating and quantifying their value to their funding agencies. This can be qualitatively shown as:

- ◆ Attaining prestige and internationalization
- ◆ Improved faculty and research productivity
- ◆ Attracting high quality students through high quality instruction, and there by
- ◆ Justify all expenditures.

The ROI (Return on Investment) of a institution is measured in terms of the increased usage, usability of the costly information products which is ultimately reflected in the scientific productivity of the host institute. While there are many metrics for assessing library value circulation trends, gate counts, usage statistics trends, this article aims to explore the return on investment (ROI) approach used by libraries to demonstrate value. Evaluation of a research organization can be done

- ◆ Qualitative: panel review, analysis of processes, fairness and transparency, accountability...
- ◆ Quantitative: overheads, publications, citations/researcher citations, patents, royalties ...

Some final thoughts on measuring value are:

- ◆ Measure ROI to the mission of the institution
- ◆ Measure both quantitative and qualitative outcomes, not inputs
- ◆ Measurable quantitative data can show ROI and trends
- ◆ Qualitative data tell a story, communicate it loudly and clearly to the top brass
- ◆ No one method stands alone

It is rightly said that measuring the value of information or the value of library services is a "hollow" activity unless effective communication with decision makers is taking place¹⁶.

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