MEASURING THE IMPACT OF INFORMATION: IMPLICATIONS FOR MARKETING
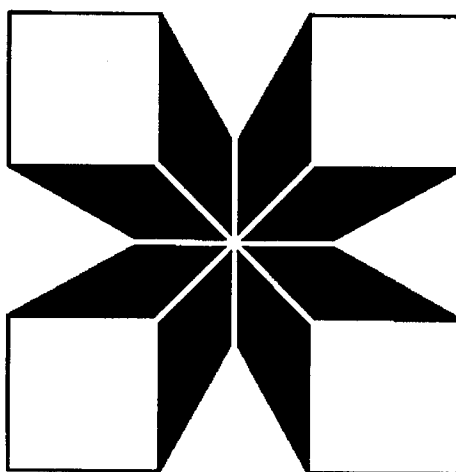
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CANADA

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MEASURING THE IMPACT OF INFORMATION: IMPLICATIONS FOR MARKETING

This paper describes an emerging field of research in the information sector, research that could have profound implications for the success of marketing efforts. Of particular significance is the potential for relating the marketing of specific information products and services to the larger development context.

1.   A WORTHWHILE CHALLENGE

Essentially, this research theme focuses on identifying and understanding the benefits being derived from information activities as perceived by different clients and other stakeholders, and on exploiting this knowledge to maximum advantage. To date, most efforts have been limited to measuring the immediate inputs and outputs of information activities, hopefully in response to the declared needs of user communities. But there has been little investigation of the next step, ie.: the consequence of using the information.

It seems reasonable to assume that making more effective use of information products and services could improve the quality of decision-making at all levels in public, private, and non-governmental sectors, and thereby exert a significant impact on many aspects of development. Increased awareness of these linkages could be used to great effect for marketing and promotion purposes, either for direct revenue-generation or to reinforce the value of core financial support. However, there has been no definitive work to substantiate the underlying assumptions about the value of information. Acceptable measures have not yet been established to confirm the extent to which information interventions can exert a direct impact on social and economic development. There are several understandable reasons for this, including the complexity of the task, the number of external variables that obscure causal relationships, the lengthy time-frame that might be required in order to demonstrate results, the difficulty of extrapolating from one site to another, and the volume of data that must be processed. Nevertheless, this is a field that must be explored further if there is to be any significant breakthrough in the way in which information products and services are valued and supported.

2. AN ILLUSTRATION

It might be useful at this point to introduce an example that describes the potential linkages between inputs, outputs, usage, outcomes, benefits, and overall impact of a specific information activity. The significance of adopting a more systematic approach to understanding the consequence of use then becomes more apparent.

The National Institute of Science, Technology and Development Studies (NISTADS) in New Delhi is about to embark on a project to develop new information tools that will help improve planning at the regional and local levels. Increasingly, planners are turning to applications of remote sensing technology and analytical tools like Geographic Information Systems (GIS). At the moment, however, relatively few institutions in India can take advantage of these technologies; they require expensive and sophisticated equipment. Consequently, the NISTADS project will attempt to develop more affordable and practical technologies for use in decentralised, local level planning and promote their adoption in test sites. This will require the development of new software for use on microcomputers that will enable planners to analyse sets of data at the district and village level (concerning population distribution, depth of water table, soil type, forestation, etc.) when taking decisions on, for example, the best route for a water supply, where to locate handpumps, or where to build new schools.

In one sense, therefore, the output of this research effort will be a series of tangible information products - new software, publications and training manuals. The project leader believes these products will prove useful not only in India, but to researchers and planners in many other parts of the world. This raises questions about what the market might be, how to price the items, how to sell them, etc. But this is only one component of a much longer chain of events. NISTADS has embarked on this research not simply to sell software and publications to an export market, but to improve local planning. Consequently, a series of associated steps involving the outputs must also be taken into consideration. These might include demonstrating the potential value of the new tool, gaining acceptance for introducing a new approach to planning, and persuading senior planning committees, as well as local bureaucrats and politicians, to endorse, promote, invest in, and implement this powerful new planning process.

The complexity of this step is apparent, as responsibility for success is now shifting outside the controlled confines of the laboratory to external groups of users and others (such as the financial sponsors) with their own political and economic agendas. Even at the earliest phases of this project, therefore, it is essential to start thinking practically about the needs, perspectives, and priorities of the different groups who might have a stake in the outcome, and to start

preparing the ground accordingly. This will entail consultations on options, development of appropriate training tools, demonstration of practical applications, etc., in short, how to market the new planning mechanism to critical groups without whose support the new software and publications would remain unused on the shelf.

The next link in the chain takes us beyond the immediate users of the products. Assuming the new software proves viable and is accepted by local planners, the project must think ahead to the consequence of use. What would be the outcomes, the benefits, the impact of this information product on the people, on the land, on "development"? And how might these be measured? Now would be the time to obtain baseline data related to the intended benefits. Then, in three or four years, the NISTADS project leader could point to, for example, improvements in water supply which in turn had led to a reduction in water-borne diseases, or to fuelwood management programs leading to a stabilization of deforestation. At this point in the chain, we would be looking at the measurable impact of having invested in a new information product.

Evidence of such a linkage no doubt could be incorporated in subsequent promotional efforts so as to generate further investment. This would permit, say, the design of additional applications and expansion into new geographical sites, ultimately leading to still further benefits and development impact. This series of interconnected events is based on a real project, and demonstrates the type of interactions which, if properly anticipated and monitored, could generate convincing arguments about the impact of information on development.

3.   AN INTERNATIONAL RESEARCH PROGRAM

While this example serves to illustrate some of the concepts and interconnections, it is not possible simply to extrapolate from a single case and formulate a definite methodology for measuring impact. The complexities of this task have already been referred to above. However, an international research program, initiated by Canada's International Development Research Centre (IDRC) is starting to make some progress.

The long-term goal of this program is to establish tangible criteria by which the relevance of information for development can be measured. The immediate objectives are: (i) to review the linkages between information and development and suggest suitable approaches toward assessing the impact of information on development; (ii) to develop an initial framework for field-testing the preferred

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methodology through several case studies; and, (iii) to stimulate a long-term collaborative research effort to explore the many facets of this subject.

The program was started in March 1992, with an initial two-day workshop that continued as a computer conference for seven months. This was a "closed" conference of 15 international experts, although the views of several external commentators were also entered in to the conference. Almost 400 messages were exchanged. The summary of transactions was submitted to a 15-member consultative panel for further critical comment. Issues debated in the computer conference included background considerations and definitions ("impact", "development", "information", etc.), the different perspectives from which to assess benefits, the various types of benefits to be obtained, experience with assessment methods (e.g., benefit-cost analysis, and examination of the life cycle of information production and use), characteristics of indicators, etc.

The findings of this computer conference were then examined in a workshop that was tasked with outlining a practical approach for investigating the impact of information on development. Participants succeeded in drawing up a conceptual framework and a series of operational steps. The outputs of this workshop together with the material generated during the computer conference were edited into a comprehensive review that was published by IDRC in December 1993.

4.   **THE CONCEPTUAL FRAMEWORK**

The first two parts of the research program have made substantial progress at the conceptual level. The framework for impact assessment incorporates several components, many of which are readily recognizable in the illustrative local planning project presented above. The framework incorporates:

i]   the object of assessment. Determine what is being evaluated, e.g., an information program, project, service or product, activity, resource;

ii]   the assessment perspective. Determine for whom and why the evaluation is being undertaken, e.g., information service provider, information user (actual and potential), various beneficiaries, donor agencies, general public;

iii]   specific measures of inputs (resources), outputs (products and services), usage (use and non-use), outcome (the consequence of use and non-use), and domain (the environment within which the product or service operates);

iv] derived measures or indicators - performance, effectiveness, cost-effectiveness, cost-benefit, return-on-investment, and impact;

v] interactions among the above, and external factors that can affect measurements.

These components of the conceptual framework are presented in the accompanying two figures.

5. STEPS IN THE ASSESSMENT PROCESS

Given that there is a viable conceptual framework to guide the assessment of information impact, it is possible to determine a basic sequence of steps in the assessment process.

i] Define the development issue or objective to which the information activity is contributing;

ii] Define the user groups and intended beneficiaries;

iii] Describe the target audiences for the results of the assessment, ie: those who will use the findings;

iv] Examine the information use environments of the "users" and the "targets";

v] Set-up guidelines for collecting, analysing, interpreting, and preserving anecdotes and other data;

vi] Assemble base-line data;

vii] Work collaboratively with beneficiaries to determine the perceived or expected benefits;

viii] Identify linkages between various outcomes, usage, outputs, and inputs;

ix] Confirm the role of information at each stage;

x] Analyze and interpret the findings;

xi] Validate the findings with users and beneficiaries; and,

xii]   Package and present findings to the target audiences.

Full details are contained in the review published by IDRC (-- see section 7, "Further Reading").

6.   FUTURE ACTIVITIES

The initial activities in the research program have helped map out the underlying concepts, the various perceptions of "benefit", the different types of stakeholder, the importance of focusing on the consequence of use, the categories of indicator, and so on. But this analysis is still at a preliminary and theoretical stage. Several follow-up activities are envisaged to test the initial framework and assessment methodology, as well as further research to increase our understanding of the components and their interaction. Field-testing has already begun, with the first group of case studies designed to assess the impact of several regional information systems on decision-making in the Caribbean. Other case studies under development include the impact of a Latin American education information network on policy analysis and decision-making, the impact of an international agricultural research information system, and the impact of introducing computer communications technology in Africa. Case studies such as these will go a long way towards clarifying the assessment methodology and testing its feasibility. If successful, the next output of this research program will be a practical hand book for measuring the impact of information services and products.

To conclude, this field of study suggests that while individual marketing efforts must be clearly focused, they should also keep in mind the larger context within which they operate. Whether selling an information product or promoting the adoption of an information service, the approach can be improved through a better understanding of the various perceptions of benefit and the extent to which these are delivered as a consequence of use. Feedback such as this becomes a powerful tool to strengthen the marketing strategy, and to build awareness of the value of investing in information.

7.   FURTHER READING

Stone, Martha B., 1993 Assessment Indicators and the Impact of Information on Development. *The Canadian Journal of Information and Library Science*. 18:50-63.

[This provides a short summary of the IDRC research program, including the conceptual framework.]

Menou, M. (Editor) 1993 *Measuring the impact of information on development.* IDRC, Ottawa, Canada. 188 pages.

[This is the complete account of the initial phases of the research program, including descriptions of the computer conference and subsequent workshop, detailed discussion of the assessment framework and methodology, illustrative appendices and a full bibliography.]

Griffiths, J.M.; King, D. 1993. *Special libraries: increasing the information edge.* Special Libraries Association, Washington, DC, USA. 197 pages.

[This is an impressive analysis of the usefulness, value, and impact of information, and the performance and effectiveness of libraries. The conceptual framework that evolved during the IDRC-sponsored research program drew heavily on this work.]

Fig. 1 Conceptual framework for impact assessment:
evaluation perspectives and measures.

Object of Evaluation
▪ Program ▪ Project ▪ Service ▪ Activity ▪ Resource ▪

**Evaluation
perspectives**   **Measures**

Inputs (resources)
▪ Amount of resources
▪ Cost of resources
▪ Attributes

**Information
service
provider**

Outputs (products and services)
▪ Amount of output
▪ Attributes of output
  - Quality
  - Timeliness
  - Availability
  - Accessibility

**User
(actual and
potential)**

Usage
▪ Amount of use and nonuse
▪ Factors affecting use and
  nonuse
  - Purpose of use
  - Importance
  - Satisfaction with attributes
    of output
  - Awareness
  - Ease and cost of use

Beneficiary

Outcomes (consequences
of use and nonuse)
▪ Time saved
▪ Improved productivity
▪ Improved quality of work
▪ Improved timeliness of work
▪ Value derived

**Donor
agency**

Domain (environmental characteristics)
▪ Target population
▪ User and nonuser population
▪ User and nonuser information needs
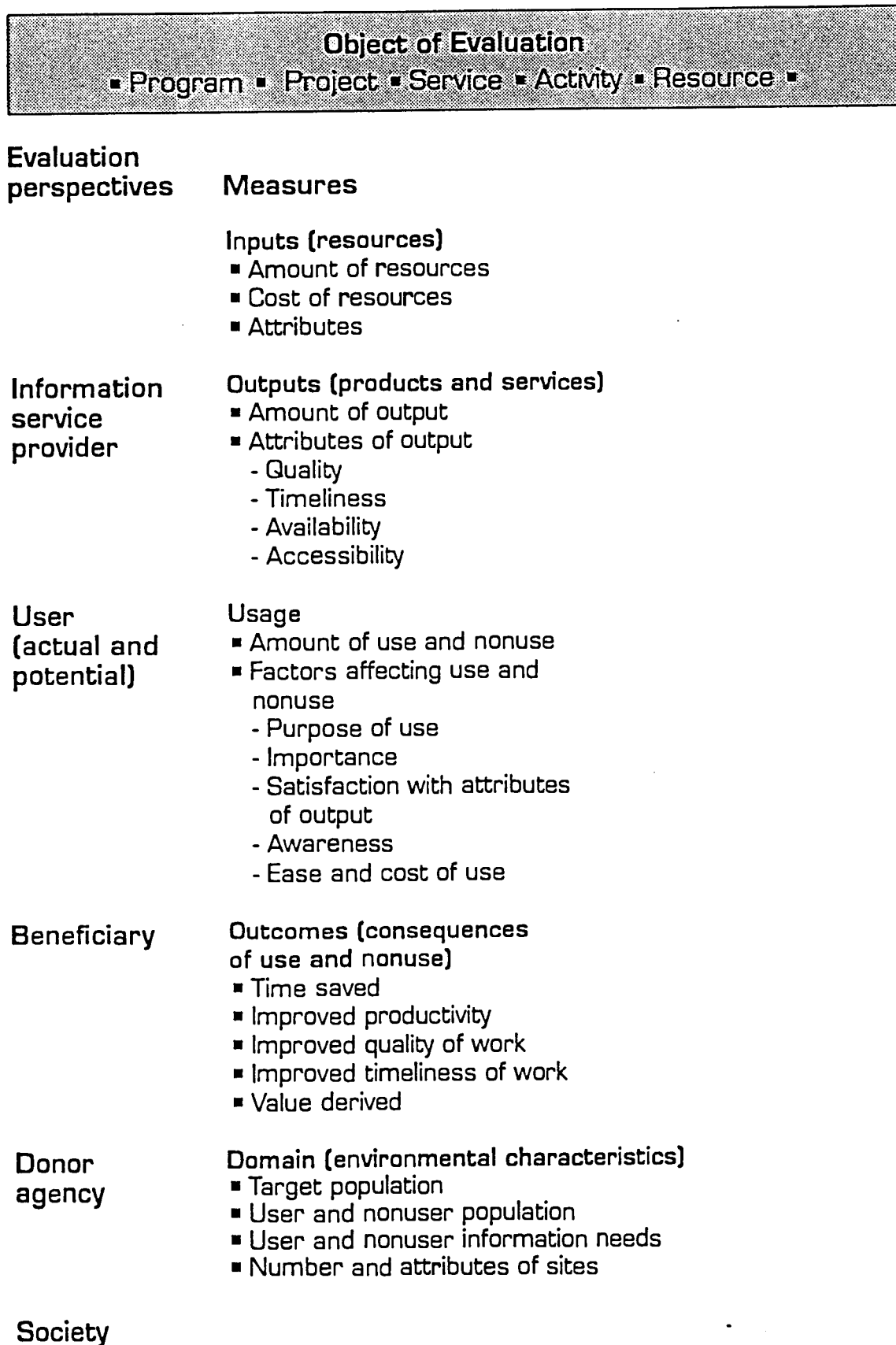▪ Number and attributes of sites

Society

Fig. 2 Conceptual framework for impact assessment:
        indicators, interactions, and externalities.

Object of Evaluation
■ Program ■ Project ■ Service ■ Activity ■ Resource ■

Evaluation perspectives   **Measures ⟶ Interaction**   **Derived measures and indicators**

Externalities ⟶

Inputs (resources)
■ Amount of resources
■ Cost of resources
■ Attributes

Performance

Information service provider

Outputs (products and services)
■ Amount of output
■ Attributes of output
  - Quality
  - Timeliness
  - Availability
  - Accessibility

Cost effectiveness

Effectiveness

Externalities ⟶

User (actual and potential)

Usage
■ Amount of use and nonuse
■ Factors affecting use and nonuse
  - Purpose of use
  - Importance
  - Satisfaction with attributes of output
  - Awareness
  - Ease and cost of use

Cost-benefit

Externalities ⟶

Beneficiary

Outcomes (consequences of use and nonuse)
■ Time saved
■ Improved productivity
■ Improved quality of work
■ Improved timeliness of work
■ Value derived

Impact

Externalities ⟶

Donor agency

Domain (environmental characteristics)
■ Target population
■ User and nonuser population
■ User and nonuser information needs
■ Number and attributes of sites

Society