

Information Management

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Abstract

Information management (IM) is the collection and management of information from one or more sources and the distribution of that information to one or more audiences. Management means the organization of and control over the planning, structure and organization, controlling, processing, evaluating and reporting of information activities in order to meet client objectives and to enable corporate functions in the delivery of information. 'Information' here refers to all types of information of value, whether having their origin inside or outside the organization, including data resources, such as production data; records and files related, for example, to the personnel function; market research data; and competitive intelligence from a wide range of sources. Information management deals with the value, quality, ownership, use and security of information in the context of organizational performance.

1. Introduction

The term 'information management' is used ambiguously in the literatures of several fields: in computer science and its applications it is used as a synonym for information technology management or as identical to 'data management', where the emphasis is on the structures underlying quantitative data and their relationship to the design of databases. In business or management studies it has similar connotations to technology management, with an emphasis on the relationship of information technology to business performance and competitiveness. In the field of librarianship and information science it is identified with the 'emerging market' for information workers (managers), whose perception of information embraces data, organizational intelligence, competitive intelligence, external information resources of all kinds and the associated technology (for handling these different sources. Compared with the other areas, information management in this latter context is more widely concerned with the meaning of information for the information user and with information retrieval issues.

Throughout the 1970s this was largely limited to files, file maintenance, and the life cycle management of paper-based files, other media and records. With the proliferation of information technology starting in the 1970s, the job of information management took on a new light, and also began to include the field of data maintenance. No longer was information management a simple job that could be performed by almost anyone. An understanding of the technology involved, and the theory behind it became necessary. As information storage shifted to electronic means, this became more and more difficult. By the late 1990s when information

was regularly disseminated across computer networks and by other electronic means, network managers, in a sense, became information managers. Those individuals found themselves tasked with increasingly complex tasks, hardware and software. With the latest tools available, information management has become a powerful resource and a large expense for many organizations.

2. The elements of information management

Several strands have contributed to the development of information management. First, it has its origins in a variety of fields that have had to do, traditionally, with the acquisition, organization, maintenance and use of documents: archives and records management, and librarianship and information science (especially in special librarianship and information work). Many of the areas of concern within IM have long been the concern of other professional groups in the information field, including database design and development, information storage and retrieval, and the economics of information.

Second, the development of information technology, and its growing application to all aspects of information management, has been a strong formative influence. The costs of computer-based systems draw direct attention to the issues of the value of information and cost-benefit relationships in the development of information systems and services. Where the costs of such systems have previously been hidden in the work done by a wide range of organizational staff members, their sudden emergence into significance consequent upon the introduction of computers has caused organizations to view information functions in a new light.

Finally, the wide application of information ideas, developed in the business schools, widely accepted in business, and given prominence in the business press and in the media generally, and applied increasingly in public-sector organizations, has resulted in the acceptance of such concepts as strategic planning, cost-benefit analysis, resource management and marketing.

3. The information life cycle

The idea of an information life cycle is derived from records management, where the idea of document life cycle is central to the overall process.

The life cycle of records includes the following steps (sometimes referred to as 'document control'):

- design and creation of records;
- identification;
- authorization;
- verification, validation, auditing;
- circulation, access, loan, use;
- back-up procedures and disaster recovery plans;
- Retention schedules and destruction.

The life cycle will vary from organization to organization depending on the nature of the information, the means used to organize it, the extent of use and the controls put upon use.

The Commission on Federal Paperwork set out a very basic life cycle, which identified the following five stages: requirements' determination, collection, processing, use and disposition, with the following comment on its relationship to information management: 'At each of these stages, information values must be estimated and measured, costed and accounted for, just as Government now does for any other resource.

Stage 1 draft/revise document

Stage 2 clearance or approval

Stage 3 formal and informal exchanges on document content

Stage 4 local retrieval and re-use (either manual or electronic)

Stage 5 acquisitions and indexing by a central archive

Stage 6 central retrieval and re-use

Stage 7 primary and secondary distributions

Stage 8 dispositions, i.e. permanent retention, limited archiving or destruction

Stage 9 systems administration.

The last stage is not so much a stage as the overall administration of the foregoing stages, involving, for example, security classification, password control for electronic files, and other housekeeping functions.

4. Information resources

As noted earlier, there is some confusion over the concept of information resources, mainly as a result of the inclusion of technological resources in the concept. However, most commentators regard the following as constituting information resources in organizations.

4.1 Data

All organizations generate data about their activities. Thus, a local government department such as a housing department generates data on its housing stock, the physical state of the houses, the details of tenants and their rents, and so forth. A manufacturing company generates data on the production process, recording not only the number of items of each product manufactured in a given time, but also data on the reliability of the equipment used to produce those items, the turnover rate and sickness rate of workers, and the sales by outlet, by region and by sales person. Organizations also collect data on the state of their markets, the economic circumstances of the country or of its exports markets, and so on. All of these data are important, and some are more important than others because they enable the firm, for example, to identify potentially profitable products, markets and export areas. In other words, some data have potential for competitive advantage and must be maintained securely and effectively if the organization is to benefit from having them available.

4.2 Records

Data are very often associated with records of events, objects and persons. For example, a personnel record identifies an individual and includes many items of data that define the person - age, training level, sex, marital status, courses attended, year of entry to the organization, and many more. Again, a project will have many records associated with its

management and ultimate completion, including all the data associated with, for example, product design and development, prototyping, market testing and full-scale production. Much of the information in these records will be textual in character and will consist of files of reports, test results, correspondence with suppliers, etc. Records of these kinds have long been the province of records management and procedures have been evolved to ensure their effective filing, security, storage and eventual disposal. The techniques of records management are now being applied to computer-based files, under the heading of information management.

4.3 Text

Textual information has long been the province of libraries and information Centre's, concerned, as they have been, with the acquisition, organization, storage and dissemination of printed materials, most often from outside the organization of which the library or information Centre formed a part, but also often including the maintenance of stores of internal reports, particularly in research-intensive organizations. With the development of office automation systems and the creation of many more electronic documents in organizations, the producers of such systems have become increasingly aware of the need for effective information retrieval systems to underlie the database of electronic documents.

4.4 Multimedia

All the above, together with sound recordings, graphics, pictures and video, may now exist together in a single 'document'. Examples include various educational and reference sources published as CD-ROM packages, such as Microsoft's Encarta encyclopedia; but, increasingly, organizations are finding applications for multimedia databases in which, for example, word-processed documents may have sound comments attached by readers and may include pictures, for example in a personal database, or video clips, in records held by a consumer products test laboratory. While the other information resources referred to above may exist in either paper or electronic form, multimedia records require the application of information technology.

4.5 Information technology

Information technology embraces computers, telecommunications and software systems that aid the organization, transmission, storage and utilization of what might better be called the 'knowledge resources' dealt with above. The range of equipment and the variety of specialized knowledge needed for their effective control is enormous and for these reasons information technology is often dealt with by different sections in organizations. Thus, telecommunications, including telephone systems and facsimile transmission systems, are often controlled separately from the computer resources of the organization. Similarly, functional divisions of an organization often have more expertise in the matters underlying software packages (for example, for accounting purposes) than the computer managers. However, these technologies are merging, so that, for example, electronic mail may replace internal paper mail systems and, in some cases, external mail systems. Similarly, computer linkages between a manufacturer and the supplying companies may obviate the need for communication by other means. Consequently, there is an argument for requiring information technology (in all of these senses) to be managed under an umbrella that also covers the knowledge resources.

To these information resources we may add expert systems and other manifestations of developments in artificial intelligence, such as the 'learning' systems created through

neural net technology. Systems of this kind, which draw upon other information resources and the personal knowledge of individuals, already play an important, but little documented, role in certain kinds of businesses (e.g. stock trading) and may become the principal means by which information is put to use in support of organizational objectives in the future.

5. Environmental management

Administrative functions that develop, implement, and monitor the environmental policy of an organization.

An Environmental Management System (EMS) is a framework that helps a company achieve its environmental goals through consistent control of its operations. The assumption is that this increased control will improve the environmental performance of the company. The EMS itself does not dictate a level of environmental performance that must be achieved; each company's EMS is tailored to the company's business and goals. Basic Elements of an EMS:

Reviewing the company's environmental goals
Analyzing its environmental impacts and legal requirements
Setting environmental objectives and targets to reduce environmental impacts and comply with legal requirements
Establishing programs to meet these objectives and targets
Monitoring and measuring progress in achieving the objectives
Ensuring employees' environmental awareness and competence
Reviewing progress of the EMS and making improvements
Instead of adapting to changing environmental circumstances, the organization can seek to modify its environment. Vertical and horizontal collaboration, i.e. cooperation or integration with other organizations in the industry value system are typical means of reducing uncertainty. An example of reducing uncertainty in relation to the prior or demanding stage of the industry system is the concept of Supplier-Retailer collaboration or Efficient Customer Response.

5.1 Creation of slack resources. In order to reduce exceptions, performance levels can be reduced, thus decreasing the information load on the hierarchy. These additional slack resources, required to reduce information processing in the hierarchy, represent an additional cost to the organization. The choice of this method clearly depends on the alternative costs of other strategies.

5.2 Creation of self-contained tasks. Achieving a conceptual closure of tasks is another way of reducing information processing. In this case, the task-performing unit has all the resources required to perform the task. This approach is concerned with task (de-)composition and interaction between different organizational units, i.e. organizational and information interfaces.

5.3 Creation of lateral relations. In this case, lateral decision processes are established that cut across functional organizational units. The aim is to apply a system of decision subsidiarity, i.e. to move decision power to the process, instead of moving information from the process into the hierarchy for decision-making.

5.4 Investment in vertical information systems. Instead of processing information through the existing hierarchical channels, the organization can establish vertical information systems. In this case, the information flow for a specific task (or set of tasks) is routed in accordance to the applied business logic, rather than the hierarchical organization.

Following the lateral relations concept, it also becomes possible to employ an organizational form that is different

from the simple hierarchical information. The Matrix organization is aiming at bringing together the functional and product departmental bases and achieving a balance in information processing and decision making between the vertical (hierarchical) and the horizontal (product or project) structure. The creation of a matrix organization can also be considered as management's response to a persistent or permanent demand for adaptation to environmental dynamics, instead of the response to episodic demands.

6. Conclusion

Whether information management is a passing fancy or a new way of considering the role of information in organizational performance must await the test of time; however, there can be little doubt that the concept has had a significant impact on the thinking of professionals working in a variety of fields. Managers of computer services have become information managers (and even directors of information management services), records managers, archivists, information scientists and special librarians have changed their titles and shifted their professional orientations, and educational institutions have introduced new courses in information management in departments as diverse as computer science, business management and librarianship.

Clearly, then, changes have been set in train in several directions and acceptance of the concept, however defined, is widespread. The history of organizations, however, is full of ideas that have attained significance for a time and then fallen away, either into general acceptance within the body of management ideas or into whatever limbo exists for such things. One thinks in this context of 'scientific management', 'organization development', 'programmed-based budgeting', and the like.

7. References

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