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INFORMATION RESOURCES MANAGEMENT: TOPICS, CONCEPTS, AND RESOURCES FOR TEACHING IRM TO BUSINESS STUDENTS

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ABSTRACT: Several advancements has been made by IRM researchers and educators in promoting IRM concepts in business curricula. However, in most business programs, a limited amount of time and resources can be devoted to the teaching of IRM outside the information systems major. This paper presents a resource guide for teaching IRM to non-IS undergraduate business students, including IRM topics, concepts, and references.

KEYWORDS: Information Resources Management, Curriculum, Teaching Methods

INTRODUCTION

As Information Resources Management (IRM) enters its second decade as a field of study, it is recognized as a vital component of Management Information Systems (MIS). In the academic arena, IRM concepts are taught in many business programs. Lee (1988) and Lytle (1988) point out that many colleges and universities already have programs or offer courses in IRM. Well-written and in-depth books devoted strictly to IRM concepts are available: Tom (1987), Horton (1985), Marchand and Horton (1986), Burk and Horton (1988), and Bryce and Bryce (1989). Some are even written in a textbook format, such as Smith and Medley (1987), Lucas (1989), and Kerr (1991).

Many strategies have been postulated that support the enhancement of current teaching practices of IRM, ranging from a comprehensive IRM curriculum (Bryce and Bryce, 1989), to IRM concepts in general business classes (McLeod and Brittain-White, 1988). In the middle of the range are proposals for content-specific courses in IRM (DPMA, 1986; Laribee 1990, 1991). All this activity certainly indicates that universities are attempting to provide some IRM instruction in their business programs. However, a great deal more work is needed to teach IRM to non-IS business students and to develop a foundation of concepts to differentiate IRM from other MIS sub-fields.

An issue relevant to the introduction of any new course content is the availability of suitable resources. This paper provides a resource guide for educators who are attempting to teach IRM concepts in general business courses. For these educators, major problems arise in terms of where to position IRM concepts, what concepts to cover within a limited time frame (3-5 hours), and where to find suitable resources. This resource guide sets up a framework of IRM topics, suggests concepts for each topic, and provides detailed resources to aid in topic preparation.

POSITIONING OF IRM TOPICS IN THE BUSINESS CURRICULUM

Ideally, IRM concepts should be covered in an upper-division course in Management Information Systems after students have a firm grounding in the common body of knowledge (CBK) courses. This will ensure that students can compare and contrast the characteristics of IRM with those of other organizational resources (as learned in marketing, finance, and operations management courses). This MIS course would be the equivalent of Information Systems in Organizations/IS-3 or Management of Information Systems/ IS-9 in the ACM or DPMA current curriculum models respectively. The MIS course is recognized by the AACSB (American Assembly of Collegiate Schools of Business) as a component of the CBK. In 1971, only about 50 percent of the AACSB schools offered such an MIS course in the undergraduate core curriculum (McLeod and Brittain-White, 1988). By 1987, about 85% percent of reported AACSB schools offered an MIS course (Chen and Willhardt, 1987). Today, institutions seeking the AACSB accreditatior must include instruction in management information systems (AACSB, 1991).

IRM TOPICS TO INCLUDE IN AN MIS COURSE

The following topics sequentially introduce students to IRM concepts. Although some of these topics may be introduced in other business classes, it is important for the student to see how these

topics fit into an IRM framework. Exhibit 1 shows the list of topics proposed in this resource guide.

Exhibit 1: INFORMATION RESOURCES MANAGEMENT TOPICS TO COVER IN A MANAGEMENT INFORMATION SYSTEMS COURSE

Why is information considered an organizational resource?
How does information differ from other organizational resources?
What is information resources management (IRM)?
Why is IRM important?
What are the goals of IRM?
What are the components of information resources?

Why Is Information Considered an Organizational Resource?

Information, or what is more narrowly defined as information content, needs to be understood in relationship to IRM since it is the foundation for students to understand how information can be an organizational resource. Because of its importance, information content needs to be studied separately from the other types of information resources. Concepts to be taught include:

Definition of data, information, and knowledge. These three concepts and their distinguishing characteristics are covered by Smith and Medley (1987) in Chapter 2.

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Characteristics of information. Information characteristics, such as timeliness, content, format, cost, and value are also explained by Smith and Medley (1987) in Chapter 2. In addition, Brehaut (1990), extensively covers other qualities of information, such as accuracy, relevancy, completeness, accessibility, and understanding.

Types of information. McNurlin and Sprague (1989) in Chapter 7 of their book classify information into four types: internal, external, record-based, and document-based. Definitions and examples of each type are also discussed.

Types of data. A classification of the types of data is also advanced by McNurlin and Sprague, (1989). Data is said to be produced in different formats: traditional data, text, graphics, images, video, and sound.

Uses of information. Information uses are covered by Smith and Medley (1987) in Chapter 2 of their book. Information is used as an strategic weapon, to gain competitive advantage, to help managers in decision making and communicating, and as a power tool.

How Does Information Differ From Other Organizational Resources?

Another interesting concept to emphasize in the classroom is the similarities and differences of information with respect to other organizational resources.

Similarities. Similarities of information to machinery, people or money include: has a value; has a life cycle; is transformed from raw materials into a finished product; is available in different grades, types, and prices; can be measured in dollars; can be substituted; its consumption can be either expended or capitalized; and its cost can be controlled with the help of accounting techniques. Each of these characteristics is discussed by Burk and Horton (1988).

Differences. According to Cleveland (1982) and Burk and Horton (1988), information, unlike other organizational resources is expandable, compressible, transportable, diffusive, and sharable.

What is IRM?

Because of the infancy of the field, a universal definition of IRM does not yet exist. However, IRM concepts rest under the premise that information, information-related activities, technologies, and personnel are important organizational resources that deserve to be managed like any other resource in the organization such as people, money, and equipment (Horton, 1977; Connell, 1981; Stonecash, 1981; Marchand and Horton, 1986; Guimaraes, 1988; Farka-Conn, 1989; Trauth, 1989; McLeod, 1990, Khosrowpour, 1988). Many attempts have been made by leading experts in the field to define IRM. Following are some of the definitions that point out the diversity of IRM definitions.

IRM is the management (planning, organization, operations and control) of the resources (human and physical) concerned with the systems support (development, enhancement and maintenance) and the servicing (processing, transformation, distribution, storage and retrieval) of information (data, text, voice, image) for an enterprise. (Schneyman, 1985).

IRM is the recognition by an organization that data and information are valuable resources and the application of the same principles an managing data and information as are used in managing physical resources such as personnel. (McLeod and Brittain-White, 1988)

Information Resources Management (IRM) is the process within the information management arena that serves the corporate interest. IRM seeks to harness information for the benefit of the organization as a whole by exploiting, developing and optimizing information resources. The interests of the organization are usually manifested by its corporate goals and objectives. Thus, IRM is the managerial link that connects corporate

information resources with the organization's goals and objectives. (Burk and Horton, 1988)

IRM, simply put, is the belief that information is an asset that should be managed rigorously and can contribute to the success of businesses. (Kerr, 1991)

IRM is the managing of information resources--a major strategic responsibility of both managerial end users and traditional IS management (O'Brien, 1990).

We prefer the O'Brien definition since it stresses the role of the end user while noting the strategic importance of IRM.

Why is IRM Important?

Marchand and Horton (1986) in the second chapter of their IRM book "Infotrends" discuss various reasons why IRM is important to organizations. Information resource management is the engine that is driving the information economy. It is having and will continue to have a profound impact on business management, competitive advantage, and productivity. Information resource management is an integral part of corporate strategies and can be used by organizations to gain competitive advantages in their markets. IRM and the management of information resources affect all functional areas and all management levels of an organization.

What are the Goals of IRM?

When IRM is implemented, the organization must adapt its overall strategic plan to ensure that IRM goals are incorporated. IRM goals include: 1) treating information as a corporate asset, which must be properly utilized, in order to increase the profitability and strategic positioning of the firm. That is, organizations need to use IRM improve operational efficiency, to promote innovative products and services, and to improve the competitiveness of the organization (Kerr, 1991; Marchand and Horton, 1986; Owen, 1991; O'Brien and Morgan, 1991); 2) aligning information-related planning to corporate strategic planning (Marchand and Horton, 1986; Gray et al. 1989; Kerr, 1991); 3) extending the responsibility for managing information resources to all management levels and all functional areas (Marchand and Horton, 1986; McNurlin and Sprague, 1989); 4) recognizing and encouraging the position of a chief information officer (Trauth, 1989, O'Brien and Morgan, 1991; Kerr, 1991); and developing a corporate-wide strategy to manage information (Owen, 1989); 5) unifying and integrating existing information technologies in the company (Gray et al, 1989; Lytle, 1988); and 6) exploring new information technologies and applications for the company (Kerr, 1991).

What Are the Components of Information Resources?

The concept "information resources" has been used in the literature to include at least four different components: information content, information technology, information-related personnel, and information-related facilities.

Information content: Includes definitions, characteristics, and uses of information as described earlier.

Information technologies: Hardware and software are cited as the most common components of information technologies resources (Marchand and Horton, 1986; Brinberg, 1982; Lee, 1988; King, Grover and Hufnagel, 1989). Hardware involves the equipment used to input and process data and output useful information. Software is traditionally defined as systems programs and software applications. As new information technologies are developed, organizations incorporate them into their operations; thus, they become valuable resources forming part of the concept of information resources. Technologies are used for retrieving, communicating, and storing data. Examples of these technologies include distributed networks, office automation, electronic mail, reprographics, and telecommunications (Holmes, 1977, Stonecash, 1981, Langemo, 1988).

People: Leading researchers in the IRM field assert that people, the personnel involved in collecting, transmitting and working with information, are valuable assets who should be managed as other components of information resources are managed. The types of personnel involved in information-related activities include technical staff (Marchand and Horton, 1986; Lee, 1988) support staff (Lee, 1988; Connel, 1981; Horton 1986) end-users (Lee, 1988; Trauth, 1984 Rathswohl, 1990; Marchand and Horton, 1986) knowledge workers (Connel, 1981; Horton 1986, Marchand and Horton, 1986), information professionals (Trauth, 1984; Marchand and Horton, 1986) and information supplier/vendors (Connel 1981, Marchand and Horton, 1986).

Information-related Facilities: A fourth component of information resources is the physical and information facilities used. According to Horton (1986) and Marchand and Horton (1986), information-related facilities include physical facilities (buildings, libraries, computer centers) and information facilities (archives, communication centers and information centers). Lee (1988) describes buildings, furniture, and non- computer tools as information facilities.

A comprehensive definition of information resources that covers all of the four components studied has been advanced by Khosrowpour and Yaverbaum (1989). They consider information resources as a resource appearing in all forms (data, voice, text, image), generated by information systems (MIS, DSS, OA, ES), processed by computer machinery (mainframe, minicomputer, microcomputer, reprographics, etc.) and disseminated through communication systems (networks, teleconferencing, etc). The term also encompasses information systems professionals, end-users, and managers' techniques and skills. Khosrowpour and Yaverbaum conclude that information resources are made up of mechanical, procedural, technical, and human components.

Another broad definition is given by Lee (1988), who believes information resources consists of internal and external

information, software, hardware, facilities, personnel, information systems budgets, information systems policies, procedures and methods. For other definitions related to information resources, see Burk (1985), Parts I and II.

Table 1 presents a summary of concepts in this guideline with corresponding resources.

CLASSROOM ACTIVITIES FOR THE TEACHING OF IRM

In order for business students to understand the role of IRM in an organization, two classroom activities are recommended.

The first assignment consists of a short company assessment research paper. The purpose of the assignment is to analyze the present and potential uses of information resources in a company. Students are asked to select a company with which they are familiar, for which they work, or about which they would like to gather information. Data is to be gathered from primary and secondary sources: interviews with managers and employees, MIS journals, and trade publications.

The contents of the assessment should cover the following areas:

1. Introduction and general summary of the company (company's mission, organization, size, financial condition, management style, etc).
2. Assessment of the different types of information resources used in the organization: information content, information technologies, people, and information-related facilities. If the company is too large for a proper analysis, students can concentrate on a functional area (i.e. financial department, marketing, personnel, etc.).
3. Analysis of the opportunities and risks associated with information resources in the organization. Recommendations regarding the potential utilization and benefits derived from information resources at this company. Students may concentrate on one or two specific resources at this point.
4. The impact of selected information resources on the company. Topics to discuss include: development of a clear understanding of where the firm stands relative to its competitors in its use of those information resources; the strategic impact of information resources to the company's competitive advantage; the value of the information resources to the firm; and, the effect of the information resources on business processes, product, service, and organization.

Table 1: SUMMARY OF TOPICS, CONCEPTS, AND RESOURCES FOR IRM

Topics	Concepts	Resources
Information as an organizational resource	Definition of terms	Smith & Medley, 1987
	Characteristics of information	Smith & Medley, 1987 Brehaut, 1990
	Types of information and data	McNurlin & Sprague, 1989
	Uses of information	Smith & Medley, 1987
Comparison of information with other resources	Similarities	Burk & Horton, 1988
	Differences	Burk & Horton, 1988 Cleveland, 1982
Information resources management	Definitions	Schneyman, 1985 McLeod & Brittain-White, 1988 Burke & Horton, 1988 O'Brien, 1990 Kerr, 1991
	Importance	Marchand & Horton, 1986
	Goals	Marchand & Horton, 1986 McNurlin & Sprague, 1989 Lytle, 1988 Trauth, 1989 Kerr, 1991 O'Brien & Morgan, 1991 Owen, 1991
IRM Components	Information content	Smith & Medley, 1987 McNurlin & Sprague, 1989
	Technologies	Marchand & Horton, 1986 Langemo, 1988 Lee, 1988 King et al., 1989
	People	Connel, 1981 Marchand & Horton, 1986 Lee, 1988 Rathswohl, 1990
	Facilities	Horton, 1986 Marchand & Horton, 1986 Lee, 1988

5. Identification of the company's present policies regarding IRM (including goals of IRM, value of the concept to the company, and current view). Recommendations on improvement of current policies.

A second project consists of class discussions on current practices of IRM concepts in real organizations in the public or private sectors. To this end, four journal articles are assigned to give the background for the discussions: "Strategic IRM Plan: User Involvement Spells Success" by Darrel Corbin. It discusses the development of Rockwell Strategic IRM Plan. "Experiences from an IRM Project in Three Danish Industrial Companies" by Egon Bjerregaard. It analyses and describes the actual situation of information handling in three companies and proposes improvement to problems encountered. "Managing the Stages of Information Resources Management Implementation" by Thomas Davies. It reports on Florida's experience in developing a statewide information resources management program. "Development of IRM at California State University, Los Angeles" by James Penrod and Michael Dolence. It discusses several accomplishments made at Cal State L.A. in its development of an IRM program: hiring a vice president for IRM, restructuring of existing units into an IRM organization, engaging in detailed, integrated, participative strategic planning process, and initiating other significant projects.

CONCLUSION

The topics advocated in this resource guide are somewhat limited in two perspectives. First, the field of IRM is still very young and as such has not been universally defined and understood. Second, prospective concepts to be taught in classrooms are influenced by what is available in the IRM literature and by what has been validated and refined. These limitations, however, should not preclude educators from trying to establish an educational base for IRM.

Although IRM is an emerging discipline, this resource guide can assist educators in the teaching of Information Resources Management concepts to non-IS undergraduate business students. An ideal place to cover the concepts in this guideline would be the upper-level course in Management Information Systems. This guideline suggests topics and concepts to cover and resources to consult. Concepts to cover include definitions of information, characteristics and uses of information, definitions of information resources management, importance and goals of information resources management; and components of information resources.

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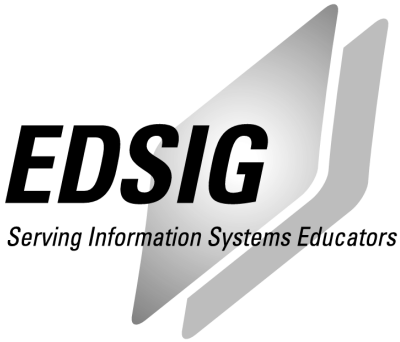

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