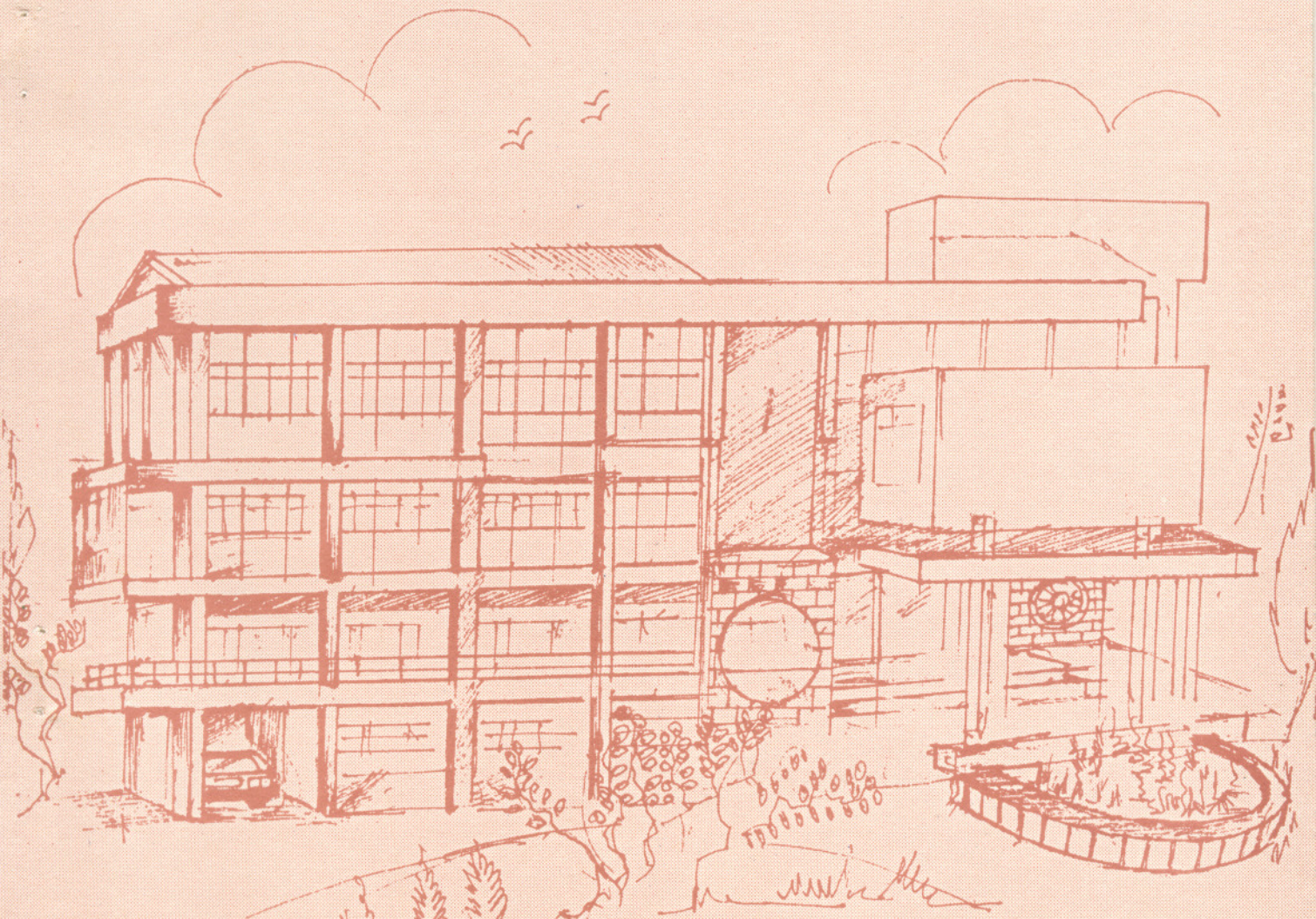




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An Evolutionary Framework for the Core Systems Course at TAPMI



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Abstract

Management Information System (MIS) has been one of the core courses in the B-school curriculum. However, with the increasing role of technology in today's world, the general awareness about technology is quite high. As a result, the student's perception about the current MIS course is that it is too broad and there is no depth. The students also perceive that the course lacks a structure, and seems more like a collection of loose topics.

Therefore, this paper deals with an attempt to redesign the MIS course at TAPMI. The redesigned course, while taking care of the above concerns of the students also tries to address the expectation of the recruiters. This course intends to give a generalist's perspective, based on which the breadth of the course is reduced and the depth of certain technologies is increased.

1. THE CURRENT COURSE ON MIS IN B-SCHOOL CURRICULUM

Change has become the greatest constant of the day, particularly in information technology. In this context, Management Information Systems (MIS) is the academic discipline highly affected by changing paradigms.

The transformation of business caused by E-business and E-commerce applications of the internet and related technologies demonstrates that information systems and information technology are essential ingredients for business survival and success. Thus, the existing MIS core course is designed for business students to understand all aspects of information systems. An information system can be any organized combination of people, hardware, software, communication networks, and data resources that collects, transforms, and disseminates information in an organization (Senge, 1990). Business professionals rely on many types of IS. Some IS use simple manual (paper and pencil) hardware devices and informal (word of mouth) communication channels. However, this course has been concentrating on computer based information system that use computer hardware and software, the Internet and other telecommunication networks, computer based data resource management techniques, and many other information technologies to transform data resources into a variety of information products for consumers and business professionals.

The current content of the course is based on a conceptual framework that organizes the knowledge needed by business students into five major areas.

- **Foundation Concepts:** Fundamental business information systems concepts including trends, components, and roles of information systems.
- **Business Applications:** How the Internet, intranets, extranets, and other information technologies are used in E-business enterprises to support electronic business and commerce, team and enterprise collaboration, and business decision making.

- **Development Processes:** Developing and implementing E-business strategies and systems using several strategic planning and application development approaches.
- **Management Challenges:** The challenges of E-business technologies and strategies, including security and ethical challenges and global IT management.
- **Information Technologies:** A review of major concepts, developments, and managerial implications involved in computer hardware, software, telecommunication networks and data resource management technologies.

The following are the weaknesses of the above course structure:

- MIS tends to be technologically broad rather than deep (Andriole, 2004).
- Key technologies – from fundamentals to state of art need better treatment (Andriole, 2004).
- The course requires an explicit and adequate structure.

2. THE REDESIGNED MIS COURSE AND ITS OBJECTIVES

The redesign of the MIS course at TAPMI is attempted on the basis of the following two weaknesses of the current course, as identified above:

- Decrease the technological breadth and increase the depth of the course.
- The MIS programs need to acknowledge Carr's (2003) commodity challenge and distinguish between "strategic" and "operational" technology (Andriole, 2004).

Therefore, the main objectives of the redesign of the core course would be:

- To give an IS perspective to a manager who takes decisions with the aid of IT. He may be working in any domain (i.e. marketing, finance, HR etc) in an organization. Hence, this course is from a generalist's perspective.
- Cut down on the breadth, and peg it on the techno-managerial depth of few technological areas.

2.1 The Evolutionary Framework

The business applications of information systems have expanded significantly over the years. The evolutionary framework depicted in Fig. 1 depicts the change in the role of IS in business – from supporting data, to information, to knowledge.

Data is like an event out of context. The key concept here, being "out of context." And, since it is out of context, it is without a meaningful relation to anything else. When we encounter a piece of data, if it gets our attention at all, our first action is usually to

attempt to find a way to attribute meaning to it. We do this by associating it with other things.

Information is quite simply an understanding of the relationships between pieces of data, or between pieces of data and other information. While information entails an understanding of the relations between data, it generally does not provide a foundation for why the data is what it is, nor an indication as to how the data is likely to change over time. Information has a tendency to be relatively static in time and linear in nature. Information is a relationship between data and, quite simply, is what it is, with great dependence on context for its meaning and with little implication for the future.

Beyond relation there is pattern (Bateson, 1988). Pattern embodies both a consistency and completeness of relations which, to an extent, creates its own context. Pattern also serves as an Archetype (Senge, 1990) with both an implied repeatability and predictability. When a pattern relation exists amidst the data and information, the pattern has the *potential* to represent knowledge. It only becomes knowledge, however, when one is able to realize and understand the patterns and their implications. The patterns representing knowledge have a tendency to be more self-contextualizing. That is, the pattern tends, to a great extent, to create its own context rather than being context dependent to the same extent that information is. A pattern which represents knowledge also provides, when the pattern is understood, a high level of reliability or predictability as to how the pattern will evolve over time, for patterns are seldom static. Patterns which represent knowledge have a completeness to them that information simply does not contain.

So, in summary the following associations can reasonably be made:

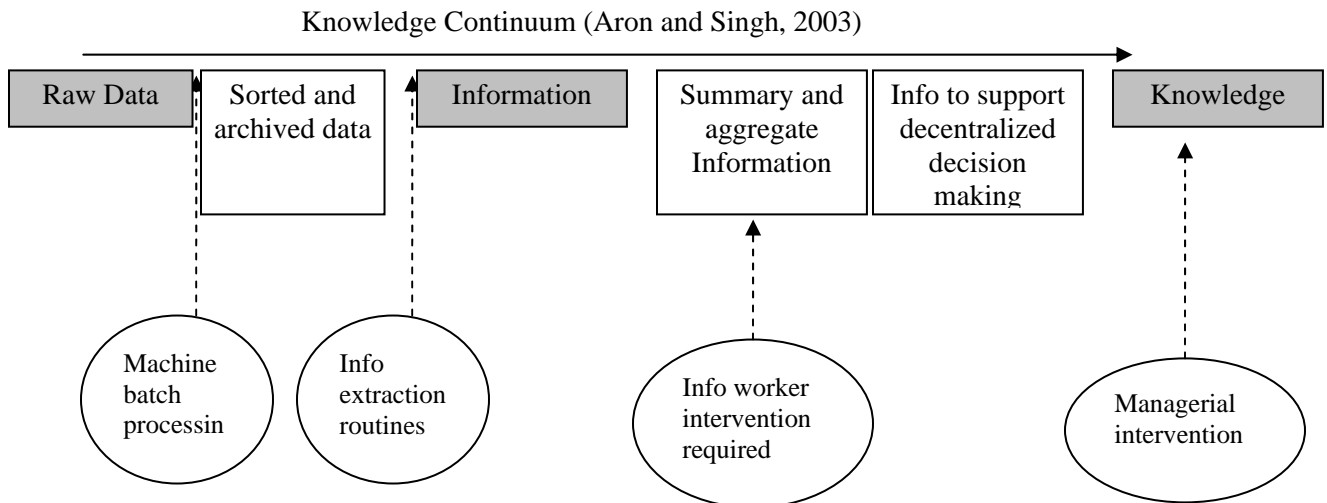
- **Data** has essentially no relation to anything else.
- **Information** relates to description, definition, or perspective (what, who, when, where).
- **Knowledge** comprises strategy, practice, method, or approach (how).

Until the 1960s, the role was largely transaction processing, record-keeping, accounting, and other EDP applications based on Machine Batch processing systems. These supported the data end of the continuum. The transaction processing systems supporting

individual business functions e.g. accounting, production and operations, marketing etc., got transformed into the Enterprise-wide systems in the 1990s. The data provided by the individual systems made meaningful information, in the context of the organization - as provided by the integrated enterprise-wide systems.

The role of IS in organizations has enhanced over time, and of late it has assumed a strategic role, which is far more intense than the operational function that it otherwise serves. In the strategic concept, information technology becomes an integral component of business processes, products, and services and all concerned decision-making through Expert Systems, Data Warehouses, and Business Simulation. IS, thus, supports not only the operational information, but also the knowledge required for business decision-making.

FIGURE-1
Data-Information-Knowledge Continuum



The conversion of *data* into *information* consists of two main activities:

- Sorting and Archiving data
- Development of Information extraction routines

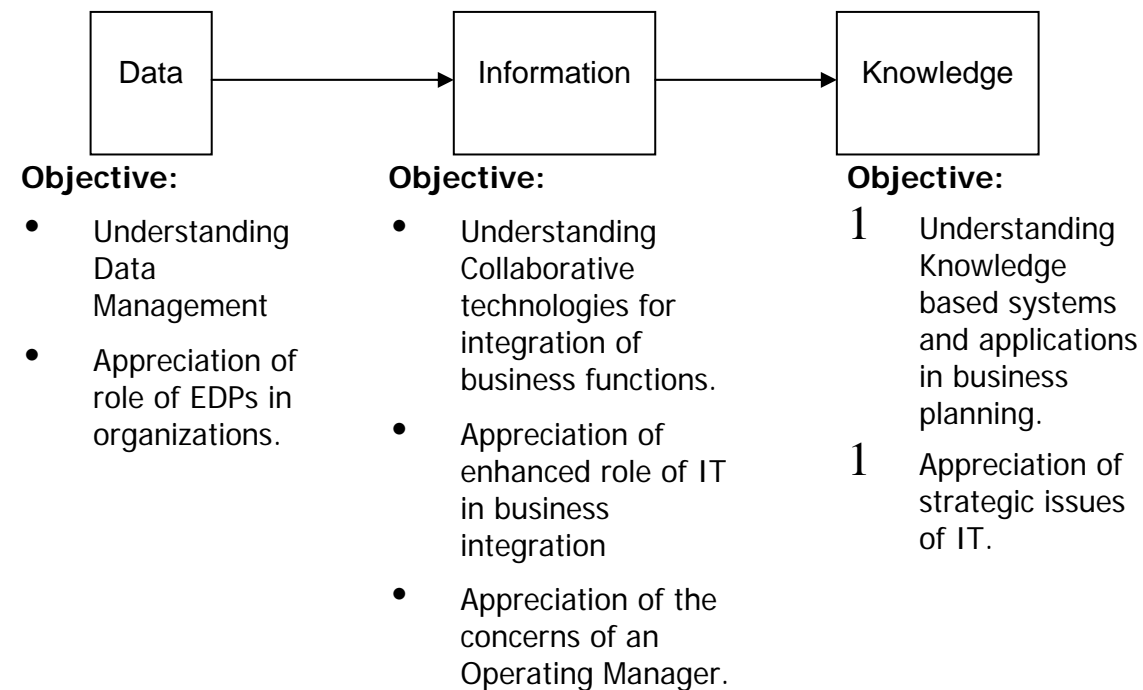
With the availability of the Internet and other telecommunication networks, the information accessibility and generation has changed from a function-specific mode (e.g. Payroll, Accounting etc.) to an organization-wide mode. The information needs can be twofold – to support Business Operations (ERP Systems), and to support Managerial Decision Making (MIS).

While data and information refer to the past, knowledge refers to the present. This transition of data and information to knowledge is enabled by the Decision support systems, Expert Systems, and Business Intelligence available in IS.

The core course will be based on the afore-mentioned information systems only, and will cover an in-depth treatment of the technology, as well as its managerial implications at each stage. The increase in the depth of treatment of technology is necessary for a good understanding of its managerial implications. The managerial implications of IS are more than just a user's perspective of the system, and is likely to consist of issues like security, service level agreements etc of business operations, as well as strategic issues like IT investment, security policy, competition etc.

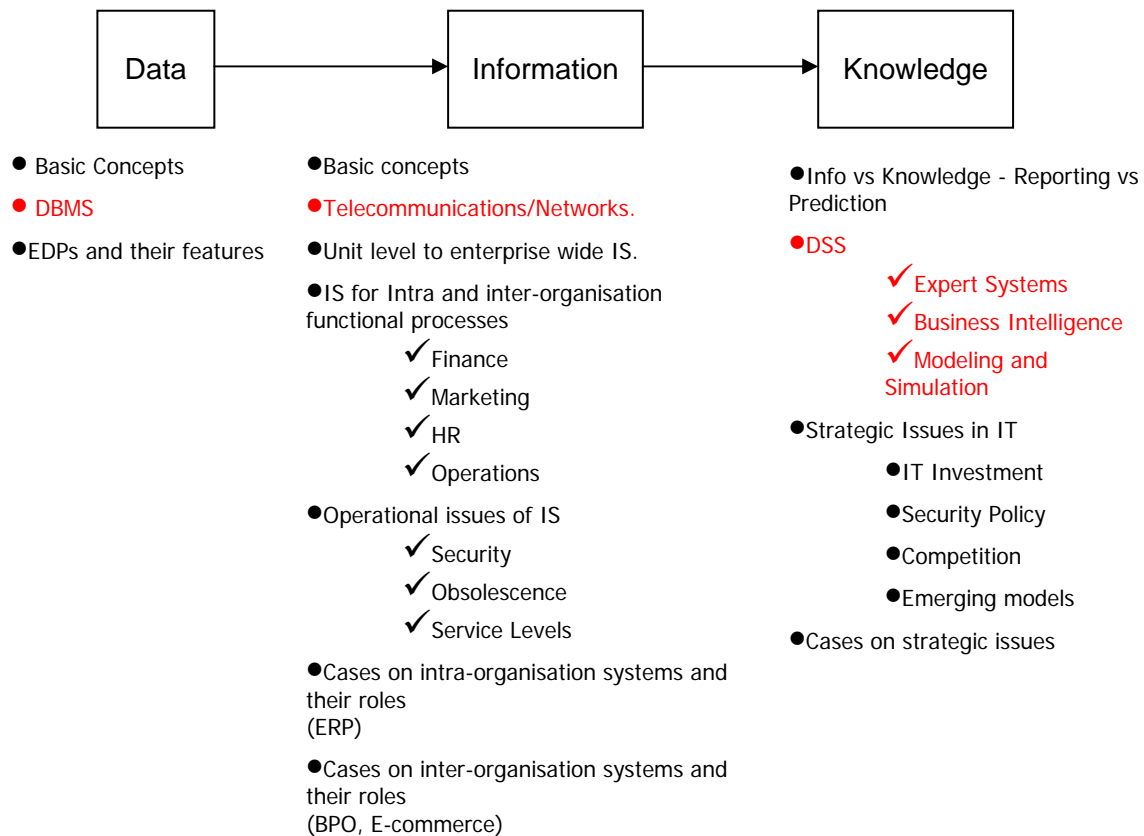
The course objectives under the evolutionary framework are as depicted in Fig 2.

FIGURE-2
The Evolutionary Framework for MIS



The details of topics to be covered in the course are as depicted in Fig. 3.

FIGURE-3
The Topics for the New MIS Course



This course would fit into Themes 5 and 6 of TAPMI PGP curriculum. Theme 5 would cover the Data and Information blocks (i.e. the operational aspects of IS) in Fig 3 in 20 sessions, and Theme 6 would cover the Knowledge block (i.e. the strategic aspect of IS) in Fig 3 in 10 sessions.

3. CONCLUSION

This redesigned core course, by curtailing the topics covered in the current course, and structuring it as in Fig 1, achieves the following benefits:

- **Explicit Structure:** Besides, systematically portraying the increase in the role of IS from supporting the transactional data in organizations to providing the knowledge for strategic decision-making, the suggested structure also differentiates the operational role of IS from the strategic role that it has assumed in today's organizations.
- **Focused technology treatment:** It suggests a few key technologies and an in-depth dealing of the same, to ensure better appreciation of managerial implications of IS today.
- **A generalist's perspective:** Since, it concentrates on a generalist's perspective of IS, this course drops the topics related to development of IS. This is presumed to be the responsibility of specialists, and hence would fit into the curriculum, better as an elective.
- **Learning objectives better defined:** This structure enables a more concrete definition of learning objectives, as done in Fig 2.

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