INFORMATION SYSTEMS: A SURVEY BY EXAMPLES

Peter C. Lockemann
Fakultaet fuer Informatik, Universitaet Karlsruhe
D-75 Karlsruhe 1

Abstract

Information systems is both a technical term for a particular kind of dynamic systems, and for a comparatively young discipline within informatics. The paper is an introduction to the latter, in particular as computer-assisted information systems are concerned, and an attempt is made to delineate its still somewhat fluid boundaries. A number of topics are introduced and illustrated by examples, and some relevant and pressing problem areas are identified.
1 Introduction

Information systems - or whatever name one chooses for them - have grown into a major discipline in recent years. As an intersection of many seemingly diverse activities they have, at the same time, become many things to many people and evolved into a truly interdisciplinary area of research and development. Today they cover most aspects of computer science because of the multitude of problems in constructing large computer systems; they include concepts from a wide variety of application areas from science to industry to public and business administration, from research to engineering to production; they have captured the interest of the legal and social professions because of their repercussions in everyday life.

Therefore it would prove a futile task to attempt to cover the entire area of information systems or even just all of its major aspects on a few pages or in a one-hour lecture. Instead I shall concentrate on the computer science aspects and, furthermore, limit myself to a few arbitrary but - I believe - typical highlights of work in the area. As such the examples will be neither complete nor unbiased. However, I hope that they will at least provide a feeling of what information systems research is all about in these days.

For many, an information system is any kind of system in which information is exchanged or kept available. Thus, librarians have been among the earliest to lay claim to the term "information system" in connection with libraries and library techniques. On the other hand, computer scientists often take the narrow view of a large central database supported by one or more computers as the necessary ingredients of an information system. For them information systems are described by technical slogans such as fact-retrieval system, data base management system, question-answering system, document retrieval system, or by application oriented slogans such as inventory control system, airline reservation system, management information system, motor vehicle registration system, accounting system, legislative planning system. Again, I hope that from the examples a clearer understanding will evolve of which activities may conceivably come under the heading of "information systems".