Perspectives Of Information Science Field

CHAPTER 1

Topics covered

1. Basic concepts, theories and definitions

2. Evolution of information Science

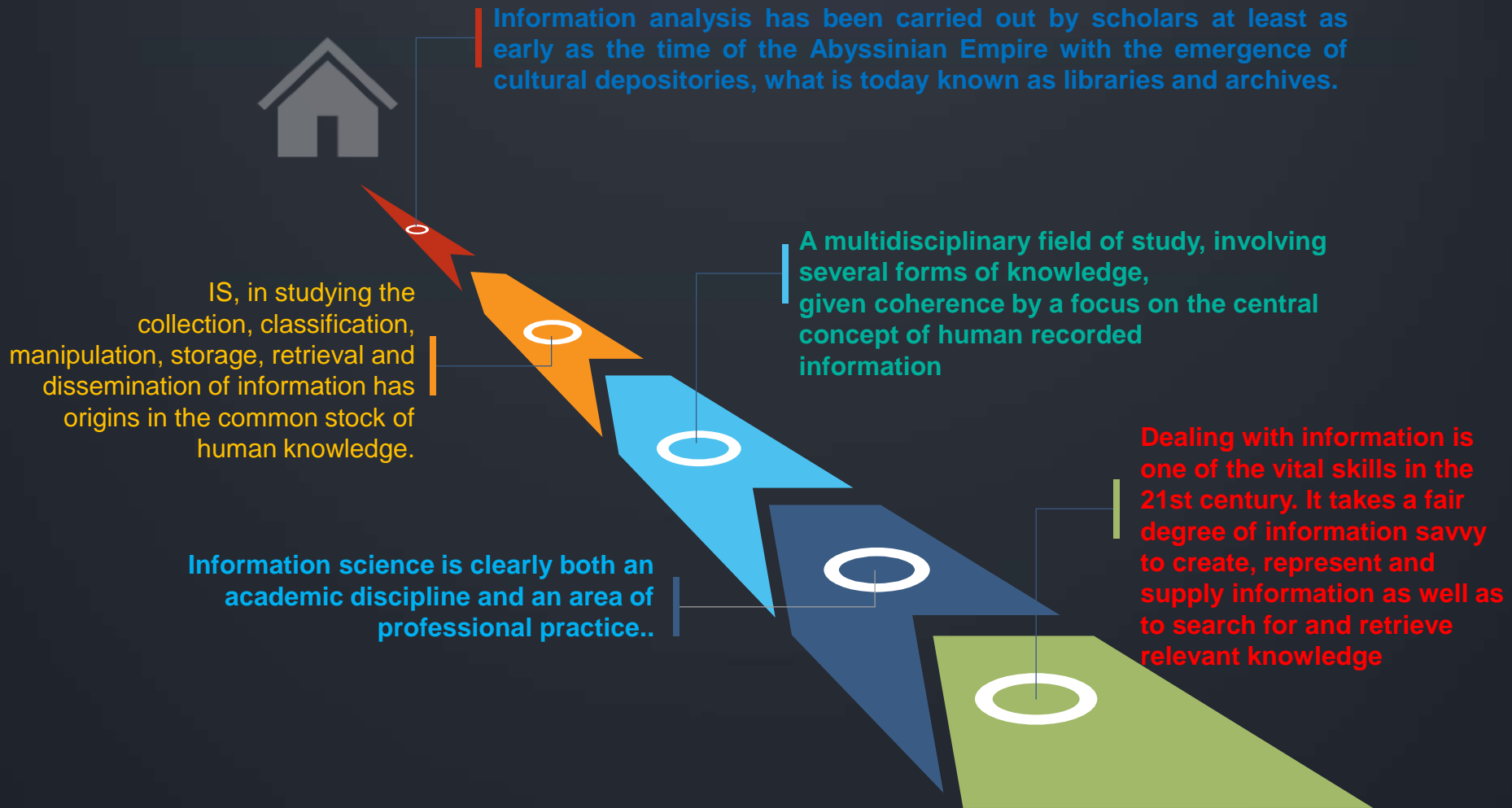3. Information Science as a discipline

01

Basic concepts, theories and definitions

Basic elements and the core of Information science

- The core terms of Information science like knowledge, information, communication and representation are by no means terms of only Information science.
- That supports the "supreme multidisciplinary" definition, but doesn't really help us in setting up some kind of "subject matters".
- Deemed as basic elements are infometrics, searching for information, information management and library/archiver studies.
- As we can see Information science is rather wide subject and it's pretty hard to localize small and unequivocally defined set of topics

Basic concepts, theories and definitions

Information analysis has been carried out by scholars at least as early as the time of the Abyssinian Empire with the emergence of cultural depositories, what is today known as libraries and archives.

A multidisciplinary field of study, involving several forms of knowledge, given coherence by a focus on the central concept of human recorded information

IS, in studying the collection, classification, manipulation, storage, retrieval and dissemination of information has origins in the common stock of human knowledge.

Dealing with information is one of the vital skills in the 21st century. It takes a fair degree of information savvy to create, represent and supply information as well as to search for and retrieve relevant knowledge

Information science is clearly both an academic discipline and an area of professional practice..

Points of intersection IS with other fields of study

01 Collections

IS has been born from institutes cherishing the cultural inheritance – in galleries, libraries, archives and museums. Historically those were the first institutes where it was necessary to effectively work with information in order to provide and run good service and thus the information started to be studied

02 Computer science

Even though the whole physical world is formed by information, it's easier to study it in the virtual world. People often times think that Information science is Computer science, but that is not.

03 Social sciences

The society has become information society not long ago. The intersection has been there though forever, because social communication (inter/intra…doesn't really matter) is the core element of any social science and communication is nothing but transmission of information.

04 Management and Politics

Information management and information strategies are the core components of information science too.

- There is no uniform conception of Information Science.
- Different meanings – Different knowledge domains.
- One thing that has however been common is ***INFORMATION!***

Information Science

Figure 1 Information Science and subdisciplines
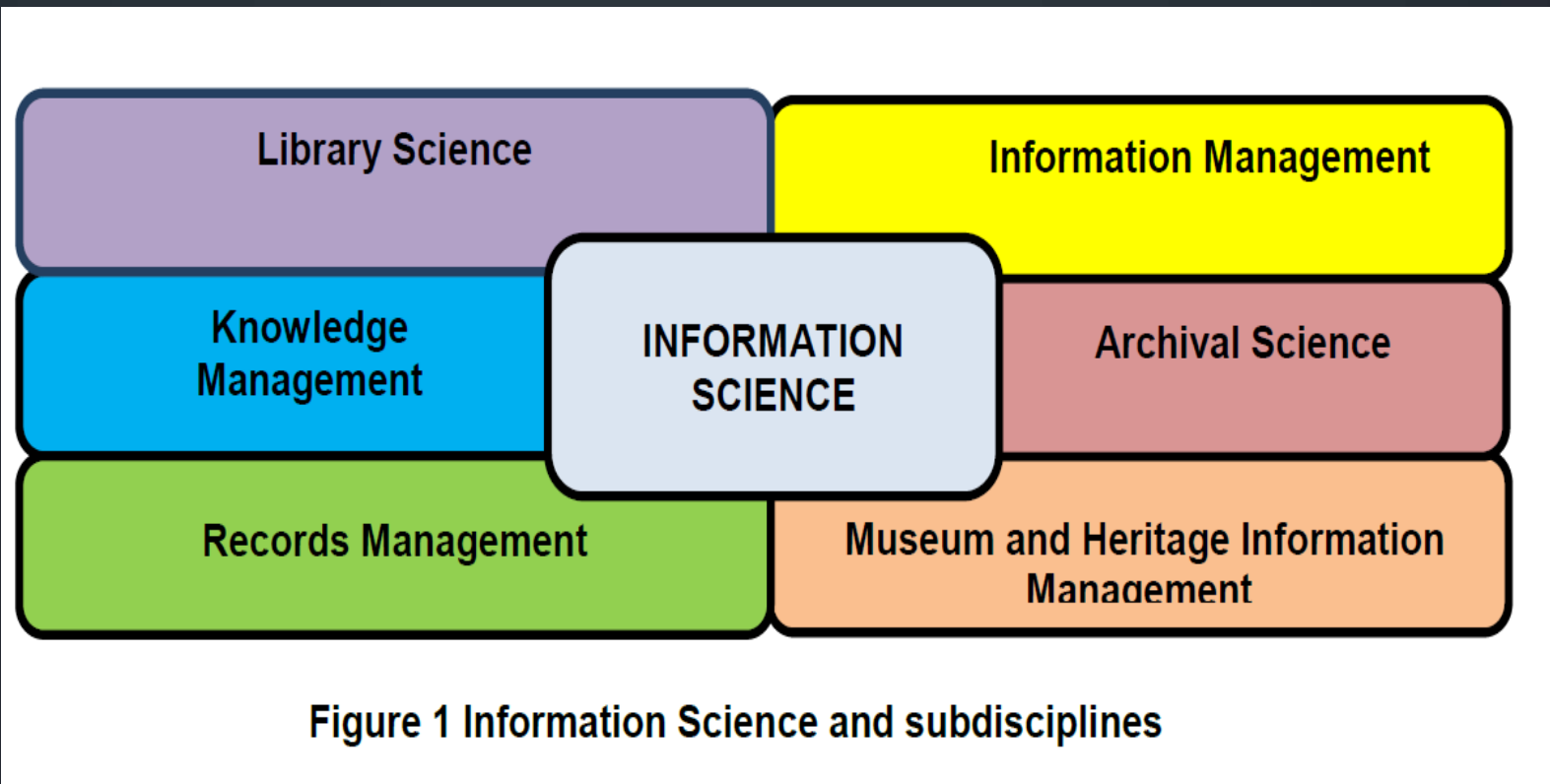
Zins (2007) based on a Delphi study, while reporting 50 explanations and definitions of information science.

1. "Information science is the study of the phenomena surrounding information, including creation, acquisition, indexing, storing, retrieving and disseminating information".

2. "Information science is the rational and systematic study of the way information is created, stored, indexed, disseminated and used".

3. "Information science is the study and practical management of messages (i.e. recorded information, including data recorded as information) through all points of the information lifecycle".

Definition Of Information Science

Borko, H. (1968). Information science: What is it? American Documentation, 19, 3.

Williams, M. E. (1987/1988). Defining information science and the role of ASIS. *Bulletin of the American Society for Information Science, 14*(2), 17-19

Saracevic, T. (2009). Information science. In M. J. Bates (Ed.), *Encyclopedia of library and information sciences* (3rd ed.) (pp. 2570-2585). New York: Taylor and Francis.

…investigates the properties and behavior of information, the forces governing the flow of information, and the means of processing information for optimum accessibility and usability. It is concerned with the body of knowledge relating to the origination, collection, organization, storage, retrieval, interpretation, transmission, and utilization of information.

…brings together and uses the theories, principles, techniques and technologies of a variety of disciplines toward the solution of information problems. Among the disciplines brought together in this amalgam called information science are computer sciences, cognitive science, psychology, mathematics, logic, information theory, electronics, communications, linguistics, economics, classification science, systems science, library science and management science. They are brought to bear in solving the problems with information...

"..the science and practice dealing with the effective collection, storage, retrieval, and use of information. It is concerned with recordable information and knowledge, and the technologies and related services that facilitate their management and use. More specifically, information science is a field of professional practice and scientific inquiry addressing the effective communication of information and information objects, particularly knowledge records, among humans in the context of social, organizational, and individual need for and use of information. The domain of information science is the transmission of the universe of human knowledge in recorded form, centering on manipulation (representation, organization, and retrieval) of information, rather than knowing information."

Preferable Definition

- According to Borko (1968):
    - "***Information science* is an interdisciplinary science that investigates the properties and behaviour of information**, and the techniques, both manual and mechanical, of processing information for optimal storage, retrieval and dissemination."

- Saracevic (2009):
    - *"**Information science* is the science and practice dealing with the effective collection, storage, retrieval and use of information**. It is concerned with recordable information and knowledge, and the technologies and related services that facilitate their management and use."

More specifically,

Information Science is a field of professional practice and scientific inquiry addressing the effective communication of information and information objects, particularly knowledge records, among humans in the context of social, organizational, and individual need for and use of information.

2 key orientations of IS

1. Toward the human and social *need* for and *use* of information pertaining to knowledge records (human information behaviour).

2. Toward specific information techniques, systems, and technologies (covered under the name of *information retrieval*) to satisfy that need and provide for effective organization and retrieval of information.

https://youtu.be/9p50rd0zBTk

02

Evolution of information Science

The History of Information Science

- Information science first became known as a discipline during the 1950s.

- The terms 'information science' and 'information scientist' were first used by Jason Farradane in the mid-1950s (Shapiro, 1995).

- The emergence of the information science discipline was promoted by a number of causes in the 19th century.

- The German librarian Martin Schrettinger used the term *bibliothekswissenschaft*, which may be reasonably translated 'library science', in 1808, to encompass the tasks of cataloguing, classification, shelf arrangement and library management.

The History of Information Science

- Information science per se stems from the communications <mark>revolution of the 19th century.</mark>

- The consequent need to deal with the large volumes of literature, and scientific and technical literature in particular, led to the emergence in the early 20th century of the documentation movement, pioneered by Paul Otlet, which espoused a 'scientific' approach to the storage and retrieval of recorded information.

- A new development in information education is the iSchools movement. Based mainly in the USA, with some international representation, iSchools are academic departments taking a broad view of information science, as the interaction of information, people and technology: the iField of Zhang and Benjamin (2007).

The History of Information Science

- Accompanying the progressive diffusion of the word *information* into so many fields, the emergence of studies about these information-related disciplines is only a matter of time.
- In fact, all the disciplines related to information that we have seen today are the results that sprung from the inquiries about various types of information.

- Therefore, in the early history of information studies, three classical schools were formed during the 1950s–1980s, they are:
    1. the information science originating from computer science,
    2. the information science originating from library science, and
    3. the information science originating from telecommunications.

- However, in Japan, the origin of modern information science has a

COMPUTER AND INFORMATION SCIENCE

- In 1959, the Moore School of Electronic Engineering, University of Pennsylvania of United States, first used the term Information Science but it only referred to a description of a computer program and not a theory about information.

- In 1963, an international conference on computer science was held at Northwestern University, and the meeting adopted a new name: Computer and Information Sciences.

- This phenomenon was noted by the Curriculum Committee on Computer Science of the Association for Computing Machinery in 1968, and it began to advocate calling this discipline Information Science, or a compromise, Computer and Information Science.

- This is the origin of the concepts of and terms: Information Science or Computer and Information Science.

LIBRARY AND INFORMATION SCIENCE

- In 1967, Manfred Kochen completed a simple but successful documentation search experiment by computer at IBM, and he named the experiment "*Information Science Experiment*".

- In 1968, American Documentation Institute took action quickly to change its name to the American Society for Information Science and then to the American Society for Information Science and Technology (ASIS&T) in 2000. Most of the departments or schools of *Library Science* in the United States (and in some other countries) were renamed as departments or schools of *Information Science* or *Library and Information Science*.

LIBRARY AND INFORMATION SCIENCE

- During the 1970s–1990s, more than 10 books under the broad titles of *Foundation/Principal/Element/Introduction of/to Information Science* were published. Up until the present moment, the organization of The Association for Information Science and Technology (ASIS&T) is the largest one related to information studies around the world and its official publication, *Journal of the American Society for Information Science and Technology* possesses a large readership.

- As for the studies of *Library and Information Science*, their main interests include: computer literature retrieval, bibliometric study and documentation management.

TELECOMMUNICATIONS & INFORMATION SCIENCE

- From the 1980s, based on Shannon's information theory, some information researchers intended to extend its scope of study and hoped it could become a general information theory.

- With the unremitting efforts of more than 10 years, a Chinese information science pioneer, Yi-Xin Zhong—with an optimum background in telecommunications, mathematics and a burning ambition—completed his masterpiece: *Principles of Information Science* in 1988.

- Afterwards, at least four different editions were published. In his book, based on Shannon's information theory, that is, syntactic information measurement by probability statistics, he integrated all of the syntactic, pragmatic and semantic measurements together comprehensively for the first time, and named it: "Comprehensive Information Theory, CIT"—the finest part of his work.

TELECOMMUNICATIONS & INFORMATION SCIENCE

- Everyone engaged in information studies in China knows it well, due to its systematic, strict and quantitative features.

- However, it is regretful that only a few western scholars know his works because all of them were published only in Chinese.

- Howard L. Resnikoff, who once served in the Department of Information Science of the National Science Foundation of United States, also completed his Information Science monograph: *The Illusion of Reality* based on Shannon's information theory in 1989.

- Entropy, uncertainty, information systems, signal detection and information processing were discussed, and were taught under the course title of "*Introduction to Information Science*" at Harvard University, only for one semester.

03

Information Science as a discipline

WHAT KIND OF DISCIPLINE IS INFORMATION SCIENCE?

- There has been a growing consensus over the years that information science is a social science; see, for example, Roberts (1976) and Cronin (2008).

- Domain analysis, which is fundamental to our view of the subject, is based on the idea that groups of people have common information practices and interests and concerns, therefore primarily a social theory, and that this implies that information science is primarily a social science (Hjørland and Albrechtsen, 1995).

- Perhaps it is no sort of science at all; Arms (2005) and Buckland (1996a) suggested it might be seen as a liberal art, and Buckland (2012) argues that it is, above all else, a form of cultural engagement.

- The philosopher Luciano Floridi, suggests that it is applied philosophy of information (Floridi, 2002)

WHAT KIND OF DISCIPLINE IS INFORMATION SCIENCE?

- The curriculum for information science education has been much debated over the years; its core has been argued to comprise a variety of topics, including human-computer interaction, information literacy, information management, documentation, library management, knowledge management, information organization, information society studies, bibliometrics, information seeking, and information retrieval) (Mezick and Koenig (2008), Bawden (2007b), Lørring (2007) and Robinson and Bawden (2010).

- We have to conclude that this confirms the picture of information science as a broad and diverse discipline, and that it is difficult to point to a small and unambiguous set of topics which comprise it. In this book, the chapter structure reflects our desire to be comprehensive as to the topics which are of importance to information science

IMPORTANT CHARACTERISTICS OF INFORMATION SCIENCE (SARACEVIC, 2009)

- **First, IS is interdisciplinary in nature.**
  - However, with various advances, relations with various disciplines are changing over time. The interdisciplinary evolution is far from over.

- **Second, IS is connected to information technology.**
  - A technological imperative is compelling and encouraging the evolution of information science, as is the evolution of a number of other fields, and moreover, of the information society as a whole.

- **Third, IS is, with many other fields, an active participant in the evolution of the information society.**
  - Information science has a strong social and human dimension, above and beyond technology.