Chapter 2
What is Information?
An Enquiry beyond Information Science from a Systemic Point of View

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ABSTRACT
This chapter uses the concept of system to enquire into the concept of information, trying to separate the different senses in which this core concept is used in Information Science and other sciences, that is, physical or “raw” information, messages, knowledge, news, documentation and meta-information. The concept of information is studied as a system of layers or levels, in which each new sense emerges from the previous one. Once each of these senses is clearly established, it is possible to provide more specific insights about the real scientific domain of Information Science: a science related to the design and maintenance of external social memories and the process of referring their contents to relevant personal and social activities. Its focus is, therefore, the optimization of the processes of social memory. So, in conclusion, Information Science is, first, a science of social memory and its use, and, even more specifically, of the methodologies and technologies (social or technical) that exist to optimize its functioning by means of external memories, references (metadata) and systems of metadata (ontologies).

INTRODUCTION
Information Society, Information Science and the Science of Information

Information has become a central concept in our societies and cultures. This is probably a result of automation of information processing and transfer. But, once information has achieved such a token status, its concept requires further elucidation and clarification.

This is even more important in Library and Information Science, which — as other sciences like Cognitive Science, Communication Studies and Computer Sciences — situates information in a central place of its conceptual system. Establishing what information may be is by no means easy, and many people from different
branches of philosophy and science are pursuing it. In this chapter, we are going to concentrate only in separating some of the different senses of information — information, communication, knowledge, documents, metadata… — that are frequently used in Library and Information Science with the purpose of bringing them into a system of concepts with the aid of the theory of systems — or systemics.

**Information and Systems**

So, this chapter uses the concept of system to enquire into the concept of information, trying to separate the different senses in which it is used in Information Science and other sciences: physical or “raw” information, knowledge, messages, news, documentation, meta-information… The final aim is to gain more information to establish the distinctive field of Information Science and its relation with other fields of science that are also preoccupied and occupied with information.

As a result, a surprising conclusion comes out: Both concepts — those of information and system — complement each other, because information — as a form or as an interaction — is the most peculiar aspect of a system. You cannot explain what a system is without using the concept of information and its various modalities — interaction, organization… And, on the other hand, the concept of system results to be a great tool for illuminating the relation between information and its related concepts, because a system is born when the interaction between two or more elements is feed-backed, which is really the norm and not the exception.

**The Problem of Information as an Objective or Human Reality**

From the very beginning, a theoretical option of the author must be disclosed on behalf of the transparency of the discussion. The concept of information can be seen from two very different perspectives. The first one is as a physical property or reality. The second perspective understand information as a function of the system that uses information, that is, of biological systems, human beings as a special category inside them, and also vicariously of information-processing artefacts.

Several authors have cleverly delved into both ways of approaching the concept of information, which have been summarized as the objective versus the subjective understanding of information (Fernández Molina, 1994; Martínez Comeche, 1995). As it is well-known, Michael Buckland (1991) enriched the distinction with a tripartite model — information as process (of informing), as knowledge or as thing —, with information-as-process mediating between both sides. The debate around the concept of information is also especially apparent in one of its main theoretical topics: the distinction among data, information, knowledge and wisdom currently referred as the DIKW hierarchy (Pérez-Montoro, 2003; García Marco, 2011 for extended references). These are concepts that are part of the basic vocabulary of any information professional or scientists (Moreiro, 2005).

Of course, there is a bridge between both sides, and with two directions. Information-processing systems are built upon physical reality, so information is part of them. They are informed in the same sense than the rest of the universe. But physical information is perceived and used only in the own — limited and emergent — terms of the cognitive system.

Anyway, in this chapter, and without forgetting that information must have an obvious correlation in the real world, information is treated as something very human. When we, humans, discuss the question of information, we are thinking together about the process of apprehension of our environment by us, human beings.

So, telling that “the world is informed” means that we detect invariants in the world that we can use for our purposes. And in our culture, information apprehension is mediated by information and