

# What Idea of Information Have the IT Practitioners in Mind?

Paolo Rocchi

IBM, via Luigi Stipa 150, Roma, Italy;  
University LUISS, via Romania 32, Roma, Italy

**1 Introduction** -We have recently conducted a bibliographical research about the theoretical production dealing with the concept of information [1] produced from 1922 to 2011. We have found out 32 constructions which presented at the time of publication unusual viewpoints. The creative authors disagree on the nature of information and even on several collateral aspects. For instance, some uphold the intellectual width of the information concept and others sees it close to the common sense shared by laymen. A group means to create a comprehensive frame while others focus on a narrow field. About half of the works adopts a mathematical formalism and the remaining develop qualitative considerations. Certain theories directly stem from professional fields, others have the purpose of crossing over to different intellectual areas. Human knowledge and communication are the sources of inspiration for a group of writers who although build up independent constructs. In conclusion, the surveyed thinkers depict the concept of information from a broad variety of viewpoints, yet they share two intellectual traits.

The time distribution of the works exhibits crescent density in correspondence with the advance of the computer technology. The increasing number of proposals demonstrate how the authors have reacted to the most significant leaps forward in computing. They have been clearly stimulated by the successful digital solutions. It could be said that the progress of IT (Information technology) stirred the scientific community to double his efforts.

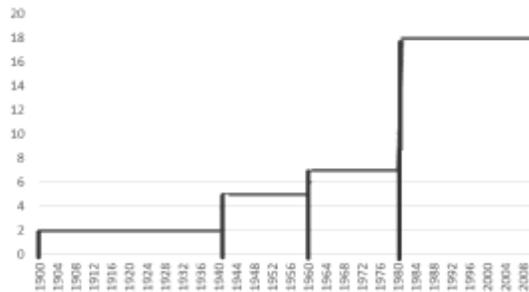


Figure 1. - Number of new theories per periods of years

The second common trait of the surveyed authors seems to contrast with the previous tendency in the sense that they do not show concern for the culture and opinions of digital experts. As matter of facts electronic devices have created and actively support the *digital society*, yet the theorists give the impression of not being interested in the cultural background of electronic engineers, software developers, IT managers and so forth. Nobody wonders: What idea of information do those who set up so astonishing equipment have in mind?

The advance of the digital society motivates the 32 authors, nevertheless they pay scarce attention to the architects of that society. They prove to be sensitive to technology at the same time they tend to ignore the ideas circulating in the IT environment. This contradiction creates a gap between theorists and practitioners who operate in the same territory and should share basic topics and targets.

**2 The divide between theory and practice** -Probably the reviewed authors and also the reader suppose that the information theory of Shannon supports the work of IT practitioners but this sensation mismatches with the

reality. Despite the great fanfare with which that theory was introduced, the Shannon theorems apply to a few and specific applications such as the file compression and the noise in transmission systems. Denning [2] points out how the entropy unfits with the software systems. Furthermore, the serviceability of Shannon's work tends to weaken by time passing due to the progress of the digital technologies. For example, noise has reached negligible influence in installations of fiber-optic cables; most modern software applications revolve on communication and disregard the Shannon perspective which ignores semantics.

The large divide perceived between the practice and the theory rises a certain intellectual desire to know how IT practitioners succeed in building up the astonishing assortment of information solutions. It is natural to wonder: What idea of information do IT experts use?

The reason is under our eyes. Manuals and technical books exploit the semiotic notions of signifier and signified. Hardware and software experts invent, manipulate, arrange and process a large assortment of signifiers and signified usually called 'forms' and 'contents' or 'meanings'.

How can digital experts employ semiotic notions if they ignore and never mention this discipline?

The base notions of semiotics turn out to be self-explanatory. Technicians, au par with common people, have acquired the ideas of form and content at school, and keep these ideas as cultural background all the life long [3].

**3 Conclusion and outlook** -The divide between the theory and the practice is not unusual in *computing*. The separation is not confined to the information domain and various criticism has been raised from the technical [4] and intellectual stances [5]. *Theoretical computer science* (TCS) is a collection of about twenty constructions which present notions distant or even discordant with the professional practice; e.g. theorists focus on logical programming, whereas abstract applications make a minority group in the modern world; e.g. TCS underscores the 'correctness' of programs and place behind the remaining more relevant quality factors such as 'usability', 'efficiency', 'flexibility' etc.; e.g. For Turing a software program is the solution to a mathematical problem which, by definition, remains forever, instead modern software programs need heavy maintenance.

Information is a key topic in TCS, yet it is treated by fragmentary, abstract and unrelated constructions i.e. information theory, coding theory, cryptology etc. It should be good to fill the gap between the philosophical reflections and the practical issues in computer science [6] and experts of information theory could make an excellent contribution.

## References

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