Preface

INFORMATION: ONE WORD, SEVERAL CONCEPTS

The main focus of this book, although it is only a basic concept in the main title, is information–approached with its acuity, actuality, and its dangerous semantic equivocity.

In the book's title, our specific objective, which consists of proposing a reformulation of the conceptual and theoretical basis for new analysis of the practical applications related to information value and quality, is affirmed. In the book production process, the effort and contribution of various researchers and practitioners ensured that the main objective was achieved. It is important that this objective is not restrictive, promoting even a basic contextualization for this discussion, but it seems to be impossible propose a contribution to information quality and value without a clarifying synthesis about the meaning of information.

Elaborating this reflection, we explore the etymological roots of the word information. From the old Greek, we perceive *eidos* or *morphé,* as "to form a thing, mater, energy, or relation" and *informatio-ones,* meaning "the act to form something, manufacturing, sketch, design, plan, idea, conception, formation, or form". It is noticeable that an ambivalence, which seems to persist, is here exposed, which is internal and external to the concept, related to the one who makes or produces something, even considering the evolution of information through the centuries. As another provocative aspect, the concept of information approaches the visible/invisible conjugation, enabling it to be sensed by someone after being generated in one's mind–information idea and form are intentionally attached one to another by just this one word. Based on the literature review, it is noticed that this discussion was only recalled in the 19th century, when information started to face a growing socialization. Analyzing other concepts, such as culture and knowledge, for instance, this social approach of the information must be considered. It can be observed that information came at that moment to fulfill a space among the conceptual amplitude of culture and philosophical density of knowledge, emerging with its capacity to identify something that is inside and outside the subject/author, supplier/receiver.

As identified by Terrou (1979), in the famous book *L'Information*, through a historical perspective, the resurgence of this word, previously related to the written press industrial revolution development from the 19th century, information was "to give news of something", or, "consisted to give written, printed form to what happened", for a great number of people, enabling them to know about the happening and even to reproduce this information indefinitely. This conceptualization emerged in Latin languages and was easily absorbed, opening space to a combination of information and communication reaching a point of melting, or a lack of perception of its limits, eventually suggesting that one could disappear in function of dominance by the other.

A process of conceptualization maturity, over a resurrected word with increasing circulation in the public opinion flow (first printed, and now through radio, television, and other media) can be seen. Information, as a unique word, is considered as various concepts, supported by the proverbial dynamics of languages.

Gleick (2011), a reputable and known author, in his remarkable work *The Information: A History, a Theory, a Flood*, tries to show how "information became quality", which defines even our living period or, being more audacious, "the blood, fuel and vital principle of our world". When observing the invention of written communication and alphabets, as with the "talking drums in Africa", Gleick also tells us the story of information technology, which came to change the proper conscience of human nature. Still in this historical approach, Claude Shannon, a researcher of the Bell Labs, he elaborated a theory that associated information with strong, huge, and problematic implications. Shannon observed TV signals, arguing that content signals could be, in a way, compacted or compressed to be transmitted more rapidly. In an attempt to solve this challenge, Gleick suggested that there were signals to be transmitted everywhere—letters, messages, sounds and images, news and instructions, number and facts, symbols—with movement, through the post-office services, via cable, and electromagnetic waves.

One word to mean all of this was missing. In a letter to Vannevar Bush, dated from 1939, Shannon recognizes that the word *intelligence*, flexible and old, could be the concept, but this sense about *intelligence* would be lost thereafter, replaced by other conceptual and semantic delimitations, calling Shannon's attention to other technical aspects: information quantity or information measurement. When observing the process of information this way, in a precise scientific context, the Mathematics and Physics-driven were a fundamental base, associating information to bits ("binary digits") counting, in a likely reductionism mechanist-quantitative approach, which made possible the discovery that *information is everywhere.* The theory proposed by Shannon and Weaver (a workmate with whom Shannon published his research results), made the connection among information and uncertainty, information and entropy, information and chaos, resulting in a possibility for the analysis of the future media, as Compact Discs, Fax devices, computers, and even to the cyberspace. Although revolutionary, this theoretical approach resulted in an equivoque, avoided by Shannon, but studied further by Weaver, who probably increased its perception: the sense of the messages was observed mixed to a rigorous determination of the physical and technical conditions for its transmission.

One way to persist in this mistake is, for instance, to forget that Shannon and Weaver emphasized signal transmission and didn't treat information precisely (human and social senses and polysemic), as it is conducted by the written, spoken, or broadcasted press. From Shannon, but also recurring to Alan Turing, Norbert Wiener—creator of the cybernetics concept—and Vannevar Bush, information became a powerful and dense scientific concept which was defined noticeably by John Archibald Wheeler in the phrase: "Tomorrow, we will learn, understand and express all the Physics on information language". The impact of this hegemonic perspective was really strong on the social and human sciences, conditioning theoretical postulates, as two following examples show: Robert Escarpit (1918-2000) founded his theory of information and communication based on the "Engineering Period" (i. e. Shannon and Weaver's work, Wiener cybernetics, the evolution of "informatics", and so on), correcting some mechanists' errors of the "new technological order" (Escarpit, 1971). By his side, another French philosopher, Raymond Ruyer, counterpoised to the physical information the concept of information "almost" psychological, which referred to the complex and plural domain of meaning, centered in the thinking and acting subject (Ruyer, 1954, 1966).

This sound and seductive conceptualization didn't overshadow, however, those emphasized by Terrou and even, in a paradox, reinforced it. Although it is possible to qualify information technology and communication, relating one word to the other, there is no clear conceptual distinction between them, even resulting in the excessive simplification where message and its transmission were confused. Semiotic scholars and other specialists in communication try to legitimate theoretically this alleged synonym. Anthony Wilden, by its turn, in "Einaudi" Encyclopedia added to these two conceptualizations an etymological meaning, in two important items: information and communication deserve, on V. 34 entitled "Communication–Cognition", different descriptive and analytical approaches, which produce an indispensable bibliographic contribution for any synthesis or review study, for publication or exploratory forms on these themes. It is worthy to note that Wilden started the information definition with a general objective titled "Information rediscovery", an idea that is here reinforced. Following this point, without any deviations, Wilden also attributes to information two meanings "that recently appeared and relatively specific", although it was more precise to identify the word as having its focus on two major conceptualizations. The first one is strictly technic or technologic, in which information is a quantity, measurable in *bits,* assessing this way the metric defined by Shannon and Weaver in their "Information Theory" regarding a combinatory and statistic theory of information, based on logics and probabilistic. The second concept invokes a diverse approach, which can even take advantage of the first one (as Wilden exemplifies with information transmission based on artificial systems like radar and satellite communications), but is always qualitative before being quantitative, meaning that this second definition encompass the trivial usage of this term and involves what he defines as a variety organization, as the information is shown to us in structures, forms, figures, and configurations, or in ideas and ideals, indexes, images and icons, or even in signals, signs, meanings and symbols, gestures, positions, and discontinuities, frequencies, intonations, rhythms and inflections, in presences or absences, in words, actions, silences, visions, and syllogisms (Wilden, 2001).

Analyzing these two conceptual dimensions, it is curious how Wilden did not limit himself to those distinctions announced by technological specialists, mainly in management and informatics, and tried to standardize it into a trid: data, information, and knowledge (subdividing this last one in tacit and explicit, referring to Nonaka and Takeuchi's work, based on Michael Polanyi, Hungarian Science philosopher).

More recently, the Italian philosopher Luciano Floridi, who lives in Britain, proposed a new other disciplinary branch inside philosophy: the Philosophy of the Information (Floridi, 2004). He published a book, suggestively titled *Information: A Very Short Introduction*, in which he illustrates all his proposition of a program to map the amplitude and density of the information concept until this moment: its chapters, in order, starting from the first, develop the study of "Information Revolution", "The Language of Information", "Mathematical Information", "Semantic Information", "Physical Information", "Biological Information", "Economic Information" and, finally, "The Ethics of Information". In the epilogue, Floridi observes the junction between Physics (nature, reality) and Technology (practical aspects and its applications), which, as the author remarks, will be vital for our future, in a challenge that he elaborates as:

…to reconcile our roles as informational organisms and agents within nature and as stewards of nature. The good news is that it is a challenge we can meet. The odd thing is that we are slowly coming to realize that we have such a hybrid nature. The turning point in this process of self-understanding is what I have defined in Chapter 1 as the fourth revolution. (Floridi, 2010, p. 121)

Information Philosophy, as proposed, constitutes precisely a field where the ontological, epistemo-logical, and hermeneutical research about information and information revolution develops in these times, devoting special attention to the hybrids of the concepts of information, culture, and knowledge.

ABOUT INFORMATION QUALITY AND VALUE

On May 20th, 1935, Madrid University Metaphysics professor José Ortega y Gasset read his inaugural speech for the International Congress of Libraries and Bibliography, also being promoted in Barcelona, titled "Librarian's Mission". It is a text rich and controversial and provoked several opposite feelings, from compliments to disagreements, which is comprehensible due to the delicacy of the matters discussed.

As a typical philosopher proposition, this speech could be understood in several ways, even opposed to those predicted by the author. In addition to those words from professor Ortega y Gasset, it can be seen a reference suggested by António Agenor Briquet de Lemos, in the Brazilian version, to consider also the circumstance and receptivity of librarian's mission. It is important to highlight in the original words by Ortega y Gasset that he focused a reality of this work in the 1930s, which was relevant and worrying: the increasing publishing of books at that time and the positive necessity that the societies felt relating to this old instrument–the book. In his final words in this speech, he addressed Plato's defini-tion that "books are written sayings", reviewing it for "books are the exemplary saying, which by itself, bring essentially the requisite of being printed, retained" (Ortega y Gasset, 2006), but he also asserted that "when the words were fixed–setting also the memory of an act, a vital situation transformed in thought–in an undetermined period of time, the vivid intuitions which integrate its original sense are lost, just remaining the ashes of an effective idea. For the thought to remain alive, it is not enough an existing book or written text, but a reproduction of that message by another human being, in his mind" (Ortega y Gasset, 2006).

Regarding these points of view, it is irresistible to see, under Ortega's affirmed background for the function of a book, the return of the etymological meaning of information, and see the indispensable presence of the listener, the "other" in the communication process, who is able to communicate, absorb contents, and revitalize them by the reading. Written words turn into the realization of the communica-tion process. It is important to recognize that the commented speech still seems very up-to-date.

Ortega y Gasset initially discussed the librarian mission, a theme that is enunciated in the title, emphasizing the personal and professional dimensions and including a brief historical panorama of the librarian's action until the 20th century, when, in his words, a new mission emerged, because the book, following several creations in its inexorable path, was revolting against its creator! What, at last, was this rebellion or bad effect? Ortega y Gasset found that Western societies started to think the book as a revolutionary instrument with a new difficulty: in all Europe, there was the impression that there were too many books, and, as a consequence, it wasn't a desire anymore, becoming a simple item. In a radical view, Ortega y Gasset (2006) also affirmed that "the book is indispensable in this historical moment, but it became dangerous because it is a risk, it is a danger for Man". So, the librarian's work faced a new step, which shows a conflict perspective with the book. Until now, a librarian considered a book as an object for his or her work, as a material item, but "Today he will have to care a book as a living creature: will have also to impose a policy for the book and to tame it". This was the new mission that confronted every professional, as the most severe book attributes were starting to be perceivable. Also in his speech, Ortega y Gasset identified those attributes: "We already have too many books", and it was

1935! As his declarations shown, the volume was so immense that it was difficult for an author to gather all the bibliography he would need for a new writing. It was necessary to "create a new bibliographic technique of a rigorous automatism" (Ortega y Gasset, 2006) and, in another perspective, books "were produced in a constant and abundant, torrential way", allowing an intuition that many of these books were "useless or stupid", while, on another subjects, the absence of essential titles were frequently felt. Ortega y Gasset also discussed if, in a near future, librarians could become book edition regulators, to "avoid that unnecessary books were published and, in compensation, we don't miss those really needed to deal with the problems of each époque". Finally, paying attention to other words in the same speech, we can find that "the future librarian will have to guide his not-specialized reader in the *selva selvaggia* of books, being the medical doctor, the hygienist of his readings" being "a filter among the torrential production and men".

Ortega y Gasset was an oppositionist against totalitarian movements and ideologies, which, in 1935, were starting to gain position and impose themselves as governments in Europe. This belief also adds up to his reflections, somewhat ingenious and utopic, that the librarian would have to solve a problem already perceived as critical at those turbulent times: to the exponential volume of information there was a corresponding deficit of information value and quality, as also ways to communicate. But his requests over the librarian were too demanding, as these professionals were only seen by cult people, ignored by politicians or simple citizens in Spain of the 1930s. Information value and quality have to be determined, whatever it could take, and this was the main discussion offered by Ortega y Gasset in his remarkable speech.

If it was today, probably, Ortega y Gasset would be perplexed with what is happening in the globalized, Internet-connected world! As Juan Grompone, Uruguayan computing engineer asserted, we live in the paradigm of labyrinth, which results in a difficult but indispensable task to determine the value and quality of information to face informational and social-related problems.

There are no easy, straightforward, recipes; they are not ready. There is only the extreme complexity of the situation we live and the feeling that we do not have to trust in panaceas or useless ambiguities. We have, otherwise, understand that the value—attribution of a precise meaning—of information can only result in an operational and practical sense if we associate it always to a context organic-functional, that is, to a concrete unit of action defined by clear objectives, supported by specific material means and technology, and served by social actors with determined roles and regulations. In addition, about quality, it is desirable that it addresses internal aspects of information contents, or better, to a more rigorous determination to the predicates of the information itself–consistency, pertinence, veracity, and liveliness. Value and quality have to be focused with humbleness and consciousness in a continuous and cyclopic task, which can be done only through a variety of collaborations.

THE CONTRIBUTION OF THIS BOOK

This book intends to be a valid contribution to allow a continuity of the (re)thinking about the binomial information value-quality, not only in the abstract sense, but also approaching concrete questions, problems, and real contexts that demand new practical applications, enunciated, studied, and exposed here. This book is inscribed, with no doubt, in a challenge as proposed by Ortega y Gasset, answering the problem in a different way: information is everywhere, is produced abundantly and in several different forms in various contexts. This fact does not enable one to observe its quality and value only in a "macro" level (of general extrapolation) without studying the "micro" diversity that we are almost obliged to explore and generate knowledge in a team-based, proficiently multidisciplinary way.

This focus oriented the main decision by authors and editors of this book to invoke specialists to answer in a generous and prompt manner the proposed challenge. This strategy resulted in three sections.

In the first section, titled "A Word from the Organizers", George Leal Jamil shows how information quality and value are essential for decision-making in organizational context, highlighting how this perspective can be achieved by market intelligence techniques in his chapter "Why Quality? Why Value? Is it Information Related to These Aspects?" Armando Malheiro and Fernanda Ribeiro analyzed the methodological operation of information evaluation in three dimensions: information services performance, information retrieval, and informational flow, emphasizing the latter. It can be said that in this first section the reader faces an organizational reflection about information quality and value, as also verifies a methodological tool—the evaluation—which can expressively help, according to each context's characteristics, to determine the value and perceive quality of the produced information by institutions and organizations in any part of the world.

In the second section, "Rethinking the Conceptual Base for New Practical Applications in Information Value and Quality", it was possible to gather a set of studies that allow one to reflect on the limits and nature of information quality and value, based on cases and concrete contexts. The first chapter of this section, "New Approaches of Information Quality in Digital Environment: Clue, Evidence, and Proof", by Moisés Rockembach, presents strong and opportune relationships of theoretical reflections and digitally generated information, pinpointing the importance of the triad indication—evidence—proof from a case study. Sérgio Maravilhas Lopes follows with his chapter, "Quality Improves the Patent Information to Promote Innovation", and shows how information extracted from patients and associated processes, with the needed organization and correctly recovered, can promote strategies for innovation.

Intellectual property problems (regarding to industrial patents) and the promotion of innovation, observed with the lenses of the Information Science, with a case in the Brazilian health market were addressed by the group of authors: Jorge Marques, Adelaide Antunes, Flávia Mendes, Suzane Schumacher, and Luc Quoniam, in the chapter "The Contribution of Information Science through Intellectual Property to Innovation in the Brazilian Health Sector", as the relationship between innovation and information management is an actual and interesting theme for scholars and practitioners. Health sector was also the base for study by Olivia Pestana in her chapter, "Information Value and Quality for the Health Sector: A Case Study of Research Strategies for Optimal Information Retrieval". Here, recalling Ortega y Gasset's proposition on how to be guided in the "bibliographic labyrinth" in order to get information for a specific problem solution, the author details the techniques and more suitable strategies for information retrieval over that complex sector.

Still in the same section, Maria Beatriz Marques exposes in "The Value of Information and Information Services in the Knowledge Society" her thoughts and findings to answer the same proposed question about the challenge of the information disorder, but in this case considering the concept and cases of informational services and what is now generally considered a society based on knowledge. In the following chapter, the theme of innovation is approached again, now by Thais Zaninelli, with opportune detail in her chapter, "The Communication and Information Role on the Innovation Process Performance in the Collaborative Context: New Service Project Cases", where the interaction between information and communication processes is treated. In the following chapter, "Perception of the Information Value for Public Health: A Case Study for Neglected Diseases", advancing the analysis of information value through a detailed case study and its theoretical relations. The last chapter of this section was composed by Carlos Páscoa and José Tribolet who, analyzing a real case, show how information value and quality are perceived when studying the action-network theory, in a chapter titled "Actor-Network Theory Applied to Organizational Change: A Case Study".

In the last section "Interdisciplinary Applications of Information: Value and Quality as It Happens in Real Scenarios", the exploratory methodological line, used for the second section, is followed, now concentrating more in motivating case studies. Carlos Páscoa, José Tribolet, and Tiago Oliveira start this section with "The Strategy Map: A Key Instrument for Organizational Performance", relating information and knowledge management, a process where quality and value appear as critical components, to strategic decision mapping and execution in a managerial view of the book's main conceptual discussion. Carlos Páscoa and José Tribolet also authored the following chapter, "Maintaining Organizational Viability and Performance: The Organizational Configuration Map", observing the same context of strategic decisions, operational action execution, and information management in these organizational scenarios. In the following chapter, Brasilina Passarelli and Alan Angelucci in their chapter "Interactive Generation Brazil Research: Children and Teenagers Using Computers, TV, Games, and Mobile Phones" exposed a quantitative research based on data collected from Brazilian schools, which depicts the "digital behavior" of these "digital natives" (children and teenagers) and a potential relationship with digital and informational literacies, understanding how to develop competences to search, selection, and usage of the available information with those apparatus, considering it a relevant factor for information quality and value in projects and design of equipment and associated systems. Páscoa and Tribolet also contributed with an interesting case study in order to observe information value and quality in a critical decision-taking environment, the Military Organizations, with their chapter "Change and Information Value in Military Organizations' Transformation Processes".

Concluding this section, we have three specific and analytical chapters: First, Antonio Peñalver and José Rascão studied how information management occurs in organizational networks, with their chapter titled "Information Technology (ICT), Network Organizations, and Information Systems for Business Cooperation: A Focus on Organization and Strategic Knowledge Management". The following chapter, written by José Rascão, contributes a literature review from the practical point of study, with the provocative "Information Management in Complex and Turbulent Environments", where the author discusses information management survival in the modern organizational contexts. The last chapter, by Cláudio Magalhães Pessoa, "Information Management in Industrial Areas: A Knowledge Management View" completes the book and a context of study bringing an industry-based case study where information and knowledge were observed for real-time decision making in systems where performance and precision are absolutely critical, being directly impacted by information value and quality.

We indeed hope that our reader can effectively judge information quality and value, especially on their usual professional and personal practices. This book faces real challenges as it tries to assess these complex and intricate issues. Our contributors, editors, and chapter authors had a positive proposition in this sense of improvement in theoretical and practical discussions about quality and value.

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