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Received 21-04-2026.
Accepted 01-06-2026

Printed ISSN: 2352-989X
Online ISSN: 2602-6856

The Philosophy of Information: Luciano Floridi as a Case Study

Brahimi ameur

¹ **University Amar Telidji - Laghouat (Algeria),**

ma.brahimi@lagh-univ.dz

**Philosophy and Community Development Laboratory
Amar Telidji University of Laghouat**

ABSTRACT

This article focuses on the philosophy of information as developed by Luciano Floridi, analyzing information not merely as a technical or mathematical concept but as a fundamental phenomenon for understanding being, knowledge, and meaning. The study opens with a historical survey of the origins of the philosophy of information, acknowledging its foundational figures — including Claude Shannon, Fred Dretske, Yehoshua Bar-Hillel, and John Searle — before examining the evolution of the concept through Floridi's own philosophical framework, encompassing semantic information, epistemology, and information ethics. The article argues that the philosophy of information provides a comprehensive framework for understanding information flows in the digital age, and draws attention to its ethical dimensions relating to privacy and data protection. It concludes by underscoring the need for sustained inquiry into the practical and ethical applications of this philosophical discipline.

Keywords: Philosophy of information; Luciano Floridi; semantic information; information ethics; digital epistemology.

1. Introduction

Claude Shannon (1916–2001) is widely regarded as the founding figure of the philosophy of information, although he was not a philosopher in the strict sense of the word. His landmark paper, "A Mathematical Theory of Communication," produced a profound and enduring impact on the conceptualization of information — an impact sufficient to attribute to him the intellectual origins of this philosophical discipline. His contribution, grounded in the mathematics of communication, prompted subsequent scholars to engage seriously with this field. Among them, the analytic philosopher Fred Dretske pursued these questions in his work *Knowledge and the Flow of Information*, in which he addressed, among other central concerns, the question of how knowledge is generated from information and the relationship between signal and meaning. The project was further advanced by Yehoshua Bar-Hillel, who forged connections in his research between logic, language, and information, and — in part — by John Searle, who examined information through the lens of artificial intelligence and the distinction between meaning and understanding, particularly in his critique of the formal processing of information. Subsequently, further contributions emerged from the domain of artificial intelligence. Nevertheless, the field remains considerably underdeveloped in Arabic-language scholarship, where one finds only scattered translations of some of Luciano Floridi's works and a limited body of ancillary studies published in scientific journals.

The concept of "information" occupies a pivotal position in contemporary philosophy of science. In the information age, information has indeed become the most prized intellectual commodity, which may explain the sustained scholarly effort to define and distinguish knowledge, science, and information as categories within general epistemological theory. And yet, despite the voluminous research on the subject, no unified definition of information can be found in lexicons or dictionaries, nor does any single theoretical framework command general consensus. The term remains the subject of considerable controversy among different disciplines and ideological orientations. What one school of thought or religious tradition counts as information may not be recognized as such by a rival school; what one psychological tradition regards as an established datum — such as the Freudian theory of the unconscious — is rejected by another, such as the Jungian tradition. Similarly, what sociology treats as social information may not be recognized as such by anthropology in its study of the human being across social, physical, and racial dimensions.

In light of this definitional plurality, the present article focuses on a single philosophical model: that of Luciano Floridi. The breadth of the subject across thinkers and disciplines precludes any comprehensive survey within the confines of a single paper; such a task would demand an expansive, dedicated academic study. One encounters, for instance, Stonier's three-volume work on the mathematical theory of information, as well as Howard Resnikoff's mathematical and physical analyses of information. Thinkers who have approached the topic from a purely philosophical standpoint are exceedingly rare — Floridi being the most prominent example. He has devoted his scholarly career to the

development and promotion of what he calls the "philosophy of information," offering a distinctively philosophical — rather than physical or mathematical — account of the concept. Given his considerable influence on the study of information, especially following the emergence of the "information age" as a defining intellectual framework, this article traces that influence by presenting his philosophical vision and the foundational principles upon which his information philosophy rests.

Accordingly, the present inquiry seeks to address the following central research question:

How has Luciano Floridi's philosophy of information contributed to the philosophical understanding of information in the digital age, and what contemporary ethical issues has it raised in this domain?

Sub-questions:

1. What historical and intellectual conditions led to the emergence of Floridi's philosophy of information?
2. What principles, laws, and philosophical instruments constitute the conceptual architecture of Floridi's philosophy of information?

Research Hypotheses:

1. Floridi's philosophy of information provides a comprehensive philosophical framework for understanding information as a foundational phenomenon in both human life and scientific inquiry.
2. The significance of Floridi's philosophy lies in its capacity to bridge theoretical and ethical developments in information with practical applications in such areas as information ethics and digital privacy.
3. Despite Floridi's considerable influence, there remain epistemic constraints that must be confronted when analyzing the contemporary applications of his framework, particularly in the context of increasingly complex and rapidly evolving information technologies.

Research Objectives:

1. To present the theoretical, methodological, and principled foundations of Floridi's philosophy of information.
2. To elucidate the applications of the philosophy of information in the contemporary world.

Significance of the Research:

1. To illuminate the contemporary philosophy of information through Floridi's work and to highlight his intellectual contributions to the development of this field.
2. To analyze the relationship between information, being, and knowledge as articulated by Floridi, and to apply this analysis to contemporary issues in information ethics.

3. To enrich academic discourse on the growing influence of information in the digital age and on how such influence may be philosophically and ethically navigated.

Review of Prior Literature:

General studies on information exist — such as "The Concept of Information: Between Semantic Comparison and Epistemic Approach" by Qatafi Hakim, published in the journal *Afaq lil-Ulum* — but these focus primarily on communication and data. Studies devoted specifically to the philosophy of information are exceedingly rare, and works dealing with the particular model examined in this article are rarer still. Among the most relevant primary sources is a scientific article by Floridi himself, titled "Is Semantic Information Meaningful Data?," published in *Philosophy and Phenomenological Research* (Volume 70, Issue 2, March 2005). This article is centered on the concept of semantic information, offering a critique and revision of what is known as the Standard Definition of Semantic Information (SDI) — which defines semantic information as "meaningful data" — on the grounds that truth-values are not determined solely by semantic information, given that false information, and therefore false semantics, can exist as a form of quasi-information.

A further significant study on Floridi is that of Bawden and Robinson (2017): "Curating the Infosphere: Luciano Floridi's Philosophy of Information as the Foundation for Library and Information Science," published in the *Journal of Documentation*, 73(5). The aim of this editorial review is to re-examine whether Floridi's Philosophy of Information (PI) and Information Ethics (IE) can serve as a conceptual foundation for Library and Information Science (LIS), and whether LIS can consequently be understood as a practical application of PI.

2. The Philosophy of Information: Concept and Development

2.1 Information: Linguistic and Technical Definitions

Linguistic Definition:

In Arabic, the term "information" (*ma'lumat*) is derived from the root 'ilm (knowledge). The plural form, *ma'lumat*, denotes "reports and investigations, or all that which leads to the uncovering of truths, the clarification of matters, and the making of decisions... [or] a collection of news and ideas stored or organized by computer, also called data." (Ahmad Mukhtar Omar, *Dictionary of Contemporary Arabic*, Vol. 2, p. 1544.)

Technical Definition:

In his article "Information," Marcia J. Bates presents a selection of representative definitions of information drawn from the field of information science and related disciplines, comparing and discussing them in a manner that confirms, in his view, that defining information remains a genuinely contested enterprise — to such a degree that any claim to offer a single, unified account of the subject would be intellectually dishonest. Nevertheless, a general working definition may be offered: the term

"information" refers to non-mental, user-independent, and declarative (i.e., alethically qualifiable) semantic contents embedded in material instantiations such as databases, encyclopedias, websites, television programs, and similar media, which can be produced, collected, accessed, and processed in multiple ways. (Floridi, L., *Is Semantic Information Meaningful Data?* *Philosophy and Phenomenological Research*, 70(2), p. 352.)

2.2 Key Informational Terminology

Information Bank: A center for the collection, storage, and retrieval of information in service of those who seek access to it. Information Revolution: The remarkable advance in information and communications technology that has conferred extraordinary capacity for the global movement of information, transcending all national barriers. Information Network: An artificial construct derived from information; the aggregate of technologies relating to information and its transmission, particularly its automated and cognitive processing through the science of electronics.

The Information Age: The epoch we currently inhabit may aptly be termed the information age, particularly since the emergence of artificial intelligence and, subsequently, knowledge engineering. The vast and unprecedented accumulation of information has led scholars to designate this epoch with the term "information age."

The Philosophy of Information: "The philosophy of information addresses the philosophical analysis of the concept of information from both historical and systematic perspectives" (Adriaans, *Stanford Encyclopedia of Philosophy*, p. 2). This new branch of philosophy is concerned with the analysis of information in all its manifestations; information has become a central category in the natural sciences and the humanities alike, and above all in philosophy. In Floridi's formulation, the philosophy of information "investigates the conceptual nature and basic principles of information, including its ethical consequences" (Bawden & Robinson, 2018, p. 1).

Semantic Information: No general consensus on the definition of semantic information has yet been reached. It was precisely to contribute to this ongoing debate that Floridi wrote his article "Is Semantic Information Meaningful Data?," offering a critique of the Standard Definition of Semantic Information (SDI) — the view that semantic information consists of meaningful data — in favor of a Dretske-Grice approach: according to this approach, meaningful, well-formed data constitutes semantic information only if it is also contingently truthful.

2.3 The Origins and History of the Philosophy of Information

The cognitive revolution aimed to unify the efforts of psychology with those of anthropology, linguistics, philosophy, history, and law. This ambition is clearly reflected in the composition of advisory bodies such as the Advisory Committee for the Harvard Center for Cognitive Studies in its early years, whose membership included the philosopher W.V. Quine, the intellectual historian H. Stuart Hughes, and the linguist Roman Jakobson. Working sessions brought together comparable numbers of

philosophers, anthropologists, linguists, and psychologists — among them Nelson Goodman, a leading exponent of neo-constructivism — as well as the legal scholar Paul Freund from the Law School. All of these scholars participated in laying an intellectual foundation in which the focus shifted from "meaning" to "information," and from the construction of meaning to the processing of information.

Claude Shannon (1916–2001) is regarded as the founding figure of the philosophy of information. Although not a philosopher in the strict sense, his work in the mathematical study of information — particularly his short but seminal paper of 55 pages, "A Mathematical Theory of Communication" — focused on the crucial distinction between the semantics and meaning of messages. In that paper he wrote: "Frequently the messages have meaning; that is, they refer to or are correlated according to some system with certain physical or conceptual entities." He reinforced this view in his major scientific papers, including "Communication Theory of Secrecy Systems," "Prediction and Entropy of Printed English," and "Coding Theorems for a Discrete Source with a Fidelity Criterion." Across these writings, Shannon clearly separated information from meaning, asserting that information theory is unconcerned with semantics — a position that sparked vigorous debate among philosophers such as Luciano Floridi, Fred Dretske, and Rafael Capurro.

The field was further developed by Fred Dretske, who examined the relationship between knowledge and the flow of information, arriving at the conclusion that "a theory of information has been developed that can be used to specify the informational content of a signal (or structure or event). This content is expressed by a sentence describing the state at the source upon which the signal's properties depend in a specific nomic way. Information, as defined here, is perfectly objective but carries the semantic property — intentionality — that seems necessary for the analysis of perception" (Dretske, 1983, p. 55). In other words, Dretske developed a philosophical account of perception and internal cognitive processes, and of how our perceptual experiences are distinguished from our perceptual beliefs by the different ways in which sensory information is encoded in these internal structures.

Yehoshua Bar-Hillel connected logic, language, and information in his research, with a particular focus on semantic information — understood as encompassing all possible worlds. Together with Rudolf Carnap, Bar-Hillel treated this as a quantitative theory of information: a theory developed from the general theories of information that aims to provide a working framework for calculating the quantity of semantic information encoded in a sentence in a given language. The governing principle holds that the quantity of information carried by a sentence is inversely proportional to something that can be assigned a precise numerical value — in the Bar-Hillel–Carnap framework, the less probable a sentence is to be true, the greater the quantity of information it conveys.

John Searle engaged with the concept of information partly through the philosophy of artificial intelligence, making the distinction between meaning and understanding a

central concern — particularly in his critique of the formal processing of information. Despite the breadth and vitality of work in this domain at the international level, Arabic-language scholarship in this area remains sparse, consisting chiefly of a few translations of Floridi's works and scattered studies published in scientific journals.

3. Floridi's Philosophy of Information

3.1 Information and Knowledge

Among the important studies devoted to Floridi is Bawden and Robinson's (2017) "Curating the Infosphere: Luciano Floridi's Philosophy of Information as the Foundation for Library and Information Science," published in the *Journal of Documentation*, 73(5). This editorial review re-examines whether Floridi's Philosophy of Information (PI) and Information Ethics (IE) can serve as a conceptual foundation for Library and Information Science (LIS), and whether LIS can consequently be regarded as a practical application of PI — an examination undertaken to better understand the methodological progression of information technologies and the transformations in the information environment.

Floridi's primary orientation is toward knowledge — a commitment manifest throughout his major work, *The Philosophy of Information*. The correct method for attaining genuine knowledge, regardless of its domain, is to think rigorously, and knowledge itself must be valued intrinsically. As he writes: "The information revolution has been profoundly and permanently transforming the world for some time now, at an astonishing pace and on an unprecedented scale. It has made the creation, management and utilization of information critical issues, and has brought huge benefits and opportunities. Yet it has also far outstripped our understanding of its nature, impact and consequences, and raised conceptual issues that are rapidly expanding and evolving" (Floridi, *The Philosophy of Information*, Oxford University Press, 2013, p. 13). Because information has become an increasingly serious concern, philosophy faces the challenge of providing a fundamental treatment of the phenomena and ideas that underlie the information revolution — and indeed scientific revolutions in general — in order to enhance our understanding and to guide both the responsible construction of our societies and the sustainable stewardship of our natural and built environments. In short, a philosophy of information is needed today more than ever.

3.2 The Subject Matter of Floridi's Philosophy of Information

"The philosophy of information addresses the philosophical analysis of the concept of information from both historical and systematic perspectives" (Adriaans, *Stanford Encyclopedia of Philosophy*, p. 2). It is concerned with the philosophical analysis of the concept of information from both historical and methodological standpoints simultaneously. With the emergence of the empirical theory of knowledge in early modern philosophy, the development of multiple mathematical theories of information in the twentieth century, and the advent of information technology, the concept of information has come to occupy a central position in the sciences and in society. This

centrality has given rise to an independent branch of philosophy that undertakes the analysis of information in all its forms — a branch in which information has become a pivotal category in both the natural sciences and the humanities, and one in which reflection on information bears upon a wide range of philosophical sub-disciplines, from logic and epistemology to ethics and aesthetics, and ultimately to the question of human existence itself.

This new branch of philosophy is concerned with the analysis of information in all its manifestations. In the wake of the cognitive revolution of the second half of the twentieth century — "when metaphysics meets knowledge engineering... given that knowledge engineering (KE) can historically be regarded as a natural offspring of artificial intelligence (AI) and of the semantics dedicated to understanding human languages in an algorithmic manner" (Zarebski, Paris I Panthéon-Sorbonne, 2018, p. 3) — information became a central category in the natural sciences and the humanities, as well as an increasingly prominent concern in philosophy itself. In brief, as Floridi formulates it, the philosophy of information "investigates the conceptual nature and basic principles of information, including its ethical consequences... It is a new and flourishing research field that intersects with and complements other classical areas of philosophical inquiry, including in particular epistemology, metaphysics, logic, the philosophy of science, the philosophy of language and mind, and ethics. It rests on two simple ideas. First, information is something as fundamental and important as knowledge, being, health, truth, meaning, mind, or good and evil — and as such deserves independent philosophical investigation. But it is also a poorer concept, through which other concepts can be expressed, related to one another, and philosophically investigated." (Bawden & Robinson, 2018, p. 1.)

Like other philosophical domains, the philosophy of information is not without its difficulties. Gordana Dodig-Crnkovic and Wolfgang Hofkirchner addressed these challenges in their article "Floridi's 'Open Problems in Philosophy of Information', Ten Years Later," in which they revisited Floridi's earlier research program — presented as eighteen open problems covering foundational areas including the definition of information, information semantics, cognition and intelligence, the informational nature of the universe, and informational values and ethics — a decade after its initial formulation. Dodig-Crnkovic and Hofkirchner re-evaluate this program, emphasizing the most important developments, commenting on unresolved problems, and surveying the new landscape of the philosophy of information that has emerged over the intervening decade. They also discuss the field's progress in relation to scientific and technological developments over the past ten years, affirming that the philosophy of information is a broad and vibrant research domain that extends well beyond the scope of Floridi's original open problems.

3.3 The Philosophy of Information and Ethics in Floridi

The philosophy of information may be decomposed along thematic lines. In the literature, several types of privacy have been distinguished, including bodily privacy and the privacy of personal information vis-à-vis the public domain. It is on this basis that the philosophy of information has been connected to moral status — a connection that involves extending moral consideration from human beings to information about human beings. As Al-Fedaghi notes: "In both traditional and contemporary moral philosophy, the human being occupies center stage as both a moral agent and a moral patient. It has long been recognized that humans are 'special beings,' occupying a unique position between the angels and all non-human animals. Most ethical theories accordingly enshrine respect for persons as one of their basic moral principles." (Al-Fedaghi, 2009, p. 119.) This anthropocentric privilege is itself the target of environmental philosophy, which challenges the special status the human being has granted itself.

The most comprehensive argument in support of this kind of thesis applies to the informational domain, which encompasses all informational entities. Within that domain, first-order moral status is accorded to personal information as compared to non-personal information. In the traditional sense, ontology furnishes the foundation for ethics — whether that foundation is grounded in nature, utility, reason, or otherwise. Ontology provides a comprehensive conception of the world that constitutes the theater of moral inquiry. As a philosophical foundation, the "infosphere" is said to designate the entire informational environment, composed of all informational entities and their properties, interactions, processes, and mutual relations. It represents a conceptualization of our ontology in informational terms, employed as the basis for information ethics — a framework in which the intrinsic moral value of information is recognized as a fundamental phenomenon. (Al-Fedaghi, 2009, pp. 119–120.)

The intersection of the philosophy of information and ethics, as it manifests across different domains, takes on a variable character, shifting in nature according to the specific purposes for which it is employed in diverse theoretical and practical contexts. As a consequence, a complex network of interrelated concepts has been developed in accordance with their uses in different contexts. In the philosophy of language as developed by Wittgenstein, this situation is described as a "family resemblance" — referring to the condition in which certain concepts within a conceptual family share some features, while other concepts share different ones. The guiding insight of Wittgenstein's *Philosophical Investigations* is that meaning and grammar arise from collective practices through the situated, variable, and semantically laden use of language by communities of speakers. (Dodig-Crnkovic & Hofkirchner, 2011, p. 330.)

4. Conclusion

This article has shown that Floridi's philosophy of information draws careful distinctions between overlapping concepts — "information," "data," and "knowledge" — affirming that information is not merely a technical or mathematical component but a foundational element in the understanding of being, truth, and meaning. His philosophy does not confine itself to epistemic considerations; it equally addresses the ethical dimensions of humanity's relationship with information, insisting on the necessity of establishing information ethics in a world increasingly confronted with digital challenges — particularly questions of privacy and data protection.

The philosophy of information, accordingly, is not merely an academic discipline but a practical necessity in an era in which information flows shape every dimension of social, economic, and political life. In the face of accelerating technological change, it becomes all the more important to continue studying and developing this philosophy so that it may keep pace with contemporary challenges.

With respect to recommendations, the authors affirm the importance of applied studies in the philosophy of information across domains such as artificial intelligence and knowledge management. At the same time, the ethical dimensions of information — particularly as they relate to the protection of privacy in the digital age — remain in need of deeper investigation. Third, significant ambiguity persists in the concept of semantic information and its application to modern information systems. Finally, efforts to combat misinformation will require strategies more fully aligned with Floridi's philosophical framework.

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12. *Appendix: Key Philosophical Terms and Their Arabic Equivalents*

13. *For consistency of terminology across Arabic and English versions, the following correspondences are provided:*
14. *Information: The central concept of the article; semantic/factual content that can be alethically qualified.*
15. *Data (بيانات): Raw, uninterpreted signals or symbols; the material substrate of information.*
16. *Knowledge: Justified, true information held by a cognitive agent.*
17. *Semantic Information: Information that carries meaning and is contingently truthful (Floridi's criterion).*
18. *Philosophy of Information: The branch of philosophy concerned with the conceptual analysis of information and its ethical consequences (Floridi's definition).*
19. *Information Ethics: The ethical framework that governs conduct in relation to information and the infosphere.*
20. *Infosphere: The entire informational environment, encompassing all informational entities, their properties, processes, and interactions.*
21. *Ontology: The branch of metaphysics concerned with the nature and structure of being.*
22. *Epistemology / Theory of Knowledge: The philosophical study of the nature, sources, and limits of knowledge.*
23. *Intentionality: The property of mental states and information of being directed toward or "about" objects or states of affairs.*
24. *Standard Definition of Semantic Information – SDI: The definition of semantic information as "meaningful data"; critiqued by Floridi.*
25. *Alethic Qualification: The property of being subject to truth-values (true or false).*
26. *Family Resemblance: Wittgenstein's concept denoting overlapping and criss-crossing similarities between members of a conceptual family.*
27. *Information Age: The contemporary epoch characterized by the primacy of information production, distribution, and consumption.*
28. *Cognitive Revolution: The mid-twentieth-century intellectual movement that reoriented cognitive and human sciences around information processing.*