Digital Information – Innovative Technologies Generate a New Paradigm

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Abstract

While innovative technologies significantly influence all organizational activities, information tends to become one of the vital resources of sustainable development. In this direction, the present article aims to present a reflection on the paradigm of innovative technologies - digital information starting from the digital information features and challenges. The methodology used consists of the bibliographic-documentary survey, a review of the literature in the digital information field, its management and its quality, opening new directions of study and analysis on this topic. The data collected in this way were subjected to a qualitative analysis, structured according to thematic sections and the main interest spheres were identified. The results demonstrated a major challenge for responsible parties in terms of information management, assurance and compliance with quality requirements in the age of innovative technologies.

Key words: digital information, innovative technologies, information quality, accountability, accounting paradigm
J.E.L. classification: M40

1. Introduction

While innovation is the basis of high-quality economic and social development, organizations are the main means of technological innovation, talent stimulation, optimization of business processes and tools, having available as a basic resource the information and knowledge volume. Digital transformation significantly influences the company's production and operational activities and determines the optimal all resources use, so a new round of scientific and technological revolution, industrial transformation tends to revolutionize globally. Innovative technologies are becoming the new requirement for the company's sustainable development. The fourth contemporary industrial revolution, all processes digitalization, including informational ones, produces the same effects from an institutional point of view that capitalization determined in the last century. Digitalization has metamorphosed all the value chain elements and information was no exception to this phenomenon (Loureiro et al., 2021; Enholm et al., 2022).

In this interconnected economy dominated by artificial intelligence and robots, the information process has become automated and these technologies are capturing the information systems of all enterprises categories (Sanakuiev, 2022; Odat et al., 2023).

Shannon (1948), the information founder, considers it to be an accumulation of effective data for substantiating economic decisions and attributes to it the role of "eliminator of random uncertainty". The information technologies progress, their impact on different activity spheres, the time elapsed

since the beginning of computerization as well as the users experience determine the relationship between information and information technology.

The present research approach represents an incursion into the approach of digital information as an innovative technology, starting from the very implications generated by the association of these terms. Information, as the main source of measuring the uncertainty degree on the production of an event determined by a random experiment, has shown responsiveness to innovative technologies, developing into an extremely complete and complex digital information system.

This research paper marginal contribution consists in expanding the research on the economic consequences of digital transformations from the perspective of the quality of accounting information. The purpose of this research is to examine the paradigm of digitization at the informational level and the object is to clarify, through specialized literature, the innovative technologies integration relevance in increasing the information quality and, implicitly, on the information provided by the informational accounting systems.

In the briefing, a short introduction is presented regarding the digitalization of accounting information as a component of the accounting information system relevance. In the paper second section, a specialized literature review on the subject of the study is presented, and in the third section, the used research methodology, the limits and future research suggestions are presented. Section number four describes the results obtained, namely the quality of digital information to serve as an essential channel for understanding the state and transformations of an entity, the evaluation and comparability of the efficiency and operational health of an entity. The last of the sections highlights the research conclusions and implications.

2. Theoretical background

Information literacy, as coined in the 70s, refers to individuals' abilities to use information, including its search, access, identification, evaluation, management, reuse and communication (Machin-Mastromatteo, 2021), while Bawden (2001) introduces the concept of hyperliteracy suitable for the complex information environment, based on knowledge, perceptions, skills, attitudes and abilities.

Information represents that equivalent amount of uncertainty regarding the occurrence of a future event as a result of a random experiment (Shannon, 1948), uncertainty being the one that precedes the occurrence of the event and information succeeds its occurrence. The key to the resource allocation efficiency is the effectiveness of information, timeliness, complexity, relevance, comparability, transparency and their intelligibility (Mansour et al., 2023). The information digitalization has the ability to support the company's development by increasing the ability to analyse large databases, improving business models (Yang et al., 2024), generating added value and development (Verhoef et al., 2021; Liu et al., 2023), improving the performance level (Kohtamäki et al., 2020), increasing the corporate innovation level (Nwankpa & Roumani, 2016) and increasing the corporate management transparency (Goldfarb & Tucker, 2019).

For an organization, the most complicated process is the right decision (Simkin, et al., 2012) and the central role of long-term decision-making planning rests with central management (Galbraith & Schendel, 1983), decision-making success largely depending on the availability of information (Azar et al., 2019).

The integration and the exploitation of digital information changes for entities the face and way of functioning, the awareness of the impact of digitalization information, the proactive management of digital technologies and the reduction of rigidity in their use on a large scale increases companies' ability to quickly adapt to environmental turbulences that may appear on different types of markets (Huanli et al., 2021), the lack of digital skills leads to the accentuation of the digital divide and generates operational difficulties (van Deursen & van Dijk, 2009).

If the basis of technological progress was represented by states, in contrast, the propulsion of current innovative technologies is carried out by private entities, the general public has immediate access to them and various categories of threats are continuous and diversified (Perfetto et al., 2023). The main trends in information approaches are towards information society, information age, digital divide and information shortage (Demir, 2021).

3. Research methodology

From the perspective of scientific research methods, we approached a qualitative method, namely a bibliographic-documentary survey of various articles, books, publications in scientific journals within the Web of Science and Elsevier databases. It is characteristic to review the specialized literature both of the authors who have researched the topic in the past period and the most cited articles as well as those of the last three years, a period in which research on the topic of digital information has become increasingly relevant and numerous. The data thus collected were subjected to a qualitative content analysis and structured by thematic sections according to the area of interest of this work.

Digital information and innovative technologies represent an extremely complex research field that combines and expands specific notions of various socio-economic, technical, medical disciplines.

In order to support the research direction, namely the new paradigms generated by innovative technologies and the digitization of information in the economic field, we paid special attention to the factors that contribute to the accounting information quality, both financial and non-financial. Theoretical knowledge is fruitful in order to understand the phenomena and not to generate working hypotheses, relying on interpretative methods to understand the impact that innovation has on the information quality.

There are also limitations of this work, due to the lack of a qualitative analysis, the identification and validation of some determinants of information quality, aspects that will be part of a future study.

4. Findings. Digital information & innovative technologies

For the definition and in-depth presentation of the information concept, we turn our attention to different authors. The first definitions of information theory are based on the mathematical study of the quantification, storage and communication of information (Nyquist et al., 1920), so that later they are located at the intersection between electronic engineering, mathematics, statistical, informatics, neurobiological and physical (Shannon, 1998), after being defined as that equivalence level of uncertainty about an outcome generated in the future as a result of a random experiment. (Shannon, 1948). The innovative technologies development has led information to new attributes: opportunity, adequacy, collection, distribution, accuracy, flexibility.

Table no. 1 Information & digital information definitions

Author' name	Definition
Le Coadic, 2004	Information is a set of classified and interpreted data to provide the necessary support for the decision-making process
CApurro & Hjorland, 2007	Information is a complex process involving knowledge transformation, selection and interpretation in a specific context
Pomim et al., 2014	Information is that valuable resource, essential for knowledge generation and asset growth
Mokodompit & Wuriaih, 2017	Information is a tangible or intangible entity capable to reduce the uncertainty of future events
Novianty et al., 2018	Information is the organization lifeblood, without which modern business models cannot exist.

Source: made by authors

We have identified, in the information definition, the existence of a data-information-knowledge triad, so that the informational process begins with the existence of data that becomes knowledge through the process of transforming it into something useful for the receiver. The existence of a transmitter simultaneously with that of a receiver, that interacts through a channel, either through speech, writing, images, codes, sequences represent a first information characteristic, followed by its qualitative elements: relevance, reliability, comparability, understanding, consistency, neutrality (Akumbo et al., 2020).

Table no. 2 The evolution of information perception

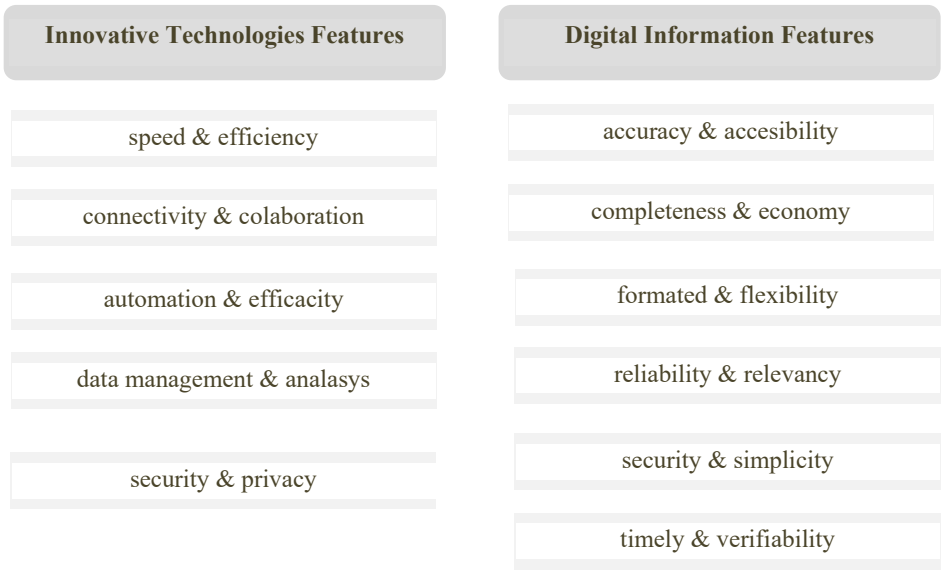
Decade	The Evolution of Information Perception
1950	A necessary bureaucratic requirement
1960 – 1970	A support for the company general purposes
1970 – 1980	A management and control mean
1990 – by present	A strategic vital resource

Source: made by authors

Not only the perception of information has experienced substantial changes, but the form of its presentation has gone from the physical, visible, palpable format to various, technological supports in which the transmission speed overcomes all types of barriers, including geographical ones (Blattmann, 2001) and has the ability to limit secondary details and highlight the fundamental aspects of reality.

Digital information represents the logical attribute and result of the economy digitization, the new innovative circumstances update the feasibility of the digital information paradigm, positioning it among the essential resources for high-quality economy growth and sustainable development. The essential channel that imprints organizations with operational health and efficiency is served by information, regardless of its nature. Thus, through this adherence, information is assigned a high degree of comparability and accuracy that allows users to analyse and make effective and timely decisions.

Figure no. 1 Innovative technologies and digital information features



Source: made by authors

Information asymmetry is mitigated in the easiest way through digital technologies, digital transformation has the ability to significantly improve the information comparability. Although the information comparability is the foundation of economic life, and most studies focus on the information economic consequences, we have identified few specialized studies that investigate the determinants of this attribute. However, all this showed the positive impact of innovative technologies on the information comparability and on its quality.

Table no. 3 The main determinants of the financial and non- financial information in accounting

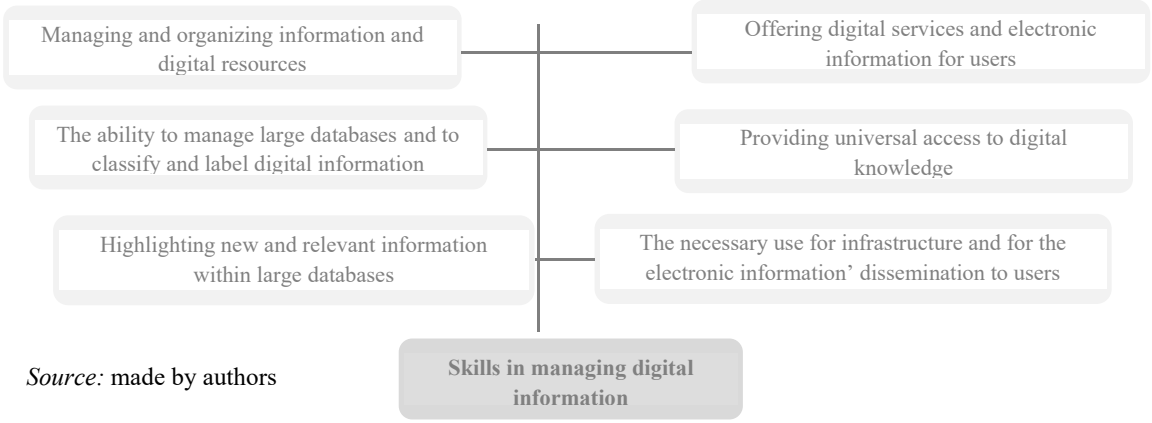
Determinants of financial and non-financial information	Researchers
Accounting information system quality	Puspitawati & Anggadini, 2019; Kanakriyah, 2016, Sjaiful et al., 2021; Kuraesin et al., 2019
- The nature and security of information accounting systems	(Al-Dalabih, 2018
- Financial data quality	Al-Dalabih, 2018; Akumbo et al., 2020)
- The accounting informational system computerization and digitization degree	Bouchetara, 2022; Akumbo et al., 2020)
- Knowledge Management	Sjaiful et al., 2021)
- Management support	Kuraesin et al., 2019)
- Good corporate governance	Sjaiful et al., 2021)

Source: made by authors

Despite all the advantages offered by information technology, we have also identified a number of challenges that companies must pay attention to in order to overcome them. A first aspect concerns the "perishability" of technology, the need for permanent updating of software equipment. Another extremely important aspect is that of personal data protection PGPD, extremely precise and rigorous measures are required, the procedures standardization regarding the collection, recovery, storage, processing and use of personal information. Another warning sign is the difficulty with which innovative technologies respond to the transformation of social networks into "digital weapons" through propaganda and false disinformation. Nor are the risks of cyber-attacks negligible, even representing an imminent threat to digital information systems.

Digitization can improve the information quality, but the Internet does not yet "know" how to address the problems of public life, it only distracts and disperses (Habermas, 2023). Schmidt and Cohen (Schmidt, E., Cohen, J., 2014) emphasize the distance between the use of digital communication tools and information, respectively the distance between information and its accuracy.

Figure no. 2 The necessary skills for managing digital information



Source: made by authors

5. Conclusions

The essence of timely and relevant information is represented by information systems that, at the same time, ensure the efficient channel of their transmission to interested parties, the value of this information being fundamental to the decision-making process for evaluating past performances and for planning sustainable activities, with an impact on social development - economic of the whole society, access to information generates efficiency and financial performance, stability, balance, sustainable development.

The significant developments recorded in the field of innovative technologies and, implicitly, in the information field, the changes imposed by economic digitization, the increase in the information space are determinants of the development of the current society. Between digital information and innovative technologies there are a series of links that give rise to a new paradigm, the progress recorded being extremely important, new concepts are developed, new research methods are approached.

All this explosion of innovation and informational avalanche characteristic of this globalized and interconnected society represents both an opportunity and a challenge in the organization, processing, storage and dissemination of digital information. Whether we look at it from an economic-financial point of view, or from a social point of view, information is an asset, but the dilemma is the management and mediation of this volume of digital information that is in a permanent qualitative and quantitative evolution, and to respond to this problematic, the forms of information management are permanently improved. Another barrier that must be overcome is represented by the restrictions on digital preservation, the short lifespan of informational software elements, the need for significant storage spaces due to the informational volume. To these is added the issue of the legislation on the protection of personal data, PGPD, which provides precise rules regarding the collection, processing, storage and distribution of information related to different natural persons.

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