

The challenges for knowledge workers in organizations to carry out sustainable organizational development

Os desafios dos knowledge workers nas organizações para realizarem o desenvolvimento organizacional sustentável

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Abstract

In the last decades, we have witnessed important changes in production processes due to the intensified use of technologies and automation that impact social and environmental activities in society. This is the context in which the Knowledge Workers are inserted. This study aimed to analyze these workers' competencies and how they contribute to the changes in the organizations, aiming at their sustainable development. The method used was the Systematic Literature Review. Searches were conducted in the Brazilian databases BDTD, CAPES, and SciELO with the terms Knowledge Workers' competencies; social intelligence; collective intelligence; organizational intelligence, and sustainability in the Portuguese language and published between 2018 and 2022. Three hundred seventy-seven publications were found. With the application of the delimiters: date, title, abstract, and keywords, only 11 were aligned to the research question and were read in full. From this, 3 (three) categories of analysis were generated: social/corporate responsibility, sustainable development, and information management that support the results of this RSL. The final consideration is that the knowledge worker can transform data and information into value-added knowledge. Individual competencies are linked to the company's values, beliefs, and purpose, which relates to social and organizational intelligence. This work can contribute to public or private organizations forming workers focused on sustainability and the common good.

Keywords: Knowledge Workers Competencies; Social Intelligence; Collective Intelligence; Organizational Intelligence; Sustainability.

Resumo

Nas últimas décadas, presenciamos mudanças importantes nos processos produtivos em decorrência da intensificação do uso das tecnologias e automação que impactam nas atividades sociais e ambientais na sociedade. Esse é o contexto no qual está inserido os Knowledge Workers (trabalhador do conhecimento). O objetivo deste estudo foi analisar as competências destes trabalhadores e como contribuem com as mudanças nas organizações visando seu desenvolvimento sustentável. A metodologia utilizada foi a Revisão Sistemática da Literatura-RS. Foram realizadas pesquisas nas bases de dados brasileiras BDTD, CAPES, SciELO com os termos competências dos Knowledge Workers; inteligência social; inteligência coletiva; inteligência organizacional e sustentabilidade no idioma português e publicados entre 2018 a 2022. Foram encontradas 377 publicações. Com a aplicação dos delimitadores: data, título, resumo, palavras-chaves, somente 11 estavam alinhadas à questão de pesquisa e foram lidas na íntegra[C1]. A partir disso, foram geradas 3 (três) categorias de análise: responsabilidade social/empresarial, desenvolvimento sustentável e gestão da informação que sustentam os resultados desta RSL. As considerações finais apontam que o trabalhador do conhecimento é aquele que é capaz de transformar dados e informações em conhecimento com valor agregado. As competências individuais estão ligadas aos valores da empresa, no que ela acredita, relacionado ao seu propósito, que por sua vez, relaciona-se com inteligência social e organizacional. Este trabalho pode contribuir com as organizações públicas ou privadas na formação de trabalhadores voltados para a sustentabilidade e o bem comum.

Palavras-chave: Competências dos Knowledge Workers; Inteligência social; Inteligência coletiva; Inteligência organizacional; Sustentabilidade.

1. INTRODUCTION

Sustainable organizational development has emerged in recent decades due to changes resulting from the intensified use of technology and automation in production processes, which have impacted society in its economic, social, and environmental activities. All this transformation brought progress to humanity and damage to the planet, whose repair has been a great global challenge today. In order to mitigate this damage, organizations have sought sustainable development actions in organizations, which Knowledge Workers lead.

The environmental issue draws the attention of international organizations such as the Pan American Health Organization (PAHO), the World Health Organization (WHO), and the United Nations (UN), among others. The National Institute for Space Research (INPE) pointed out¹ that the deforestation rate in the Brazilian Legal Amazon (ALB) stood at 13,235 square kilometers (km²) from August 1, 2020 to July 31, 2021, was considered by experts to be the worst in the last ten years. According to the PAHO, 99% of the world's population breathes air that exceeds the quality limits recommended by the WHO, directly affecting their health conditions. The International Solid Waste Association estimates that 25 million tons of waste are dumped into the oceans annually. Data from the Special Report on Oceans and the Cryosphere in a Changing Climate determined that oceans absorb over 90% of the excess heat in the climate system (IPCC, 2019); this has caused ocean temperatures to rise, causing sea levels to rise and impacting marine ecosystems, tropical rainforests of the sea (reefs and corals), and human life.

The data presented are worrying because they are the leading causes of the severe cli-

mate change we have witnessed in recent decades. All of this forces us to think about sustainability, both individually and organizationally. Faced with the complexity and the magnitude of the challenge that is thinking about the issue of sustainability in organizations, the need to implement organizational strategies that favor the fulfillment of an agenda focused on sustainable development, it is necessary to think about the role of the agents who build and disseminate this concept in organizations: the knowledge worker.

Given the above, this article sought to analyze the Knowledge Workers' competencies that contribute to the sustainable development of organizations.

In it are presented concepts and definitions essential to the study as a) Knowledge Workers' competencies; b) Social Intelligence; c) Collective Intelligence; d) Organizational Intelligence and Sustainability. Next, we present the results and discussions of the Systematic Literature Review and final considerations.

2. KNOWLEDGE WORKER

Brinkley et al. described the knowledge economy as “the story of how new general-purpose technologies have combined with intellectual and knowledge assets — the intangibles of research, design, development, creativity, education, science, brand value, and human capital — to transform our economy. The term was first coined by Drucker (1991), after which other authors complemented his definition and made their contributions. Table 1 presents the main approaches:

¹ Information obtained from <https://agenciabrasil.ebc.com.br/geral/noticia/2021-11/desmatamento-na-amazonia-legal-tem-aumento-de-2197-em-2021>

Table 1 - Knowledge worker approach

AUTHOR	APPROACH TAKEN
Drucker (1991)	Precursor of Terminology Knowledge Worker
Davenport and Prusac (1998)	Human beings add the value that transforms data and information into knowledge by becoming Knowledge Management Workers.
Horibe (1999)	The Knowledge Worker is an individual who uses his head rather than his hand to produce value through ideas, analysis, judgment, synthesis, and design.
Beckstead and Vinodrai (2003)	Developing a Taxonomy for the Knowledge Worker refers to creating three occupation categories: professional, managerial and technical. Once knowledge is mapped and categorized, the country monitors its production capacity and intellectual capital.
Davenport (2005)	The relevance of the Knowledge Worker in organizations is that he or she holds a high degree of specialty, education, or experience and has as his or her main goal: to create, distribute, or apply knowledge in his or her activities.
Pyöriä (2005)	The Knowledge Worker needs extensive formal, complex, and abstract knowledge to do the informational work and a high level of creativity and intellectual skills. He learns as he practices in communities, and the shared way of thinking moves from implicit to explicit, through rules and regulations, for example. The knowledge worker needs a combination of theoretical and interpersonal knowledge because of the abstract nature of knowledge due to knowledge-intensive organizations.
Moore and Rugullies (2005)	The study addresses the types of information technology user: dreamer, solver, and frontline. And, it identifies the knowledge worker with the dreamer and solver types.
Geisler (2007)	Development of a Typology for Knowledge Workers in organizations that transact knowledge (empirical study in large global manufacturing companies): generators, transformers, and users. The study also identified four stages of knowledge: generation, transfer, application, and absorption, and the existence of different motivations and behaviors attributed to knowledge workers.
Reinhardt et al. (2011)	Creation of a Typology of Roles for the Knowledge Worker by considering that these emerge from patterns of actions and internalize procedures and routines through the activities during the intensive knowledge work. The typology is composed of 10 roles: controller, helper, learner, linker, networker, organizer, retrieval, sharer, solver, and tracker.

Source: Macedo et al. (2016)

Drucker (1991), Beckstead and Vinodrai (2003), Davenport (2005), Moore and Rugullies (2005), Geisler (2007), and Reinhardt et al. (2011) reported that knowledge workers are people who promote product and process improvement, as well as innovation due to their creative capacity, high degree of education, and cognitive skills.

2.1 Knowledge Workers' Competencies

The intensification and changes in the political, economic, technological, social, cultural, and environmental phenomena require Knowledge Workers to constantly expand the development of capabilities to perform in the labor market. Perrenoud (1999) states competence is the mobilization of knowledge, skills, and attitudes to perform functions and/or typical activities to be exercised in the world of

work. For Bloom (1956), competencies are the development of skills and attitudes necessary for life within a perspective of personal and professional performance based on established goals for living well. We highlight in the sequel the competencies for professionals in the twenty-first century, adapted from Soffner (2014), who grouped some competencies according to Bloom's Theory:

Table 2 - Twenty-first-century professional competencies

COMPETENCE	REQUIREMENTS
<p>Information Management</p> <p>It deals with the effective use of information in personal and professional life.</p>	<ul style="list-style-type: none"> • Manage information overload; • Manage the anxiety caused by information overload; • Decision-making based on information management. • Acquisition of information (various human senses): search, search; • Organize the acquired information; • Interpret and analyze the information; • Retrieve the stored information. • Transmitting Information and communication processes.
<p>General Competencies</p> <p>Necessary for routine processes in personal and professional life.</p>	<ul style="list-style-type: none"> • Metacognition: specify learning objectives and goals, monitor mental and psychomotor processes (importance, effectiveness, motivation, emotional response); • Knowledge Management; • Personal and professional strategy analysis; • Skill in innovation and continuous improvement; • Creativity; • Creating and adding value to routine processes; • Problem solving techniques; • Decision-making techniques; • Personal and professional project management; • Strategic, critical, creative thinking; • Entrepreneurship; • Identifying opportunities; • Negotiation; • Self-management of personal life; • Self-management of career and professional life; • Leadership.
<p>Technology Management</p> <p>Necessary for managing the informational and computational resources of modernity.</p>	<ul style="list-style-type: none"> • Technological knowledge and permanent updating in new technologies; • Technology-based continuous learning (autonomy in learning to learn); • Personal and collaborative content production; • Interaction in virtual learning communities; • Collaboration; • Relationships (interpersonal, networks).

Source: Soffner (2014, p. 19-21)

These competencies will be developed according to the needs of the Knowledge Workers and their field of work. Due to the changes in processes and technological advances, this professional is an “eternal learner,” as they need constant training and education. With the search for updating and improvement, this professional develops and improves several capacities during his journey.

2.2 Social and Collective Intelligence

The current social situation demands a level of responsibility beyond the individual and reaching organizations, and this responsibility is nothing more than social intelligence. Social intelligence is related to personal, interpersonal, and social skills. The organizational form associated par excellence to social intelligence is the network, external or internal, because it expresses and enhances, more than any other form, the community of interests of its members (SCHVARSTEIN, 2003).

When defining what a socially intelligent organization would be, the author brings a model capable of satisfying the social needs of its different stakeholders, that is, to build a model that crosses the boundaries between the three types of organizations: private, social, and economical. Leaving the broad sense of social intelligence, we have made in this study a cut of social intelligence in the field of information and knowledge. Some authors call today’s society the information or knowledge society. The nomenclature is not yet settled, although they agree that the volatility and liquidity of the world have greatly influenced knowledge in the contemporary world (BAUMAN, 2011).

Knowledge in the dimension of social intelligence focuses on the right to quality information. The concept goes beyond digital inclusion, technological access, and

digital literacy. It is seen as a tool of social value capable of bringing democracy and citizenship to those who have access and can separate the wheat from the chaff. The key issue of this movement lies in information as a social good and an achievement of citizenship. The abundance of information at the click of a finger does not characterize knowledge, so how to transform information into knowledge with added value?

In this sense, we realize that the gap between the volume of information and knowledge generation has impacted society, especially the working world. A digitally literate person uses information in decision-making, so their critical thinking needs to be shaped. We say that a person is information literate when they can organize and apply it practically, integrate new information into an existing body of knowledge, use it for problem-solving, and learn how to learn (Lenox Walker, 1992).

Historically, we have always been in the win-lose phase of technological advances. The technological revolution in the twentieth century generated a new social organization. The main idea of the information society revolves around the fact that society is inserted in the process of constant change, originating in the advances of science and technology (Coutinho; Lisboa, 2011). Lévy (1999; 2011) proposed that social and collective intelligence are derived from cyberculture. For the author, the proposed collective intelligence has a participatory, socializing, decompartmentalizing, and emancipating character; it is in cyberspace that most collective intelligence technologies are currently developed.

Social and collective intelligence recognize information as a social good for consumers of tangible and intangible goods and for the exercise of citizenship. They are intertwined with digital exclusion and digital inclusion, the power of knowledge, and quality information.

2.3 Organizational Intelligence

Organizational intelligence is directly linked to the organization's ability to perceive changes in the external context and bring them into its internal environment. Many of these changes generate discomfort; therefore, the engagement of its members and collaborators is essential. Organizational Intelligence is "An organization's ability to gather information, innovate, create knowledge, and act effectively based on the knowledge it has generated." (ALVARES, 2019, p. 34). Organizations, when adhering to change, must be well grounded. Moresi advocates this:

[...] in general, organizations respond to internal and external challenges with varying degrees of effectiveness. Some thrive, others perish, and moderate levels of effectiveness confound those that remain. An important characteristic of successful ones is that they can identify and respond appropriately to changes in their environments. These changes include not only the specific actions of other organizations, but changes in technology, their internal structure, and social and cultural conditions that affect the organization (MORESI, 2001, p. 43).

The maturity and organizational culture can directly impact the change of processes and their results; therefore, the construction, restructuring, and adaptation of organizational processes require Knowledge Workers' ability to analyze, internalize and replicate the proposed changes. The flexibility, resilience, and ability to prepare the organization for changes is the great challenge of these professionals in constructing organizational intelligence.

2.4 Sustainability

Sustainability has been the subject of study in recent decades, and it is seen as how we can break the relationship between economic activity growth and its negative impacts. Sustainability is a continuous and long-term process that, under certain conditions, maintains a stable system" (FALSARELLA; JANNUZZI, 2020, p. 185). In the authors' words, the term sustainable means defensible, bearable, and capable of being maintained and preserved if some conditions are considered. Sustainability is anchored on three pillars: environmental, economic, and social. The table below summarizes these pillars:

Table 3 - Pillars of sustainability

ENVIRONMENTAL	ECONOMIC	SOCIAL
It concerns the balance in using natural resources over time, ensuring that future generations can enjoy them. It is related to economic and social development in a structured way without depleting natural resources.	It refers to the rational use of economic resources to achieve a balance between income and consumption, for the present and future. It is not limited to spending only what one earns, but to using financial resources efficiently, without unnecessary acquisitions that generate waste of resources.	It refers to a series of initiatives aimed at promoting citizens' well-being and quality of life, reducing social inequalities, digital inclusion, and guaranteed access to essential services such as basic sanitation, security, education, and health, for example.

Source: Farah; Silva (2019)

Environmental sustainability goes beyond the walls of organizations and involves society. It is noticeable the concern of countries around the world with the negative consequences for humanity, such as global warming. In short, sustainability is the search for a balance between human needs and preserving natural resources for future generations.

3. METHODOLOGY

This study employed the Systematic Literature Review methodology, whose importance lies in the need to synthesize qualitative and mixed methods to obtain more details about interventions and their impacts and effects on different subgroups of people in different contexts (Moher *et al.*, 2015). It is secondary study because it allows the advancement of knowledge on already known issues since it starts from already published research (Higgins; Green, 2011).

3.1 Selection, inclusion, and exclusion criteria

The terms searched were: Knowledge Workers, Knowledge Workers' Competencies, Social Intelligence, Collective Intelligence, Organizational Intelligence, and Sustainability in the Portuguese language in the Biblioteca Digital Brasileira de Teses e Dissertações (BDTD), CAPES, and SciELO databases from 2018 to 2022. The searches occurred in July and August 2022. To this end, we developed the search protocol below as a guide to the Systematic Literature Review described in Table 4.

Table 4 - Search Protocol

THEME	The Challenges for Knowledge Workers in Organizations to achieve Sustainable Organizational Development
PERIOD	2018–2022
DATABASE	Brazilian Digital Library of Theses and Dissertations (BDTD), CAPES, and SciELO
SEARCH CRITERIA	Articles in Portuguese, Title, Abstract, Keywords
SELECTION CRITERIA	Scientific articles that include the Knowledge Workers' competencies in organizations to realize Sustainable Organizational Development
KEYWORDS	Knowledge Workers
	Knowledge Workers Competencies
	Social Intelligence
	Collective intelligence.
	Organizational intelligence.
	Sustainability.

Source: Adapted Bordeleau; Mosconi; Santa-Eulalia (2018, p. 3946-3947)

We selected the articles by title and keywords, and then we read the abstracts to verify the theme's relevance. The inclusion criteria were theses, dissertations, and scientific articles published in journals or congresses that include the competence of knowledge professionals in organizations such as companies that focus on social intelligence, collective intelligence, organizational intelligence, and sustainability. As for exclusion, all those that were outside the period considered, in another language, and outside those specified above.

4. RESULTS

The information was retrieved and grouped from the search string by database, as presented in the table below.

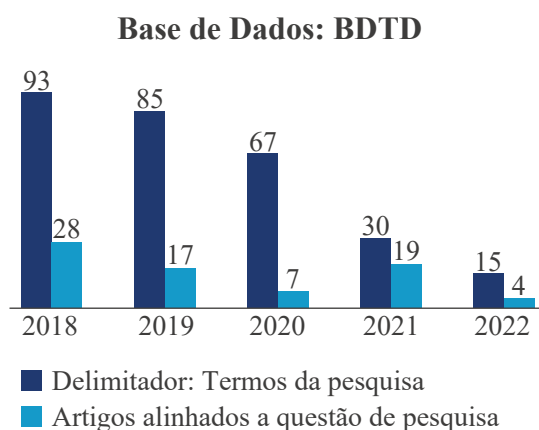
Table 5 - Results in the databases

Database	Total results	Delimiter: date, title, abstract, keywords	Articles aligned to the research question
BDTD	9523	290	75
CAPES	4704	74	24
SciELO	51	13	13
Total	14,278	377	112

Source: From the authors (2022)

After using the delimiters described in the methodology, 377 publications remained. Of these, 112 were aligned with the research question, but none directly listed the competencies of knowledge workers in sustainable organizations. The graphs below show the results by the database.

Figure 1 - BDTD Database

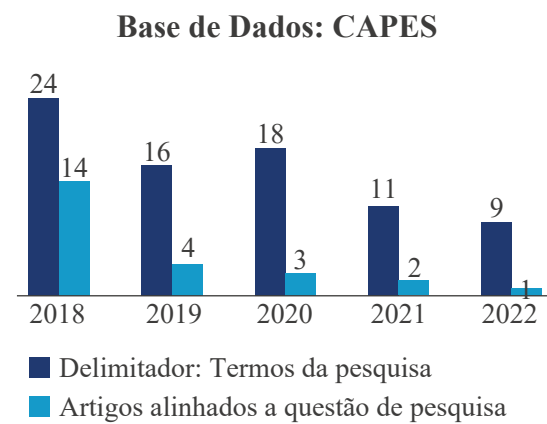


Source: From the authors (2022)

In the BDTD database, 2018 was the year with the highest number of publications, and 2022 with the lowest number. A decline was

observed between 2019 and 2020 and resumed in 2021. As for 2022, the low number may be related to the time-lapse of the research (i.e., the beginning of the second school semester).

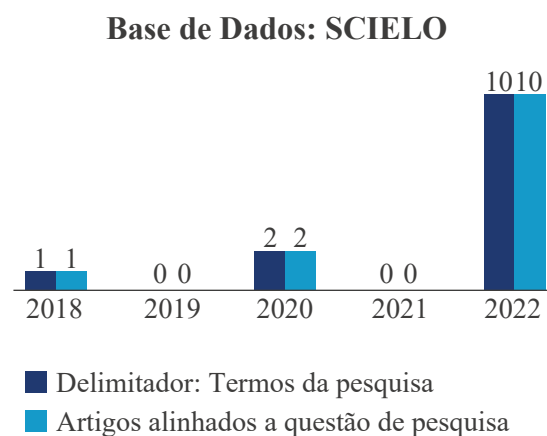
Figure 2 - CAPES Database



Source: From the authors (2022)

2018 is also the year with the highest number of publications, and linearity concerning the BDTD database can be observed. We hypothesize these results are based on the same information gathered for the BDTD data.

Figure 3 - SciELO database



Source: From the authors (2022)

In the SCIELO database analysis, we noticed a low number of publications between 2018 and 2021 and an exponential increase in 2022, even though only 2 fit the research object of this article. Since there was no incidence of publications that addressed the competencies of knowledge workers in sustainable organizations, we chose 11 articles that addressed macro topics. The articles were read in full, grouped, and categorized and are part of the corpus of analysis of this RSL article.

Figure 4 - Chart 6: Articles analyzed

DATA-BASE	TITLE	YEAR	AUTHOR	KEYWORDS
BDTD	Measuring economic, environmental, and social sustainability in the mining sector using Data Envelopment Analysis and the financial indicator EBITDA	2018	Fabrcio de Wainder Pereira Ramos	Sustainability, Data Envelopment Analysis, EBITDA margin, mining companies, competitiveness, efficiency, cross efficiency.
	Between corporate social responsibility (CSR) and social business (SB): a case study of a Cooperative in Açucena - MG	2018	Jessica Da Cruz Batista	Corporate Social Responsibility. Social Business. Cooperative. Sustainability
	Business model innovation management and sustainable innovation performance	2018	Kamila Frizzo	Open Innovation Business Model Innovative Performance Sustainable performance
	The mediating role of collaboration and engagement in the effect of social exchanges on supply chain sustainability	2019	Erivaldo da Silva Carneiro Junior	Supply chain; sustainable; social exchange theory; engagement; collaboration.
	Proposal for a public management model oriented towards the sustainability of post-consumption reverse logistics chains for special solid waste	2020	Karina Fernanda da Silva	Public management model. Sustainability. Special solid waste. Waste management. Indicators. Reverse Logistics
	Sustainable cities: guiding principles of education for sustainability in urban contexts	2021	Sandra Lilian Silveira Grohe	Education; Sustainability; Sustainable Cities.
CAPES	Development, Environmental Management and Sustainability	2020	José Carlos Virtuoso	Environmental management and sustainability, environment, environmental responsibility.
	Information architecture in collaborative platforms as a support for the management of collective intelligence in organizations	2018	Paulo César Rodrigues Borges, Roberto Mahmud Drumond Rhaddour	Information architecture, knowledge management, collective intelligence, WEB 2.0
	Organizational Intelligence: an integrated framework	2019	Eduardo Amadeu Dutra Moresi	Organizational learning, knowledge management, organizational intelligence, environmental monitoring.

DATA-BASE	TITLE	YEAR	AUTHOR	KEYWORDS
SCIELO	Media competence in the process of competitive intelligence focused on the use of social media: interrelationship model applicable in organizations.	2021	Selma Letícia Capinzaiki Ottonicar, Everaldo Henrique dos Santos Barbosa, Cristiana Aparecida Portero Yafushi, Cássia Regina Bassan Moraes.	Media Competence; Competitive Intelligence; Social Networks; Competitive Advantage; Systematic Literature Review.
	Organizational and competitive intelligence and big data: a systemic view for the sustainable management of organizations	2020	Orandi Mina Falsarella; Celeste Sirotheau Corrêa Jannuzzi	Organizational and Competitive Intelligence; Big Data; Sustainable Management.

Source: From the authors (2022)

5. DISCUSSION

We approached macro topics such as sustainability, social and collective, and organizational intelligence to understand the context in which the knowledge worker is inserted. The general objective of our study was to analyze the Knowledge Workers' competencies that may contribute to the elaboration of strategies aiming at their sustainable development. Before we make our final considerations, we will resume a little of the context of the theoretical basis.

The information society is characterized as a model that marks the emergence of a new social order whose basic characteristic is the circulation and modification of information rapidly, never before imagined. Thus, the large volume of information in the contemporary world has generated new social, economic, and technological references and contributed to the rapid obsolescence of products and knowledge (Castells, 2003). For Tarapanoff (2004), access to technologies, network, information, knowledge, and lifelong learning are facets of the information society that de-

termine the rich and the poor. This lifelong learning is the main requirement for knowledge workers in organizations focused on sustainability. The discussion about behaviors, skills, and attitudes required by the labor market has always been present when hiring professionals. The results presented did not bring publications with specific themes about the competencies needed by the knowledge professional. However, based on the underlying themes, we formulated the competencies we believe are necessary for these workers.

From the selection of the publications, we present the categories (themes) and a discussion of the results. Coding serves to categorize the text and form the themes to be analyzed. A theme represents a level of response to the research question or assigns meaning to a data set. "Themes are defined from codes" (Braun; Clarke, 2006, p.82). Similarities aggregated the codes, so we analyzed the title and keywords of the publications. In the end, three categories were elaborated. Below we present the categories and their description.

Table 6 - Categories

CATEGORIA	DESCRIÇÃO
Responsabilidade Social/ empresarial	1. Responsabilidade social empresarial (RSE) e o negócio social (NS);
Desempenho sustentável	1. Sustentabilidade econômica, ambiental e social; 2. Sustentabilidade da cadeia de fornecedores; 3. Gestão Ambiental e Sustentabilidade.
Gestão da informação	1. Competência midiática no processo de inteligência competitiva; 2. Inteligência organizacional.

Source: From the authors (2022)

5.1 Social/Business Responsibility

The corporate social responsibility issue appeared in a Cooperative case study in Açucena (Minas Gerais State). Batista (2018) brought the theoretical assumption that social responsibility breaks with philanthropy and can drive sustainable social business. The author stated that it could generate employment and income for the entire community.

5.2 Sustainable Performance

Sustainability in its economic, environmental, and social face is the macro theme of most selected files. Junior (2019) was concerned with the collective supply chain, well-being, collective success, honesty, fulfilling agreements and promises made, respecting the rights of all supply chain members.

Ramos (2018) analyzed sustainability performance indicators, and the model proposed by Frizzo (2018), based on Data Envelopment Analysis, suggested the establishment of an efficiency standard in terms of variables

that permeate the environmental and social dimensions of actions guided by sustainability. Virtuoso (2020) presents environmental management as a tool that can contribute to transforming the current scenario, and he believes that individual awareness is the starting point for social transformations. A similar thought is that of Grohe (2021), who sees education as the main focus of a sustainable city, and the author called attention to education for life and relationships.

Silva (2020) proposes a public management model oriented towards the sustainability of post-consumption reverse logistics chains of special solid waste. The proposed framework is based on the Venn diagram and sustainability indicators.

5.3 Information Management

Lastly, information management is contemplated in organizational and competitive intelligence for sustainable management of organizations. Falsarella et al. (2020), in addition to bringing its dimensions of sustainability, argue that environmental and social sustainability can lead to organizational economic sustainability. Borges and Rhaddour (2018) presented the contributions of Internet services in developing an information architecture on a collaborative platform through a Wiki and the possibility of transforming individual knowledge into accessible knowledge for network users.

6. FINAL CONSIDERATIONS

This study is a secondary study based on the existing publications that are the object of analysis in this Systematic Literature Review; we pointed out a large gap in scientific publications about the competencies required of Knowledge Workers. We understand that knowledge professionals

need to go beyond technical skills and market knowledge to drive processes based on economy and efficiency.

The capacity of this professional must be linked to understanding the needs of others and to the search for improvement in organizational processes aimed at environmental, economic, and social sustainability. In a broad sense, they must contribute to the development of society in its basic needs, such as work, health, education, and justice; in order to be sustainable, organizations increasingly need professionals with these characteristics.

The impact of this technological revolution, while bringing new professions and extinguishing others, demands disruptive skills and abilities from professionals. In this respect, the new scenario demands constant updating, recycling, and continuous education, since knowledge becomes obsolete at an impressive speed. Finally, within the study approaches, the knowledge worker is the one who can transform data and information into value-added knowledge. Due to its importance, we understand that we have fulfilled our research objective and that the theme has room for new scientific research.

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