

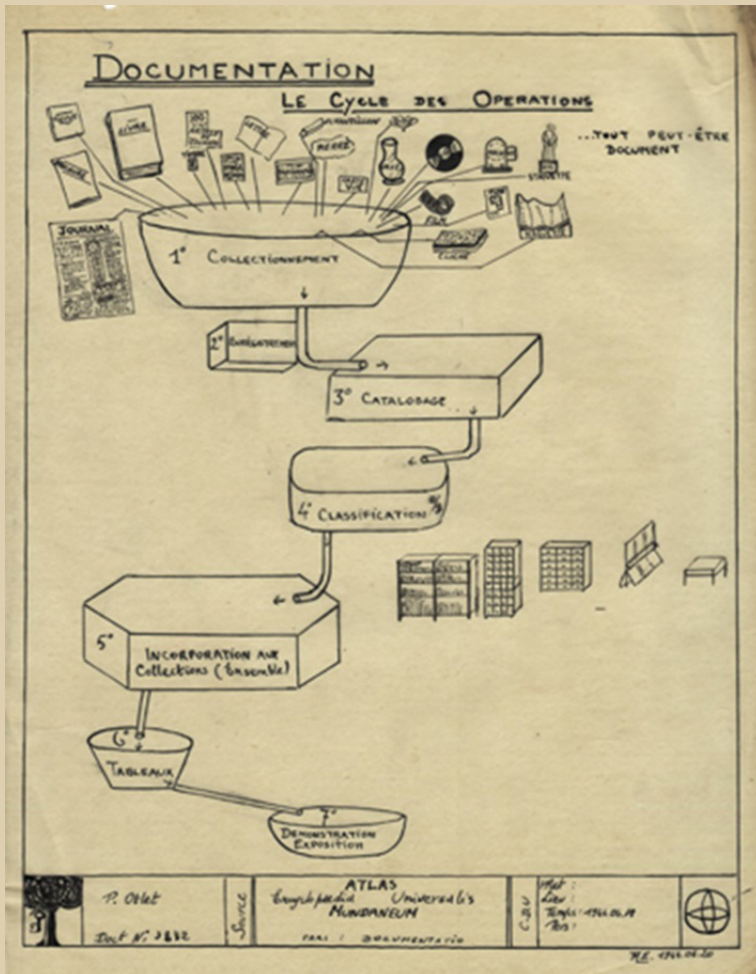
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Contributi

ISKO Italy in perspective:

An analysis of the 2017, 2019, 2021 and 2023 meetings from the ontological, epistemological and sociological dimensions of the domains

Ana Flávia Dias Zammataro*, Ana Cristina de Albuquerque*, Giulia Crippa**, Lucia Sardo**, Carlo Bianchini***, Maria Lígia Triques*

Abstract: This study examines four ISKO Italy meetings to determine which domain dimensions are most prominent in the presented works. The characterization of the domains is understood in terms of ontological, epistemological, and sociological dimensions, as outlined by Hjørland and Hartel (2003). Therefore, the goal of this article is to analyze the works presented in the ISKO Italy chapters through these dimensions. The guiding question is: how can the domains' dimensions, as presented by Hjørland and Hartel (2003), be understood in the themes discussed in the ISKO Italy chapters? The research uses qualitative, bibliographic, and documentary methods. Along with content analysis procedures, this approach allows for categorizing the works according to the domain dimensions. The results show a growing focus on themes related to the reality of researchers involved in strengthening theoretical, methodological, and applied studies in Knowledge Organization.

Keywords: Ontological dimension, Epistemological dimension, Sociological dimension, ISKO Italy.

1. Introduction

Knowledge Organization (KO), within the field of Information Science, shows that studies and research on its foundations, including its theoretical and epistemological assumptions, are reflected in the quality and scope of its processes, products, and tools. These foundations can be demonstrated through research that investigates a domain, considering, as (Hjørland and Hartel 2003) suggest, the ontological, epistemological, and sociological dimensions that define it, as well as the history of KO research itself, includ-

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ing the founding of the International Society for Knowledge Organization (ISKO) in Frankfurt, Germany, in 1989 (Dahlberg 1995).

The founding of ISKO was essential for establishing KO as a scientific discipline, granting worldwide institutional recognition to discussions of its investigative aspects. It is therefore recognized as: «a society in the field of ‘Organization and Representation of Knowledge’ responsible for the main actions surrounding its necessary consolidation and scientific construction» (Alves and Oliveira 2016, 104).

This article focuses on the institutionalization of KO’s scientific foundations through the creation of ISKO, especially ISKO Italy. It presents a guiding question: how can the domains’ dimensions offered by Hjørland and Hartel (2003) be seen in the themes discussed in the chapters of ISKO Italy?

The objective was to analyze the works presented in the chapters of ISKO Italy, in meetings held in 2017, 2019, 2021 and 2023, in light of the ontological, epistemological and sociological dimensions of the domains, elaborated by Hjørland and Hartel (2003). This time frame was chosen to address more recent meetings, seeking in the works presented updated discussions within the scope of Knowledge Organization.

According to Hjørland and Hartel (2003, 239), domains can be described by three dimensions, or «three types of theories or concepts» ontological, epistemological, and sociological. The ontological dimension involves describing elements of reality as they are organized, including explaining areas, fields, and objects, as well as the relationships between these domains, instruments, and systems. This organization, such as thesauri and classification systems, relates to a more applied aspect of KO studies, aiming to contribute to the development of these tools by examining terms, concepts, and areas of study.

The epistemological dimension pertains to the “study of knowledge” (Hjørland and Hartel 2003, 240), encompassing paradigms, traditions, and theoretical schools that can support Knowledge Organization. The sociological dimension, which is key to domain analysis, involves how society organizes knowledge through disciplines, professions, discursive and epistemic communities, and hobbies (Hjørland and Hartel 2003), as well as the relationship between users and KOS.

Thus, this research is based on Bufrem and Cervantes’s (2021) justification for theoretical studies that reflect on their own production. The authors explain that the development of a science manifests through scientific output; that is, via publications and the dissemination of scientific knowledge in various spaces, the scientific community gains access to knowledge that develops collectively and legitimizes itself. Observing one’s own field and its publications enables analysis and evaluation of the content produced by scientists, as well as trends, methods, and theoretical influences.

In this way, it is also justified by the possibility of understanding the fundamental aspects of Knowledge Organization and, more importantly, of reflecting on the ontological, epistemological and sociological dimensions that define a domain, as proposed by Hjørland and Hartel (2003).

The methodological procedures involve qualitative bibliographic research. Data collection and identification of the works were conducted on the ISKO Italy website, which provided the following information: the 8th meeting took place in 2017 in Bologna with 10 works; the 9th meeting was held in 2019 in Florence with 9 works; the 10th meeting occurred in 2021 in Cremona with 7 works; and the 11th meeting was held in 2023 in Rome with 17 works.

A total of 43 works were collected, which, through Content Analysis based on Bardin (1977), allowed for the identification and categorization of themes focused on the ontological, epistemological and sociological dimensions proposed by Hjørland and Hartel (2003).

Therefore, the author's inferences were based on the characteristics of these domains and contents from the works presented at these meetings. The features and key points of the analysis indicate a trend toward consolidating themes centered on the context and reality of researchers and professionals involved in strengthening theoretical, methodological, and applied studies in Knowledge Organization.

2. The Knowledge Organization: Foundations and Research Trajectory

Knowledge Organization (KO) has reshaped the visibility of the field of Information Science through studies and research that draw on discussions surrounding its foundations, theoretical, and epistemological assumptions, which, in turn, reflect the quality and scope of its processes, products, and instruments. These foundations can be highlighted through the study of the field's historical aspects, which include its relationships with the history of books and writing—that is, with Library Science and Documentation (Pinho 2009), and through its own research trajectory, including the creation of the ISKO, as mentioned, in 1989 (Dahlberg 1995).

When discussing Knowledge Organization, Hjørland (2008) highlights the importance of his studies being based on assumptions that contribute to the organization of documents, works and concepts, given that it is an area that deals with the analysis of the nature and quality of processes and systems aimed at the organization of knowledge.

The author also defines two approaches to the organization of knowledge, one more focused on the intellectual organization of knowledge, and therefore

more restricted, and the other, more comprehensive, called the social organization of knowledge:

As an example, Hjørland (2003) mentions the use of the periodic table or the zoological taxonomy of Biology, whose intellectually organized knowledge constitutes the basis for indexing systems. The other approach [...] refers to the organization of professions and disciplines, dividing knowledge according to the area of activity and research. (Zammataro 2023, 33).

This means that the intellectual knowledge organization involves scientific theories and concepts, while the social knowledge organization uses these theories and concepts to establish processes, tools, and systems applicable to everyday life (Pinho 2009). In other words, the social knowledge organization is based on sociological models that explain the divisions of professions and, at the same time, the different approaches of scientific disciplines, which directly impacts the quality of knowledge organization processes and systems (Hjørland 2003).

The development of instruments, processes and products based on theoretical and epistemological bases contributed to the recognition of Knowledge Organization as a scientific discipline, as well as to its international institutionalization through the creation of ISKO, with Ingetraut Dahlberg as one of its main founders (Pinho 2009) of this historical trajectory.

2.1. ISKO's historical trajectory and the Italian chapter

ISKO's historical trajectory is directly related to the foundations of Knowledge Organization. Therefore, bringing ISKO's history into the discussion also means highlighting the history of Knowledge Organization. Martins and Moraes (2015) reinforce the relationship between Knowledge Organization and Library Science and Documentation, explaining, based on Pinho (2009), that American librarian Henry Evelyn Bliss was the first to formally use the term "knowledge organization" in works published in 1929 and 1933, respectively, *The organization of knowledge and the system of sciences* and *The Knowledge Organization in Libraries*. Bliss's publications gained notoriety and contributed to the widespread use of the term "knowledge organization" in information studies (Martins and Moraes 2015). His work even influenced the name given to the institution that would later dedicate itself to research related to knowledge organization: the International Society for Knowledge Organization (ISKO).

With Ingetraut Dahlberg as one of the main creators of the society, ISKO contributed to giving KO a scientific and disciplinary character and expanding the studies that until then were carried out within the scope of the Society for Classification, also founded by Dahlberg, in 1977:

The International Society for Knowledge Organization (ISKO) was founded

in 1989 by Ingetraut Dahlberg with 9 colleagues, splitting from the existing Gesellschaft für Klassifikation. It is devoted to theory and practice of organizing knowledge, especially by intellectually-developed knowledge organization systems such as classification systems and thesauri. Research themes include general classification, interoperability, domain analysis, facet analysis, epistemology and information retrieval. (Szostak and Ohly 2020)

Thus, ISKO came to encompass phenomena that went beyond mathematical or statistical approaches, by bringing philosophical and conceptual perspectives to the debates, fostering research on conceptual, methodological and applied aspects of the organization of knowledge, and fundamental for the scientific recognition of the area, thus strengthening relations between researchers around the world:

«The establishment of ISKO and the scientific investment of researchers in the theories of this domain of study in the field of Information Science therefore contributed to the advent of a research area and, consequently, of a discipline that promotes the research, development and applications of conceptual knowledge organization systems, as well as the study of philosophical and semantic aspects related to conceptual organization and the dynamics of knowledge» (Santos, Neves and Souza 2019, 101).

On its official website, ISKO explains itself as an «international academic society dedicated to the theory and practice of knowledge organization» (ISKO n.d.). The website also promotes one of its main scientific communication channels, the journal *Knowledge Organization*, with eight regular publications per year.

Within the scope of its activities, there is also collaboration and the promotion of partnerships between the institution and several organizations, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Federation of Library Associations and Institutions (IFLA), the American Society for Information Science and Technology (ASIS&T), in addition to dialogue with the Classification Research Group (Silva 2017). The website's homepage also provides information about ISKO chapters as an important means of giving the society global reach.

The chapters play an important role in the visibility of ISKO among the scientific community and currently number 15, namely: Brazil; Canada/United States; China; France; Germanic (comprising Germany, Austria and Switzerland); India; Iran; Italy; Netherlands (comprising Belgium, the Netherlands and Luxembourg); Maghreb (comprising Algeria, Morocco and Tunisia); Poland; Singapore; Iberian (comprising Portugal and Spain); United Kingdom; Africa (ISKO n.d.).

Within this framework, there is the ISKO Italy chapter, active since 2004, dedicated to developing research projects and organizing meetings and study days among ISKO members and between its members and individuals from

other institutions. Furthermore, it seeks to strengthen contacts between researchers wishing to develop theoretical or applied studies in Knowledge Organization (ISKO n.d.). Its objectives include collaborating: «with professional associations, universities, and research institutions interested in knowledge organization, including AIDA: Italian Association for Advanced Documentation and GRIS: AIB Subject Indexing Research Group» (ISKO n.d.).

There is also a discussion group that ISKO members can join, the purpose of which is to «strengthen the network of contacts among those interested in these topics» (ISKO n.d.). The group disseminates the results of conferences and other events, both Italian and foreign, related to Knowledge Organization. The meetings held by ISKO Italy to date are listed in Table 1.

Meeting place	Year
University of Milan - Bicocca, Milan	2005
University of Milan - Bicocca, Milan	2006
University of Milan - Bicocca, Milan	2007
University of Turin, Turin	2009
Ca' Foscari University of Venice, Venice	2011
National Central Library of Florence, Florence	2013
University of Bologna, Department of Mathematics, Bologna	2015
University of Bologna, Department of Mathematics, Bologna	2017
National Central Library of Florence, Florence	2019
Department of Music and Cultural Heritage of the University of Pavia, Cremona campus (<i>online event</i>)	2021
Look beyond conference, Sapienza University of Rome	2023
Department of Culture, Education and Society, University of Calabria, Rende, Cosenza	2025

Table 1. Meetings promoted by ISKO Italy. Source: Elaborated by the authors based on (ISKO n.d.)

ISKO Italy chapter has big importance in the dissemination of research developed within the scope of the Knowledge Organization, both national as internationally, contributing to broaden discussions in the area.

3. The domain and its dimensions

The studies of the dimensions that can characterize a domain, proposed by Hjørland and Hartel (2003), were encouraged by the existence of the pragmatic approach called Domain Analysis (DA), presented for the first time in the field of Information Science by Hjørland and Albreschtsen (1995), with

the aim of better understanding the phenomena related to information in its respective domain and in its relationship with discursive communities.

DA brings a socio-epistemological perspective to Information Science and Knowledge Organization research, emerging as an alternative approach to the physical and cognitive paradigms that prevailed until the late 1980s. The approach contributed to the emergence of the relationship between discourse communities and their distinct domains, standing out as the only one to consider epistemological issues in the field of Knowledge Organization (Hjørland 2008). Thus, research involving domains within the scope of Knowledge Organization, according to Hjørland and Albreschtsen (1995), is considered «the best way to understand information, using discourse communities and their role in society» (Freitas and Albuquerque 2017, 2).

Barité (2015) explains that DA aims to represent knowledge by defining the conceptual structure of a field. Its application requires identifying domain-specific problems through quantitative, qualitative, or both surveys. The author adds that these methodologies serve both to build and to review and evaluate knowledge organization systems and structures.

Hjørland and Albreschtsen (1995) did not present an exact definition of the concept of domain; however, the literature provides some ways to understand it. According to Mai (2005, 605), a domain can be «an area of expertise, a corpus of literature, or a group of people working together in an organization». Amorim and Café (2017, 82) explain that a domain: «Can be delimited by a group of users, a discipline, a company, or a broad field of knowledge, endowed with informational needs and constituted by paradigms, traditions, and schools that define their theories». Hjørland (2017) emphasizes that domains establish relationships with the purpose of the research and with the researcher themselves, being modified with each new point of view, given their mutable nature.

Aiming at a better understanding of the domains under study and their implications for KO, Hjørland and Hartel (2003) proposed a characterization based on three dimensions: ontological, epistemological and sociological.

The authors state that the ontological dimension refers to elements of reality, seeking to explain how it is structured by defining terms involving areas, fields of knowledge, objects of study, problems, and domains. Thus, ontology is closely related to metaphysics, raising questions about the nature of the objects studied.

As one of the orientations involving the phenomenon of classification in contemporary times, Pombo (1998) highlights, based on Diemer (1974), the ontological orientation, also called by the author as *classification of beings*. The ontological orientation, according to Pombo (1998), refers to the way in which beings and phenomena are classified in the sciences, referring from the studies developed by Aristotle, to more recent research, whose domains de-

pend directly on the classification of beings, of human or natural phenomena, «such as biology, geology, cosmology, anthropology or psychological typology» (Pombo 1998, 2).

Aristotle, for example, in his work *Organon*, established 10 categories to represent elements of reality, seeking to guide the division made by the human mind. According to Burke (2003): «Aristotle had exposed a system of 10 general categories (substance, quantity, quality, relation, place, time, position, condition, action and passion)».

Aristotle's categorization greatly influenced studies developed over the centuries, reflecting how human and natural elements and phenomena could be organized and structured. Hjørland and Hartel (2003) highlight, in this sense, the theory of chemical elements as a major advance for humanity, since it used ontology to model chemical knowledge in a structured manner, listing the elements, their properties, and reactions. Thus, according to the authors, when ontological issues are addressed within the domains, questions such as, «areas, domains, elements, fields, types, objects, problems, subjects [...], topics» can be addressed (Hjørland and Hartel 2003, 239-240). These studies, by contributing to the understanding of how reality is structured, enable the development of instruments, processes and organizational systems, such as classification systems, thesauri and taxonomies, thus relating to a more applied sense of KO studies.

Because it involves the elaboration of theories and the study of paradigms, philosophies and schools of thought, the epistemological dimension, in the conception of Hjørland and Hartel (2003), is considered of extreme importance in Information Science, referring to: «the study of knowledge and the way in which knowledge is obtained, for example, the roles of observation, theoretical analysis, languages, traditions [...] and values in the production of knowledge» (Hjørland and Hartel 2003, 240).

Epistemological studies involve a reflection on knowledge, focusing on questions about how we acquire it, what the limits of human knowledge are, and how we construct it, including supporting scientific arguments and theories.

Considering the traditional approach, epistemology is the study of knowledge or gnosiology. On the other hand, there is a specific approach that presents epistemology as the critical study of the principles, hypotheses, and knowledge production of various sciences, looking more closely at the cognitive structure of scientific knowledge, values, and objectives. More than that, epistemology is concerned with the characteristics of scientific knowledge, its delimitations, and methodological processes in each domain (Araújo 2012 *apud* Araújo 2024, 141).

The epistemological dimension enunciates fundamental questions in the Knowledge Organization, among which are: «what are the necessary and suf-

ficient conditions of knowledge? What are its resources? What is its structure? And what are its limits? How do we understand the concept of justification? What makes beliefs justified, justified?» (Araújo 2024, 145). Thus, when considered in the context of Knowledge Organization, epistemological questions can underpin their theories and methods, referring to how to represent, organize and retrieve information (Hjørland 2002), concerning «approaches, metatheories, movements, paradigms, philosophies [...], regimes [...], schools [...], systems [...], traditions [...], trends» (Hjørland and Hartel 2003, 242). These questions contribute to elucidating problems related to the domain in question, helping to theoretically and methodologically support studies of KO for the development of Knowledge Organization System (KOS), aiming to meet the domains and their specificities.

Hjørland and Hartel (2003) describe four epistemological schools that can be appropriated by the epistemological dimension of the domains: empiricist, rationalist, historicist and pragmatist, whose meanings are expressed in Table 2.

Empiricist	Rationalist	Historicist	Pragmatist
Characterized by what is observable and can be experienced through experience. It therefore values observation and experimentation.	It is characterized by the idea that true knowledge must derive from reason and not from sensory experience. Universal truths, in this sense, can be reached through logical and deductive thinking.	Knowledge is conditioned by the historical context, valuing the understanding of contextualized knowledge and rejecting absolute and universal truths.	In pragmatism, knowledge is valid when applicable to reality, producing tangible and concrete effects. In this school of thought, knowledge is dynamic and constantly changing.

Table 2. Epistemological schools that can characterize the domain statements. Elaborated by the authors based on Hjørland and Hartel (2003).

These schools of thought, as highlighted by the authors, can elucidate some epistemological positions that can be adopted in the field of Information Science, influencing the development of instruments, processes and products of Knowledge Organization.

The sociological dimension, more comprehensive, refers to the way in which knowledge is organized, represented, acquired, sought and used by society and therefore involves concepts such as specialties, discursive and epistemic communities, disciplines, and even characteristic segments of everyday social life, such as hobbies (Hjørland and Hartel 2003).

For Hjørland and Albrechtsen (1995), the sociological dimension is central to Domain Analysis, since knowledge domains and discursive communities

are part of the social division of labor. Thus, it is assumed that knowledge is constructed collectively, within social, professional, or academic communities, and that domains can be understood from organized social contexts, with their own values, objectives, and shared practices that will shape the production, organization, and use of information.

Hjørland and Hartel (2003) highlight the importance of social interactions in the epistemological construction of domains and, to this extent, the interrelationship of these three dimensions: «We can say that an ontological principle constitutes an intellectual way of organizing knowledge, while a sociological principle constitutes a social way of organizing knowledge» (Hjørland and Hartel 2003, 243). Thus: «the study of a given domain necessarily involves the use of these three dimensions so that it can be thought and organized, and, in the scope of Information Science and Knowledge Organization, the combination of these three dimensions is fundamental» (Zammataro 2023, 127).

The complex interaction between the three dimensions of the domains, characterized by Hjørland and Hartel (2003) in the studies of Information Science and Knowledge Organization, is reinforced.

4. Analysis and discussion of results: the dimensions of the domains in the ISKO Italy themes

According to the methodology, the presentations were read in full, allowing for an analysis that highlights the main points, with emphasis mainly on the topics covered.

The analysis of the 43 papers presented at the meetings studied falls within the pre-analysis stage of content analysis (Bardin 1977), followed by the development of hypotheses based on this stage. Subsequently, exploration was carried out by identifying attributes that allowed us to identify the dimensions of the domains that prevail in these papers for subsequent categorization and inference.

Finally, the results were processed, which allowed the following categories to be determined: ontological dimension; epistemological dimension and sociological dimension and their respective inferences within the scope of the meetings.

It is noteworthy that, due to the relational nature of the proposed dimensions, some presentations were identified in more than one domain.

4.1. Regarding the ontological dimension

Table 3 presents an overview of the themes, followed by their analyses categorized in the ontological dimension.

MEETINGS	TITLE AND AUTHORS	ANALYSIS OF PRESENTATIONS
8th ISKO Italy, 2017, Bologna	Knowledge Organization for Digital Infrastructures and Application of Dahlberg's ICC in a LOD Environment, by Ernesto William De Luca	The presentation demonstrated how the <i>Information system Coding Classification</i> (ICC), created by Ingtraut Dahlberg, is applied in a Linked Open Data (LOD) environment at the Georg Eckert Institute (GEI), an educational media institute located in Leibniz, Germany. In his talk, De Luca demonstrates the challenges of ensuring that book searches, for example, are effective and meet informational needs.
8th ISKO Italy, 2017, Bologna	Creating CC Numbers for Literary Works from LOD, by Carlo Bianchini	The work demonstrated the functioning of <i>Colon Classification</i> (CC) from the creation of class numbers in a faceted classification scheme and how it relates to Linked Open Data (LOD) when indexing, by subject, in a faceted classification scheme.
8th ISKO Italy, 2017, Bologna	APUPA: Twilight in the Sources of <i>Marketing</i> and Knowledge Organization, by Luca Giusti	The presentation dealt with the APUPA model, created by Ranganathan, presenting a trajectory of the studies carried out by the Indian and how APUPA works.
8th ISKO Italy, 2017, Bologna	Representing Subjects in the IFLA LRM Model, by Pino Buizza	The representation of subjects was addressed based on the standard proposed by the Library Reference Model (LRM) of IFLA (International Federation of Library Associations) and Institutions).
8th ISKO Italy, 2017, Bologna	Representing CDD classes with computationally cheap codes, by Mauro Bertani	The work proposed the use of a classification system that employs knowledge of the faceted classification and the Dewey Decimal Classification, using a Dewey number as a single facet.
8th ISKO Italy, 2017, Bologna	Developing SciGator Facets, by Claudio Gnoli	SciGator research interface (http://scigator.unipv.it/) works, demonstrating how it is based on the CDD, and that a new version called <i>SciGator Facets</i> was developed based on <i>Colon Classification</i> (http://scigator.unipv.it/cc/).
9th ISKO Italy, 2019, Florence	Classification and <i>linked data</i> to the library: the case of the CDU, by Aida Slavic	The speaker addressed the UDC and the use of linked data within libraries, showing how they work, and explained how <i>linked data</i> allows access to information based on identification with other library catalogs or other records and how it makes it possible to link data within a bibliographic description such as author's name, title and publisher, for example, in addition to enabling free access to each of these described data, relating them semantically to resources on the <i>Web</i> .
9th ISKO Italy, 2019, Florence	Knowledge Organization for Digital Infrastructures and Application of Dahlberg's ICC in a LOD Environment, by Ernesto William De Luca	The presentation demonstrated how the <i>Information system Coding Classification</i> (ICC), created by Ingtraut Dahlberg, is applied in a Linked Open Data (LOD) environment at the Georg Eckert Institute (GEI), an educational media institute located in Leibniz, Germany. In his talk, De Luca demonstrates the challenges of ensuring that book searches, for example, are effective and meet informational needs.
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10th ISKO Italy, 2021, Cremona (online)	Organizing Knowledge about Allergies, by Marcin Trzmielewski	Trzmielewski presented part of his doctoral research, seeking to demonstrate what the structure of a knowledge organization system (KOS) would be like based on the needs of allergists, in order to monitor and improve their work practices.
10th ISKO Italy, 2021, Cremona (online)	Updating the SciGator interface, by Giorgia Lottici	SciGator search system was discussed, explaining how the system has been updated over the years with the aim of improving searches in the University of Pavia library by users.
10th ISKO Italy, 2021, Cremona (online)	Automatic Classification with Linked Open Data, by Carlo Bianchini	It dealt with the operation of a tool for the automated classification of authors and literary works through a multifaceted classification and using Linked Open Data.
11th ISKO Italy, 2023, Rome	Indexing of Non-Textual Materials, by Athena Salaba	It addressed the indexing of non-textual materials, such as images, videos, and music, and the challenges of indexing these types of records, addressing the complexity of indexing and its inability to capture the full meaning of a work, concluding that it is possible to seek more precise and ethical ways of representing these contents to facilitate access and understanding by users.
11th ISKO Italy, 2023, Rome	Product Image Content Representation Model in Electronic Environment (MRCIP), by Gislene Rodrigues & Célia Dias	The authors presented a proposed conceptual model that can help brands and small entrepreneurs effectively represent product images used in e-commerce environments, favoring digital marketing and consumer purchasing decisions.
11th ISKO Italy, 2023, Rome	Broni's Curtain: Organizing Knowledge Beyond Books, by Claudio Gnoli	The author discusses knowledge organization (KO) theoretically, highlighting its potential for indexing diverse objects beyond books, such as works of art and cultural elements that convey information. He analyzes the curtain of the 19th-century Broni Theater, proposing the use of phenomenon-based classifications, better suited to the interdisciplinary and multimedia nature of these objects.
11th ISKO Italy, 2023, Rome	Michela Grossi, Roberta Schiavone, Beyond the Score: Indexing Noted Music for Performance	The presentation investigated the informative potential of semantic indexing of musical resources focused on performance, understood as execution and access to music, highlighting the Nuovo Soggettario as an appropriate tool and suggesting the enrichment of the Thesaurus with musical terms based on collaboration between librarians and specialists.
11th ISKO Italy, 2023, Rome	Strings and their semantics: the treatment of subjects in entity modeling processes, by Tiziana Possemato	The author analyzed the transition from traditional cataloging to entity modeling, highlighting the need for a conceptual shift in information processing and management. The paper also discusses the challenges of using owl:sameAs to connect identities across different databases and proposes, as a possible solution, the construction of "semantic chains" to capture the meaning of terms across heterogeneous sources.

<p>11th ISKO Italy, 2023, Rome</p>	<p>Subject indexing in the ICCU Alphabetica portal, by Valentina Atturo</p>	<p>The study analyzed subject indexing on the Alphabetica portal, highlighting the use of a concept map that presents a list of terms related to the keyword search; a diagram centered on a term (initially the first in the list); and a detailed list with the number of results and the digital consistency of the selected term. The terms in the diagram, extracted from the BNCF thesaurus, include the central term, related terms, and specific terms, whose relevance is indicated by the number of associated records.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>Automatic subject indexing: testing the Annif software for the Italian language, by Lorenzo Gobbo</p>	<p>The paper presented the results of training Annif, the National Library of Finland's automatic indexing tool, adapted for Italian. The author explained that to improve its performance, it is necessary to create a complete version of the SKOS vocabulary in Italian, and that the widespread adoption of automated systems and an initial collaborative effort would favor interoperability across different contexts and frameworks.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>'Cataloging' experts by competencies: the Digital University project, by Vincenzo Maltese</p>	<p>The author presented the experience of the University of Trento in the Digital University project, which resulted in a system to index and locate experts by their skills, using a controlled vocabulary with around 3,000 concepts in Italian and English and managed according to Ranganathan's analytical-synthetic approach.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>Bibliography: Open Data and BIBFRAME, by Andrea Marchitelli (EBSCO)</p>	<p>The work focused on BiblioGraph, an EBSCO linked data technology that transforms library catalogs into web-accessible resources. Based on BIBFRAME, it connects people, topics, works, and publishers, facilitating content discovery. The tool also offers automatic reports that monitor catalog usage via the web.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>Author tagging: potential and limits of keywords in professional scientific production, by Alessandra Moi, Andrea Marchitelli and Carlo Bianchini</p>	<p>The study analyzed changes in subject indexing in libraries with the advent of digital technologies and the web, highlighting the replacement of controlled systems with free practices, such as author-specific keyword selection. The focus is on the impacts of this freedom on information retrieval, especially in scientific publications, and the challenges it poses to the effectiveness of this process.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>Subject indexing of photographic images: proposals and models, by Margherita Naim</p>	<p>The presentation addressed the subject-specific indexing of photographic images, highlighting that, despite its importance, this topic is little explored in the specialized literature. The central idea is that indexing photographs requires specific criteria, different from those used for texts, and must follow controlled standards, such as vocabularies and thesauruses.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>Between Textuality and Iconology: Insights on Subject Indexing in Maps, by Anna Lucarelli and Elisabetta Viti</p>	<p>The presentation addressed map indexing in libraries, highlighting the increased interest in these materials with digitization and the need for standardization in information description and retrieval. The authors explain that thematic indexing requires attention to aspects such as visual emphasis, different media, and toponyms. To ensure consistency, the use of controlled vocabularies, such as Nuovo Soggettario (New Soggettario), is essential.</p>

11th ISKO Italy, 2023, Rome	Navigating an ocean of content: subject indexing of sound and audiovisual resources in ICBSA, by Antonella Fischetti	The paper addressed the transformations and challenges in cataloging and semantically describing sound and audiovisual materials, especially in the context of technological advancement and digitalization. The author highlighted that, in the digital context, semantic indexing has become an indispensable tool for quality access to sound and audiovisual materials, challenging professionals to develop increasingly precise and technically advanced descriptions.
11th ISKO Italy, 2023, Rome	Indexing of subjects of normative acts, by Ignazio Pirronitto	The presentation addressed the importance of subject-specific indexing of normative acts, such as laws and resolutions, emphasizing that, despite not being books, these documents should be included in knowledge organization systems to ensure their effective retrieval. The Nuovo Soggettario was discussed, along with the ISO 5963:1985 standard, to ensure standardized descriptive methods, thus avoiding ambiguities.
11th ISKO Italy, 2023, Rome	From the local thesaurus to the new subject list: subject indexing of photographs and postcards at the Gambalunga Civic Library in Rimini, by Mara Sorrentino	The presentation addressed the Gambalunga Civic Library's work in modernizing its photography collection, which boasts over 1.5 million images, highlighting the adoption of standards such as Nuovo Soggettario to improve the organization, access, and interoperability of its content. In short, the Library combines preservation and standardization to expand the use and sharing of its collection in national and international contexts.
11th ISKO Italy, 2023, Rome	Search and navigation features of the new Biblioteche Oggi Trends platform, by the Biblioteche Oggi Trends editorial team	It dealt with the periodical "Biblioteche Oggi Trends", which since 2021, has adopted a hybrid format, combining the traditional printed version with an improved digital edition, with the aim of providing a more interactive reading, with multimedia content and hyperlinks, in addition to expanding the freedom of authors in the use of unconventional sources.

Table 3. Categorization of ISKO Italy's themes in the ontological dimension. Elaborated by the authors based on survey data (2025).

The ontological dimension considers the nature of the objects of study within a knowledge domain. Presentations in this category demonstrate themes focused on the identification, definition, and development of processes, instruments, and products central to the development of a domain. The themes cover thesauri, classification systems, indexing, the use of platforms, and how concepts relate to each other in this universe. They consider different knowledge registers, such as music, videos, and photographs, and refer to the role of users, grounded in ontologies specific to the knowledge domain.

Thus, ontological commitment refers to the principle that scientific knowledge requires rigor and constant investigation of the very objects it studies. This dimension demonstrates that research objects play a decisive role in defining and delimiting a domain and that, if well observed and processed, they have repercussions on the conceptual configuration of these domains. Therefore, a rigid, pre-established ontology cannot be conceived for all domains since this ontology is constructed historically and dynamically (Hjørland 2004).

To visualize the themes, a word cloud was created with the words that emerged from the analysis (Fig. 1), enabling a co-understanding of the orientation of the ontological dimension.

9th ISKO Italy, 2019, Florence	Remembering the work of Ingtraut Dahlberg, by H.-Peter Ohly	Work dedicated to the life and work of Dahlberg , highlighting his contributions to the development of classification systems.
9th ISKO Italy, 2019, Florence	APUPA: Twilight in the Sources of <i>Marketing</i> and Knowledge Organization, by Luca Giusti	The presentation dealt with the APUPA model, created by Ranganathan, presenting a trajectory of the studies carried out by the Indian and how APUPA works.
9th ISKO Italy, 2019, Florence	Developing ILC Classes for Mathematical Entities, by Daniele Pascal Morelli	It dealt with the relationship between the field of mathematical knowledge and the Organization of Knowledge, seeking to demonstrate how Mathematics can use theories and methods of the Knowledge Organization and, at the same time, how KO also uses Mathematics to develop its instruments and systems of knowledge organization, notably regarding the ILC system (<i>Integrative Levels Classification</i>).
10th ISKO Italy, 2021, Cremona (online)	Information Pyramids and Knowledge Organization, by Riccardo Ridi	The lecture discussed the concept of Knowledge Organization relating it to the perspective of the information pyramid DIK (data, information, knowledge) and DIKAS (data, information, knowledge, consciousness, self-knowledge).
10th ISKO Italy, 2021, Cremona (online)	Ahistorical-bibliographic paradigm for Library Science and Information Science, by Maria Teresa Biagetti	The author discussed her initial studies to define a historical-bibliographic paradigm for Information Science and Knowledge Organization, using as a basis an analysis of the European bibliographic heritage.
10th ISKO Italy, 2021, Cremona (online)	Explaining Ranganathan with Lattice Theory, by Mauro Bertani	The author presented a proposal for using Ranganathan's theory based on lattice theory, which is based on the idea that the same data can be perceived from different perspectives and that acts of knowledge determine the transition from one knowledge structure to another.
11th ISKO Italy, 2023, Rome	Broni's Curtain: Organizing Knowledge Beyond Books, by Claudio Gnoli	The author discusses knowledge organization (KO) theoretically, highlighting its potential for indexing diverse objects beyond books, such as works of art and cultural elements that convey information. He analyzes the curtain of the 19th-century Broni Theater, proposing the use of phenomenon-based classifications, better suited to the interdisciplinary and multimedia nature of these objects.

Table 4. Categorization of ISKO Italy's themes in the epistemological dimension. Elaborated by the authors based on survey data (2025).

The epistemological dimension considers the modes of production, theoretical validation, and how knowledge is structured within a domain. Thus, it discusses the theories, schools of thought, methods, paradigms, and models used to reflect on knowledge. Different domains may adopt different theoretical strategies, but the theoretical foundations that structure them must be clearly defined.

4.3. Regarding the sociological dimension

Table 5 presents an overview of the themes, followed by their analyses categorized in the sociological dimension.

MEETINGS	TITLE AND AUTHORS	ANALYSIS OF PRESENTATIONS
8th ISKO Italy, 2017, Bologna	Recovery put gender and form according to the Library of Congress and IFLA, by Anna Lucarelli	The retrieval models based on document format and genre applied by the US Library of Congress and also by the International Federation of Library Associations and Institutions (IFLA) were discussed, and how these models can facilitate access and retrieval of works by users.
10th ISKO Italy, 2021, Cremona (online)	Organizing Knowledge about Allergies, by Marcin Trzmielewski	Trzmielewski presented part of his doctoral research, seeking to demonstrate what the structure of a knowledge organization system (KOS) would be like based on the needs of allergists, in order to monitor and improve their work practices.
10th ISKO Italy, 2021, Cremona (online)	Updating the SciGator interface, by Giorgia Lottici	SciGator search system was discussed, explaining how the system has been updated over the years with the aim of improving searches in the University of Pavia library by users.
10th ISKO Italy, 2021, Cremona (online)	Cognitive Aspects of Human Research, by Marcia Bates	She discussed the user experience when using search systems, highlighting the importance of thinking about classification and indexing systems considering the cognitive aspects and the needs of human beings in the construction of these systems.
11th ISKO Italy, 2023, Rome	Indexing of Non-Textual Materials, by Athena Salaba	It addressed the indexing of non-textual materials, such as images, videos, and music, and the challenges of indexing these types of records, addressing the complexity of indexing and its inability to capture the full meaning of a work, concluding that it is possible to seek more precise and ethical ways of representing these contents to facilitate access and understanding by users.
11th ISKO Italy, 2023, Rome	Product Image Content Representation Model in Electronic Environment (MRCIP), by Gislene Rodrigues & Célia Dias	The authors presented a proposed conceptual model that can help brands and small entrepreneurs effectively represent product images used in e-commerce environments, favoring digital marketing and consumer purchasing decisions.
11th ISKO Italy, 2023, Rome	Classifying fashion's heterogeneous cultural heritage, by Elisa Tosi Brandi	The presentation addressed the preservation of sources linked to fashion heritage, highlighting that good cataloging practices in public institutions can guide this field, related to Archival Science, Library Science, and Museology, seeking to raise awareness among specialists about the importance of managing and classifying this diverse cultural heritage.
11th ISKO Italy, 2023, Rome	Author tagging: potential and limits of keywords in professional scientific production, by Alessandra Moi, Andrea Marchitelli and Carlo Bianchini	The study analyzed changes in subject indexing in libraries with the advent of digital technologies and the web, highlighting the replacement of controlled systems with free practices, such as author-specific keyword selection. The focus is on the impacts of this freedom on information retrieval, especially in scientific publications, and the challenges it poses to the effectiveness of this process.

<p>11th ISKO Italy, 2023, Rome</p>	<p>Indexing of subjects of normative acts, by Ignazio Pirronitto</p>	<p>The presentation addressed the importance of subject-specific indexing of normative acts, such as laws and resolutions, emphasizing that, despite not being books, these documents should be included in knowledge organization systems to ensure their effective retrieval. The Nuovo Soggettario (New Soggettario) was discussed, along with the ISO 5936:198 standard, to ensure standardized descriptive methods, thus avoiding ambiguities.</p>
<p>11th ISKO Italy, 2023, Rome</p>	<p>Search and navigation features of the new Biblioteche Oggi Trends platform, by the Biblioteche Oggi Trends editorial team</p>	<p>It dealt with the periodical “Biblioteche Oggi Trends”, which since 2021, has adopted a hybrid format, combining the traditional printed version with an improved digital edition, with the aim of providing a more interactive reading, with multimedia content and hyperlinks, in addition to expanding the freedom of authors in the use of unconventional sources.</p>

Table 5. Categorization of ISKO Italy’s themes in the sociological dimension. Prepared by the authors based on survey data (2025).

The sociological dimension presents itself as an important part in understanding how knowledge is shared, as it complements the previous dimensions and mainly refers to how subjects constitute their discourses based on ontological and epistemological studies, that is, it deals with how social structures and discursive communities participate in the production and construction of knowledge.

It reflects the influences of social practices, institutions, culture, politics, and economics on the domain and how, based on the dynamics of social formations, domains are structured in the conception of social subjects, researchers, institutions, and traditions.

In the sociological dimension, it is possible to perceive the notion of discursive community, as it is the group of organized people who share language, objectives and methods related to a domain.

The presentations allocated in this category demonstrate themes always permeated by the figure of the user, with intersections with digital systems, decision-making, information search and retrieval processes, indexing, information needs in specific domains and work practices.

To visualize the themes, a word cloud was created with the words that emerged from the analysis (Fig. 3), enabling an understanding of the orientation of the sociological dimension.



Figure 3. Word cloud from the analysis in the sociological dimension. Prepared by the authors based on research data (2025).

It can be inferred that the sociological dimension is central to the approach and understanding of the concepts presented by Hjørland and Hartel (2003), as it is from this dimension that knowledge is recognized as socially constructed and situated in a context.

4.4. Discussion

The analysis and mapping of the dimensions in the works made it possible to categorize each meeting, based on the dimensions of the domains of Hjørland and Hartel (2003) and the respective inference, from the categorization together with the dimensions that were present in these meetings, as a result of the research.

Furthermore, a trend toward research focused on the ontological dimension of domains was observed, with topics focusing on discussions of knowledge organization systems, the structuring of concepts to represent domains, and their application in diverse informational contexts. The epistemological dimension ranked second among the domain dimensions that prevailed in these presentations, with papers discussing theoretical and methodological aspects of Knowledge Organization. Some topics also highlighted a tangency between two domain dimensions, demonstrating the possibilities for discussion that consider applicable aspects of Knowledge Organization, together with its theories and the surrounding sociocultural context.

It is important to note the possibility of identifying all three dimensions in each of these studies. However, one or two dimensions were identified as having the most prominent characteristics. In the case of studies in which two dimensions were identified, it was decided to always mention the most

prominent dimension first and the other second. The quantification of the dimensions in each meeting is explained in Table 6.

MEETINGS	Ontological	Epistemological	Sociological	Epistemological and Ontological	Ontological and Sociological	Epistemological and Sociological	Ontological and Epistemological
8th ISKO Italy, 2017	7	1	0	1	1	0	0
9th ISKO Italy, 2019	6	2	0	1	0	0	0
10th ISKO Italy, 2021	1	3	1	0	2	0	0
11th ISKO Italy, 2023	9	0	0	1	5	1	1

Table 6. Quantification of the predominant dimensions in ISKO Italy meetings. Based on: Survey data (2025).

The categorization of the four meetings results in the identification of the predominance of the ontological dimension of the domains, indicating the presence of research focused on the functioning of knowledge organization tools and systems, their applicability and efficiency in information units.

The characteristics and profiles of the authors are considered, as well as the relationship between ISKO Italy’s programs and the interests and needs of its members, as they are also expressed in the conferences and works presented.

The identification of a second research trend, involving the ontological and sociological dimensions of the domains, also allows us to connect these results to studies dedicated to investigating approaches that consider a multidimensional view of Knowledge Organization, such as Golub (2014), who articulates four elements: *phenomenon, perspectives, documents, collections*.

In a complementary way, it is then observed that it is possible to discuss the results obtained in light of these layers (or levels) that can be identified in the field of knowledge organization (Golub 2014). The author discusses how the *phenomenon*, the different disciplinary/cultural *perspectives*, the *documentary* representation, and the context of *collections* impact access to and retrieval of information.

In dialogue with this perspective, Gnoli (2016) offers a more explicit discussion of the dimensions by observing how this structure places Knowledge Organization Systems (KOS) in a broader context within the dynamics of recorded knowledge, articulating three fundamental components in the domains of knowledge: The object, the intellectual form, and the medium of the documents, which refer respectively to the objects of knowledge, the theoretical ways in which they are approached, and the ways in which they are used by society.

Thus, it is understood that works in which the ontological dimension predominates focus on the nature of objects of knowledge, engaging with the *phenomenon* in Golub (2014), which is that which exists in the world and which will later be represented, such as concepts, objects, processes, and events.

In works where the epistemological dimension predominates, the influence of how each discipline produces its own way of understanding the phenomenon and how the materialization of knowledge occurs can be observed. In Golub (2014), these elements can be considered together with the dimensions of *perspectives* and *documents*, involving how knowledge is theorized, categorized, and structured, and also how documents are vehicles of knowledge, shaped by production practices, patterns, and languages, in which their form of presentation influences their interpretation.

In relation to works where the sociological dimension predominates, the highlighted elements can be considered in relation to how they are understood by communities, given that these discursive and epistemic communities change throughout history and reflect values, interests, and disputes. In Golub (2014), a *collection* is the organized set of documents within an institutional context, reflecting institutional policies, cultural priorities, group interests, and professional traditions. Furthermore, it is possible to consider that each collection establishes its own organizational schemes and metadata standards, defining the logic of how knowledge can be retrieved, involving the epistemological dimension.

Therefore, this correlation helps in understanding how these layers intertwine as phenomena (ontological layer), perspectives and documentary forms (epistemological layer), and institutional collections and practices (sociological layer) combine for the organization and representation of knowledge.

This reinforces, in addition to the multidimensional nature of Knowledge Organization, the possibilities of expanding the themes of the works presented beyond the ontological dimension of the domains, that is, giving equal emphasis to the theoretical and epistemological foundations of Knowledge Organization in research that considers the user, society, its cultural and political aspects, and its needs as the focus.

5. Conclusions

This study sought to contribute to the deepening of the debates that underpin Knowledge Organization, based on the discussion that promotes an analysis of the themes presented in the meetings studied here at ISKO Italy. The prevalence of research with characteristics in the ontological dimension was highlighted, with studies involving instruments and systems of knowledge organization, their functioning and effectiveness in libraries, museums and

archives, therefore categorized in the ontological dimension of the domains of Hjørland and Hartel (2003).

The scenario allows for discussions on prevalent themes, casting a critical look on ISKO itself as a space for stimulating scientific research, in order to make research visible in other dimensions, especially in the sociological dimension of the domains, of low incidence.

Studies like these are considered important strategies for perceiving how an area behaves in a given research context, thus creating a guiding point for understanding and reflecting on the Knowledge Organization as a whole in its discursive community.

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