Information Behaviour at ICBAS - School of Medicine and Biomedical Sciences: an approach to sustainable development in the business landscape

Andreia Carvalho
Hélder Ferreira
Inês Braga

Como citar: CARVALHO, Andreia; FERREIRA, Hélder; BRAGA, Inês. Information Behaviour at ICBAS - School of Medicine and Biomedical Sciences: an approach to sustainable development in the business landscape. *In:* TERRA, Ana Lúcia; FUJITA, Mariângela Spotti Lopes (org.). **Integrating Information Science for Sustainable Development:** Topics and Trends. Marília: Oficina Universitária; São Paulo: Cultura Acadêmica, 2025. p. 231-262. DOI: https://doi.org/10.36311/2025.978-65-5954-624-4.p231-262

Information Behaviour at ICBAS - School of Medicine and Biomedical Sciences: an approach to sustainable development in the business landscape

Andreia Carvalho [1]

Hélder Ferreira [2]

Inês Braga [3]

Abstract: The effective and efficient management of information is a fundamental aspect of organizational success, enabling the improvement of internal processes, the formulation of strategic decisions, and the rate of innovation while fostering continuous learning. Furthermore, sustainable development is becoming increasingly relevant in various sectors of society, particularly in business, as it aims at achieving a balance between economic growth, environmental preservation, and social well-being in the long run. Within this framework, the primary goal of this research is to address the issue of sustainable development to promote the adoption of environmentally friendly practices and to contribute to a more balanced and responsible future for the ICBAS - School of Medicine and Biomedical Sciences. The present study also analyses the role of information behaviour in supporting these aims, exploring how the acquisition, sharing, and use of

1 Porto Accounting and Business School (ISCAP), Porto, Portugal.
E-mail: andreiafilipadecarvalho@gmail.com | ORCID iD https://orcid.org/0009-0001-8326-7186

2 Porto Accounting and Business School (ISCAP), Porto, Portugal.
E-mail: helderflipferreira@gmail.com | ORCID iD https://orcid.org/0009-0000-3154-3903

3 Porto Accounting and Business School (ISCAP), Porto, Portugal.
E-mail: inesbraga@iscap.ipp.pt | ORCID iD https://orcid.org/0000-0001-5278-9363

https://doi.org/10.36311/2025.978-65-5954-624-4.p231-262

information lead to sustainable practices. The methodology employed is a case study, while the data collection technique is a survey conducted among employees of different hierarchical levels within ICBAS. Finally, this same study infers the conclusion that implementing efficient information management and positive information behaviour can lead to a reduction in the consumption of natural resources, including a decrease in the usage of paper and other materials, and process optimisation, which in turn can result in energy waste reduction. Furthermore, a collaborative approach between employees can be encouraged within the frame of a culture of knowledge sharing, promoting thus more sustainable practices, and support social and environmental responsibility initiatives.

Keywords: Information Management, Information Behaviour, Sustainable Development, Environmental Practices, Social Responsibility

Introduction

In the contemporary business environment, a pervasive issue affects all organisations: the lack of effective information management. This is a crucial aspect of organisational success, yet it needs to be noticed and is frequently overlooked and not a priority for managers in any organisational context. Another problematic situation is the widespread absence of practices related to sustainable development, which have clear benefits in the business sphere. In light of the numerous challenges currently facing companies, there is a pressing need to line up operational strategies with sustainable practices.

Indeed, effective information management is widely acknowledged as a fundamental key point for organisational success, playing a crucial role in optimising internal processes, formulating strategic decisions, and fostering innovation and continuous learning. Moreover, an understanding of how individuals seek, use, and share information is equally critical. In the context of a global scenario that is increasingly focused on finding a balance between economic growth, environmental preservation, and long-term social well-being, the implementation of best practices in both areas assumes even greater significance.

In the present research, these issues are theoretically framed and addressed in an empirical case study of Instituto de Ciências Biomédicas Abel Salazar ICBAS-UP, School of Medicine and Biomedical Sciences of the University of Porto, which is not exempt from the problematic organisational scenario described above. This educational and research institution, which has a crucial role in the training of professionals and the generation of knowledge, aims to fulfil its mission sustainably, to impact not only the academic community but also the wider environment and society.

Considering the issues, the overarching objective of this investigation is to examine the implementation of sustainable development at ICBAS, with the main focus on both information management and information behaviour. Consequently, we aim to ascertain whether institutional growth is accompanied by sustainable practices, ensuring that excellence aligns with ecological and social well-being in the context of the rapidly evolving business landscape.

Given that ICBAS – a reference institution in the health sector – has the potential for beneficial changes, this study aims to contribute suggestions that can improve both information management and sustainable growth. By understanding and enhancing how information is managed and how individuals interact with information, we can foster a culture of knowledge by sharing its promotion of sustainable practices and supporting social and environmental responsibility initiatives.

The research is based on a methodology survey to examine the challenges experienced by this institution in its sustainability efforts. This underscores the importance of balancing institutional growth with sustainable practices, ensuring that excellence lines up with ecological and social well-being in today's increasingly evolving business environment. A survey was administered to a sample of sixty ICBAS employees from different hierarchical levels to obtain a deeper understanding of their perspectives and information behaviour concerning the sustainability challenges faced by the institution. The aim of this approach allows a comprehensive analysis of how information behaviour influences and supports the adoption of sustainable practices within the organisation.

Literature Review

Regarding the importance of theoretical support for academic research, we start by contextualising sustainability, a broad topic that requires good information management and adequate information behaviour on the part of different types of information system users. It is widely acknowledged that information resources play a central role in navigating the complexities of contemporary business.

In this context, it becomes evident that an approach based on accurate and reliable information is fundamental both to understand and address the complex challenges associated with sustainability. Effective information management and appropriate information behaviour play an important function in enabling different stakeholders to access relevant information, critically evaluate it, and make informed decisions.

Finally, the view of several authors, who argue that the synergy between information effectiveness and sustainable development is not only possible but also crucial for the sustainable progress of institutions, is also shared. This alignment enables organizations to formulate and execute policies, strategies, and practices that foster sustainability across diverse organisational environments. By lining up goals aimed at informational efficiency with the principles of sustainability, organizations can not only mitigate costs and risks, but also cultivate long-term value for stakeholders, compromising employees, customers, communities, as well as the environment.

Sustainability

A wide range of research has been conducted to explore and outline the concept of sustainability. However, a significant proportion of these studies have been constrained in their interpretation of the concept, while others have expressed that its essence can only be made clear by examining numerous interconnected dimensions that collectively constitute its meaning (Kotob, 2011, p.2). Sarkis et al. (2001) observed that the existing literature on operation management tends to consider sustainability from an ecological perspective, without incorporating its social aspects. This perspective is of great importance, as it enables a clear understanding of the limitations of the traditional approach to operational sustainability. Carter and Rogers (2008) propose that sustainability should be analysed not only in its economic, social, and environmental dimensions, but also by integrating business elements such as risk management, transparency, strategy, and culture. Thus, a more holistic and comprehensive view is provided.

The Brundtland Commission (1987) defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Established in 1983, the World Commission on Environment and Development (WCED) was tasked with addressing global environmental challenges and later became known for this influential definition of sustainable development. This concept prioritises meeting the basic needs of the world's poorest populations, while recognising the environmental limits imposed by technology and social conditions. It calls for a balance between economic and social progress, focusing on the fair distribution of resources and intergenerational equity, ensuring that the benefits of development are accessible to all without compromising future capabilities.

In this context, Rahman et al. (2022) emphasise that the term "sustainability" encompasses a wide and often ambiguous range of concepts, touching on socioeconomic and environmental dimensions. They highlight that organisational sustainability has become a critical consideration for modern businesses in current discussions about effective development and long-term viability.

While organisations have expanded their capacity to address sustainability issues, the above mentioned authors caution against assuming that sustainability is always a top priority, especially during economic downturns.

In essence, sustainability is the capacity to maintain a process over an extended period. Within the frame of business and policy, the overarching aim of sustainability is to mitigate the depletion of natural or physical resources, ensuring their long-term availability. These sustainability efforts are commonly categorised in three pillars: environmental, social, and economical. The environmental aspect of sustainability concerns the impact of a business on the environment, emphasising responsible resource usage, pollution reduction, and conservation efforts. The social pillar of sustainability pertains to the societal effects of a business, encompassing considerations such as community welfare, labour practices, and the promotion of social equality. Finally, the economic pillar of sustainability emphasises the preservation of natural resources—both renewable and exhaustible—that serve as vital input for economic production.

By clarifying these three pillars, the concept of sustainability provides a comprehensive framework for companies, enabling them the ability to manage their environmental, social and economic responsibilities, promoting a harmonious and sustainable approach to their operations.

Information Management and Information Behaviour

Effective information management and understanding information behaviour are crucial aspects of organisational success. Information management involves the organisation, control and optimisation of the access, besides the usage and dissemination of information within an organisation. It encompasses a range of processes related to the effective collection, storage, processing, retrieval and dissemination of data to support operational activities and decision-making. In their 2016 publication, Laudon and Laudon (2016) define information management as "a set of processes, activities, methods, and policies designed to provide an organization with the information it needs to achieve its objectives."

Expanding on this perspective, Ravi (2011) emphasises the crucial role of integrating technological innovations and strategic processes into effective information management. He argues that this integration not only ensures data protection and regulatory compliance, but also aligns information management efforts with organisational objectives. By taking advantage of information technologies and related tools, organisations can effectively generate, organise, store and disseminate information to relevant stakeholders, ultimately optimising the use of resources and improving overall operating result.

Davenport & Beers (1995) argue that effective information management requires a convergence of people, processes, and technology. This convergence includes implementing the appropriate tools and systems, as well as establishing policies and procedures to regulate the usage and dissemination of information. The effective management of information facilitates improvements in decision-making, productivity, and the competitive advantage of organisations in the current data-driven business environment. With the framework of professional context, identifying information needed to address both internal and external requirements is paramount. Nevertheless, information management alone is not sufficient. Understanding information behaviour - how individuals seek, use, and share information - is equally important.

Information behaviour refers to the conduct that individuals adopt in the realm of information. Tom Wilson (1999) presents a theoretical conceptualization that enables the understanding of users' information-seeking behaviour in a digital framework, linking it to patterns of human information behaviour. The existence of search engines and information retrieval systems is vital, as they assist users in locating relevant information. It is of the utmost importance to assess the quality and reliability of the information obtained, particularly in a digital environment where information can be easily altered and diffused (Wilson, 1999).

Gasque and Costa (2010) define information behaviour as encompassing all human behaviours related to information, including research, usage of both sources and information channels. Davenport and Prusak (1998) define information behaviour as a set of actions, including research, application, modification, exchange, and storage of information. Casarini and Oliveira (2012) add that information behaviour pertains to how one deals with information, encompassing its own methods of research and usage.

Connecting these concepts, effective information management must consider and support information behaviour within the organization. An understanding of how employees use and share information is crucial for the design of systems and processes that facilitate better information flow and usage. Information behaviour informs the development of document management systems, knowledge bases, guidelines for information sharing, and collaborative technologies.

Choo (1998) notes that information sources can be both formal and informal. Formal sources include databases, scientific journals, institutional reports, standards, and regulations. Informal sources encompass networks of contacts, electronic messages, informal knowledge exchanges, and information obtained through everyday interactions, social networks, and other similar avenues.

To optimise information management practices, it is essential to identify and comprehend the information produced and received by the institution. This encompasses a vast array of documents, including internal documents, project reports, memoranda, emails, and announcements. An understanding of the nature and content of this information enables the implementation of appropriate management strategies.

Aligning information management with information behaviour is crucial for organisations to effectively meet their needs. By optimising the production, storage, and sharing of information, organisations can enhance knowledge sharing, improve operational efficiency, and support sustainable practices.

Information Management and Information Behaviour: Key Elements for Organizational Success and Sustainability

Effective information management and understanding of information behaviour are fundamental for organizational success. Information management involves organizing, controlling, and optimizing the access, use, and dissemination of information within an organization. It encompasses processes such as collection, storage, processing, retrieval, and dissemination of data to support operational activities and decision-making (Laudon & Laudon, 2016; Ravi, 2011). This paper explores the integration of these concepts and their alignment with sustainability practices, emphasising their synergistic effect on organizational efficiency and long-term viability.

According to Laudon and Laudon (2016), information management comprises a set of processes, activities, methods, and policies designed to provide organizations with the necessary information to achieve their objectives. It encompasses the entire lifecycle of data within an organization, facilitating strategic decisions and operational efficiency through technological integration (Ravi, 2011). Effective information management requires a convergence of people, processes, and technology, supported by appropriate tools and policies to regulate information utilisation and dissemination (Davenport & Beers, 1995).

Understanding information behaviour is equally crucial as it dictates how individuals manage information within organizational contexts. Wilson (1999) provides a theoretical framework for digital information-seeking behaviour, highlighting the importance of information retrieval systems in facilitating access to reliable information. Information behaviour encompasses a spectrum of activities, from formal research to informal knowledge exchanges, influenced by organizational culture and contextual factors (Davenport & Prusak, 1998; Gasque & Costa, 2010; Casarini & Oliveira, 2012).

Organizational sustainability, encompassing environmental, social, and economic dimensions (Mollenkamp, 2023), requires the effective management of information and alignment with sustainable practices. Sustainable organizational development theories emphasize how organizational culture and practices impact sustainability outcomes (Mollenkamp, 2023). Information management systems that integrate sustainability principles not only optimise resource utilisation but also enhance operational efficiency and contribute to broader environmental and social goals.

The integration of information management and information behaviour with sustainability practices offers a synergistic approach for contemporary organizations. By aligning information management strategies with the behaviour of individuals, organizations can foster a culture of knowledge sharing and responsible information usage (Scott, 1998). This integrated approach ensures organizations are well-equipped to navigate the complexities of a data-driven business environment while promoting sustainable and responsible development (Androniceanu, 2012).

The alignment of information management with information behaviour and sustainability practices is essential for organizational success and longevity. By understanding how individuals interact with information and integrating sustainable principles into information management strategies, organizations can enhance their operational efficiency, support environmental stewardship, and fulfil social responsibilities. This holistic approach not only optimizes resource use, but also prepares organizations to thrive in an increasingly dynamic global landscape.

Methodology

The research aims were formulated in response to the identification of flaws in information management and sustainable development practices at ICBAS. The general goal is to explore the implementation of sustainable development principles at ICBAS, particularly focusing on its informational dimensions. The specific objectives are twofold: firstly, to analyse the information behaviour of ICBAS employees; and secondly, to identify areas of improvement, thereby proposing strategic interventions geared towards fostering a more efficient and sustainable informational ecosystem within the institution.

The research uses a survey methodology well suited to collect quantitative data from a large group of participants in a relatively short period. Surveys are an effective means of collecting self-reported data on attitudes, behaviours and practices, providing a snapshot of the current state of information management and sustainability efforts within the institution.

To ensure a comprehensive understanding of information behaviour, employees from various hierarchical levels were included in this study. The different roles and responsibilities of employees within an organization influence the way information is received and managed. By surveying employees at various levels, insights can be gained into information behaviour throughout the institution's hierarchy. This inclusive approach also enables an examination of how organisational culture shapes information management and its alignment with sustainability objectives. By surveying employees at different hierarchical levels, communication gaps, specific challenges in certain functions and areas for improvement can be identified.

To sum up, the survey methodology offers a comprehensive analysis of information behaviour at ICBAS, elucidating the way information is managed and utilised within the institution. The survey was designed to address a spectrum of relevant topics, including information transmission, digital transition, data sharing, support channels, and the implementation of eco-friendly measures. This data collection technique aims not only at qualifying patterns and trends, but also at uncovering qualitative insights that could remain hidden in a purely quantitative analysis.

The research was conducted between January and June 2023 and its aim is to contribute to the development of solutions aligned with institutional growth and sustainable practices through the analysis of the information behaviour of the collaborators of ICBAS.

Context of the study

The School of Medicine and Biomedical Sciences (ICBAS) is the focal institution of this study, and it is essential to contextualise its journey from its inception to the present day. Established in 1975, ICBAS stands as a cornerstone of higher education in Portugal, with a strong commitment to training professionals in the biomedical sciences and health fields, significantly contributing to the country's scientific and technological progress. Its mission highlights the critical role of up-to-date and high-quality scientific information in fulfilling its informational needs and practices, alongside the effective management of data and information generated by its researchers and students (ICBAS, 2020).

ICBAS is part of the University of Porto, a renowned biomedical teaching and research institution encompassing fields such as biology, health, environmental studies, and animal life. In recent times, ICBAS has embraced the concept of 'One Health', which emphasises the interconnectedness of human, animal and environmental health. This demonstrates the institution's commitment to holistic approaches in addressing contemporary health challenges.

At its core, ICBAS is dedicated to nurturing a cadre of highly skilled professionals, advancing scientific knowledge, and fostering community health and well-being. The institution actively diffuses its research findings through academic publications and participation in conferences, underscoring its commitment to knowledge exchange and promulgation.

In recent years, ICBAS has made significant progress towards the improvement of its sustainability practices beyond traditional academic activities. In recognition of the importance of environmental protection and social responsibility, the institution has initiated various programmes to reduce its environmental impact and engage with the community. These efforts include implementing recycling programmes, adopting energy-efficient measures, supporting student-led sustainability projects, and organising community outreach events. By integrating sustainability into its core operations and promoting environmental awareness, ICBAS not only fulfils its educational mission, but also sets an example of sustainable leadership within and beyond the academic sphere.

While institutions such as ICBAS play an instrumental role in training professionals and generating knowledge, they also face the formidable challenge of conducting operations sustainably. This dual role places them at the intersection of knowledge advances and societal stewardship, impacting not only the academic community but also the broader environment and society. Nonetheless, with a focus on excellence, innovation and social responsibility, ICBAS strives to excel in teaching, researching, and servicing provision in the fields of life and health sciences.

ICBAS's vision extends beyond the boundaries of academic pursuits, intending to become a leader in its fields through strategic collaborations, research promotion, and the cultivation of open communication, teamwork, and interdisciplinary collaboration. Aligned with its core values of ethics, integrity, and inclusivity, ICBAS is deeply committed to social responsibility (ICBAS, 2020), actively engaging with the community, promoting scientific diffusion, and fostering a culture of citizenship. This commitment not only enables innovation and continuous learning but also upholds the institution's long-standing reputation for academic excellence and societal impact.

Findings

This study analyses the responses of 60 employees at ICBAS, offering insights into their demographic profiles, work environment, organizational culture, and sustainability practices. The hierarchical structure of ICBAS encompasses several levels, with technical and administrative staff responsible for operational support and administrative tasks. Teachers occupy a pivotal role in academic instruction, curriculum development, and research. Middle managers are responsible for overseeing departments and functional areas, ensuring that these are coordinated and aligned with the institution's goals. Department heads are responsible for leading academic and administrative units, with the mandate to shape strategic directions and policies. The school headmaster is responsible for providing overall leadership and guiding the institution's mission and vision. Researchers at ICBAS are engaged in scientific inquiry and contribute to the advancement of knowledge in biomedical sciences and related fields.

In terms of tenure, 78% (n=47) of staff have been with ICBAS for over a decade, indicating a mature and potentially influential team. This extensive experience is likely to shape the organisational culture and knowledge transfer dynamics within the institution. This positive view reflects ICBAS's adaptability to technological advancements.

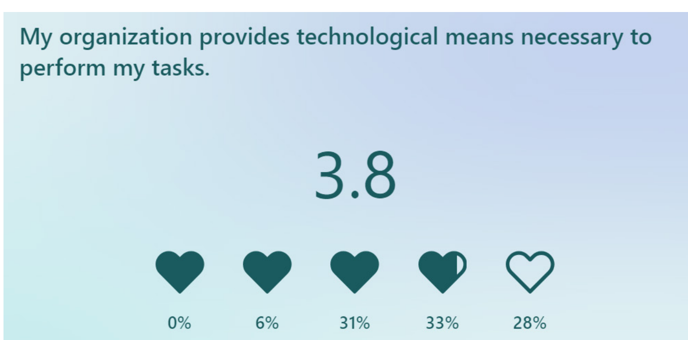
In terms of satisfaction with technology, employees rated their satisfaction on a Likert scale from 1 to 5, where 1 represents strong disagreement and 5 strong agreements. The satisfaction rate was 3.8, indicating a generally positive attitude towards technologies used in their professional context (see Figure 1). It is important to note, however, that this average reflects favourable attitudes rather than satisfaction.

It is important to note that the distinction between attitude and satisfaction is crucial in this context. While the average score indicates a positive overall attitude towards technology, it does not in any way imply satisfaction. Further research into specific aspects of technology usage and feedback from employees could provide deeper insights into problematic areas that affect satisfaction.

The study also assessed organizational culture and sustainability practices, with the aim of pinpointing areas for improvement and proposing strategic interventions to foster a more efficient and sustainable information ecosystem at ICBAS. This comprehensive approach illuminates information on behaviour patterns, specific challenges, and potential avenues for enhancement within the institution.

In conclusion, this study provides a comprehensive analysis of information behaviour and sustainability practices at ICBAS, offering insights into how information is managed within the institution. These findings contribute to a deeper understanding of organizational dynamics and inform strategies for enhancing operational efficiency and sustainable development initiatives.

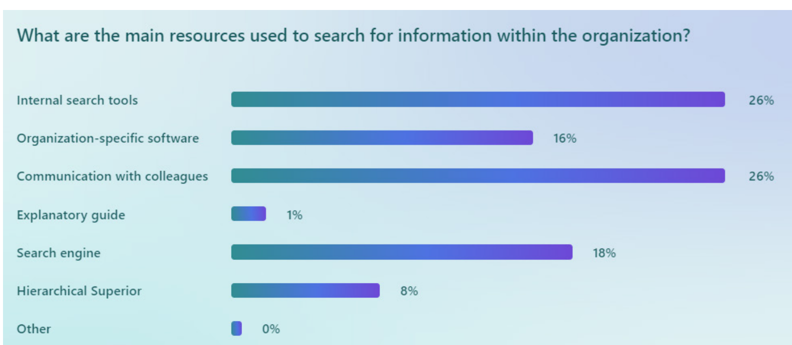
Figure 1: Satisfaction with the technology provided by the organization.



An understanding of how information is managed within an institution provides valuable insights into potential areas for improving information behaviour. It helps identify patterns, specific challenges, and potential avenues for enhancement.

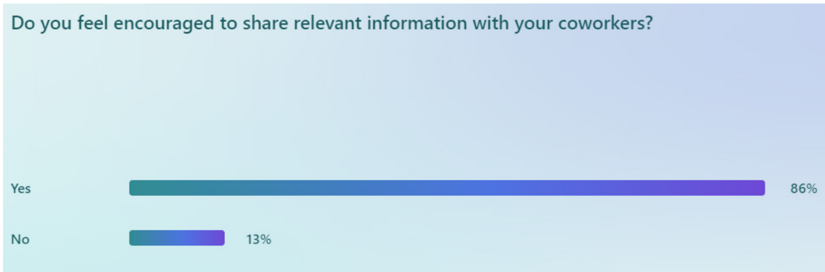
Regarding the primary sources of information within the organisation, the study found that the two most frequently used by employees are colleagues and internal research tools, accounting for a combined usage of 26%. Additionally, search engines and organisation-specific software were identified as significant sources of information, with 18% and 16% of respondents, respectively, citing these as their most frequently used resources. Furthermore, in addition to consulting colleagues, which was preferred by a significant proportion of respondents (80%), employees also occasionally turn to their hierarchical superiors for information (8%). Combining these percentages highlights that a notable proportion of respondents prefer personal sources when performing their professional tasks. Figure 2 provides a visual representation of these findings.

Figure 2: Primary Sources of Information Within the Organization.



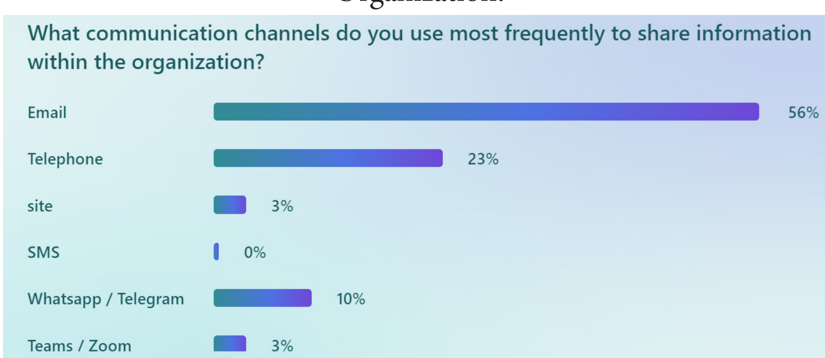
Furthermore, a significant proportion of respondents, reaching (86%), reported a high level of comfort in sharing relevant information which indicates a deeply ingrained collaborative culture within the organization (see Figure 3). This inclination towards sharing information suggests a positive atmosphere of teamwork and knowledge exchange, which enhances innovation and problem-solving capabilities across various departments.

Figure 3: Encouraging to share relevant information.



Furthermore, the pervasive use of communication channels such as email, favoured by 56% of users, illuminates the communication preferences within the institution. This inclination towards written communication is further substantiated by the comparatively lower percentages of respondents indicating the use of telephone communication (23%) and messaging apps like WhatsApp or Telegram (10%). These findings indicate that social networks are still underused in professional contexts (see Figure 4).

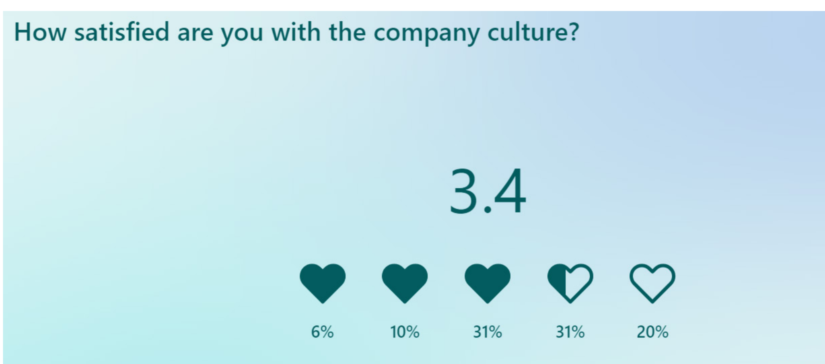
Figure 4: Communication Channels for Sharing Information Within the Organization.



The results display the satisfaction rate regarding the organisational culture at ICBAS is 3.4 on a Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied) (Figure 5). This score suggests that employees generally have a positive perception of the organisational culture. Although this score is slightly above the midpoint of the scale (which is 3.0), it also indicates that there is room for improvement within the organisational culture, as the average satisfaction does not reach higher levels (4 or 5).

This finding indicates that while a significant proportion of employees perceive the organisational culture in a positive light, there are still aspects that may not fully align with their expectations or needs. To gain a more comprehensive understanding of these aspects, further qualitative research, such as interviews or focus groups, could be carried out. Such methodologies would enable researchers to investigate specific issues or concerns that may be contributing to the slightly lower satisfaction score observed in the survey. The identification of these factors could provide valuable insight for leadership and management, propelling the implementation of targeted initiatives to enhance employee satisfaction and improve the overall organisational culture at ICBAS.

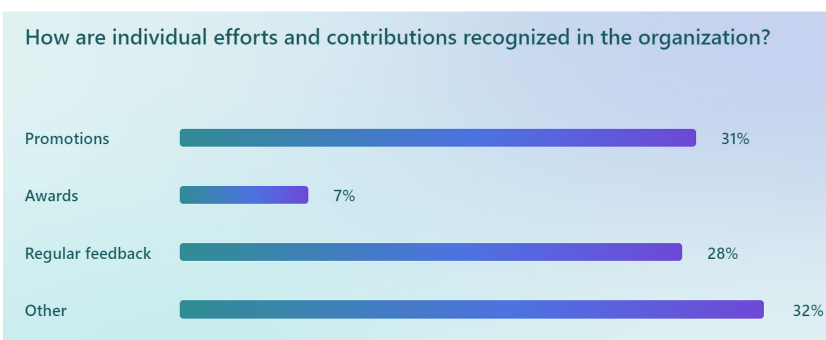
Figure 5 - Satisfaction with company culture.



Concerning acknowledging individual contributions within the organisation, the data reveal a diversity of perspectives and preferences. The findings indicate that 31% of respondents consider promotions to be the primary means of recognition, suggesting that career progression is structured. Another notable proportion, comprising 28% of respondents, places significant emphasis on the importance of regular feedback as an essential factor for both personal and professional development. Furthermore, 32% of respondents identified alternative forms of recognition.

These findings emphasise the necessity of adopting a multifaceted approach to recognising individual contributions within the organisation. While a substantial number of respondents value promotions for their role in career progression, others prioritize regular feedback as crucial for continuous growth. Furthermore, the endorsement of alternative forms of recognition by a notable proportion of participants highlights the necessity of diverse strategies to effectively appreciate employees' efforts. The diversity of perspectives highlighted in the findings serves to emphasise the importance of implementing flexible and comprehensive recognition policies. Such policies can better accommodate the diverse needs and expectations of staff members, thereby fostering a supportive and motivating work environment at ICBAS.

Figure 6: Recognition of Individual Contributions Within the Organization.

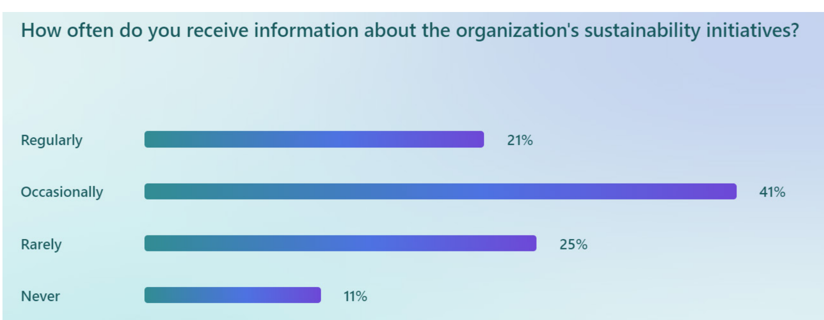


In terms of sustainability, it is important to note that 73% of respondents are aware of initiatives implemented by the organization to reduce environmental impact, such as energy efficiency, waste management or the use of sustainable materials, to reduce negative environmental impact, which means that, in general, this type of institutional information is disclosed and that people pay attention to these issues.

Figure 7: Awareness of initiatives to reduce negative environmental impact.

The frequency with which information on sustainable practices is disseminated appears to be inadequate. Most respondents (41%) indicated that they receive this information on a sporadic basis, while 25% stated that they receive it with some regularity and only a minority (34%) reported that they receive it with great frequency (Figure 8).

Figure 8: Reception of Information about Organizational Sustainability Initiatives.



Regarding the actions taken by the organisation to promote sustainability, the employees most frequently cited efforts to reduce paper consumption (50%) and adapt work practices to consider environmental impact (22%) (Figure 9). This emphasis on reducing paper consumption is consistent with the organisation's broader objective of transitioning towards digital practices and minimizing its environmental footprint.

Figure 9: Actions implemented by the organization in favour of sustainability.

The results of the survey on the training provided by organisations on the responsible use of information for sustainability revealed a diverse range of responses that require careful interpretation. The collected data indicates that a considerable proportion of respondents (26%) stated that such training is never provided by the organisation, while another 35% reported that training sessions are only occasionally provided. A mere 13% of respondents indicated that they received this training regularly (Figure 10).

This variability in responses suggests the potential influence of several factors. Firstly, there may be issues related to communication and awareness within the organisation. It is possible that employees who indicated that they had never received training may have not been informed about its availability or may not perceive it as a priority in their role. Secondly, the discrepancy in responses may be indicative of targeted training initiatives. It seems reasonable to posit that some departments or groups within the organisation receive regular training sessions, while others do not. Such a targeted approach could result in disparate perceptions and experiences among employees regarding the frequency of training.

Moreover, the interpretation of the term "regular" training may differ among respondents. Some employees may consider training sessions that occur less frequently to be regular, while others may expect more frequent and consistent training opportunities. This discrepancy in perception may contribute to the disparate responses observed in the survey.

Figure 10: Availability of Training on Responsible Information Use for Sustainability.

In essence, the in-depth analysis of the questionnaire results provides valuable insights into the dynamics of the workplace at ICBAS. While the institution's strengths, such as its educational diversity and adaptability to digital technologies are evident, there is a need to improve communication around sustainable initiatives and strengthen data handling practices to foster a collaborative and sustainable working environment. By addressing these and other identified areas, we can make a significant contribution to the long-term success and positive impact of ICBAS.

Discussion

The research conducted at ICBAS provides valuable insights into the way individuals interact with and use information within the institution. This is consistent with the perspectives of various authors who emphasise the vital relationship between effective information management and sustainable development. The findings indicate that employees benefit from awareness about the impact of digital technologies on work efficiency, following the insights presented in the literature review. Furthermore, the reasonable satisfaction expressed with the technological resources provided by the organisation suggests that these tools adequately support the employees' tasks.

The prevalence of colleagues and internal research tools as the most searched sources of information within the organisation reflects a balanced reliance on both informal and formal channels, a trend observed across various professional domains such as healthcare, engineering, and law. This indicates a culture of collaboration and timely information sharing within ICBAS, which facilitates efficient knowledge exchange and updates across services.

The management of multiple communication channels serves to reinforce the notion that the organizational culture is characterised by a commitment to the collaboration and the dissemination of information. This not only facilitates effective idea exchange but also indicates a commitment to fostering open dialogue and teamwork. However, the sporadic communication regarding sustainability initiatives among employees indicates a significant area for improvement. This discrepancy underscores the imperative for the implementation of enhanced and consistent communication strategies, to ensure that all members are adequately informed and engaged in environmentally responsible practices.

In terms of sustainability, it is encouraging that most respondents are aware of ICBAS's initiatives aimed at reducing environmental impacts. Nevertheless, there is a clear recommendation for the broader diffusion of this information to all employees, which could potentially enhance the effectiveness of implementation. This high level of awareness reflects a collective dedication to environmental stewardship and provides a solid foundation for future sustainability initiatives within the organization. The institution's proactive sustainability measures demonstrate commendable efforts to reduce the environmental footprint of the organisation and to uphold environmental responsibility. These initiatives not only demonstrate a forward-thinking approach but also contribute to broader sustainability goals, aligning with societal expectations and organisational values.

Despite the encouraging findings, the study indicates that training on the responsible use of information for sustainability is provided with less frequency than desired, which presents challenges to the adoption of appropriate behaviours in this realm. The implementation of comprehensive training programmes that integrate transparency in data management and sustainability principles could serve to enhance organisational culture towards environmental and ethical responsibility significantly, thereby addressing the gap.

Furthermore, in response to the comment regarding information behaviour, it is recommended that future research and organisational efforts should explore and enhance it across all operational aspects far more comprehensively. This holistic approach will further optimise organizational effectiveness, sustainability, and overall employee engagement. By integrating these principles, organizations such as ICBAS can foster a collaborative and sustainable work environment conducive to long-term success and positive societal impact.

Conclusion

To sum up, this study illuminates the crucial intersection of information management, information behaviour, and sustainability within ICBAS, offering profound insights into organizational development and environmental responsibility. Effective information management is not only crucial for enhancing internal processes and promoting eco-efficiency but also plays a fundamental role in advancing social responsibility within educational and research institutions. By optimizing information-sharing practices, institutions such as ICBAS can streamline operations, reduce resource consumption, and foster a collaborative culture conducive to innovation.

Furthermore, the study emphasises the strategic importance of information management by meeting the specific demands of biomedical sciences and driving scientific and technological progress. Investments in efficient data management not only support organizational growth but also cultivate skilled professionals capable of navigating complex scientific landscapes.

To enhance information processes and cultivate a sustainable culture at ICBAS, several key recommendations are proposed. Firstly, the implementation of state-of-the-art digital tools, document management systems, and collaborative platforms will enhance the efficacy of information handling and sharing, thereby reinforcing the digital transition. This necessitates the integration of technology into the daily workflows of employees and the provision of essential digital skills.

Secondly, the establishment of a culture of continuous learning and knowledge sharing is of paramount importance. The implementation of team training programmes, interactive workshops and online platforms can facilitate the exchange of information and expertise across departments, thereby enhancing organisational agility and responsiveness.

Lastly, educational initiatives that emphasize sustainable practices are of crucial relevance for the enhancing of employee awareness and engagement in sustainability initiatives. This comprehensive approach not only serves to advance environmental objectives but also aligns organisational practices with societal expectations and educational missions.

References

Androniceanu, Armenia; Drăgulănescu, Irina-Virginia (2012): Sustainability of the Organizational Changes in the Context of Global Economic Crisis, Amfiteatru Economic Journal, ISSN 2247-9104, The Bucharest University of Economic Studies, Bucharest, Vol. 14, Iss. 32, pp. 365-379

Brundtland, G. (1987). *Report of the World Commission on environment and development: Our common future*. United Nations General Assembly document A/42/427.

Carter, C., & Rogers, D. (2008). A framework of sustainable supply chain management: moving toward new theory. *International Journal of Physical Distribution & Logistics Management*, *38*(5), 360-387.

Casarin, H. C. S., & Oliveira, E. S. (2012). O uso da informação no âmbito acadêmico: o comportamento informacional de pós-graduandos da área de educação. *Encontros Bibli: Revista eletrônica de Biblioteconomia e Ciência Da Informação*, *12*(nesp.1)169-187. https://doi.org/10.5007/1518-2924.2012v17nesp1p169

Choo, C. W. (1998). *Information management for the intelligent organization: The art of scanning the environment*. American Society for Information Science by Information Today.

Davenport, T. H., & Beers, M. C. (1995). Managing information about processes. J*ournal of Management Information Systems*, *12*(1), 57-80. https://doi.org/10.1080/07421222.1995.11518070

Davenport, T., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know* (v.1). In Ubiquity.

Gasque, K. C. G. D., & Costa, S. M. de S. (2010). Evolução teórico-metodológica dos estudos de comportamento informacional de usuários. *Ciência Da Informação*, *39*(1), 21-32. https://doi.org/10.1590/S0100-19652010000100002

Instituto de Ciências Biomédicas Abel Salazar (n.d.). ICBAS e FFUP unem-se para divulgar os ODS. https://sigarra.up.pt/icbas/pt/noticias_geral.ver_noticia?P_nr=49469

Instituto de Ciências Biomédicas Abel Salazar. (2020). *ICBAS: Uma escola, uma saúde*. https://sigarra.up.pt/icbas/pt/web_base.gera_pagina?P_pagina=1182

Kotob, F. (2011). *What is sustainability?* https://www.researchgate.net/profile/Fadi-Kotob/publication/282184670_What_Is_Sustainability/links/5606b3ac08aeb5718ff6254f/What-Is-Sustainability.pdf

Laudon, K. C., & Laudon, J. P. (2016). *Management information system*. Pearson India.

Mollenkamp, D.T. (2023), "What is sustainability? How sustainabilities work, benefits, and example", Investopedia, available at: www.investopedia.com/terms/s/sustainability.asp#:~:text=Key%20Takeaways,environmental%20footprints%20and%20conserving%20resources

Rahman, M., Abd Wahab, D. S., & Abdul Latiff, D. A. S. (2022). Definitions and concepts of organizational sustainability: A literature analysis. *Society & Sustainability*, *4*(2), 21–32. https://doi.org/10.38157/ss.v4i2.496

Ravi, T. M. (2011). *The Path to Information Management Nirvana*. Information Management Daily.

Sarkis, J. (2001). Manufacturing's role in corporate environmental sustainability. *International Journal of Operations & Production Managemen*t, *21*, 666–686. https://doi.org/10.1108/01443570110390390

Scott, W. (1998). Organizations: rational, natural and open systems. *Canadian Journal of Sociology: Cahiers Canadiens de Sociologie*, *29*.

Wilson, T. D. (1999). Models in information behaviour research. *Journal of Documentation*, *55*(3), 249–270. https://doi.org/10.1108/EUM0000000007145/FULL/XML

Appendix

Survey on Information Practices in the Organizational Context

This survey is part of the curricular unit Information Practices in the Organizational Context, which is part of the master's degree in business information, taught at the Instituto Superior de Contabilidade e Administração do Porto, of the Instituto Politécnico do Porto. The study aims to gather the perspectives of the organization's employees regarding information management in their day-to-day work, including methods of research, sharing, evaluation and use of information. In addition, the study aims to understand the organizational culture about information sharing, internal communication, collaboration, innovation, continuous learning, performance management and employee recognition, and the company's approach to sustainability.

Your participation in this study is very important and will make a fundamental contribution to the completion of this case study. The time required to complete the questionnaire is approximately 2 minutes. Participation in this study is voluntary and we undertake to safeguard the interests of the participants, ensuring strict confidentiality and anonymity of the information collected, revealing our full availability for any intervention considered useful. If you have any questions or concerns while filling out the form, please send an email to hfferreira@icbas.up.pt. We would like to thank you in advance for your availability and collaboration!

Personal Data

1. Sex

- Male
- Female
- Other
- I rather not to answer

2. Age range

- 18-24
- 25-34
- 35-44
- 45-60
- +60

3. Level of Education

- Secondary Education
- Bachelor's degree
- Graduation
- Master's degree
- Doctorate

4. How many years have you worked at your current organization?

- <1 year
- 1-3 years
- 4-6 years
- 7-10 years
- >10 years

Information Behaviour

5. What are the main resources used to search for information within the organization? (multiple choice)

- Internal search tools
- Organization specific software
- Communication with colleagues
- Explanatory guide
- Search Engine
- Hierarchical Superior
- Other

6. How often do you use the resources (previously specified) to carry out your daily tasks?

- Daily
- Weekly
- Monthly
- Rarely

7. Do you feel encouraged to share relevant information with your coworkers?

- yes
- no

8. How do you evaluate the effectiveness of internal communication channels for sharing information within the organization?

- Very ineffective ♡♡♡♡♡ very effective

9. What communication channels do you use most frequently to share information within the organization? (select a maxim of 2 options)

- Email
- Telephone
- Website
- SMS
- Whatsapp / Telegram
- Teams / Zoom
- Other

Information Practices

10. Do you consider that digital technologies have been implemented with the aim of improving information management?

- Yes
- No
- I don't Know

11. What was the most significant change in the transition from physical to digital media?

- Practicality in storing and accessing information
- Communication and collaboration
- Task automation
- Mobility and flexibility

Organizational Culture

12. How would you describe the organization's culture when it comes to innovation and collaboration?

- Open
- Neutral
- Resistant
- Conservative

13. My organization provides technological means necessary to perform my tasks.

- I totally disagree ♡♡♡♡♡ I totally agree

14. How satisfied are you with the organization's promotion of continuous learning?

- Very dissatisfied ♡♡♡♡♡ Very satisfied

15. How does the organization promote continuous learning among employees?

- Training actions
- Paid external training
- Other methods
- None

16. What strategy(ies) do you believe are most effective in promoting and maintaining a work environment where mutual trust between management and employees is cultivated and there is room for productive collaboration?

- Select all that apply:
- Regular feedback and evaluation sessions for all hierarchical levels.
- Mentoring and coaching programs for professional development.
- Participation of employees in strategic company decisions.
- Transparent communication about goals, challenges and organizational changes.
- Events or activities that promote integration and teamwork.
- Offering benefits and programs aimed at employee well-being.
- Initiatives that recognize and reward employee performance and contributions.

17. How satisfied are you with the company culture?

- Very dissatisfied ♡♡♡♡♡ Very satisfied

18. How are individual efforts and contributions recognized in the organization?

- Multiple choice.
- Promotions
- Awards
- Regular feedback

Measures to mitigate the impacts of information management on Sustainability

19. Are you aware of the initiatives implemented by the organization to reduce environmental impact, such as energy efficiency, waste management or the use of sustainable materials?

- Yes
- No

20. Actions implemented by the organization in favor of sustainability ?

- Reduction of paper documents
- Consolidation of databases in a centralized environment
- Adaptation of work methods that include concerns about environmental impact
- No Action

21. How often do you receive information about the organization's sustainability initiatives ?

- It is necessary to answer. Single choice.
- Regularly
- Occasionally
- Rarely
- Never

22. Are you aware of recycling programs for obsolete electronic equipment in your organization?

- It is necessary to answer. Single choice.
- Yes, I am aware
- I know, but with few details
- I have no knowledge

23. Does the organization provide platforms to access information on sustainable practices?

- It is necessary to answer. Single choice.
- Regularly
- Occasionally
- Rarely
- Never

24. Does the organization offer training on the responsible use of information for sustainability?

- Regularly
- Occasionally
- Rarely
- Never