

THE DECISION-MAKING SYSTEM OF ORGANISATIONS FROM THE PERSPECTIVE OF ENVIRONMENTAL MANAGEMENT

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Abstract:

Today, organisations are increasingly concerned about the environmental impact of their activities. They strive to achieve new environmental performances by minimising the adverse effects of industrial-type development on the environment. This research takes an exploratory approach, reviewing specialised literature on the concept of environmental management, with a focus on the decision-making system. It also includes a bibliometric analysis using platforms such as Web of Science, Scopus, Google Scholar, and Biblioshiny to support the analysis of the national and international subject studied based on several criteria. In summary, the interest in environmental protection in tandem with economic-social development is the order of the day; organisations strive to harmonise economic and ecological objectives by making the correct environmental decisions, which have minimal consequences on the surrounding nature. The true novelty of this research, however, lies in its comprehensive approach to the decision-making system in the context of environmental management, a perspective that has not been extensively explored before.

Key words: Environmental Management, Decision-making Process, Sustainable development, Environmental Management System.

JEL classification: Q01, Q56, M10.

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1. INTRODUCTION

Today, the organisation is no longer just an actor in economic terms but also social terms, and its involvement as a citizen has become a priority. Accordingly, an increasing number of organisations, recognising their pivotal role in achieving sustainable development, find that, in a highly competitive environment, the policy of maximising short-term profits is no longer a guarantee of success and that such a policy should be accompanied by socially responsible behaviour (Barbăneagră, 2017; Socoliuc et al., 2020). As a result, organisations realise that without considering their impact on the environment and undertaking sustainable environmental actions, they cannot interact with each other and the market effectively and cannot contribute sustainably to the welfare economy (Herghiligi et al., 2012; Grigoras-Ichim et al., 2020). This underscores organisations' crucial role in environmental management, making their active participation and decision-making processes all the more significant.

If, at the macroeconomic level, the concept of sustainable development is used to illustrate the link economy-environment-technological development (Danila & Nastase, 2021), at the microeconomic level, the idea of environmental management is used, also supported by the appearance in the international standards developed by the International Organization for

Standardization (ISO) - ISO 12000, ISO 14000, ISO 19000, and in the European directives related to the European Union (EU) - Eco-Management and Audit Scheme (EMAS) (Bănacu, 2004). The foundations of the environmental management system are found in the ISO 14001 standard, where the general purpose - to support environmental protection and prevent pollution, in balance with socio-economic needs, and the specific purpose - to provide organisations with all the necessary elements are set forth the effective establishment of an environmental management system, which allows the achievement of both environmental and economic objectives (Petrescu, 2005).

This research aims to identify the main aspects specific to environmental decisions by investigating the decision-making process in the scope of environmental management.

The topicality of the theme is dimensioned by the environmental issue, with organisations increasingly claiming coherent management, which would contribute to reducing pollution while maintaining a profitable economic and social activity.

1. RESEARCH METHODOLOGY

In the course of the research carried out, the theoretical approach to the subject was resorted to using various research methods: the analytical method (examination of specialised literature in the direction of environmental management and the decision-making process within the organisation), web analysis (accessing the Google Scholar search engine, the research of the Web of Science and Scopus platforms, as well as the use of the results interpretation software – Biblioshiny), the systemic method (identification and interpretation of the opinions of different authors at the national and international level regarding the concept of environmental management and environmental decision), the synthesis method (focusing on the main aspects regarding the essence of the decision-making process in the environmental management perimeter) and others.

Analysing the specialised literature, it can be noted that many organisations have their environmental management systems based on the requirements of the unanimously accepted standard family—ISO 14000. As a result, concerns regarding improving these systems are constantly increasing, which is transposed by augmenting scientific research in this direction.

In order to identify the relevant scientific publications about the re-searched topic at the international level, the bibliometric analysis was used based on the following research criteria: identifying the phrases decision and environmental management in the publication title between 1975-2023. Following the analysis, approximately 123 results were identified through the Google Scholar search engine. According to the same criteria, the Web of Science and Scopus platforms were searched, which generated 84 and 117 publications. The results generated by the Scopus platform were extracted for data interpretation using the Biblioshiny software. According to the results obtained in Figure 1, the most scientific works were published in 2019 – 10 publications, 2017 – 8 publications, followed by 2012, 2011, 2002 – 7 publications, etc.

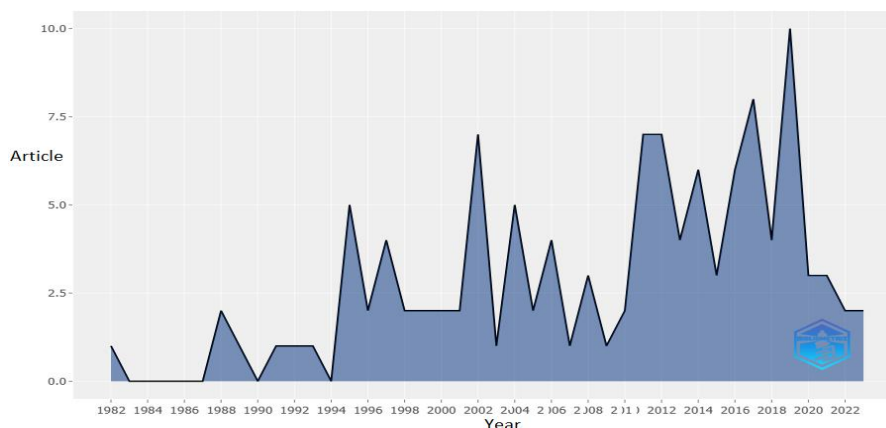


Figure 1. Annual scientific productivity in the period 1975 – 2023

Source: Own elaboration using data from Scopus and Google Scholar

Also, we consider it necessary to identify the most productive countries in terms of publication rate about the predetermined criteria: United States of America – 42 publications, China – 24 publications, Australia – 21 publications, the United Kingdom – 19 publications, Brazil – 13 publications and others. At the same time, the list of the most cited scientific works by country is held by the United States of America – 844 citations, the United Kingdom – 286 citations and Australia – 261 citations.

Figure 2 shows the dynamic increase in environmental management (blue line) and decision-making (green line) since 1988. However, a grandiose increase has been noted since 2003, maintaining its current trend.

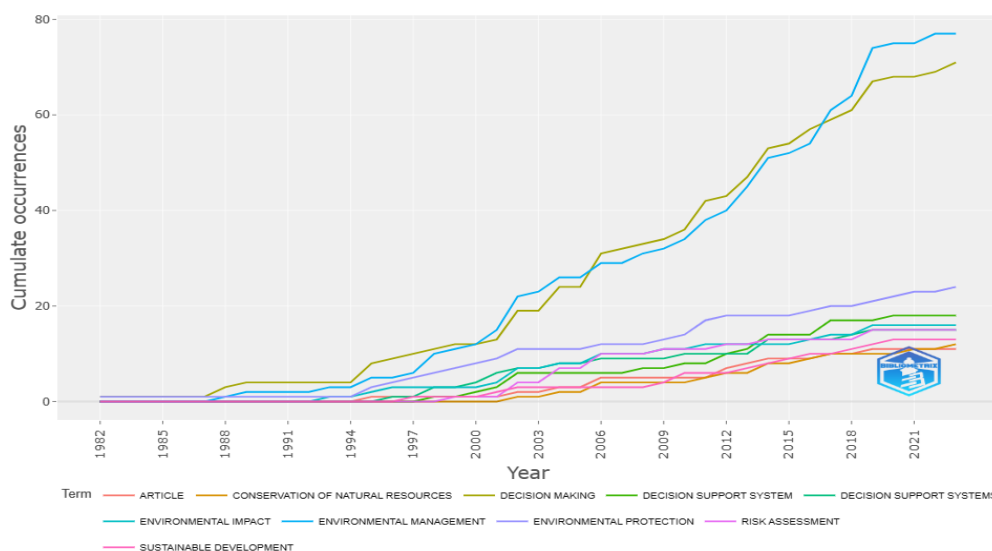


Figure 2. The dynamics of the use of keywords in the period 1975-2023

Source: Own elaboration using data from Scopus and Google Scholar

As can be seen, bibliometric analysis can identify the most current and relevant scientific publications in a specific research direction. In this context, Figure 3 presents the synthesis of all the keywords proposed by the authors of the publications and the Biblioshiny data interpretation software, placing them within a coordinate system in terms of the *degree of relevance* (horizontal axis) and the *degree of development* (vertical axis). As a result, it can be concluded that in the analysed period, the interest of researchers is directed towards the terms that are found in the framework of the primary themes: *environmental management*, *decision-making*, *sustainable development*, *environmental protection* and *risk assessment*, likewise, in the framework of the driving themes, there are the terms *decision support system*, *environmental monitoring* and *environmental planning*, which denotes actuality and curiosity regarding the analysis of the decision-making system in the context of environmental management. In this line of ideas, it can be concluded that several terms outline the research framework in the quadrant of niche themes, such as *biodiversity*, *environmental policy*, *contamination*, *humans*, etc.

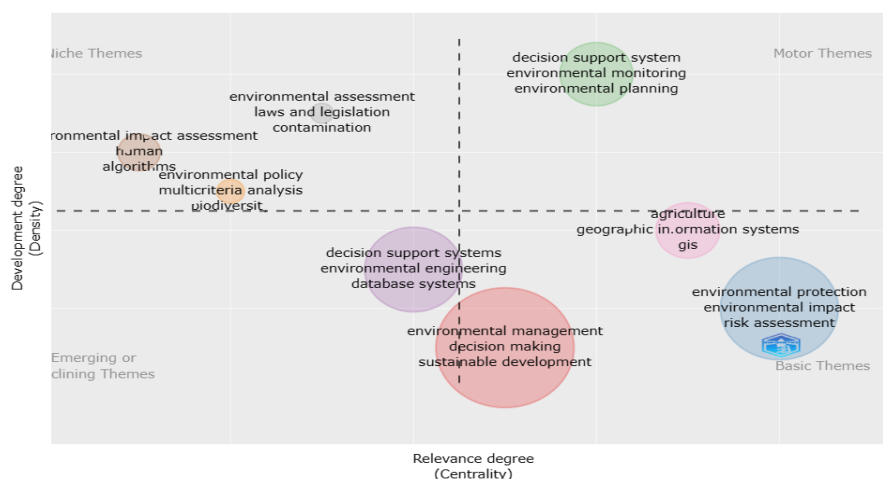


Figure 3. Thematic map regarding the degree of relevance and development of research according to the keywords used

Source: Own elaboration using data from Scopus and Google Scholar

To strengthen what has been presented, we mention that the analysed topic interests researchers and the relatively modest number of scientific publications are explained by the extensive research of only one database—Scopus.

2. THE POSITIONING OF ENVIRONMENTAL MANAGEMENT WITHIN THE ORGANISATION

The organisation constitutes an open system; when carrying out its activity, it is directly influenced by other organisations and indirectly by numerous economic, social, technological, and political factors etc. One of the factors of indirect influence is the ecological factors, represented by the components of the environment, such as relief, subsoil, climate, flora, fauna, and, in general, the natural framework for the development of material life. The practically non-renewable nature of some resources, combined with sometimes exorbitant price increases, influences production costs, rate of return, and selling prices. Through the activities carried out, the organisation also influences the environment by maintaining or degrading it by polluting it. Thus, an increase in concerns is required for decisions and actions in the medium and long term in order to know and protect the environment, such as the use of technologies that reduce pollution, the maintenance of the ecological balance, the development of strategies based on renewable resources (Burdus & Popa, 2018).

Globalisation has left its mark on organisations and their managers by forcing them to act ethically and socially responsibly. In the opinion of the researcher Hristea, “the social responsibility of the organisation is perceived as a commitment, by which any organisation, regardless of size, assumes responsibility for the protection of the environment and the sustainable development of society in the interest of future generations by conserving resources, ensuring health and population security” (Hristea, 2011). Also, socially responsible organisations gain numerous advantages following adopting more responsible behaviour, such as improving reputation and market position, forecasting risks, adapting to change, access to new markets, etc. (Morosan-Danila & Bordeianu, 2020). Also, the environment management system consists of ecology, environmental control regulations, environmental reports, waste disposal, supply administration, energy consumption, global heating guidelines and efficiency (Nastase et al., 2012; Bordeianu et al., 2021).

In contemporary society, interest in environmental protection and environmental management issues, as a component of general management oriented towards achieving ecological objectives, is becoming more and more prominent. Analysing the specialised literature, it can be found that management is treated as a process, group of people, science and art; thus, environmental

management is approached as a totality of activities, methods and tools applied in the direction of environmental protection.

The economic component of environmental management aspires to identify and exploit economic opportunities, thus influencing economic and social efficiency. In this way, it aims to create conditions where human and organisational factors are encouraged to integrate social and environmental considerations into their economic activities (Petrescu, 2005).

The treatment of environmental management in the specialised literature abounds in multiple points of view, involving environmental protection and the use of natural resources, with the assumption of responsibility for the results (Dediu, 2010), developing mechanisms and tools for the organisation and administration of relations between the environment and society, in order to ensure sustainable development of society (Capcelea, 2013), environmental policies (Albu, 2003), the tasks of fulfilling the objectives of the environment planned at the local, national and regional level, by the biological requirements of the object (Petrescu, 2005).

We can summarise that management represents conscious activity in pursuit of the organisation's goals; at the same time, the management process constitutes a specific form of this activity that aims to formulate, adopt, and implement decisions.

Environmental management allows organisations to identify opportunities to save resources, enter new markets, and increase competitiveness (Morosan-Danila et al., 2012). It also allows regions and countries to improve the quality of the environment for current and future generations globally and maintain biodiversity and the wealth of natural resources (Capcelea, 2013).

As mentioned, the quality of the decision-making process influences the economic-financial results of the organisation; in this case, knowing the cost components allows making decisions that will maximise profitability. In the context of cost analysis, it is necessary to mention that green accounting is becoming more and more important not only for environmental management but also for other decision-making activities of the entity, such as the supply process, process and product design, allocation and control costs, capital budgeting, pricing policies and last but not most minor performance evaluation (Codrean, 2021; Ulian & Morosan-Danila, 2022). We note that green costs incorporate several component costs such as current costs (for materials, fuel, salaries, social security contributions, regarding the management of the environmental protection activity, the services provided for the liquidation of hazardous ecological waste and others), costs regarding capital investments (for the creation or reconstruction of fixed means for environmental protection, for capturing and cleaning wastewater, for payments regarding environmental pollution and others), and green costs (regarding the prevention of pollution, regarding the evaluation and reduction of the effects of pollution, remediation and environmental pollution and others).

Any organisation's objective, along with obtaining profit, is to reach an adequate level of environmental protection, thus respecting the provisions of environmental legislation. The level of competitiveness of any economic agent is directly proportional to its ability to provide the market with quality and ecologically pure products. In this context, it is necessary to consider the demands of consumers and the rules imposed by commercial partners (Toma, 2014).

According to ISO 14004, achieving a balance between the environment, society, and economy is considered essential to meeting the needs of the present without compromising the ability of future generations to meet their needs. Sustainable development is achieved by balancing the three pillars of sustainability: environment, society, and economy. Organisations, public or private, large or small, in developed or emerging economies, have an impact on the environment and can be affected by the environment in return (ISO 14004).

In conclusion, environmental management is helpful to the general management of organisations by providing timely information in order to create options to contribute to sustainable development by protecting the environment by preventing or mitigating adverse environmental impacts, assisting the organisation in fulfilling compliance obligations, improving environmental performance, controlling how the organisation's products and services are manufactured, distributed, consumed and disposed of, obtaining financial and operational benefits that can result from the implementation of ecological alternatives, etc. (ISO 14001).

3. THE PLACE OF DECISION IN THE ENVIRONMENTAL MANAGEMENT SYSTEM

Decision-making is an attribute of the manager and, simultaneously, the most important activity within the organisation. The environmental decision “essentially presents an interdependence between a human entity and the environment in which it acts directly or indirectly” (Ewing, 2003) and “refers to any decision-making process where subsequent significant impacts on the environment are a possibility, this includes legislative design, strategic planning, granting of environmental certifications, environmental assessments, land development etc.” (Dediu, 2010), both perspectives merge on the impact of the decision on the environment, directly or indirectly.

The main aspects of environmental decisions are the environmental impact, sustainability, the benefits to the environment, and minimising environmental risk at all levels (Boghean, 2022).

The decision-making system is the most critical component of the environmental management system, with the most significant impact on the organisation's activity (Morosan-Danila, 2014). Thus, the ecological manager's mission is to determine the most effective solution to reach a result, one of several possible, to the exclusion of all others, so it carries a great responsibility. As a result, the rational process of choosing a line of action must be carried out logically, and its observance provides guarantees to the manager regarding the quality of the adopted decision.

By those above, the decision-making process includes the following three main stages (Petrescu, 2005): (1) the decision preparation stage – the possible solutions for solving the problem are outlined; (2) the stage of determining the optimal solution - feasible under the existing conditions and of actual decision-making; (3) the stage of motivation, transmission and control of the decision.

In a society oriented towards sustainable development, it behoves managers to adopt ecological thinking to direct the decision-making process and weigh between the interests of society in terms of sustainable development and those of the organisation. Thus, the profession in environmental management speaks of a vocation, a set of theoretical and practical knowledge that characterises the training of different people in the field of the environment.

4. CONCLUSIONS

Summing up, the decision-making system of organisations from the perspective of environmental management should be seen as a process of evolution in the effective highlighting of the relationship between the economy and the environment, and the context of concern for the protection of the environment, the multiple implications of decisions on the organisation's activity, society's results must be taken into account and last but not least, the impact of the decision on the environment. Thus, knowing the implications of a decision before its adoption guarantees, to some extent, the reduction of the risk of undesirable consequences after their materialisation and triggering a new decision-making cycle to correct the result.

Thus, we consider it appropriate for managers to undertake measures to reduce greenhouse gas emissions and air pollutants, improve energy and water efficiency, reduce waste, use renewable resources, and reduce toxic substances and dangers. We also believe that organisations could gradually move to a circular economy, focused on waste management and prevention, thus increasing the efficient use of available resources and abandoning the linear economy based only on consumption. Another major step would be promoting ecological products, through which consumers will prefer environmentally friendly products (Todos, 2022).

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