An overview of ethics of research and development in business area

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Abstract: The importance of ethics in research and development (R&D) has been increasing in recent decades, with more fields of activity involved. In the business field, ethics takes many forms, from ethical behavior to the effects of ethics in business. The objective of the paper is to provide an overview and identify the topics addressed on the ethics in research and development activity from the perspective of companies' businesses. The research methodology is qualitative, with an analysis of a sample of relevant papers that have studied ethics in R&D over the last 50 years, papers that were published in journals indexed in Web of Science Clarivate Analytics. The results obtained show that most of the papers were published in the second part of the selected interval, namely in this millennium. Most of the topics addressed were related to corporate governance and sustainability, ethical developments, changes and perceptions. The paper is a systematic review of the literature that contains useful approaches for researchers in identifying the importance of ethics in business, especially in R&D.

Keywords: ethics; business; research; development;

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Introduction

Research and development (R&D) are a driving force for the economies of all countries and a factor in the competitiveness of companies. The higher the investments in this field, the more stable the long-term performance of companies will be. Research and development activity in the business field also requires compliance with ethical rules that are transposed into company codes. It is known that in this field, fraud related to intellectual property is common through copying licenses, data theft, and other similar situations. Therefore, compliance with ethics can be a factor in increasing trust in companies that implement strict rules correlated with their social responsibility (Bouquet & Deutsch, 2008).

In the business literature, the ethical aspects of research and development in the business domain of companies have not been sufficiently highlighted. To fill this research gap, the objective of the paper is to provide an overview and identify the subjects addressed on the topic of ethics in the research and development activity from the point of view of the companies' business.

To achieve the objective of the paper, a qualitative methodology is applied, namely a systematic literature review based on a sample of 40 papers selected from journals indexed in Web of Science Clarivate Analytics published in the 50-year period 1975-2025 using the key phrases "ethics" and "research & development" (R&D) in the research areas Business Economics. From the sample, the first 10 papers that have accumulated the most citations in the analyzed period are analyzed.

The paper contributes to existing research by synthesizing information related to the field of study of ethics in corporate research and development. It also highlights the existing connections between the two concepts that are the subject studied. The paper continues with a preliminary literature review, followed by a presentation of the research methodology. The results obtained, together with discussions and conclusions, are presented in separate sections.

Literature review

In applying ethics, the person must be aware of the role that morality plays in the daily activity of an organization, research or business.

Thus, the codes of ethics of professions and entities are a tool in awareness to be ethically qualified as employees of a research organization and to be able to address common ethical issues associated with research (Slotfeldt-Ellingsen, 2023). Another current topic is related to research security to protect copyrights on research conducted. Thus, those responsible for conducting ethical research in R&D projects should develop ethical research models for new projects (Gabel, Schobert & Krüger, 2023).

General ethical considerations are becoming essential for companies. However, how companies consider moral objectives for their research and development (R&D) activities or the basis on which these activities are chosen has not been highlighted in public reports. (Stahl et al., 2019). Reijers et al. (2018) were concerned with studying ethics in research and innovation, so the systematic review they conducted identified certain specific methods of applying ethics that were grouped into three categories depending on when they are applied, namely before, during and after the completion of the research and development activity.

The concern regarding the systematic analysis of R&D publications is in the focus of research, so V and X conducted a systematic analysis of 42 articles on the impact of R&D internationalization on innovation within the company (Vrontis & Christofi, 2021). In this context, it can be considered that the proposed systematic analysis is based on the presented literature and comes to complement previous research with additional evidence.

Methodology

The research methodology is qualitative, based on systematic literature review. To identify the sample, the Web of Science (WoS) Clarivate Analytics database was chosen for the over 50-year period 1975-2025. The search for papers was carried out using the key phrases "ethics" and "research & development" (R&D), in the research areas Business Economics. After checking the initial results, a sample of 40 papers was found that met the selection criteria. The papers will be grouped by year, by document type, by Web of Science Categories, by Sustainable Development Goals (SDG). Also, the grouping will be by the countries from which the authors where affiliated and the publishers of the papers. For a deeper analysis, the first 10 papers that have accumulated the most citations are highlighted separately.

Results

Based on the information selected in Fig. 1, the evolution of the number of publications is presented.

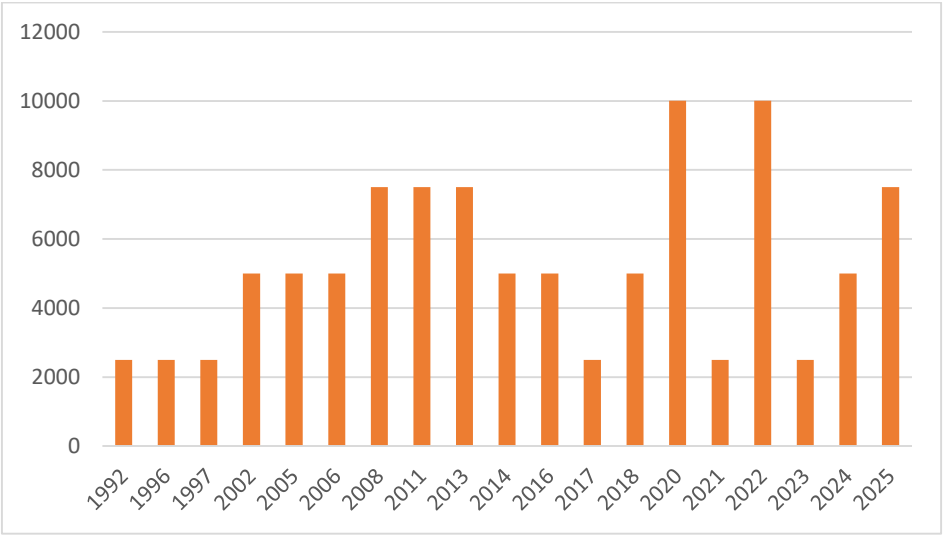

Figure 1. Evolution of numbers of papers, by years
Source: own projection based on WoS.

From Fig. 1 it can be seen that most works were published in the second part of the selected interval, most being published in the last 5 years. According to document type, the works can be classified into several categories, their distribution being presented in Fig. 2.

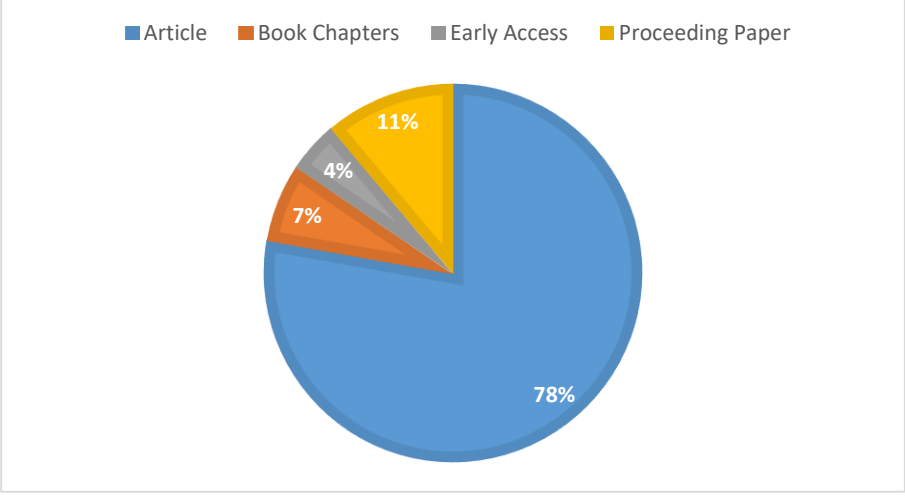

Figure 2. Distribution of papers by document types
Source: own projection based on WoS

Fig. 2 shows that 78% of the papers were classified in the article category, which shows that journals owned by prestigious editorial groups were interested in publishing this type of article. As mentioned in the methodology, only papers from the Business Economics research areas were selected, their structure by fields is presented in Fig. 3.

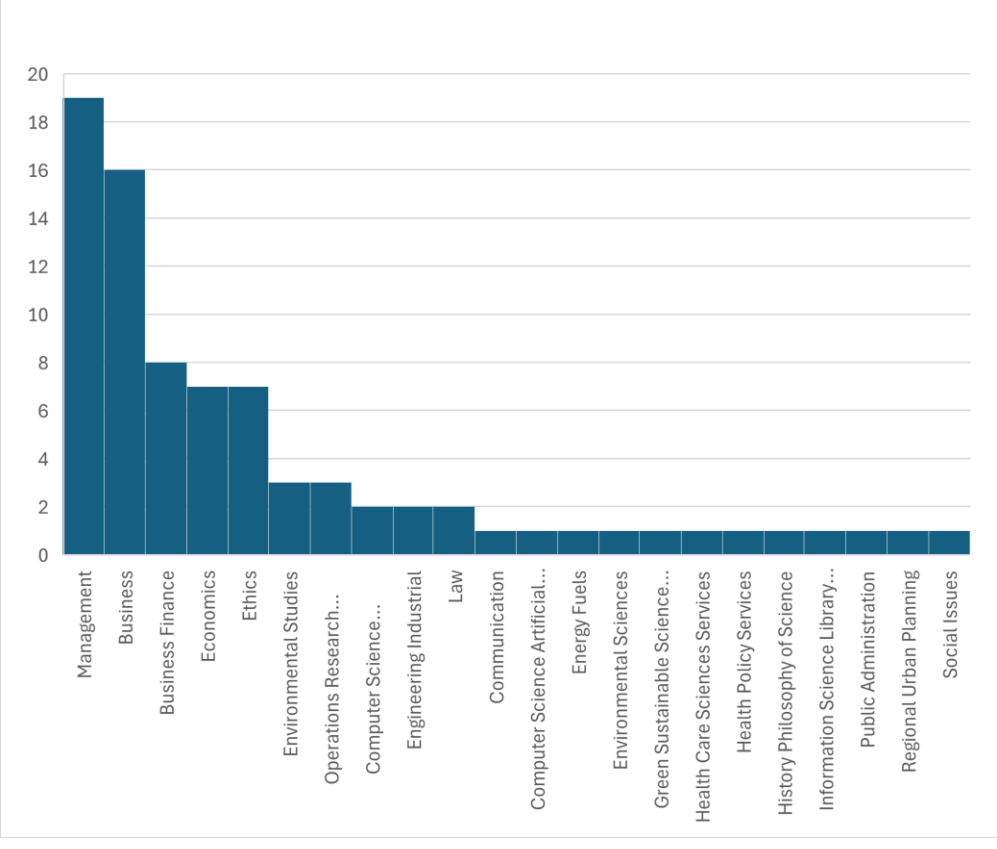

Figure 3. Distribution of papers by Web of Science Categories
Source: own projection based on WoS.

Figure 3 highlights the field of Management with the most publications, followed by Business, Business Finance and Economics. Other fields are also included in the figure because a journal can be indexed in more than one field, especially in the case of interdisciplinary journals. There are 18 fields involved, among which the most significant is Ethics, as is normal, but there are fields from both social sciences and sciences.

It is known that ethics is closely linked to sustainable development and social responsibility. Thus, publications are grouped in WoS and in the UN SDG categories. Figure 4 highlights the goals to which the published papers fall.

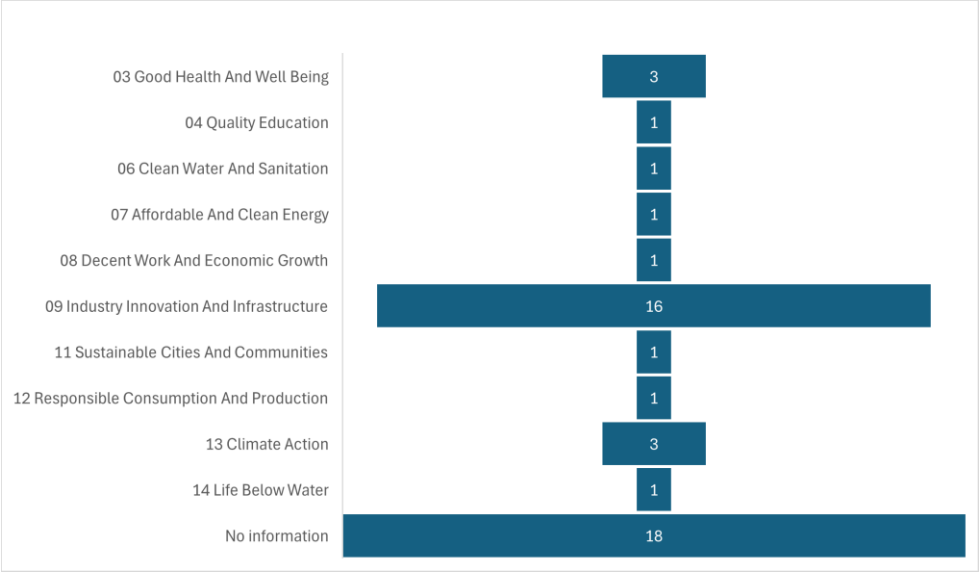

Figure 4. Distribution of papers by SDG
Source: own projection based on WoS

Figure 4 shows that almost half of the published papers do not fall under a specific goal, the main reason being that they were published before the existence of these goals. Another aspect to highlight is that some papers can be classified under more than one goal. It is found that most papers were classified under Industry innovation and infrastructure, which confirms that some of the selected papers are related to the business field. Another indicator analyzed is the country from which the authors of the works come, the structure by country being presented in figure 5.

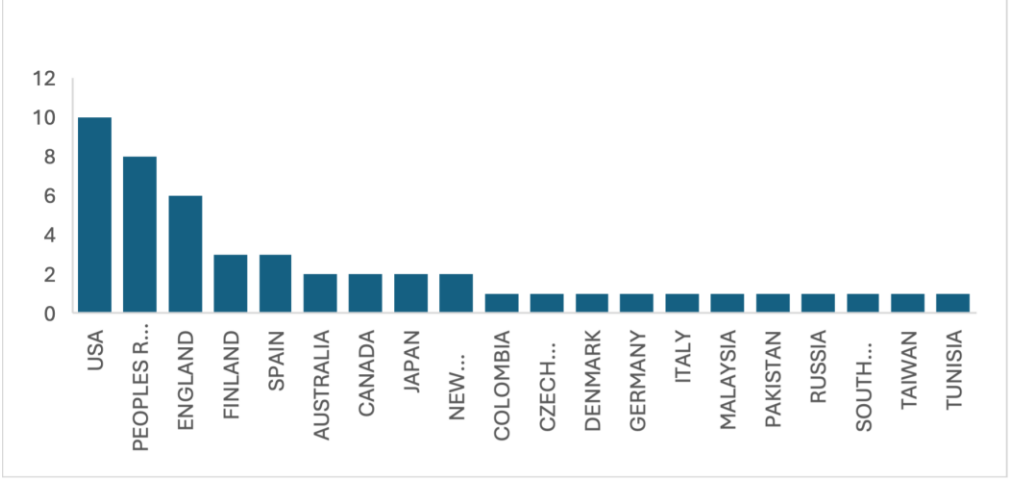

Figure 5. Distribution of papers by countries
Source: own projection based on WoS

Figure 5 shows that most authors were from the USA, followed by those from the Peoples R. of China and England. It is found that the interest of researchers in this subject was present on all continents, from developed and developing countries.

The analysis continues with the editorial groups that published the papers, the graphic representation is shown in Fig. 6.

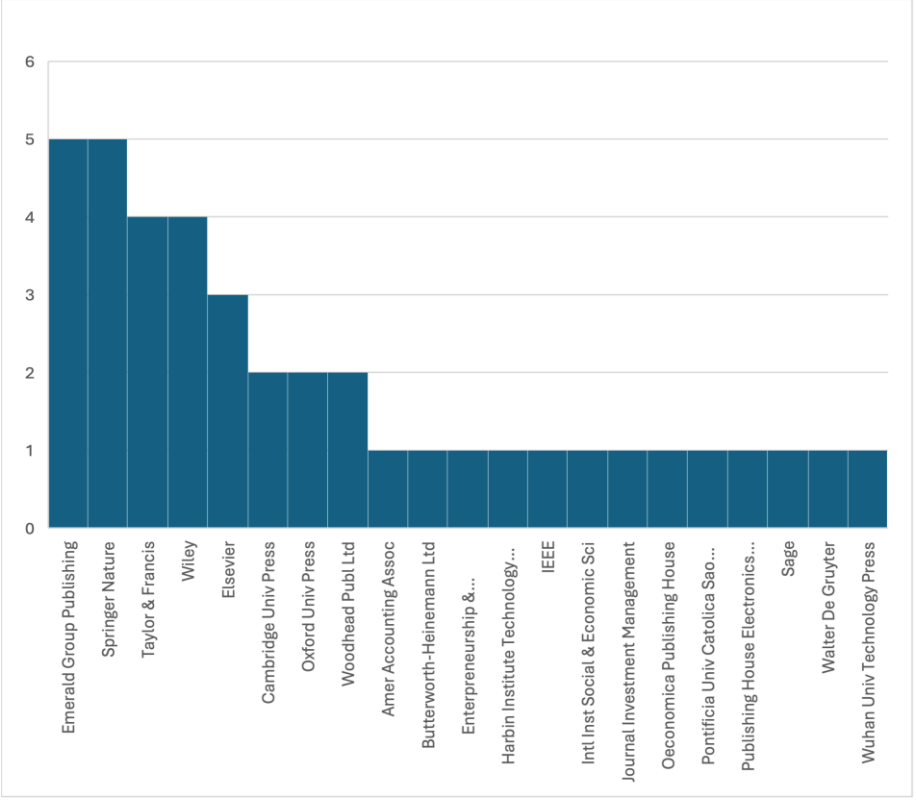

Figure 6. Distribution of papers by publishers
Source: own projection based on WoS

Figure 6 shows that the papers were published by prestigious publishing houses, so most works were published in journals owned by Emerald Group and Springer Nature publishing houses, with an equal number, 5 papers each. The ranking is followed by Taylor & Francis and Wiley, with an equal number of 4 papers. and Elsevier recorded 3 papers in the selected sample. This ranking shows that the most prestigious publishing houses were interested in ethical aspects in R&D.

The performance of published papers is measured by the number of citations. The papers in the sample accumulated 622 citations with an average of 15.55 citations. The top 10 papers with the most citations are presented in table 1.

Table 1. Top 10 papers by total citations

Title	Authors	Source Title	Year	Cita-tions	Aver./ Year
Gender Diversity in the Boar-droom and Risk Management: A Case of R&D Investment	Chen, Shimin; Ni, Xu; Tong, Jamie Y.	JOURNAL OF BUSINESS ETHICS	2016	148	14,8
Sustainability in supply chain management: suggestions for the auto industry	Xia, Yu; Tang, Thomas Li-Ping	MANAGEMENT DECISION	2011	70	4,67
Planning for IS applications: a practical, information theoretical method and case study in mobile financial services	Peffers, K; Tuunanen, T	INFORMATION & MANAGE-MENT	2005	58	2,76
The influence of ethical leadership on inno-vative perfor-mance: modeling the mediating role of intellectual capital	Ullah, Irfan; Mirza, Bilal; Jamil, Amber	JOURNAL OF MANAGE MENT DEVELOP MENT	2021	48	9,6
The impact of corporate social performance on a firm's multinationality	Bouquet, Cyril; Deutsch, Yuval	JOURNAL OF BUSINESS ETHICS	2008	46	2,56
Triple Bottom Line and Corporate Social Responsibility Performance Indicators for Russian Companies	Varyash, I.; Mikhaylov, A.; Moiseev, N.; Aleshin, K.	ENTREPRENEURS HIP AND SUSTAINABILITY ISSUES	2020	41	83
A new global deal on climate change	Hepburn, Cameron; Stern, Nicholas	OXFORD REVIEW OF ECONOMIC POLICY	2008	38	2,11
A social exchange perspective on business ethics: An application to knowledge exchange	Chen, S; Choi, C	JOURNAL OF BUSINESS ETHICS	2005	33	1,57
Evaluating future nanotechnology: The net societal impacts of atomically precise manufacturing	Umbrello, Steven; Baum, Seth D.	FUTURES	2018	18	2,25
Does religious culture matter for corporate risk-taking? Evidence from China	Li, Yaoqin; Xu, Xixiong	ASIA-PACIFIC JOURNAL OF ACCOUNTING & ECONOMICS	2020	17	2,83

Source: own projection based on WoS.

From the table results that the first 10 papers have accumulated an above-average number of citations, and the publication interval is between years 2005 and 2021. The papers were published in several journals, noting that three papers were published in the same journal, respectively Journal of Business Ethics.

The most cited paper and highest citation average is the research by Chen et al (2016). It shows that an important factor in risk management in the field of research and development is represented by gender diversity on boards of directors. This is associated with better risk management in this field, as female directors contribute to reducing the volatility of the firm's future performance, which arises from investments in research and development, and to mitigating the negative effects of risk in research and development on the cost of debt. The study was conducted on the case of over 10,000 American companies, the data being taken from renowned databases, namely Compustat, RiskMetrics and Thomson Financial, for the period 2008-2013.

A recently written paper, namely that of the authors Ullah et al. (2021), has accumulated a significant cumulative number of citations with an average of 9.6, which places it in second place in the top. This research is also in the field of management, emphasizing the importance of leadership, so ethical leaders can create supportive environments that promote trust and open communication, which leads to increasing the intellectual capital of employees by improving their skills and knowledge and by strengthening relationships within the organization. The results were obtained based on over 300 questionnaires received from managerial level employees from manufacturing companies in a region of Pakistan, the reference year being 2020. The topics addressed by the authors of the other top papers fall into the areas of sustainability and ethical developments (Xia & Li-Ping Tang, 2011; Varyash et al., 2020) changes and perceptions (Chen & Choi, 2005; Hepburn & Stern, 2008).

Previous literature reviews and systematic reviews related to ethics have addressed the relationship between ethics and research and innovation (Reijers et al., 2018; Vrontis Christofi, 2021), as well as aspects of professional ethics (Slotfeldt-Ellingsen, 2023). The authors' conclusions were similar to the results obtained in this systematic review, namely that ethics in research and innovation is important and that specific methods should be applied.

Conclusions

The purpose of the paper was to provide an overview of existing research in the field of ethics in research and development activity in business area. The research results showed that most of the papers were published in recent years and fell into the article category. Also, most were classified in the fields of Management and Business, as expected based on the selection criteria, but the existence of a high number of fields shows the disciplinary nature of the subject studied. The most common SDG is innovation in industry, which was again predictable, the industrial field being the most interested in research and development in business. Most authors come from universities in the USA and China, and the topics addressed referred to governance, as well as the derived aspects of ethics related to perceptions and social responsibility. The paper contributes to the existing literature through a systematic literature review on the topic of ethics and R&D and may be useful to both researchers and managers who find in this paper signals regarding the importance of ethics in R&D and the themes derived from this connection.

Of course, the paper also has limitations, one being methodological, given the use of a single database and the use of only two expressions to show the connection between concepts. Another limitation is related to the data obtained, the sample being relatively small, but this fact allowed for a more careful analysis of the data. Future research directions could fill the mentioned shortcomings by identifying other papers from other databases, selecting other scientific fields, as well as by supplementing keywords that can strengthen the link between ethics and R&D. Quantitative research could also be carried out to support the results of the systematic literature review.

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