ACADEMIA DE STUDII ECONOMICE DIN BUCUREȘTI

ȘCOALA DOCTORALĂ MANAGEMENT

English summary

HABILITATION THESIS

"Strategic Management of Research, Innovation, and Sustainability in the Context of Digital Socio-Economic Transformations: Theoretical, Methodological, and Applied Contributions"

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English summary

This habilitation thesis , entitled **" Strategic management of research , innovation and sustainability in the context of digital socio-economic transformations : theoretical, methodological and applicative contributions " ,** follows both retrospectively the contributions developed throughout my career, and prospectively the ways in which I intend to continue my research, education and doctoral coordination activity . The central idea that provides coherence The whole thesis is that technological transformation , sustainability, innovation and economic and social changes are interdependent processes, the understanding and management of which requires strategic , interdisciplinary **managerial** approaches and methodological tools appropriate to the complexity of the contemporary environment.

My professional career has an interdisciplinary character, built progressively by integrating seemingly different fields and experiences, but connected by a constant concern for research, innovation, performance , decision **-making and the development of organizational capabilities .** Initial training in the field of engineering and experimental research in chemistry and materials technology contributed to the development of a perspective based on rigorous measurement , experiment, evaluation of results and their transformation into applicable solutions. The first doctorate, in organic chemistry , consolidated this orientation towards applied research and innovation, materialized including through patentable results and solutions with potential for capitalization.

Subsequently, my concerns turned to the processes by which research, development and innovation are organized, financed, evaluated, managed and capitalized on an economic, institutional and social level. The second doctorate, in the field of economics, with the topic " **Evaluation of research - development - innovation in the context of strategic** management **" ,** represented an **essential** stage in consolidating my scientific profile in the **field of Management** , by integrating previous technological experience with the economic, strategic and managerial perspective . The activity in the management of research programs and projects, the experience accumulated in European and national programs, as well as the university career beginning In 2004 they gradually consolidated a profile focused on research and innovation management , project management , performance evaluation, organizational governance , public policies and sustainable development .

From the perspective of the scientific contributions presented in the thesis , my recent activity is structured around two major and complementary directions, both relevant to the field of Management. The first direction aims at **management of sustainability and socio -economic transformations , and the second refers to the use of bibliometric analysis, modern information technologies and advanced data analysis methods to understand and substantiate decisions in a complex economic, organizational and social context** . These directions converge around a common problem: how organizations , economies and societies transform under the influence of innovation , technologies, environmental changes , institutional pressures and new forms of knowledge production, circulation and use. These directions are not independent, but converge around a common problem: how organizations , economies and societies transform under the influence of innovation , technology , environmental changes and new forms of knowledge production and use.

The first direction brings together *scientific and professional contributions on sustainability management , corporate social responsibility , supply chain management, urban and regional development , reducing socio -economic inequalities , economic resilience and public policies oriented towards sustainable development* . In our research , we have approached sustainability in a multidimensional sense , integrating economic performance , organizational responsibility, resource use, institutional quality, social equity, technological progress, and the capacity to adapt to change. We have followed these processes at different levels, starting from organizations and supply chains and extending the analysis to urban communities , regions, national economies, and financial systems.

Research on corporate social responsibility has highlighted the importance of integrating responsibility and sustainability into an organization 's strategy and resource allocation processes. The results support the idea that social reporting and responsibility codes generate more consistent effects when there is congruence . between stated objectives, organizational actions, and stakeholder expectations. In a complementary manner, research on sustainable supply chain management has highlighted the effects of supplier selection strategies, product stewardship , and logistics management on the managerial functions of planning, execution, coordination, control, and collaboration, demonstrating that sustainability must be integrated in the organizational managerial architecture, not treated as a peripheral activity .

Another component of this direction concerns the sustainability of communities and urban development. Studies on urbanisation and youth involvement have highlighted the role of perceptions of environmental quality, access to green spaces and citizen participation in the transformation of cities . Research on the flexibility of energy consumption in residential and commercial buildings has demonstrated, in turn , how digital infrastructures , big data and demand response mechanisms can contribute to the development of smart cities and more efficient use of energy. This research constitutes a relevant example of the convergence between the two axes of the thesis, as energy sustainability is analysed through data infrastructures and information technologies.

Research on regional development In Romania , they have demonstrated that prosperity cannot be assessed exclusively through GDP, and that it is necessary to integrate indicators regarding education, health , employment , poverty and the dynamics of the business environment. Studies conducted on Central and Eastern European countries have deepened the relationship between inequality, the labor market, globalization, education, governance and the informal economy, highlighting the fact that reducing disparities requires integrated policies and institutions capable of transforming economic growth, in opportunities distributed more equitably, prospective dimension of sustainability was addressed through the forecast of sustainable development indicators and the assessment of Romania's trajectory in relation to the 2030 Agenda . This research supports the need to move from simple retrospective monitoring to the use of forecasting tools that allow for the early identification of areas where developments are moving away from the assumed objectives. More recently, research on the vulnerability of financial markets to natural disasters has extended this perspective to the concept of resilience , demonstrating the sectoral, dynamic and asymmetric nature of the risks generated by extreme events and the need for models capable of capturing volatility and tail risks .

The second main direction of the thesis is represented by the *use of bibliometric analysis and information technologies in economic and social research* . Within this framework, technology is simultaneously viewed as a factor of transformation of organizations and society , as a source of new categories of data and as a methodological tool for the analysis of complex phenomena. The research targeted technologies and fields such as cloud computing, blockchain, social media, machine learning, deep learning, artificial intelligence , disinformation, autonomous systems and renewable energy communities , *all* of *which are analyzed from the perspective of*

implications for ***organizational management, public policies, governance and decision-making processes*** .

A relevant example is the research on cloud computing adoption in the European Union, in which interpretable machine learning and Explainable AI methods were used to identify factors that explain differences in digital maturity . The results highlight the complementarity between infrastructure , digital skills, ICT specialists, organizational resources and socio-economic context, demonstrating that investment in technology does not automatically generate digital transformation if it is not supported by human capital, managerial capacity , organizational culture and institutional support.

Driven research has been another step in the development of the methodological profile. Studies on attitudes towards COVID -19 vaccination have used millions of Twitter posts, automated classification , Transformer models, and longitudinal analysis to investigate social phenomena unfolding in contexts characterized by uncertainty and polarization. These works demonstrate the potential of digital traces to observe social dynamics at a scale difficult to achieve with traditional methods, but also highlight the need for cautious interpretation regarding the representativeness, validity , and context of the data.

At the same time, the bibliometric analysis of the evolution *in* my work of the tool intended for the quantitative evaluation of research results towards a way of mapping the structures and evolution of scientific fields, *with direct relevance for research management , the evaluation of academic performance and fundamental political research-development-innovation* . Studies on Grey System Theory, renewable energy communities , happiness in the context of the pandemic, fake news, disinformation and applications of artificial intelligence have used bibliometrics to identify relevant authors and institutions, collaboration networks, thematic clusters and changes over time in the conceptual structure of the fields. Combining bibliometric indicators with network analysis, n-grams, three-field graphs, multidimensional scaling, clustering and topic modeling demonstrates the possibility of transforming large volumes of scientific metadata into a structured representation of the frontiers of knowledge and into a support for *managerial decisions regarding research prioritization* .

The problem of disinformation illustrates In particular, the dual nature of technological progress and the importance of responsible management of emerging technologies. Digital platforms and artificial intelligence can facilitate the rapid production and distribution of

manipulative content, but machine learning, deep learning and natural language processing can also be used to identify it. The research demonstrates the formation of an interdisciplinary field in which computer science, communication, social behavior, reputational risk management and public policies become increasingly interdependent, supporting the need for future approaches that combine technical accuracy with contextual analysis, ethics and psycholinguistic characteristics of information.

A transversal characteristic of the entire presented activity is *methodological pluralism* . Throughout my career I have used experimental methods, questionnaires, statistical analyses, regressions, ANOVA, panel data models, mediation and moderation, forecasting , econometric models for time series and volatility, multicriteria methods, bibliometrics and network analysis. In the recent stage , these tools have been complemented by machine learning, clustering, natural language processing, Transformer models and explainable artificial intelligence . I believe that this diversity does not represent an end in itself ; the method must be selected Depending on the research question, the characteristics of the data and the type of explanation sought .

The impact of the scientific activity is supported by an extensive portfolio of publications, projects, innovation results and collaborations . The updated documents used in the thesis record *22 books and university courses, 161 papers published in specialized journals, 158 contributions presented at scientific events and published in volumes , 79 articles reported in ISI/Web of Science journals and participation in 95 research contracts, along with a portfolio of patents and patent applications. The reported bibliometric indicators are h-index 10 in Google Scholar, 13 in Scopus and 14 in Web of Science.* Beyond the quantitative dimension , I consider the continuity of impact relevant : works belonging to different stages of the career continue to be used and cited, and recent results on sustainability, bibliometrics, artificial intelligence and socio -economic transformations contribute to the consolidation of a distinct scientific identity in the *area of research management , innovation and sustainability* .

My scientific impact is also supported by **the development of human resources within the Doctoral School of Business Administration of Altınbaş University in Istanbul (Turkey), together** with Prof. Dr. Muzaffer AYDEM İR — **a doctoral framework with** strong practical relevance and a high potential for international visibility . A representative example is the **co - supervision of the doctoral thesis of Dr. Hü samettin Onur Tuğman** , **entitled** " The impact of

cognitive distortions on business performance through strategic decision-making factors . " (Decision Number: E -96136591-100-51408

My contributions are reflected, first of all, in the substantiation of a model that links cognitive factors to organizational performance. Through this boundary approach — what integrates management with neuroscience and behavioral economics — , the research analyzes the decision-making mechanisms and cognitive errors that influence performance at the organizational level, while promoting the concept of " Neuro-Leadership " and neuro-strategic models applicable in the business environment.

I serve on **doctoral committees** responsible for evaluating the professional training and research progress of PhD candidates in the field of economic management. Within these committees, I contribute to assessing the theoretical grounding and the level of research achieved by evaluating the quality of the research plan and the relevance of the stated objectives. Methodological aspects are also analyzed, including the coherence between the study design, analysis methods, data collection tools, and the logic of result interpretation. Throughout the doctoral thesis preparation process, I provide evaluative support to assess the originality and scientific value of the projects, highlighting both strengths and potential research directions. Within the institutional framework, I assess the extent of the candidate's integration into research activities, considering publication strategies, the dissemination of results, and participation in scientific endeavors. The feedback provided is structured and includes recommendations regarding: clarifying contributions to the field of economic management; strengthening the structure of the work and the scientific argumentation; and reinforcing the links between the economic issues addressed and the conceptual and methodological framework employed.

In my academic and expert activities, my contributions aim to strengthen research quality and maximize scientific impact. To this end, I serve on bodies with **deliberative and consultative roles in the field of research and innovation**. As a member of the **National Council for Research Ethics** (pursuant to Order no. 20899/2022), I have helped strengthen the framework for integrity and good scientific practice, thereby enhancing the credibility and sustainability of scientific outcomes from research, development, and innovation (RDI) projects. Through my **membership in the Romanian-American Academy of Arts and Sciences** (ARA, 2024), I leverage my expertise within academic networks, facilitating scientific dialogue and collaborative opportunities that can boost visibility and knowledge transfer.

As part of the **Consultative College for RDI** (Standing Commission no. 3, pursuant to MEC Order no. 6574/21.10.2025), I participate in shaping the strategic directions of research development, offering contributions focused on performance, quality, and high-impact scientific results.

My contributions are significant in that they involve evaluating and formulating positions within decision-making processes, promoting quality standards and research integrity, and supporting a strategic orientation of the RDI system toward valuable, scientifically relevant, and sustainable outcomes.

The impact was manifested through projects, academic leadership and institutional building. Since 2018, as director of the Institute for Advanced Research of the Academy of Economic Studies in Bucharest, I have pursued the consolidation of interdisciplinary research capacity, infrastructure development , digitalization, Open Science and the integration of researchers into national and international networks. The succession of projects ORFEUS, ASEPLUS, ECON_X, OPEN FUTURE and, more recently, ASE RISE reflects a cumulative *managerial approach , through which* successive projects have built reusable competencies, infrastructures, networks and institutional mechanisms. The Data Science, Big Data, Circular Economy and Experimental Economy Laboratories , in this context , are not only research infrastructures, but also organizational environments for the training of doctoral students, the development of interdisciplinary collaborations and the consolidation of institutional research capacities. My role is not limited to specific guidance , but includes strategic direction and connecting PhD students to research projects, with the aim of increasing the quality and relevance of results, as well as the ability to contribute to international research **.**

The teaching activity complements directly in the research activity. Since 2004 I have carried out activities in the field of research and development management , public and European project management, investments, decision- making and environmental management. I have constantly followed the integration of research results and professional experience in the teaching process, the coordination of student work and the development of my own educational resources. At the current stage I consider it essential to move from transmitting experience to creating contexts in which students and young researchers can develop their own autonomy, through their integration into projects, laboratories and scientific communities .

The managerial experience has evolved, in turn , from the responsibilities exercised in three successive periods as vice - *dean - regarding university programs and research, research-development-innovation and quality management , respectively the relationship with the economic-social environment and student life . – towards institutional leadership in research* . Participation in research evaluation, ethics and consultation bodies , editorial activity and involvement in professional communities complete this dimension and demonstrate the ability to contribute not only through individual scientific results, but also through the organization of research *and* the *development* of academic ecosystems . oriented towards performance , integrity and social relevance .

The second part of the thesis presents the career development plan and future perspectives, built around the integration of education, research , academic leadership and involvement in the academic and socio-economic community . Obtaining the ability and developing the activity of doctoral coordination is a fundamental objective. I propose a mentoring model based on progressive autonomy , methodological rigor , interdisciplinarity, integrity and participation of doctoral students in the entire research cycle , from literature analysis and question formulation to publication , dissemination and development of new projects.

Scientifically , I will continue research on sustainability, resilience, the circular economy , regional development and inequalities , increasingly integrating the dimension of digital transformation . and *data-driven managerial decision-making* . In parallel, I intend to deepen the use of explainable artificial intelligence, social media analytics and NLP and extend bibliometrics to hybrid models that combine bibliometric networks with topic modeling, semantic analysis and artificial intelligence . A distinct direction will look at research evaluation and Open Science , with a focus on how digitization, access to data and new evaluation systems and research governance practices are changing the processes and behaviors of academic organizations .

In the educational field, I intend to develop project- and problem - based learning methods, to responsibly integrate artificial intelligence . in the teaching process and to strengthen the methodological and research skills of students. Partnerships with the business and social environment will be capitalized for applied research , projects with access to real problems and data, evidence-based consultancy and continuing professional development activities . At the same time, the involvement of students in research, conferences, workshops and activities with social

relevance will support a model in which the student becomes an active participant in the academic community .

A distinct priority is the internationalization of education and research . The experience gained through mobilities, European projects and collaborations with universities from numerous countries will be oriented towards the development of stable institutional relations, joint projects, comparative research, publications, mobilities and doctoral collaborations . Participation in the INSEAI project, funded by HORIZON-MSCA, and the experience gained in the European framework programs constitutes a basis for new Horizon Europe and MSCA applications. The international networks of the laboratories of the Institute for Advanced Research will also be used for the integration of doctoral students into international scientific communities .

Overall , the thesis reflects a path built through the convergence of science , technology, management and social responsibility. From experimental research and innovation, to research and project management and, subsequently, to sustainability, the analysis of socio-economic transformations , big data and bibliometrics, my work has constantly pursued the understanding of complex processes and the valorization of knowledge in support of decision-making and development.

I believe that this experience provides the foundation for the next stage of my career and, in particular, for doctoral supervision . in the field of Management. Through empowerment I aim to transform the experience I have gained in a framework for training autonomous, integrated and internationally connected researchers, capable of combining theoretical and methodological rigor with the responsible use of emerging technologies and the economic and social relevance of their research.