Strengthening Albania's Innovation Ecosystem: Strategic Investment and Collaborative Approaches in Scientific Research and University-Industry Partnerships

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Abstract

Purpose: *The purpose of this paper is to examine the efforts undertaken by Albania to strengthen its research and innovation framework in alignment with European standards. Specifically, it seeks to evaluate the initiatives and strategies launched by the Albanian government to enhance performance in scientific research, foster innovation, and promote collaboration between universities and industry, as well as to incorporate the research of higher education institutions and research institutions into the European Research Area, through the examination of*

several strategic documents from the European Commission, OECD, RCC, and the Albanian government. In 2018, the European Commission, in its Strategy for the Western Balkans, highlighted education, scientific research, and innovation as key factors for fostering economic development, competition, and social cohesion in the region. Albania's obligation to undertake political, legal, institutional, and financial initiatives to support the consolidation of the research and innovation system stems from the Stabilization and Association Agreement (SAA). Within this framework, the Albanian government has initiated a series of actions, allocated budgets, intervened in structures, and launched informative and awareness-raising campaigns regarding applications for EU funds, particularly in Horizon 2020.

***Methodology:** This paper adopts a qualitative research methodology, drawing on a range of reports, strategic documents, and legal frameworks produced over the past five years. The analysis is structured around key themes such as innovation, scientific research, university-business collaboration, and the broader innovation ecosystem, with the research utilizing these focal keywords to identify and evaluate relevant materials.*

***Findings:** In Albania, innovation ecosystem faces coordination challenges due to fragmented responsibilities across ministries, limiting effective resource allocation and support for enterprises. Strengthened collaboration between academia and industry is needed to boost innovation and technology transfer.*

***Value:** The paper contributes to the existing literature by proposing a comprehensive action plan that prioritizes research infrastructure, enhances the legal framework, and provides targeted services to support technology absorption, all of which would bolster Albania's innovation ecosystem.*

***Keywords:** scientific research, innovation, university-industry collaboration, innovation ecosystem*

Introduction

The social and economic development of a region is linked to its capacity to generate and effectively translate knowledge into innovation, a process that requires the active engagement of key institutional agents, including universities, businesses, and government entities. The promotion of a knowledge-based economy and the fostering of innovation have emerged as critical priorities for countries in Western Balkans and beyond. In this context, universities play a central role in the production of knowledge, which is essential not only for driving economic and social progress but also for facilitating the transfer of this knowledge across various sectors. By bridging the gap between research and practical application, universities serve as key actors in the broader innovation ecosystem, contributing

significantly to the region's competitive advantage and long-term development. (Etzkowitz, 2004, Guerrero-Cano, Urbano, & Kirby, 2006).

This paper draws upon a comprehensive analysis of strategic documents issued by a range of influential bodies, including the Albanian government, the European Commission, the Organisation for Economic Co-operation and Development (OECD), the World Bank, and the Regional Cooperation Council, among others. These documents collectively address key themes such as scientific research, innovation, the integration of higher education institutions into the European Research Area (ERA), and their broader contribution to the economic development of Albania. By critically examining these strategic frameworks, the paper aims to explore the role of policy in shaping the landscape of research and innovation in Albania, particularly in the context of its efforts to align with European standards and enhance its economic competitiveness. Albania's obligation to undertake political, legal, institutional, and financial initiatives to support the consolidation of the research system stems from Article 109 of the Stabilization and Association Agreement (SAA)[1], which defines the pillars of cooperation between Albania and the European Union in the fields of scientific research and technological development. Meanwhile, the 2018 Strategy of the European Commission for the Western Balkans highlights that 'education, culture, youth, and sports, together with scientific research and innovation' constitute the key areas for fostering the economic development of the region (OECD, 2020).

One of the obligations of the Albanian government for the year 2022-2023, according to the 2021 Progress Report (European Commission, 2021), was to increase investments in scientific research in accordance with the principles and priorities of the European Research Area. Investment in research and development is essential for enhancing the country's competitiveness in both the domestic and international markets and for promoting innovative development in industry and the services sector. The indicators reveal that collaboration between business and academia continues to remain weak; the percentage of companies investing in 'Research and Development' in Albania is low, approximately 18%, and accounts for only 0.03% of Gross Domestic Product (European Commision, 2021).

Small and Medium-sized Enterprises (SMEs) are integral to the Albanian economy, accounting for approximately two-thirds of total employment and playing an important role in driving economic growth and social development (INSTAT, 2022). To enhance their productivity and generate higher-wage employment opportunities, SMEs must invest strategically in skills development, digitalization, and innovation (OECD, 2022). However, despite these imperatives, progress in fostering innovation within Albanian SMEs has been limited. According to the OECD, Albania ranks the last after Bosnia and Hercegovina in the Western Balkans region in terms of innovation performance.

[1] https://www.dap.gov.al/publikime/dokumenta-strategjik/61-marreveshja-e-stabilizim-asociimit

In 2023, Albania's innovative capacity remains limited, further exalarated by the absence of comprehensive and reliable statistical data, which hinders an accurate evaluation of the country's innovation performance and its broader implications for economic development. Recent governmental initiatives have sought to align Albanian scientific research with international standards for the 2022-2024[2] period, drawing upon strategic frameworks such as the European Framework Program for Research and Innovation, Horizon Europe, etc. This alignment is guided by a suite of foundational documents, including the Western Balkans Agenda for Innovation, Research, Education, Culture, Youth, and Sports[3]; the European Global Approach for Scientific Research and Innovation; the European Strategy for International Cooperation in a Changing World; the European Strategy for Research and Innovation (2020-2024); the EU Strategic Plan for Research and Innovation (2020-2024); the Principles of the European Research Area; and the European Research Area Policy Agenda: Overview of Actions Infrastructure Consortium (ERIC)[4]. Together, these frameworks underscore Albania's commitment to enhancing its research and innovation capacity through closer integration with European standards and priorities.

This paper seeks to provide a comprehensive analysis of key documents at the international, European, and Albanian levels that address Albania's performance in scientific research, innovation, university-industry collaboration, and the integration of Albanian higher education institutions into the European Research Area.

The objectives of this study are as follows:

- To critically examine the legal frameworks, strategic initiatives, and national projects that pertain to research, innovation, and university-industry collaboration in Albania.
- To conduct an in-depth analysis of documents and reports published by the European Commission and the Regional Cooperation Council, specifically focusing on scientific research and innovation in the Western Balkans, with an emphasis on Albania.
- To review international reports from organizations such as the OECD and the World Bank that assess the current state of innovation, scientific research, and university-industry collaboration in Albania.

The central research question guiding this study is: *How is Albania performing in the domains of scientific research, innovation, and university-business collaboration?*

[2] https://research-and-innovation.ec.europa.eu/system/files/2021-11/ec_rtd_era-policy-agenda-2021.pdf

[3] International cooperation with the Western Balkans in research and innovation (europa.eu)

[4] https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/european-research-infrastructures/eric_en

To further refine the analysis, the study also explores several subsidiary questions: a) *What legal, structural, and financial interventions has the Albanian government implemented to support these areas?* b) *What tangible outcomes have emerged from these interventions?* This paper adopts a qualitative research methodology, drawing on a range of reports, strategic documents, and legal frameworks produced over the past five years. The analysis is structured around key themes such as innovation, scientific research, university-business collaboration, and the broader innovation ecosystem, with the research utilizing these focal keywords to identify and evaluate relevant materials. Through this approach, the study seeks to provide an in-depth understanding of Albania's current standing and progress in these critical areas of economic and social development.

This paper is not exhaustive in scope, as it does not aim to review all relevant publications within the last five years. Rather, its primary contribution lies in shedding light on the framework through which Albania seeks to advance scientific research and innovation, underscoring the critical role of universities in formulating effective research strategies and institutional action plans. For researchers, this study provides an understanding of current top-down policies, aiding in the alignment of their work with national and European priorities. By fostering a gradual transformation of researchers into academic intrapreneurs, the paper highlights the "third mission" of universities—encompassing activities such as patenting, startup creation, industry collaboration, and student engagement—thereby facilitating economic and social development.

Literature review

Core concepts

This section introduces key foundational concepts pertinent to scientific research, innovation, and university-industry collaboration, based on Law No. 80/2015, *On Higher Education and Scientific Research in Higher Education Institutions in the Republic of Albania.*

Research activities are conducted in higher education institutions; inter-institutional research and development institutes and centers; research and development institutes affiliated with ministries, as well as other institutions, whose activities are regulated by specific legislation[5].

Higher Education Institutions are legal entities that provide higher education or vocational training beyond secondary education and depending on the type of

[5] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdf; pg. 32

institution, conduct scientific research as part of the established higher education system. They operate in accordance with the applicable legal and sub-legal acts[6].

Basic scientific research is a research activity aimed primarily at expanding, deepening, reconceptualizing, and reintegrating scientific knowledge about studied phenomena and enhancing theoretical understanding of the interactions among various actors and the processes through which they influence one another[7].

Applied scientific research is the research activity aimed at finding practical and specific solutions, with the primary objective of utilizing theoretical knowledge for implementation in practice[8] .

The Council of Higher Education and Scientific Research (KALKSH) is a consultative body for policies concerning higher education and scientific research, operating under the authority of the minister responsible for education[9]

The National Agency for Scientific Research and Innovation (NASRI) is a public institution under the ministry responsible for education and science, with the primary task of allocating funds for scientific research programs based on projects submitted by higher education institutions and research institutions[10]

The national database for scientific research in higher education includes: a list of defended doctoral theses and their corresponding abstracts; a list of master's and bachelor's theses that have been defended, along with their respective abstracts; and an updated list of the scientific contributions of the academic and research staff of higher education institutions and research institutions, which is administered and updated by NASRI[11].

Research Infrastructures - are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. They include major scientific equipment, knowledge-based resources such as collections, archives and scientific data, e-infrastructures, such as data and computing systems and communication networks and any other tools that are essential to achieve excellence in research and innovation (Regional Cooperation Council, 2022).

The entrepreneurial university – this concept integrates the economic development at the university as an academic function along with teaching and research. It is this "knowledge capitalization" that is the heart of a new mission for the university, connecting universities with knowledge users more strongly and establishing the university as an economic actor in itself (Etzkowitz & Zhou, 2017). The entrepreneurial university means offering technology transfer offices

[6] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdf; pg. 3
[7] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdf; pg.3
[8] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdfl pg.3
[9] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdfl; pg.5
[10] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdfl; pg. 6
[11] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdf; pg. 6

and science parks, it provides an emerging perspective that aims to provide a broader social and economic benefit to the university ecosystem, with the creation of entrepreneurial thinking for job generation. These involve students, alumni and entrepreneurs, as they also provide entrepreneurship centres, accelerators, student business plan competitions, collaboration networks with industry and alumni (Siegel & Wright, 2015).

Third mission of the university - it consists of wide-ranging and recurring concepts such as the 'entrepreneurial university', 'technology transfer' and 'Triple Helix Model partnerships' (Trencher et al., 2014) . Furthermore, the Third Mission refers to an extensive array of activities performed by higher education institutions which seek to transfer knowledge to society in general and to organizations, as well as to promote entrepreneurial skills, innovation, social welfare and the formation of skills and competences.

Triple Helix Model – This model establishes an interactive relationship between universities, companies and government, so that each link has a responsibility: the university is responsible for developing knowledge while companies are responsible for the practical application (production of goods and services) and the government for developing public policies to finance and reduce the difficulties encountered during the development of a culture of innovation (Etzkowitz & Leydesdorff, 1997)..

Quadruple helix Model- the approach that investigates the interactions between university-government-enterprise - civil society and the media (Carayannis & Campbell, 2009). In this way, the Quadruple Helix Model of innovation recognizes four major actors in the innovation system: science, policy, industry, and society. In keeping with this model, more and more governments are prioritizing greater public involvement in innovation processes.

The Current Situation of Innovation Ecosystem in Albania

The business environment in Albania, according to the European Commission, continues to exhibit several structural weaknesses, primarily related to a lack of knowledge, a high level of informality, and limited financial literacy, which create few opportunities for business financing (European Commision, 2021). While corruption continues to be a real problem for businesses across the Western Balkans, Albania's position in Transparency International's Corruption Perception Index has worsened since 2016, ranking it among the lowest in the region alongside Bosnia and Herzegovina (Transparency International, 2022). According to OECD (2022), the energy infrastructure and the fiscal system represent another significant problem, compounded by the gap in human resource capabilities, a consequence of the quality of the education system, and the still

low budget allocation for education, which hinders economic improvement and diversification of the economy, as well as limits the continuing education of employees in Albanian companies.

Although SMEs play a significant role in job creation and economic growth, according to the World Bank, they must invest in skills, digitalization, and innovation to increase productivity and ensure higher wages for employees. SMEs often lack the resources to invest in training for employees; therefore, the government needs to intervene to minimize the skills gap and upskill the workforce (World Bank, 2022). The skills gap in Albania is increasingly deepening compared to the Western Balkans region in recent years, largely due to the massive emigration of high skilled individuals. This has significantly and continuously impacted both society and the economy, highlighting the urgent need to support entrepreneurial skills.

For this reason, the government is increasingly emphasizing the creation of a favorable environment for innovation and knowledge development, supporting entrepreneurship and startups, with a particular focus on enhancing innovation capacity at the firm level (OECD, 2022). It should also be noted that some improvements have been made in enhancing the innovation framework and government institutional support services for innovative SMEs.

A comprehensive assessment of Albania's economic performance in terms of innovation remains challenging due to the lack of complete statistical data. While there are concrete steps being taken toward innovation policies in Albania, implementation is hindered by limited funding and the large number of implementing bodies. There are now three line ministries and three agencies Albanian Investment Development Agency (AIDA), the National Agency for Scientific Research and Innovation (NASRI) and the National Agency of Information Society (NAIS) that share responsibility for policy implementation, which has led to an unclear definition of competencies, a lack of ownership, overlapping support measures and ineffective budget allocation (OECD, 2022).

Progress has been made in improving legislation for the protection of intellectual property, which will gradually impact the quality of scientific research. Particularly, the National Strategy for Intellectual Property 2022–2025[12] , includes among its political objectives "the development and strengthening of institutions involved in the enforcement of intellectual property rights," with the aim of "increasing the quality level of services provided by the State Agency for Intellectual Property (DPPI) and the Copyright Directorate". Another important objective is 'the establishment of technology transfer centers' with a goal to complete the establishment of centers in public higher education institutions by 2025; however, Albania is still far from realizing this goal (OECD, 2022).

[12] https://ishmt.gov.al/wp-content/uploads/2022/06/STRATEGJIA-IP-2022-2025-E-MIRATUAR-4.pdf

Simultaneously, the Strategy for Business and Investment Development in Albania (2021-2027)[13] places a strong emphasis on innovation in SMEs and the links between industry and academia to stimulate economic growth. Albania has made some progress in developing the Smart Specialization Strategy and is adopting a positive approach to creating an innovative ecosystem, primarily focused on startups and dedicated legislation for their establishment. However, according to the OECD, coordination in the implementation of the innovation policy framework remains problematic (OECD, 2022).

Although there have been efforts in recent years to support startups by public[14] and private organizations [15,16,17], these initiatives have primarily focused on acceleration programs, technical assistance, mentoring, and training on investor relations, with some offering the possibility of small-scale monetary awards. However, support for SMEs in innovative activities remains very limited, particularly following the efforts of the Albanian Investment Development Agency (AIDA) and certain funds dedicated to SMEs, which were disrupted after the November 2019 earthquake and the extraordinary situation of COVID-19.

Furthermore, efforts to stimulate collaboration between academia, research institutions, and industry remain minimal. It is sufficient to highlight that, according to the European Commission's Progress Report, R&D expenditures in 2020 amounted to 0.3% of GDP, significantly below the government's target of 1% of GDP by 2022. (European Commision, 2021). Financial incentives to promote business-academia collaboration remain largely nonexistent. In 2022 for the first time, the National Agency for Scientific Research and Innovation (NASRI) allocated funds for projects dedicated to collaborations between academia and industry[18].

Regarding the data collection at the national level, despite some improvements made by the Institute of Statistics, Albania continues to face deficiencies that limit the extent to which the implementation of innovation policies can be effectively monitored and evaluated. Furthermore, this issue has hindered Albania's ability to participate with complete data in major international initiatives, such as the European Innovation Scoreboard (OECD, 2022).

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[13] https://financa.gov.al/wp-content/uploads/2021/10/Strategjia-e-Zhvillimit-t%C3%AB-Biznesit-dhe-Investimeve.pdf

[14] https://sipermarrja.gov.al/java-globale-e-sipermarrjes-2022/

[15] https://junior-albania.org/programs/ja-be-entrepreneurial/

[16] https://junior-albania.org/programs/junior-up/

[17] https://uplift.al/

[18] http://nasri.gov.al/wp-content/uploads/2023/08/VENDIM-NR.-11-DAT%C3%8B-21.07.2023-MIRATIMIN-E-FINANCIMIT-T%C3%8B-PROJEKTEVE-FITUESE-T%C3%8B-TEKNOLOGJIS%C3%8B-DHE-INOVACIONIT-Q%C3%8B-VIJN%C3%8B-SI-BASHK%C3%8BPUNIM-I-UNIVERSITETEVE-ME-BIZNESININDUSTRIN%C3%8B-P%C3%8BR-VITIN-2023.pdf

For the first time, Albania was included in the 'European Innovation Scoreboard' report in 2022[19]. According to the classification of this report, Albania is classified as an Emerging Innovator, with a performance level of 41.7% of the EU average. This performance is below the average of Emerging Innovators (50.0%). Additionally, performance is increasing at a rate of 5.1 percentage points, which is lower than the EU's rate of 9.9 percentage points. As a result, the performance gap between Albania and the EU is widening (European Commission, 2022). If we refer to the data from the 2023 report (Tab. 1), Albania's performance stands at 41.1% of the EU average, remaining below the average for Emerging Innovators[20].

TABLE 1: Summary Innovation Index, Albania

The second column shows performance relative to that of the EU in 2023. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2023; light green: between 100% and 125%; light orange: between 70% and 100%; dark orange: below 70%.

The next columns show performance change over time between 2016 and 2023 and between 2022 and 2023, with scores relative to those of the EU in 2016. Positive (negative) performance changes are shown in green (red).

* Results for Albania are less reliable due to limited data availability.

In analyzing the data in Table 1, we can observe that Albania in 2023 demonstrates several relatively strong factors, including: environment-related technologies, sales of innovative products, product innovation, lifelong learning, and the proportion of the population with tertiary education. To further underscore the previously discussed weaknesses, these areas are distinctly highlighted in the Innovation Index 2023: individuals with above-basic overall digital skills, R&D expenditures in both the public and business sectors, exports of medium and high-tech goods, and public-private co-publications.

Comparing the factors for improvement since 2016 (Table 2), significant contributors emerge, including environment-related technologies, the increase

[19] https://wbc-rti.info/object/news/23208
[20] https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-al.pdf

in population with tertiary education—an outcome of the Bologna System's implementation in Albanian higher education—and a rise in highly cited publications, attributed to reforms introduced by Law No. 80/201521 on Higher Education. This legislation has influenced scientific output, established new criteria for achieving academic titles, and advanced digitalization efforts.

In terms of declining factors since 2016, the decrease in foreign doctoral students can be attributed to the suspension of doctoral programs in Albania from 2013 to 2021 due to higher education reforms, impacting both domestic and international students. A persistent challenge is the limited collaboration between SMEs and other actors, including academia and research centers, which is influenced by prevailing attitudes, macroeconomic constraints, public policy limitations, the quality of scientific research, and restricted funding opportunities (Çabiri & Qosja, 2023). The factor related to product innovation is also limited by the business models of SMEs and the sectors they operate in, which are predominantly in services and retail (INSTAT, 2022).

TABLE 2: Factors that have improved and deteriorated - Innovation index

Relative strengths	**Relative weaknesses**
Environment-related technologies Sales of innovative products Product innovators Lifelong learning Population with tertiary education	People with above basic overall digital skills R&D expenditures in the public sector R&D expenditure in the business sector Medium and high-tech goods exports Public-private co-publications
Strong increases since 2016	**Strong decreases since 2016**
Environment-related technologies Population with tertiary education Most cited publications	Foreign doctorate students Innovative SMEs collaborating with others Product innovators
Strong increases since 2022	**Strong decreases since 2022**
Design applications Most cited publications	Innovative SMEs collaborating with others Knowledge-intensive services exports Product innovators

Research Infrastructure

Albania is making significant effords in promoting international research cooperation and fostering research excellence. A critical component in this effort is investment in research infrastructure, supported by a legal and policy framework that includes the National Strategy of Scientific Research, Technology,

[21] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdf

and Innovation 2017-2022[22] , Law No. 80/2015 on Higher Education and Scientific Research in Higher Education Institutions in Albania, and Law No. 53/2019 on the Academy of Sciences[23] .

However, Albania still needs a considerable increase of investments in scientific research and other measures to strengthen research and innovation capacity at the national level. For this reason, in addition to funding that finances laboratories for European projects, NASRI has supported public universities in the last three years with substantial funds for the establishment of research laboratories.[24] .

Mapping of. research infrastructures is an very important process, which provides the basis for analyzing research potential and selecting the research areas in which Albania has the strongest potential. By offering insights into the current state of research infrastructures and identifying the scientific thematic areas with the greatest scientific opportunities, Albania can advance the implementation of the Smart Specialization[25]

The Regional Cooperation Council (RCC) has supported the development of Albania's Research Infrastructure Roadmap (Regional Cooperation Council, 2022). A key finding from the report indicates that, although there has been a notable increase in national resources allocated to research and innovation, funding levels remain significantly below the established targets. Although Albania's participation in Horizon 2020 has shown a positive trend over the last three years, the overall performance remains low. Private sector participation in the programme continues is also low. It appears that the areas with significant contributions are: Health, demographic change and wellbeing; Advanced materials; Europe in a changing world-inclusive, innovative and reflective Societies; Secure, clean and efficient energy; Climate action, environment, resource efficiency and raw materials. Albania has managed to absorb €5.27 million from the European Commission, positioning itself ahead of Montenegro and Kosovo. However, it remains considerably behind Serbia, which leads the region with €128.6 million (Regional Cooperation Council, 2022).

The report underscores the limited engagement of universities in reporting on research infrastructure, pointing to a lack of awareness about its importance, insufficient commitment to these processes, and a persistent need for reporting to be recognized as a legal and routine obligation.

[22] https://arsimi.gov.al/wp-content/uploads/2023/03/Draft-Strategjia-Komb%C3%ABtare-p%C3%ABr-Shkenc%C3%ABn-Teknologjin%C3%AB-dhe-Inovacionin.pdf

[23] https://akad.gov.al/ash/pdf/ligj_nr_53.pdf

[24] https://nasri.gov.al/wp-content/uploads/2023/04/4.Thirrje-per-projekt-propozime_PIKSH_24.03.23_rev-1.pdf

[25] https://s3platform.jrc.ec.europa.eu/albania

Higher Education Institutions

Higher education institutions have been making efforts for several years to transform themselves in accordance with the Law on Higher Education [26] , National Strategy of Scientific Research, Technology and Innovation 2017-2022[27] , The Education Strategy 2021-2026[28] , Strategies covering entrepreneurial learning in Albania[29] ; Digital Agenda of Albania and the Action Plan 2022–2026[30] ; Smart Specialisation Strategy; Strategy for Scientific Research for the Period 2023-2030[31].

On this basis, higher education institutions aim to: Promote excellence in teaching, Entrepreneurial learning; Increase and widen the quality of research in Albania based on OECD indicators; Integration of the Albanian scientific research in the European Research Area (ERA) through active participation in all European research and development programmes; Improve the quality of research and steering scientific research to match market needs by strengthening the links between the existing national and international research and innovation programmes with private businesses; Internationalization of higher education and integration into the European Higher Education Area (EHEA); Advancement of ICT infrastructure and digital services for public higher education institutions; Digital education and digital skills: transformation of learning and teaching; Collaboration between enterprises with technological capacities and higher education institutions through joint projects funded by national and international programs; Establishment of technology transfer centers within public higher education institutions.

Discussions and conclusions

Efforts to build Albania's innovation ecosystem are ongoing through the development of legal frameworks, policy formulation, institution-building, and financial resource allocation, complemented by incubators supported by various private and public initiatives. However, support for enterprises throughout this

[26] https://www.unitir.edu.al/images/dokumenta/Legjislacion/Ligj_80-2015_22.07.2015.pdf

[27] https://arsimi.gov.al/wp-content/uploads/2023/03/Draft-Strategjia-Komb%C3%ABtare-p%C3%ABr-Shkenc%C3%ABn-Teknologjin%C3%AB-dhe-Inovacionin.pdf

[28] https://arsimi.gov.al/wp-content/uploads/2021/05/Draft-Strategjia-per-Arsimin-2021-2026.pdf

[29] https://www.etf.europa.eu/sites/default/files/m/40EC73142B671AF5C12578D300530453_Entrepreneurial%20learning_Albania.pdf

[30] https://akshi.gov.al/axhenda-dixhitale/

[31] https://arsimi.gov.al/wp-content/uploads/2023/03/Draft-Strategjia-Komb%C3%ABtare-p%C3%ABr-Shkenc%C3%ABn-Teknologjin%C3%AB-dhe-Inovacionin.pdf

process remains limited. Under these conditions, bridging the gap between the legal framework and its effective implementation becomes increasingly essential.

The distribution of competencies and budgets among three ministries and several agencies exacerbates coordination issues, focus, and the achievement of desired results. The innovative ecosystem needs to be built beyond startups and should include targeted services to support truly innovative ideas with the capacity for absorption of technology.

Collaboration between the business sector and academia remains limited; therefore, it is essential for the government to identify existing barriers and work to strengthen the relationship between scientific research, academic institutions, and the broader institutional framework for innovation.

The size and economic potential of Western Balkan countries should motivate governments to enhance regional cooperation within the framework of Smart Specialization, as regional disparities are increasingly evident in innovation policy development. Albania, with its small but open economy, stands to benefit significantly from intensified inter-regional and international collaboration to advance its innovation agenda, build regional innovation systems, and foster cross-border cooperation that strengthens research and development efforts.

Albania should prioritize the creation of an Action Plan for the development of research infrastructures. Key actions within this plan should include increasing investment levels in research infrastructure, enhancing mobility and institutional cooperation among higher education institutions within the Western Balkan region and strengthening the legal framework. Additionally, improving the visibility of research infrastructures by establishing a comprehensive database of facilities and equipment, refining the Access Policy to facilitate broader utilization, and implementing a two-way communication system with the research community are essential steps for fostering a robust and accessible research environment.

Albania should continue to prioritize partnership development to support entrepreneurial learning and to bridge the gap between the designation of entrepreneurship as a cross-curricular key competence and its practical visibility in the learner experience. Implementation remains limited at the higher education level, where a stronger emphasis on entrepreneurship as a core competence is needed. Additionally, vocational education and training (VET) would benefit from a broader approach to entrepreneurship beyond business creation, fostering a comprehensive skill set that prepares students for diverse entrepreneurial opportunities.

In terms of scientific research, Albania must focus on enhancing and broadening research quality in alignment with OECD indicators. This includes increasing budget allocations, further integrating Albanian research within the European Research Area (ERA) through active participation in European research and development programs, and elevating research quality to better align with

market needs. Strengthening connections between national and international research, innovation programs and private industry, along with monitoring research quality, is essential. Additionally, establishing technology transfer centers, addressing brain drain and brain circulation challenges, and actively engaging the Albanian scientific diaspora are critical steps to building a more robust and globally integrated research environment. It is essential that financial resources be allocated in a balanced and well-coordinated manner across AIDA, NASRI, the Ministry of Defense, and the Ministry of Enterprise to maximize synergy and impact. Additionally, reaching a funding level of 1% of GDP for research, technology, and innovation is crucial for strengthening Albania's innovation capacity and supporting sustainable economic growth.

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