INNOVATIVE REGIONAL DEVELOPMENT THROUGH THE RIS3 SMART SPECIALIZATION STRATEGY

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Abstract
In the Programming Period 2021-27 the new Smart Specialization Strategy or RIS3 Strategy (Research of Innovation Strategy for Smart Specialization) is a comprehensive economic transformation agenda that serves Policy Objective 1 of the European Structural Funds that is *"A smarter Europe through the promotion of innovative and smart economic transformation"*. This European development strategy, spatially focused, based on the unique characteristics and means of each country and region, highlights their comparative competitive advantages and promotes the transformation of the regional economy through an Entrepreneurial Discovery Process (EDP).

This paper, on the one hand, presents selected points of the policy for "Smart Specialization 2014-2020" including the results of the primary research conducted in 2014, the initial year of implementation of RIS3 2014-2020. On the other hand, it reports the newest, now reformed and critical elements of RIS3 2021-2027, which comes after the previous one, while it is accompanied by official statistical data and graphs, which gather scientific interest. The EU's interactive digital platform, European & Regional Innovation Scoreboard, regarding the benchmarking and performance trajectory of Greece's regional innovation, both at country and regional level, updated with the latest Eurostat data (June 2023) shows significant improvement of Greece's performance in the field of innovation over time.

Key words: Innovative Regional Development, Innovation, Research, Technology, Entrepreneurial Discovery Process, Smart Specialization, RIS3.

Introduction

Regional Policy, as it is formed today, is different enough from that of the 1980s when Cohesion Policy was launched. It is much more than a simple transfer of resources to the poorest regions of the European Union. Era of the knowledge industry has been inaugurated with the addition of technological innovation to the classical factors of production. The modern regional development strategy is turning, from the outdated pattern of polar development and urban concentration of high technology in metropolitan regions - poles, to the exploitation of the powerful points in each region, with innovation remaining a central priority.

Strategies that combine innovation with particular strengths of national/regional economies have a much greater chance of success. When a region tries to imitate other regions in leading industrial sectors such as biotechnology in an attempt to create a "development miracle", it not only reduces the chances of success, but also perpetuates the dominant market norms that define "pioneers" and " followers". The RIS3 strategy as a new regional development policy is determined by the characteristics of each region and promotes

the transformation of the regional economy through processes of "business discovery" and opportunities in the international market. It focuses on activities that have a critical mass and an extroverted orientation.

Research

Survey Results (2014) regarding Smart Specialization RIS3 2014-2020
The purpose of the statistical survey was to investigate the level of familiarity, knowledge and opinion about innovation, research and education in innovative regional development. The statistical analysis was carried out through SPSS with the support of Google Analytics, after the creation, digital distribution and completion of a questionnaire of 104 permanent residents of the Attica Region. The questions were structured and grouped as follows: i) Demographic characteristics, ii) Perception of the regional problem iii) Knowledge and opinion about innovative regional development and iv) Evaluation of Regions.

i) Demographic characteristics
In terms of survey sample profile, 56% of the respondents were female, 46% were male and 61% were in the 30-45 age group. The level of education is shown with 38% being University/ Technological Educational Institution graduates and 35% as master's degree holders. 51% of the sample belongs to the middle economic class with an income between €10,000-€30,000 per year. 15% are unemployed and 40% private employees.

ii) Perception of the regional problem
In a first approach, it was investigated how the sample "perceives" the concept and the reasons of what we call Regional Problem. Six propositions were selected, which evaluated with "scale questions" and the most popular responses are presented below.

1. 49% of the sample associates the regional problem with the fact of population shrinkage in the Regions and overconcentration of the population in the capital cities,
2. Another reason is variations in opportunities for employment/work, with the 54% slightly agrees, as the most popular answer.
3. Most popular answer with a rate of 38% slightly agrees that the Regional Problem is related to differences in the level of income and consumption.
4. Most popular answer with a rate of 44% slightly agrees that the Regional Problem is associated with differences in the level of well-being and quality of life.
5. Most popular response with 55% somewhat agree that the Regional Problem is related to differences in social infrastructure and accessibility (eg hospitals, universities, public services, transport, etc.).
6. Most popular answer with a rate of 34% slightly agrees that the Regional Problem is related to differences in Research, Technology, IT technologies. It is worth mentioning that the next most popular answer with 32% slightly disagree.

Therefore, the sample seems to associate the regional problem with differences in social infrastructure and accessibility (e.g. hospitals, universities, public services, transport, etc.) as well as differences in opportunities for employment/work and follows the level of well-being and quality of life. Essentially, they are the main issues which the citizen or resident on the one hand and the welfare state on the other are deal with. The concentration of country's population and economic activities in the capital cities have created economic and social problems against the regions.

The proposition that the regional problem is related to differences in research, technology and information technologies has the largest dispersion of responses and shows

extreme values of 32% (slightly agree) and 34% (slightly disagree) respectively, while 25% neither agree nor disagree. Also, it has to emphasized that the slowing rate of development of Greek regions is due to the fact that the country lags behind in the available funds for Research and Development.

iii) Knowledge and opinion about innovative regional development

Regions where people have a more positive attitude towards new things and ideas have better possibilities for both entrepreneurship and innovation. The questions were as follows:

1. "Each Region must rely on its own strengths to define priorities in national and regional innovation strategies". Do you agree?
2. Do you agree that Member States are encouraged to invest 3% of their GDP in Research and Development by 2020?
3. In terms of "Horizon 2020" Program of the European Union (EU), over the next 7 years, 80 billion euros will be allocated to universities, research institutions and businesses to finance research and the development of innovative products and services. Do you agree with the actions?
4. Do you know that Innovation is at the heart of the EU Strategy to create growth and employment?
5. Regions where people have a more positive attitude towards new things and ideas have favorable conditions for both entrepreneurship and innovation. Do you agree?
6. Do you know the term "Knowledge-based Economy"?
7. Innovative collaboration between universities and businesses acts out an important role in economic development. Do you agree?
8. How many research institutions do you suppose approximately are located in the Attica Region? (e.g. universities, research and technology centers, innovation and design centers, etc.)
9. Do you know what Science Technological Parks are?
10. Which of the following do you know? Science and Technology Park of Crete, Technology Park of Thessaloniki, Science Park of Patras, Technology Park "Leufkippos" (Demokritos), Science and Technology Park of Epirus, Technology and Culture Park of Lavrio, Technology Park of Thessaly, None.

Education, age and professional status appear to be related to knowledge/familiarity with the present topic. Also, the results of the research showed that the most popular Technological and Science Parks are the Technology Park "Leufkippos" (Demokritos) with 41 observations and the Science and Technology Park of Crete, also with 41 observations, while the third in reputation is the Technology Park of Thessaloniki.

iv) Evaluation of Regions

The Smart Specialization Strategy distinguishes 4 groups of regions related to these specialization characteristics:

1. Metropolitan regions with developed research and technology capabilities and the ability to diversify into knowledge-intensive services (Attica, Central Macedonia).
2. Regions with tradition in manufacturing, concentration of traditional branches of industry, but low level of innovation (Eastern Macedonia - Thrace, Western Macedonia, Central Greece).
3. Regions with tradition in the agricultural sector, agriculture, livestock and fish farming activities, food processing and innovation prospects mainly in the food industry (Epirus, Thessaly, Peloponnese, Western Greece).

4. Island regions with great potential in the tourism sector and special forms of quality agricultural sector (Crete, South Aegean, North Aegean, Ionian Islands).

Respondents were invited to evaluate four regions: Attica, Crete, Peloponnese and Central Greece. Each of them belongs to one of the above groups. The purpose of these questions was to measure citizens' perception of regional characteristics and potential.
The evaluation of the four Regions showed that the sample understands their strengths as recorded in the Smart Specialization Strategy.

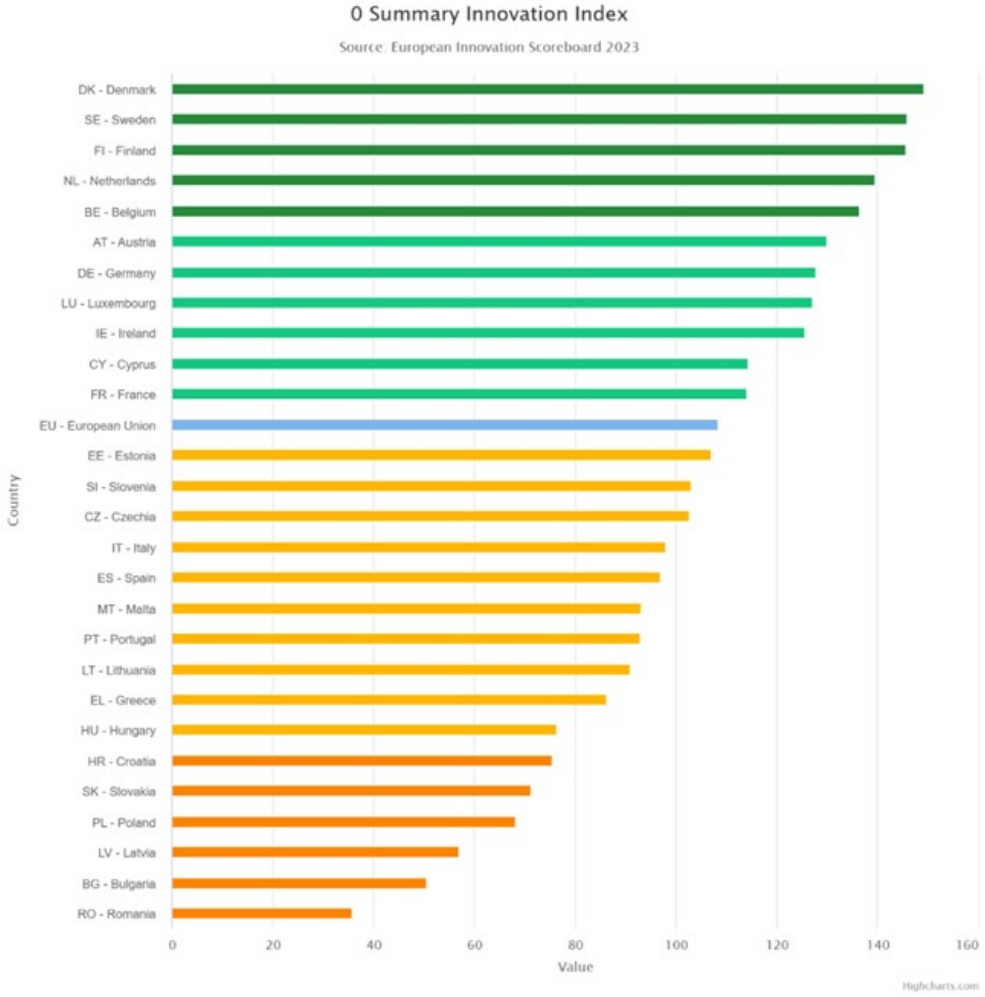
Smart Specialization RIS3 2021-2027

This second part of the paper includes statistics from the European Innovation Scoreboard, on the one hand, which provide a comparative assessment of the Research and Innovation performance of EU Member States, other European countries and regional neighbors. On the other hand, there is an extensive reference to the main elements of the newest National Smart Specialization Strategy 2021-2027.

European Innovation Scoreboard
Since 2001, the European Innovation Scoreboard has been the benchmark for analyzing innovation performance in EU countries, European neighbors and global competitors. By using digital tools such as the European Innovation Scoreboard and the Regional Innovation Scoreboard, innovation results across the EU can be benchmarked at country and regional level. The European Innovation Scoreboard highlights the commitment of the EU and its Member States to foster innovation rooted in excellence, competitiveness, transparency and talent. It serves as a guide for designing policies that boost innovation across Europe, while keeping up with the rapidly evolving global landscape. Both scoreboards provide a comprehensive assessment of national and regional innovation strengths and weaknesses, enabling countries to identify areas for improvement.

At the country level, for the year 2023 with innovation as a key indicator – including all the sub-indicators that define it, the following results are conducted, grouping the EU countries in four categories:
1. Pioneers in innovation / innovation leaders (Innovation leader): countries where the performance is more than 20% above the EU average.
2. Strong innovators: countries where performance ranges between 90% and 120% of the EU average.
3. Moderate innovators: countries where performance ranges between 50% and 90% of the EU average.
4. Emerging innovators: countries where performance is below 50% of the EU average.

Diagram 1: EU National Innovation Index 2023



Denmark is the new top performing innovator in the EU, overtaking Sweden after a few years at the top. Other innovation leaders are Sweden, Finland, the Netherlands and Belgium.
Austria, Germany, Luxembourg, Ireland, Cyprus and France are strong innovators, performing above the EU average. Estonia, Slovenia, Czech Republic, Italy, Spain, Malta, Portugal, Lithuania, Greece and Hungary are moderate innovators. Croatia, Slovakia, Poland, Latvia, Bulgaria and Romania are Emerging Innovators.

In this latest edition, the breakdown of Member States into performance groups in the European Innovation Scoreboard remains largely unchanged compared to the previous year. However, Hungary made significant steps and moved into a higher performing group, earning the title of Moderate Innovator, while France and Luxembourg showed a slight decline in performance compared to the EU eight years ago. This highlights the need for continued efforts to enhance innovation capabilities in these areas.

Between 2016 and 2023, performance differences between Member States have narrowed, mainly in the Strong Innovators and Moderate Innovators groups. However, the distribution of performance groups still shows geographical concentration. Northern and Western Europe are home to the innovation leaders and most powerful innovators, while Southern and Eastern Europe are home to the majority of moderate and emerging innovators.

The European Innovation Scoreboard 2023 highlights a substantial improvement in innovation performance of around 8.5% since 2016, confirming the EU's commitment to promoting an innovation culture. The innovation performance of 25 countries improved over this period, although at a slower pace in more recent years, and that 20 Member States saw a

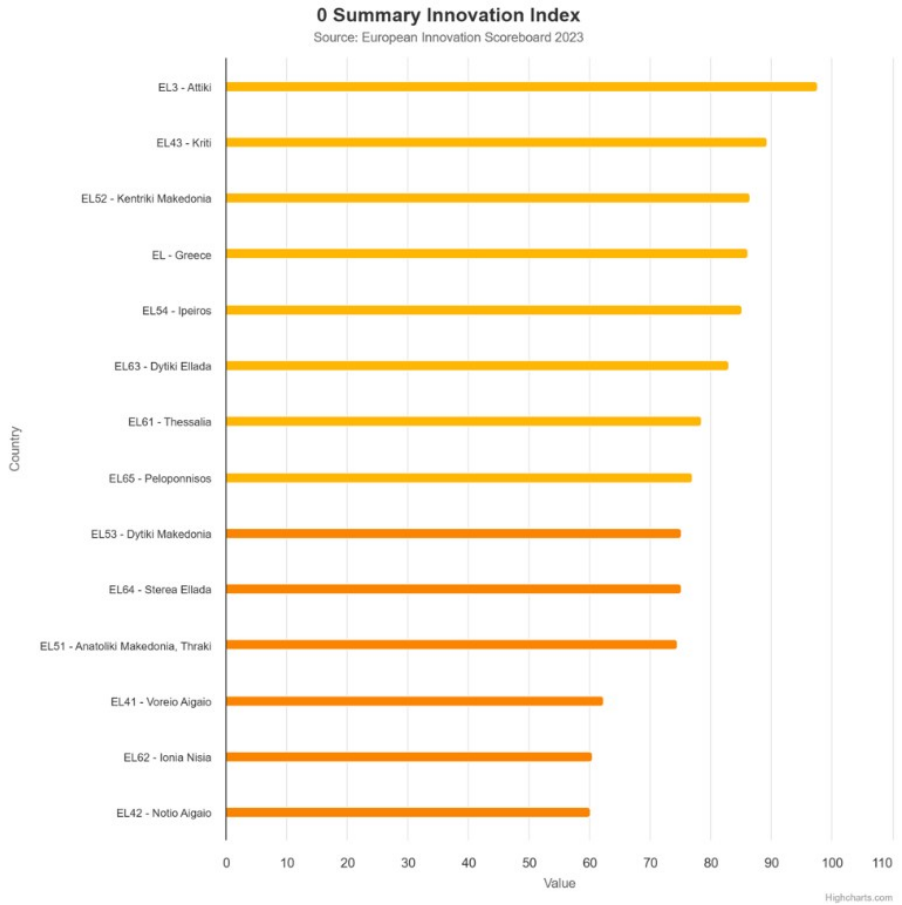
significant rise in their innovation capacity last year, while only seven saw a decline. However, countries with less robust innovation systems tend to improve less quickly than the EU average.

Since last year, the global position of the EU has not changed significantly. The EU has closed some of its performance gap with Australia. China's performance level is almost at the same level as that of the EU.

Innovation performance in Greece

In 2023, Greece with a score of 86.22 is below the European average of 108.47, occupying the penultimate position in the moderately innovative category. Over time, the course of our country, from 2016 to today, is upward, starting with 69.98 in 2016, reaching 72.19 in 2019 and reaching 80.69 in 2021. A jump was noted in 2021-2022 with a grade of 85.73 in 2022. At the regional level for 2023, the regions of Attica, Crete and Central Macedonia are above the national average with a score of 97.6, 89.4 and 86.5 respectively. Followed by Epirus (85.1), Western Greece (83), Thessaly (78.5), Peloponnese (77), Western Macedonia (75.2), Central Greece (75.1), Eastern Macedonia-Thrace (74.5), the North Aegean (62.4), the Ionian Islands (60.5) and finally the South Aegean (60.1).

Diagram 2: Greek Regional Innovation Index 2023



Highlights of Smart Specialization RIS3 2021-2027

In the context of the preparation for the 2021-2027 Programming Period and in order to contribute to the planning of the Smart Specialization Strategy, General Secretariat of Research and Innovation, in collaboration with a specialized consultant, has been preparing a set of relevant studies. Specifically, these studies concern:

1. Improving Business Discovery Mechanisms and Processes.

2. Key features of the national innovation system – Contribution to mapping the key international and European challenges for the new RIS Strategy.
3. Governance system and monitoring and evaluation mechanism of RIS3 – Suggestions for improvement.
4. Verification of the results of participation in ETAK[5] actions of the programming period 2014-2020 at national and European level.

The priority sectors that have emerged for the period 2021-2027 are the following: agro-food chain, life sciences, health, medicine, sustainable energy, materials, construction and industry, digital technologies, Tourism, Culture and Creative Industries, Environment and Circular Economy, Transportation & Supply Chain.

The purpose of the national RIS3 is the focused productive reconstruction of the country with a key pillar the research, technological development and innovation to reduce regional disparities and the creation of sustainable employment with respect for people and society, the environment and in culture. The objectives of the RIS3 strategy include contributing to the creation of stable labor relations and more generally in designing the appropriate conditions for effective utilization of the country's human resources.

During the programming period 2014-2020, still expecting Evaluation Report as basic condition for determining the impacts of the national strategy RIS3 (impact assessment) on national economy is the implementation of approved projects. As until the end of the current program period the approved projects will not have been implemented, the evaluation of RIS3 2014-2020 estimated to take place in the middle of the next programming period (2021-2027), which it can be used to design new interventions or revise the new RIS3 strategy.

Regarding to the Smart Specialization Strategies of the programming period 2014-2020, based on research (European Commission, 2019) which carried out at the European level, a series of findings about the system of governance which are important to consider in design of the governance system of the new Smart Specialization Strategy.

- Defining the governance structure, managing the business process discovery and the identification of monitoring indicators, are critical challenges for smart specialization strategies.
- The establishment of the monitoring system of the smart specialization strategy, constitutes the more important than the criteria for fulfilling the necessary favorable condition.
- The lack of coordination during the implementation of the Operational Programs and Strategies Smart Specialization, the responsibility of which is usually assigned to different agencies, is an important issue. The integration of Strategic Smart Specialization in Business Programs is therefore critical factor for the successful implementation of the said strategies and the Operational Programs, especially when governance for the Smart. Specialization Strategy and the Business Programs are structured and managed at different levels.

Also, key problems and obstacles identified during the implementation of the Smart Strategy Specialization of the 2014-2020 programming period, in terms of the governance system, are the following:

- Inability of timely and continuous coordination.
- Absence of center-region coordination when designing the Smart Specialization Strategy.
- Not using common monitoring indicators between national and regional Smart strategies.

[5] (EDYE-ETAK) Special Management and Implementation Service Actions in the fields of Research, of Technological Development and Innovation

- Non-activation of the Smart Specialization Council regarding its monitoring / review of Strategic Smart Specialization, although it has the relevant competence.
- Failure to prepare an interim evaluation of the Smart Specialization Strategies, while it was foreseen in Operational Programs.
- Lack of systematic and timely evaluation of the actions of the Smart Specialization Strategy.
- Inadequate representation of civil society in the business discovery mechanism.
- Impossibility of effective functioning of the regional system of governance of the strategies Smart Specialization.

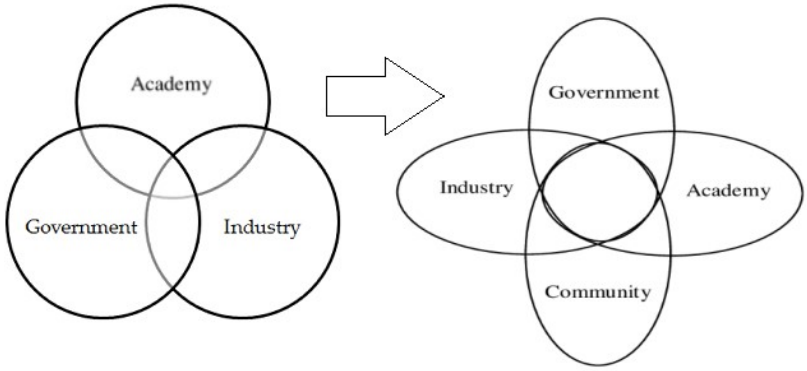
Proposals to improve the governance system for the Smart Specialization Strategy 2021-2027 based on the proposed institutions that will participate in the Strategy's governance system of Smart Specialization 2021-2027, have been divided into four (4) layers, based on their institutional role, their composition and their responsibilities: decisive level, consultative opinion level, executive level, implementation level.

Also, there must be improvement of Mechanisms and Business Discovery Processes. Business discovery is its key tool smart specialization strategy. the Business Discovery Process is a bottom-up process and deviates from traditional policy intervention (collective top-down decision-making process), and is based on the principle that the required knowledge is scattered among the involved agencies and not concentrated in a central one agency/ public authority.

From the triple helix to the quadruple helix.

The political logic of the Business Discovery Process is that of an integrated and comprehensive learning process with participants of different backgrounds, which as is well known make up the quadruple helix. The quadruple helix includes the business sector, the research / academic centers, the public sector and civil society organizations, where stakeholders discover and produce information about new activities and potential opportunities.

Diagram 3: From triple helix to quadruple helix



The way that research and innovation strategy for smart specialization has been implemented in its member states European Union presents a wide variety. Some Member States produced only national ones strategies. Other member states only developed regional strategies and some (among which and Greece), both national and regional strategies.

Conclusions

Innovation and entrepreneurship contribute to smooth out regional inequalities and also achieve development. Empirically, it has been shown that entrepreneurship in less developed regions lags behind its corresponding size in developed ones. Regions where people have a more positive attitude towards new things and ideas have favorable conditions for both entrepreneurship and innovation.

It should be emphasized that for the future development course of the regions - but also of the country as a whole - strategic regional planning is a necessary and sufficient condition. Of utmost importance, therefore, is the implementation of programs aimed at stimulating the economy and competitiveness, while at the same time they are designed based on the needs of each place. To strengthen the above, it is necessary to unite the work of the Universities, the State and the Market. In this way, the Academic Community - which includes a multitude of research personnel through Universities, Technological Institutes, Institutes, etc. - should turn to conducting research, especially applied.

Research and Innovation Strategy for Smart Specialization is a place-based approach that takes into account particularities of the various geographical areas in terms of characteristics them, their capabilities and the path they must follow towards it economic development. The RIS3 connects research and innovation with economic development new ways such as business discovery and prioritization after close cooperation with local agencies.

The European Innovation Scoreboard shows an increase in innovation performance for most EU regions since 2016. Although innovative regions tend to be in the most innovative countries, some regional 'pockets of excellence' are located in countries with relatively lower innovation performance. Over time, the course of innovation performance of our country, from 2016 to today, is upward.

This paper could be a concise tribute to the key points of RIS3 from 2014 to date, which create in the scientific circles significant scope for further study on the course of this strategy until 2027, through predictions of regional performance and future proposals to improve our country's ranking position in the field of innovation.

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Supplementary/ enriched[6] and attached [7]

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Deliverable 3: *Governance system and tracking mechanism and evaluation of RIS3 - Suggestions for improvement*

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