

Pilot methodology for
mapping SDGs in the
context of Smart
Specialisation
Strategies

***The S3-SDGs
Serbian pilot***

Enric Fuster and Francesco Massucci (SIRIS Academic)
E-talks webinar series, November 23rd, 2021

Contents

- 1. Policy context and project objectives**
- 2. Methodology and data sources**
- 3. Main results and conclusions**
- 4. Final thoughts**

Sustainable Development Goals (SDG)



“**Science, technology and innovation strategies (STI)**” were adopted as “integral elements of [...] national **sustainable development strategies** [...]”



The programme intends to **accelerate the process of developing new, or adapting existing, solutions to meet the SDGs using STI, in the 5 pilot countries.** The STI for SDGs roadmaps will be the policy-making tool that will align the SDGs plans with the actions undertaken in the field of science technology and innovation.

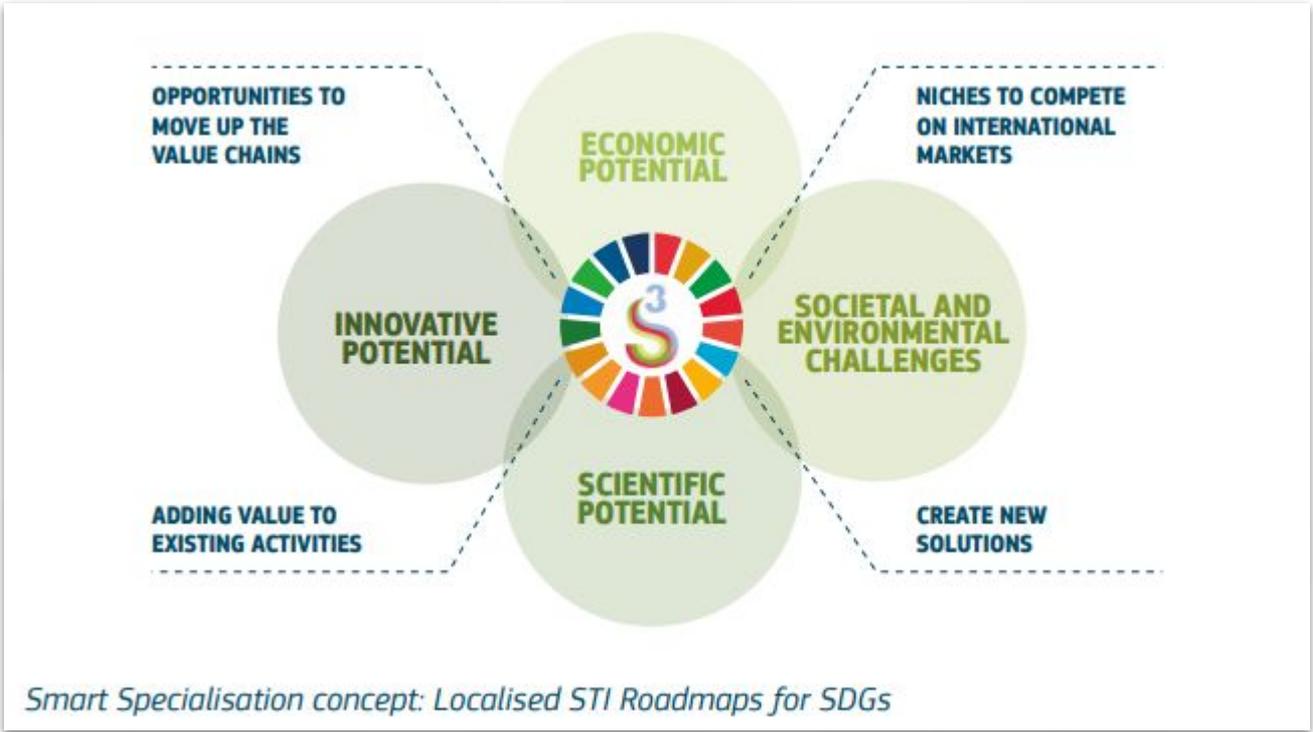
<https://sustainabledevelopment.un.org/partnership/?p=33852>

BENEFICIARY COUNTRIES

-  [Ethiopia](#)
-  [Ghana](#)
-  [India](#)
-  [Kenya](#)
-  [Serbia](#)

PARTNERS

The UN Inter-agency Task Team (IATT), including the World Bank, UN-DESA, UNCTAD, UNESCO, UNIDO, UN-ESCAP, ESCWA, WIPO, UNU, in cooperation with the Government of Japan, the **European Commission's Joint Research Centre** and OECD, among others



Source: United Nations Inter-Agency Task Team on Science, Technology and Innovation for the SDGs and European Commission, Joint Research Centre, Guidebook for the Preparation of Science, Technology and Innovation (STI) for SDGs Roadmaps, EUR 30606 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-30613-9, doi:10.2760/724479, JRC124108.



Information and communication technologies	Food for Future
Custom Software Development	High Tech Agriculture
Software Solutions Development	Value Added Food products
Future Machines and Manufacturing Systems	Sustainable Agrifood Production
General and specific purpose machines	Creative industries
Information in the Smart Management Service - Industry 4.0	Creative audio-visual production
Smart Components and Tools	Video Games and Interactive content
	Smart Packaging
Key Enabling Technologies (KET)	
Energy Efficient and Eco-Smart Solutions	
<p><i>Serbia's Smart Specialisation priorities. Vertical and Horizontal priorities and cross-innovation</i></p>	

Adapted from Serbian Smart Specialization Strategy (2020)

Source: United Nations Inter-Agency Task Team on Science, Technology and Innovation for the SDGs and European Commission, Joint Research Centre, Guidebook for the Preparation of Science, Technology and Innovation (STI) for SDGs Roadmaps, EUR 30606 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-30613-9, doi:10.2760/724479, JRC124108.

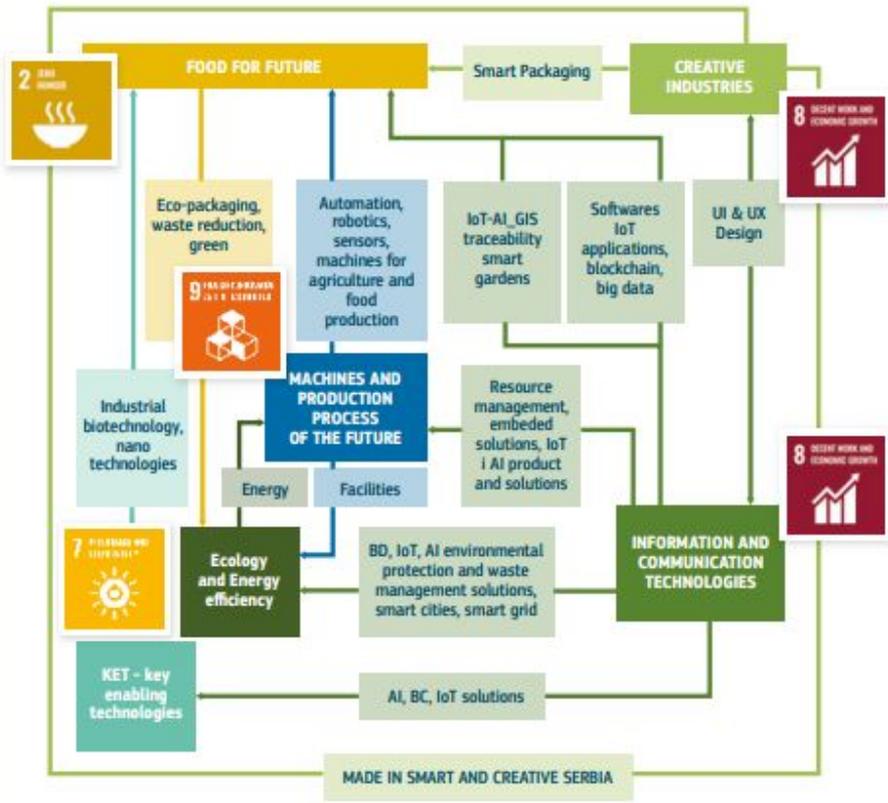


Information and communication technologies	Food for Future
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Key Enabling Technologies (KET)

Energy Efficient and Eco-Smart Solutions

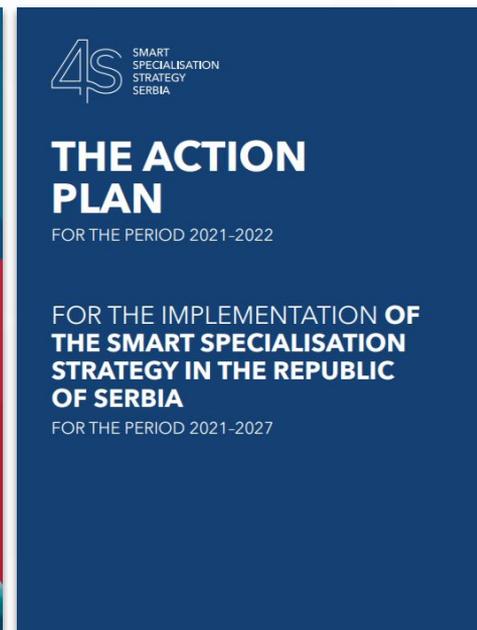
Serbia's Smart Specialisation priorities. Vertical and Horizontal priorities and cross-innovation



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The Serbian STI for SDGs roadmap is the Smart Specialisation Strategy's **Action Plan**, which has been based on:

- additional analysis
- stakeholder dialogue
- work of inter-ministerial team



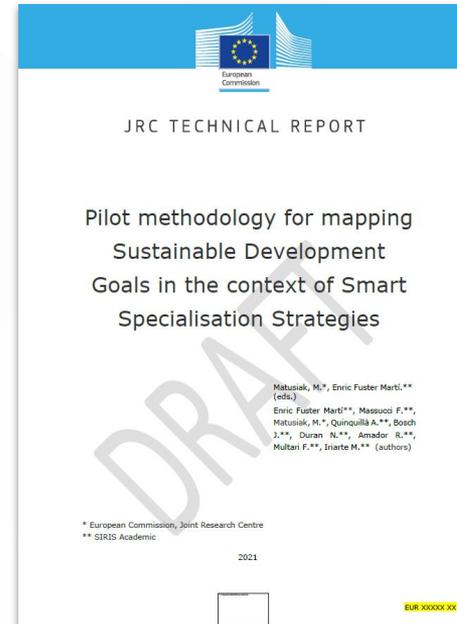
Serbian STI for SDGs roadmap

The Serbian STI for SDGs roadmap is the Smart Specialisation Strategy's **Action Plan**, which has been based on:

- additional analysis ✓
- stakeholder dialogue ✓
- work of inter-ministerial team



The objective of the project were to **identify a set of main challenges connected with the SDGs in Serbia**, and to identify the **scientific, technological and innovative potential (STI)** that **can be mobilised to answer these challenges**.



1. What are the present **national priorities to achieve Agenda 2030 in Serbia?**
2. Which challenges resulting from **SDG goals and targets are most important in statistical terms** (according to SDG indicators)?
3. What are the **areas of specialisation and excellence of the Serbian STI ecosystem that can be mobilised** to answer the challenges resulting from SDGs?
4. What are the **knowledge gaps** between the identified SDG challenges and STI potentials?
5. Which **international STI collaboration networks and partnerships** match the identified knowledge gaps and potentials?
6. How do the identified challenges, potentials and knowledge gaps **relate to Smart Specialisation priority domains in Serbia?**

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Serbian STI for SDGs Roadmap

Contents

1. Policy context and project objectives
- 2. Methodology and data sources**
3. Main results and conclusions
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1. **Analysis of national SDG framework in Serbia**, including the main challenges indicated in official documents.
2. **Statistical assessment of the key challenges resulting from SDGs** on the basis of data sources covering the indicators for SDG goals and targets.
3. **Stakeholder and expert validation of the SDG challenges** – via online/telephone consultations and one stakeholder meeting in Belgrade (February 2020).
4. **Scientometric identification of the scientific, technological and innovative potential** allowing responding to the identified challenges.
5. **Description of the knowledge/competence gaps** - where national STI potential does not allow addressing SDG challenges.
6. **Identification of national and international STI collaboration networks** that can be mobilised to answer the identified challenges.

Discussed in the results

A review of existing official documents assessing the current situation and the advancement towards attaining the SDGs in Serbia.

Reports considered for this assessment

Inter-Ministerial Working Group for Implementation of 2030 Agenda in Serbia (IMWG), ***Voluntary National Review of the Republic of Serbia on the Implementation of the 2030 Agenda for Sustainable Development***, 2019

Inter-agency UN MAPS team, ***Policy Support for Advancing SDG Progress in Serbia Promoting Inclusive and Sustainable Growth “Leaving no-one Behind”***, 2019

Swiss Agency for Development and Cooperation and CEVES (Center for Advanced Economic Studies), ***Serbia Sustainable Development Issues: A Baseline Review***, 2018



Department of Economic and Social Affairs
 Statistics • SDG Indicators Database

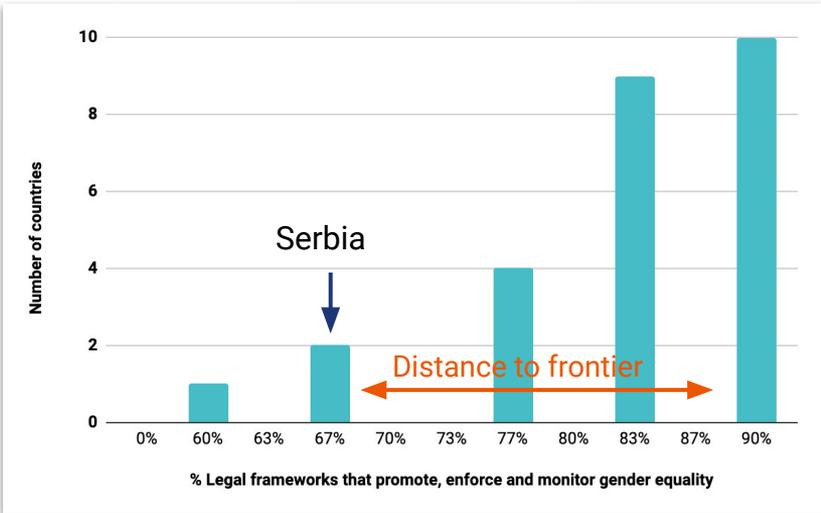


Goal	Target	Indicator	UN Global SDG database
1	1.1	1.1.1	Yes
1	1.2	1.2.1	Yes
1	1.2	1.2.2	No
1	1.3	1.3.1	Yes
1	1.4	1.4.1	Yes
1	1.4	1.4.2	No
1	1.5	1.5.1	Yes
1	1.5	1.5.2	Yes

All

- GOAL 1 End poverty in all its forms everywhere
- GOAL 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture
 - TARGET 2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
 - INDIC 2.1.1 Prevalence of undernourishment (%)
 - INDIC 2.1.1 Number of undernourish people (millions)
 - INDIC 2.3.1 Productivity of small-scale food producers (agricultural output per labour day, PPP) (constant 2011 international \$)
 - INDIC 2.3.2 Average income of small-scale food producers, PPP (constant 2011 international \$)

Indicator	seriesdescription	Directionality
2.1.1	Prevalence of undernourishment (%)	-1, less is an improvement
2.1.1	Number of undernourish people (millions)	-1, less is an improvement
2.3.1	Productivity of small-scale food producers (agricultural output per labour day, PPP) (constant 2011 international \$)	+1, more is an improvement
2.3.2	Average income of small-scale food producers, PPP (constant 2011 international \$)	+1, more is an improvement



Obtained through the application of an

open controlled vocabulary for the SDGs

applied to the **STI data sources**



The screenshot shows the Zenodo website header with the logo, a search bar, and navigation links for 'Upload' and 'Communities'. Below the header is a title and authors for a document: 'A controlled vocabulary defining the semantic perimeter of Sustainable Development Goals' by Duran-Silva, Nicolau; Fuster, Enric; Massucci, Francesco Alessandro; Quinquillà, Arnau.

Scientific publications	<u>Scopus</u> (Elsevier)	31,404 (2014-2017)
EC's H2020 funded projects	<u>CORDIS</u>	240 (2014-2019)
Patents	European Patent Office	708 (2014-2017)
National R&I projects	<u>Innovation Fund</u>	172 (2012-2019)

words within terms in the vocabulary are allowed to be separated by a certain distance

“sustainable development” matches the sequence “sustainable paths towards development”

terms in the vocabulary and the analysed texts are conducted to a canonical and common form

all plurals to singular and all verbs to the infinitive form

Reproducible and scalable

- **Mostly based on open data**
- **Datasets cover several other countries**
- **Leveraging an openly available vocabulary for SDGs**, which can be used & modified by stakeholders

1. **Absence of an official definition of the key challenges related to the SDGs in Serbia**
2. **Scientometric bias** against lower-technology sectors, traditional sectors and non-technological innovation
3. **Trade-off between international impact and local engagement** in research and innovation
4. **Low number of records hindering a richer/finer-grained characterisation** of some Goals or SDG-related topics, particularly for the sparser data sources.
5. **Goals with particularly unspecific vocabulary**

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2. Objectives, methodology and data sources
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What are the present national priorities to achieve Agenda 2030 in Serbia?

Serbian SDG policy framework analysis

Identification of main challenges indicated in Serbian official SDG assessments and policies

SDG indication rate by reviewed document

	Average	Serbian Voluntary National Review	UN Policy Support for Advancing SDG Progress in Serbia	Serbia Sustainable Development Issues: A Baseline Review
1. No Poverty	71%	100%	29%	86%
9. Industry, Innovation and Infrastructure	54%	63%	50%	50%
3. Good Health and Well-being	46%	38%	46%	54%
8. Decent Work and Economic Growth	44%	33%	42%	58%
4. Quality Education	43%	50%	50%	30%
5. Gender Equality	41%	56%	33%	33%
10. Reduced Inequalities	37%	40%	40%	30%
13. Climate Action	33%	0%	60%	40%
7. Affordable and Clean Energy	27%	0%	20%	60%
11. Sustainable Cities and Communities	17%	10%	10%	30%
2. Zero Hunger	13%	13%	0%	25%
6. Clean Water and Sanitation	13%	13%	25%	0%
16. Peace, Justice and Strong Institutions	11%	0%	17%	17%
17. Partnerships for the Goals	11%	26%	5%	0%
15. Life on Land	6%	17%	0%	0%
12. Responsible Consumption and Production	3%	0%	0%	9%

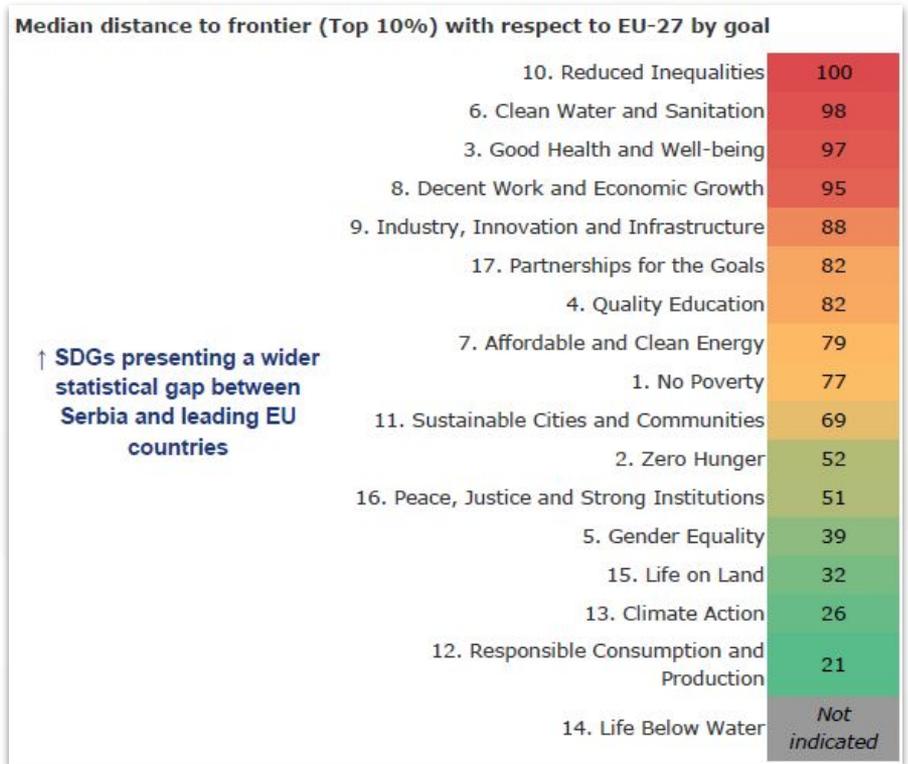
Which challenges resulting from SDG goals and targets are most important in statistical terms?

Statistical assessment of the key challenges resulting from SDGs

Serbia in comparison to EU27 best performing countries

The **Distance to Frontier Score** has been selected to characterise the distance of a country to the "frontier", which represents the best performance observed on a dataset. In this case, the best performing EU-27 countries in any given SDG target indicator. Proceeding in this manner, it is possible to assess how far Serbia is from achieving each of the SDGs, in comparison to the leading EU countries .

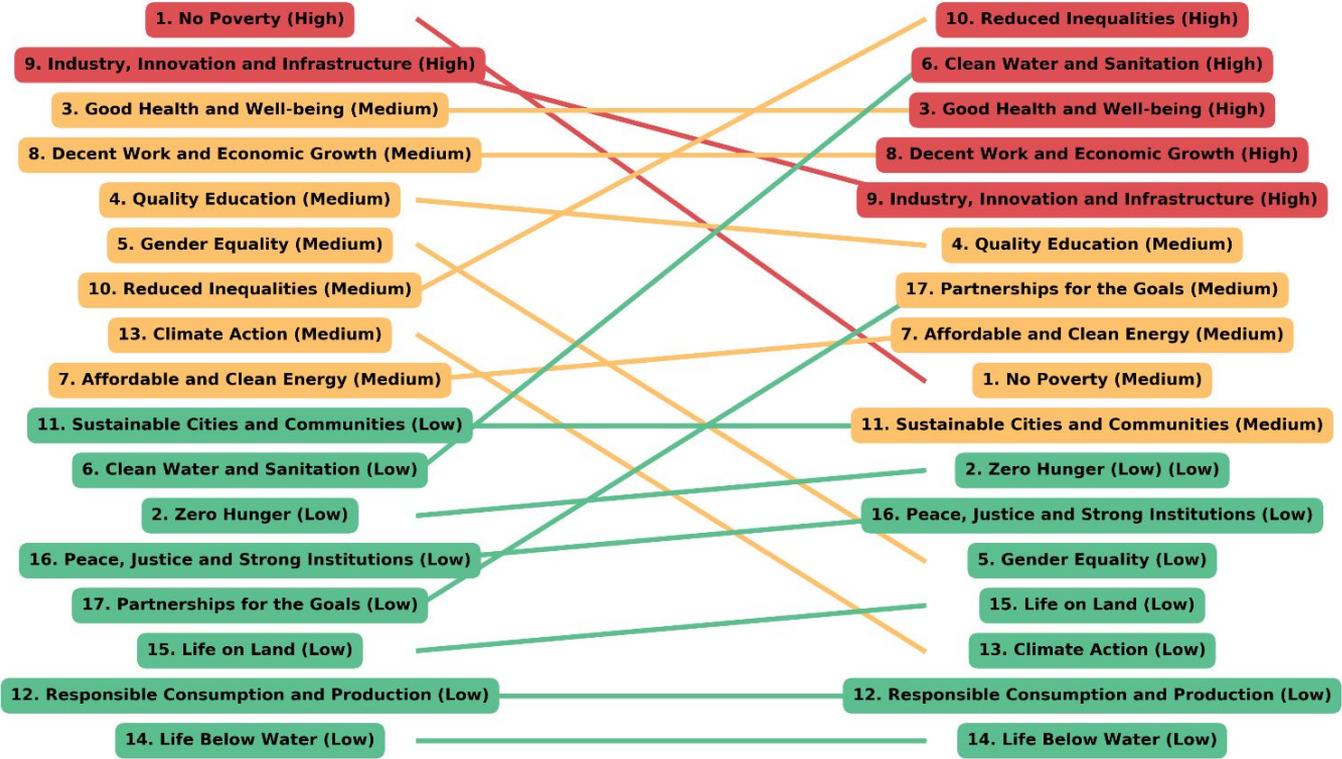
Attention: A wide relative gap with EU leaders does not necessarily mean a worrying situation in absolute terms. That is the case for **target 16.9** "By 2030, provide legal identity for all, including birth registration", in which Serbia is in the last position relative to EU-27 but in absolute value the situation is not particularly adverse. Concretely, 99.4% of Serbian births were registered with a civil authority in 2014, close to the 100% of birth registration in all EU-27 countries in the same year.



Comparison of the **goal priority ranking** in the official documents and the statistical assessment

Identification of SDG targets as main challenges in official assessments of the SDGs in Serbia [Policy]

Statistical assessment of the key challenges resulting from SDGs



SDG prioritisation from the documentary analysis and the statistical assessment

With the support of the combined distribution of both assessments, the **goals have been qualitatively categorised into three priority levels**



Higher-priority challenges	1. No Poverty 3. Good Health and Well-being 4. Quality Education 8. Decent Work and Economic Growth 9. Industry, Innovation and Infrastructure 10. Reduced Inequalities
Middle-priority challenges	5. Gender Equality 6. Clean Water and Sanitation 7. Affordable and Clean Energy 11. Sustainable Cities and Communities 17. Partnerships for the Goals
Lower-priority challenges	2. Zero Hunger 12. Responsible Consumption and Production 13. Climate Action 14. Life Below Water 15. Life on Land 16. Peace, Justice and Strong Institutions

Validated with national policy-makers and local stakeholders in Belgrade, February 27th 2020

Higher-priority challenges	1. No Poverty
	3. Good Health and Well-being
	4. Quality Education
	8. Decent Work and Economic Growth
	9. Industry, Innovation and Infrastructure
	10. Reduced Inequalities
Middle-priority challenges	5. Gender Equality
	6. Clean Water and Sanitation
	7. Affordable and Clean Energy
	11. Sustainable Cities and Communities
	17. Partnerships for the Goals
Lower-priority challenges	2. Zero Hunger
	12. Responsible Consumption and Production
	13. Climate Action
	14. Life Below Water
	15. Life on Land
	16. Peace, Justice and Strong Institutions

What are the areas of specialisation and excellence of the Serbian STI ecosystem that can be mobilised to answer the challenges resulting from SDGs?

What are the knowledge gaps between the identified SDG challenges and STI potentials?

Main STI indicators:

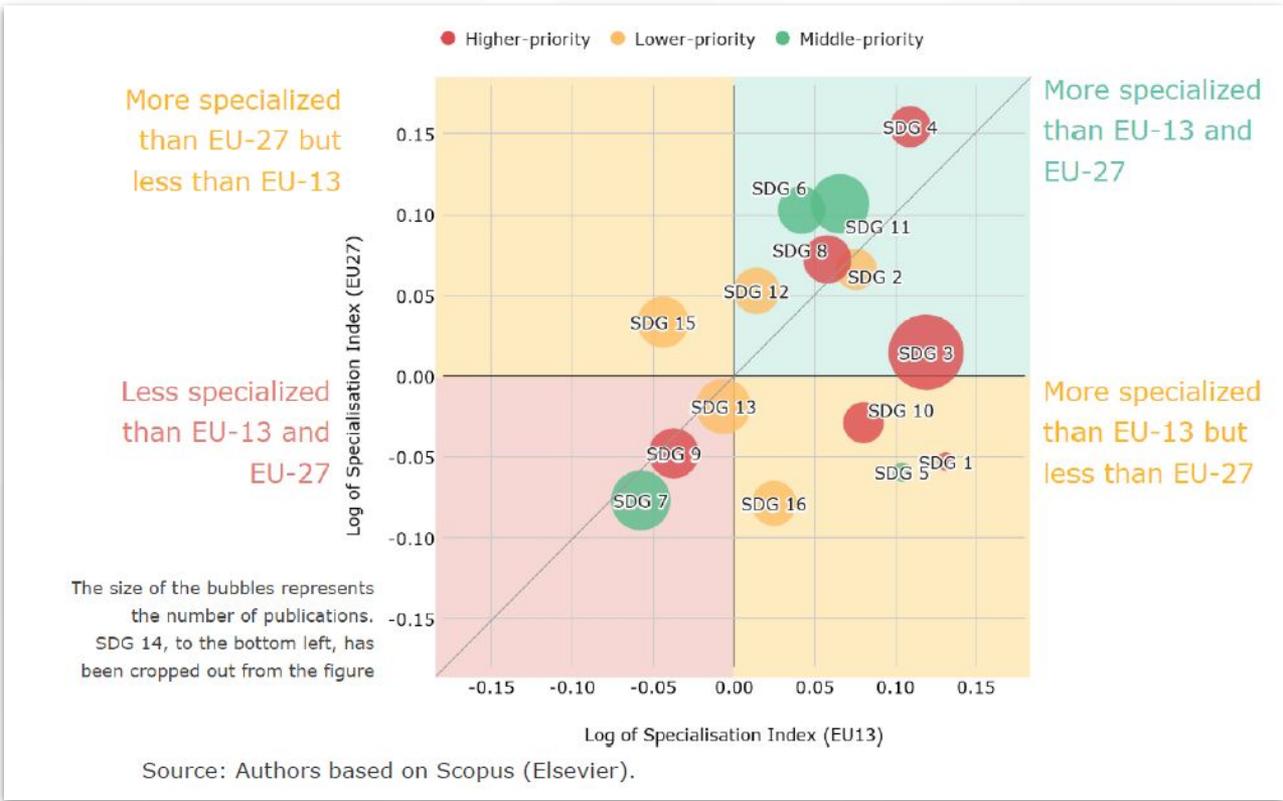
- STI **absolute and relative critical mass** in the SDGs
- STI **international relevance and competitiveness**
- **Distribution and ranking** of activities in the SDGs

STI data sources and connection to the SDGs, descriptive statistics

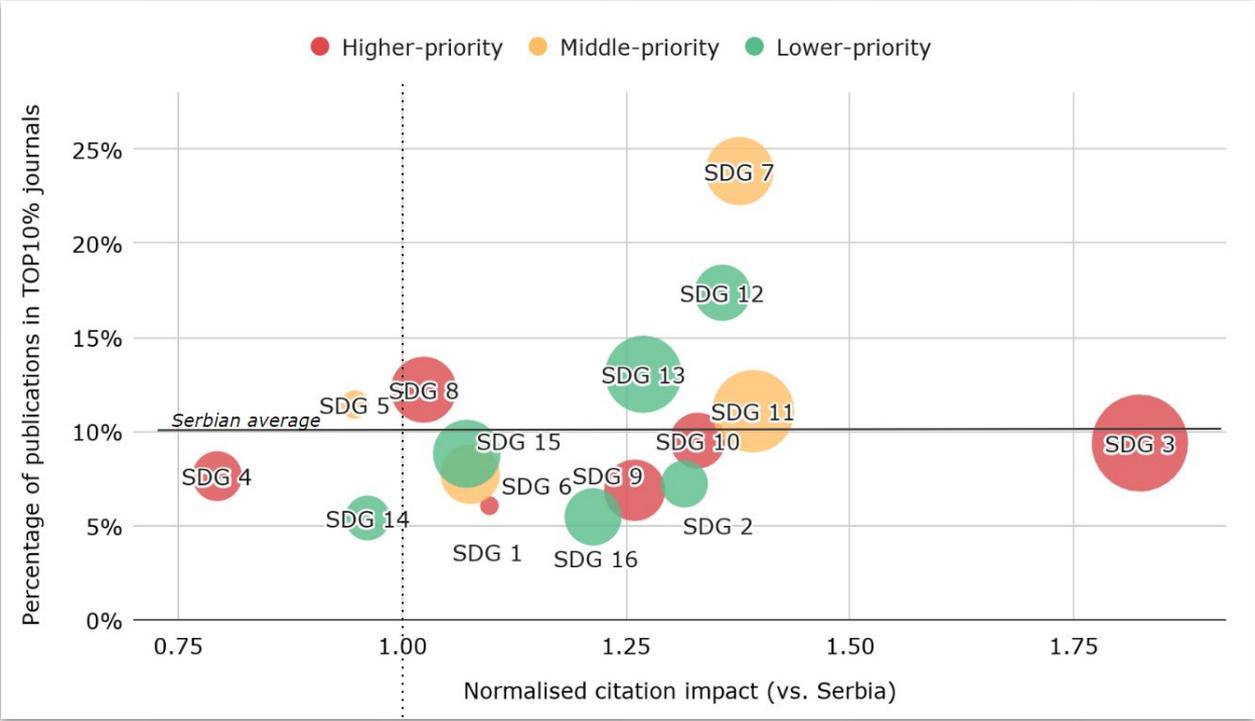
		Publications ³⁹	Horizon 2020 projects ⁴⁰	Innovation Fund projects ⁴¹	Patents ⁴²
Serbia	Total	31,404	240	172	708
	<i>SDG-related</i>	6,625 (21%)	131 (55%)	70 (41%)	129 (18%)
EU13	Total	506,217	3,985		
	<i>SDG-related</i>	102,149 (20%)	1,927 (48%)		
EU27	Total	3,050,545	19,152		
	<i>SDG-related</i>	651,487 (21%)	7,230 (38%)		

Source: Authors based on Scopus (Elsevier), CORDIS, Innovation Fund and EPO.

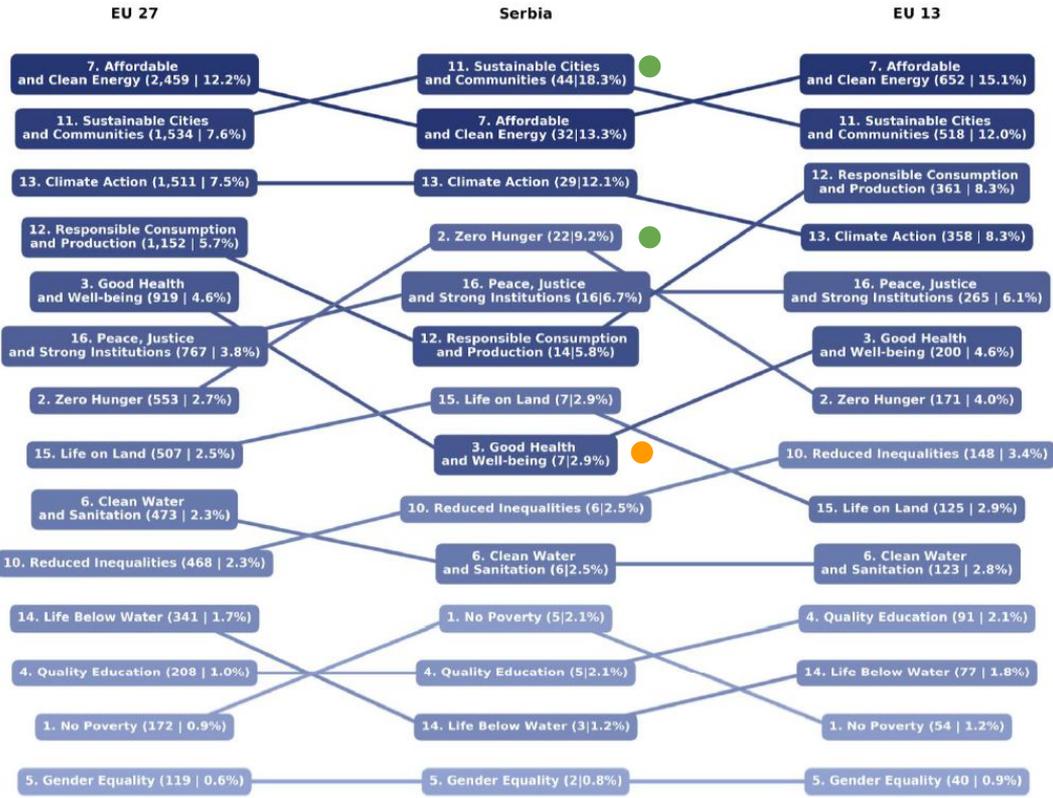
Specialisation Index of Serbia in publications against EU13 and EU27, by goal



Normalised citation impact against the percentage of **publications in the TOP 10% journals**, by goal

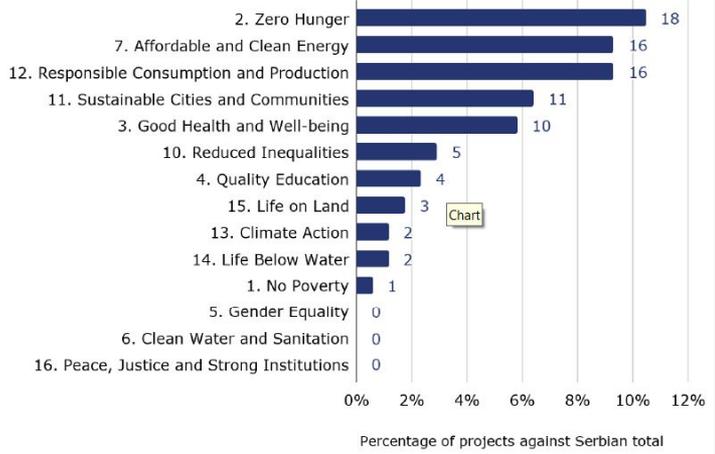


Distribution of H2020 projects by goal in each geography of interest

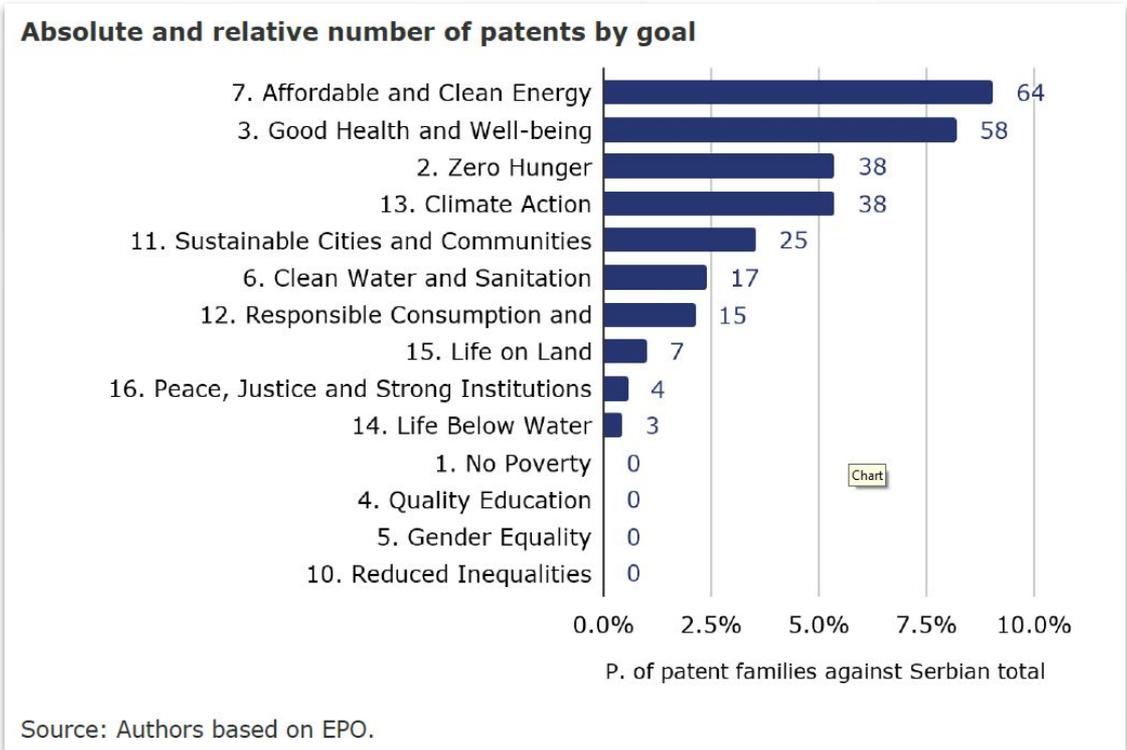


Source: Authors based on CORDIS.

Absolute and relative number of Innovation Fund Projects by goal

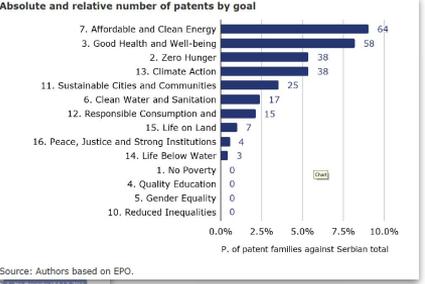
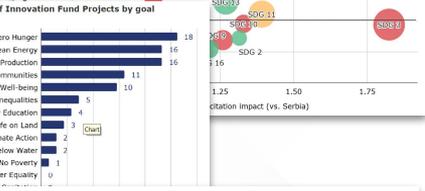
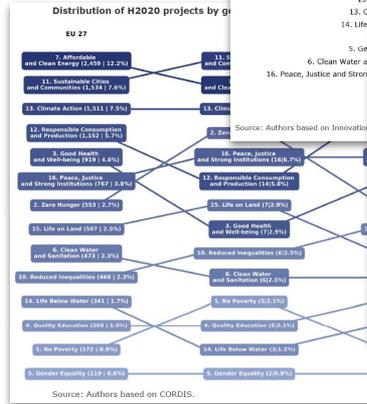
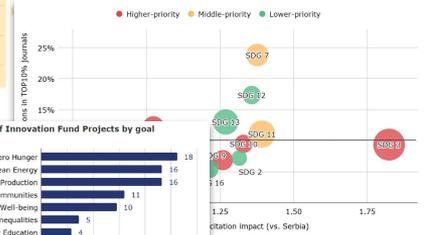
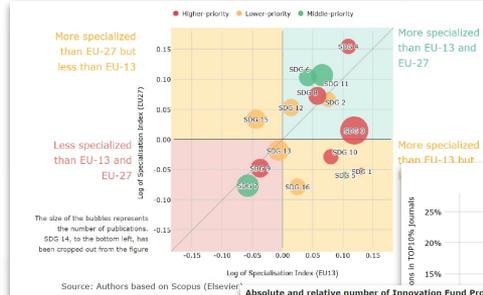


Source: Authors based on Innovation Fund data.



Aligning SDG priorities with STI potential and gaps

Higher-priority challenges	<ul style="list-style-type: none"> 1. No Poverty 3. Good Health and Well-being 4. Quality Education 8. Decent Work and Economic Growth 9. Industry, Innovation and Infrastructure 10. Reduced Inequalities
Middle-priority challenges	<ul style="list-style-type: none"> 5. Gender Equality 6. Clean Water and Sanitation 7. Affordable and Clean Energy 11. Sustainable Cities and Communities 17. Partnerships for the Goals
Lower-priority challenges	<ul style="list-style-type: none"> 2. Zero Hunger 12. Responsible Consumption and Production 13. Climate Action 14. Life Below Water 15. Life on Land 16. Peace, Justice and Strong Institutions



Higher-priority goals in Serbia are in the social and economic domains.



The three more socially oriented Higher-priority challenges (Goal 1. No Poverty, Goal 4. Quality Education, Goal 10. Reduced Inequalities) **are researched by small scientific communities**, and, due to their non-technical nature, are not related to a single Serbian patent.

Furthermore, these goals do not receive much attention from research and innovation funding agencies, which may limit the consolidation of the scientific communities and the transformative impact of science and innovation in Serbia.



Smaller scientific communities in Serbia than in EU13 countries, in relative terms.

This may represent an important knowledge gap in relation to countries which face, or have faced, comparable challenges.

In any case, it is difficult everywhere to connect these knowledge capacities with better policy-making and widespread social transformation.



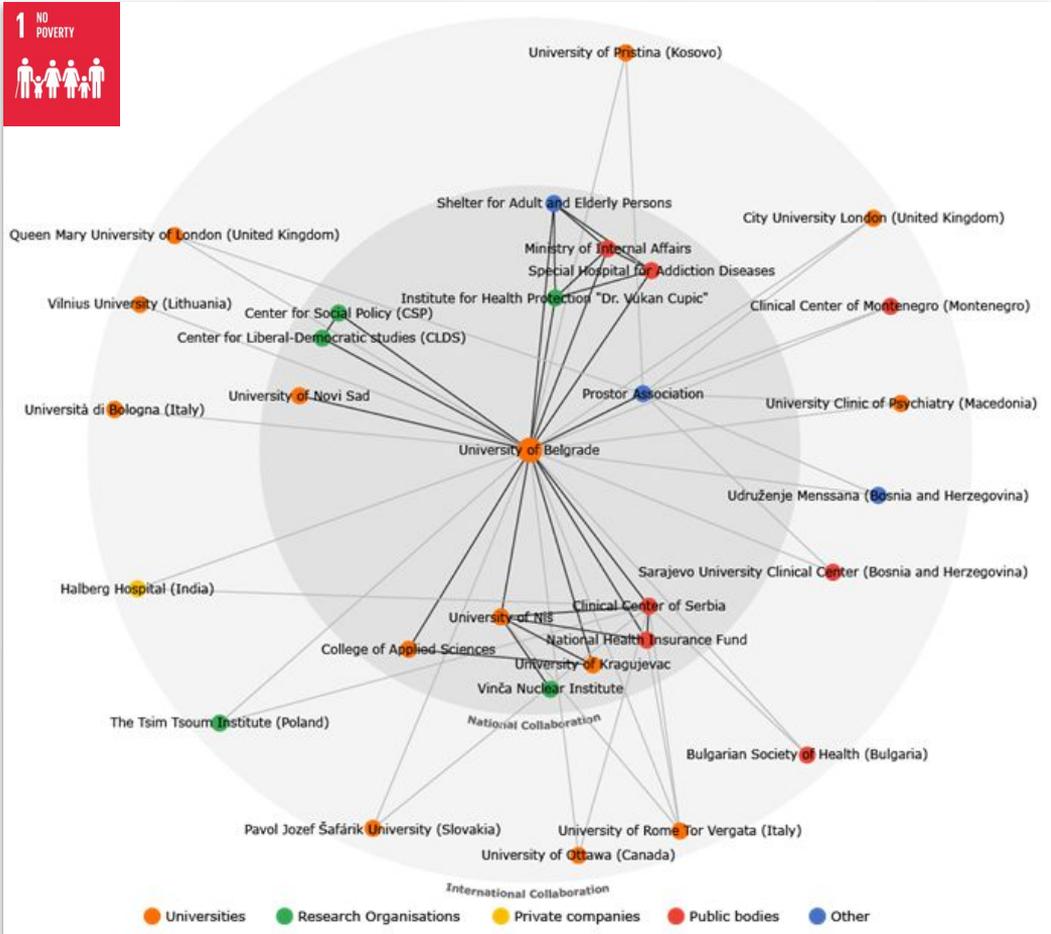
The Goal 3-related STI community is

- **relatively smaller than in the EU13 countries**, which may point at an insufficient critical mass,
- **has a difficulty in obtaining Horizon 2020 funding**, unlike other Serbian goal-related communities

Notable knowledge gaps in Goal 3-related topics can be found in the disciplines **Immunology and Microbiology, Neuroscience and Psychology**

Which international STI collaboration networks and partnerships match the identified knowledge gaps and potentials?

Results from the scientometric identification of STI potential



Source: Authors based on Scopus (Elsevier), CORDIS, Innovation Fund and EPO.

4 Quality Education | Goal 4: Quality Education

Main Serbian actors and international partners engaged in SDG-oriented STI activities

The following tables present the top 10 Serbian and international actors engaged in each SDG-oriented STI activities in the different data sources. For more information on entrepreneurial innovation, the last table presents the top 10 companies participating in R&D projects.

PUBLICATIONS		
TOP 10 National organisations	TOP 10 International orgs.	TOP 10 Countries
University of Belgrade [109]	University of East Sarajevo (Bosnia and Herzegovina) [5]	DE Germany [12]
University of Novi Sad [78]	University of Ljubljana (Slovenia) [4]	SI Slovenia [12]
University of Kragujevac [38]	University of Zagreb, Faculty of Kinesiology (Croatia) [3]	BA Bosnia and Herzegovina [11]
University of Niš [23]	Bundesamt für Strahlenschutz (Germany) [3]	IT Italy [10]
Institute for Educational Research [8]	Lithuanian Sports University (Lithuania) [2]	ES Spain [9]
Vinča Nuclear Institute [7]	The University of Warwick (United Kingdom) [2]	HR Croatia [8]
Academy of Criminalistic and Police Studies [5]	Maastricht University (Netherlands) [2]	US United States [7]
University of Defence [4]	University of Oxford (United Kingdom) [2]	BE Belgium [6]
Institute of Public Health of Serbia [3]	University of Washington, Seattle (United States) [2]	GB United Kingdom [5]
Clinical Center of Serbia [3]	Università degli Studi di Torino (Italy) [2]	CZ Czech Republic [5]
HORIZON 2020		
TOP 10 National organisations	TOP 10 International orgs.	TOP 10 Countries
INSTITUT MIHAJLO PUPIN [2]	Rheinische Friedrich-Wilhelms-Universität Bonn (Germany) [2]	DE Germany [4]
University of Novi Sad [1]	FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V. (Germany) [2]	NL Netherlands [3]

How do the identified challenges, potentials and knowledge gaps relate to Smart Specialisation priority domains in Serbia?



Beyond the higher priority goals,

- **Goal 2. Zero Hunger** and
- **Goal 7. Affordable and Clean Energy**

showcase noteworthy STI capacities and opportunities for mobilisation.

To a smaller degree, also Goals 11 and 12.



Beyond the higher priority goals,

- **Goal 2. Zero Hunger and**
- **Goal 7. Affordable and Clean Energy**

showcase noteworthy STI capacities and opportunities for mobilisation.



Summary of the **potential impact of the S3 priorities** in the main challenges resulting from the **SDGs in Serbia**

	Information and communication technologies	Food for Future	Creative Industries	Future Machines and Manufacturing Systems	Energy Efficient and Eco-Smart Solutions	Key Enabling Technologies
Goal 1. No Poverty	Indirect	Indirect				
Goal 2. Zero Hunger		Direct	Indirect	Indirect	Indirect	Indirect
Goal 3. Good Health and Well-being	Direct		Indirect		Indirect	Indirect
Goal 4. Quality Education	Direct		Direct			
Goal 5. Gender Equality	Indirect		Indirect			
Goal 6. Clean Water and Sanitation		Indirect		Indirect		Indirect
Goal 7. Affordable and Clean Energy	Direct	Indirect	Indirect	Indirect	Direct	Indirect
Goal 8. Decent Work and Economic Growth	Indirect	Indirect	Indirect	Indirect	Indirect	Indirect
Goal 9. Industry, Innovation and Infrastructure	Direct	Indirect	Indirect	Direct	Indirect	Direct
Goal 10. Reduced Inequalities	Indirect		Indirect			
Goal 11. Sustainable Cities and Communities	Indirect			Indirect	Indirect	Indirect
Goal 12. Responsible Consumption and Production		Indirect	Direct		Indirect	Indirect
Goal 13. Climate Action		Indirect	Indirect	Indirect	Indirect	Indirect
Goal 14. Life Below Water		Indirect	Indirect	Indirect		
Goal 15. Life on Land		Indirect	Indirect	Indirect	Indirect	
Goal 16. Peace, Justice and Strong Institutions						

Several of these opportunities were identified by representatives of the S3 working groups corresponding to the four S3 priorities during the Smart Specialisation for Sustainable Development Goals – pilot activity workshop in Serbia, *Belgrade, February 27th 2020*

<p>S3 - Creative Industries</p> <ul style="list-style-type: none">• Creative audio-visual production• Video Games and Interactive content• Smart Packaging	<p>STI for SDGs roadmap - Potential and opportunities</p> <p>The design and production of interactive content for educational and training purposes can have an important impact in higher priority Goal 4 Quality Education, particularly in the top targets:</p> <ul style="list-style-type: none">• By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university• By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship <p>During the participatory workshop in Belgrade, representatives of the Smart Specialisation Creative industries working group cited the following specific SDG-oriented opportunities related to:</p> <ul style="list-style-type: none">• Measures for a reduction in the energy consumption in audio-visual productions, in alignment with Goal 7.• Measures for a reduction in the waste production in audio-visual productions (eg. Green filming), in alignment with Goal 12.• Smart and green packaging, in alignment with Goal 12. <p>There is wide-spread awareness in the sector of the huge waste production related to packaging. STI activities in smart packaging can bring value in the context of safe and quality food (Goals 2 and 3) as well as positive environmental impact in lower priority challenges goals 12. Responsible Consumption and Production, 13. Climate Action, 14. Life Below Water and 15. Life on Land. It was commented that adequate legislation could help align actors and accelerate transformations, particularly on the side of the consumer</p> <p>As with the ICT sector, the Creative industries can have a horizontal role in supporting innovation (Goal 9) and improving employment (Goal 8). With adequate training and labour policies, it can produce important economic traction and employment opportunities addressing inequality-inclusion (Goal 10) challenges, for minorities, population with disabilities and women (Goal 5).</p> <p>Gaps</p> <p>As shown in the Finer-grained STI analysis, the discipline of Arts and Humanities (which includes design, the fine arts and the applied arts) presents a lower specialisation index in SDG-oriented activities than in the EU13 and particularly EU27 countries. To address this gap, the design and applied arts sector must grow in size and/or focus more attention on SDG-related topics. Cultural and social innovation, engaged in the local communities and challenges, can be a strong driver in this regard.</p>
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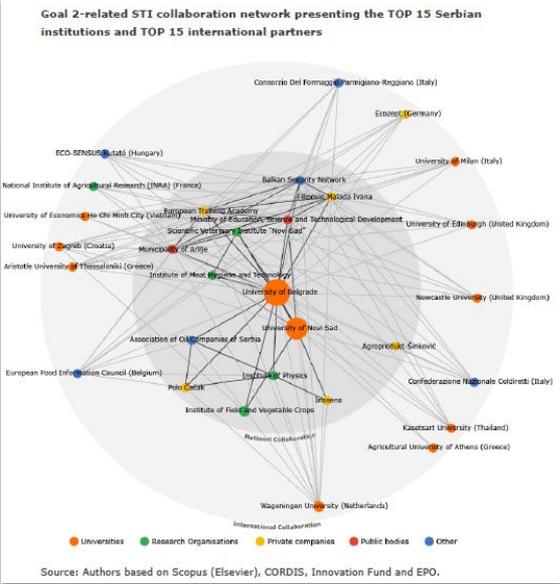
Relation between the SDG framework and the 4S (example)



Goal 2 main SDG-related keywords across all data sources

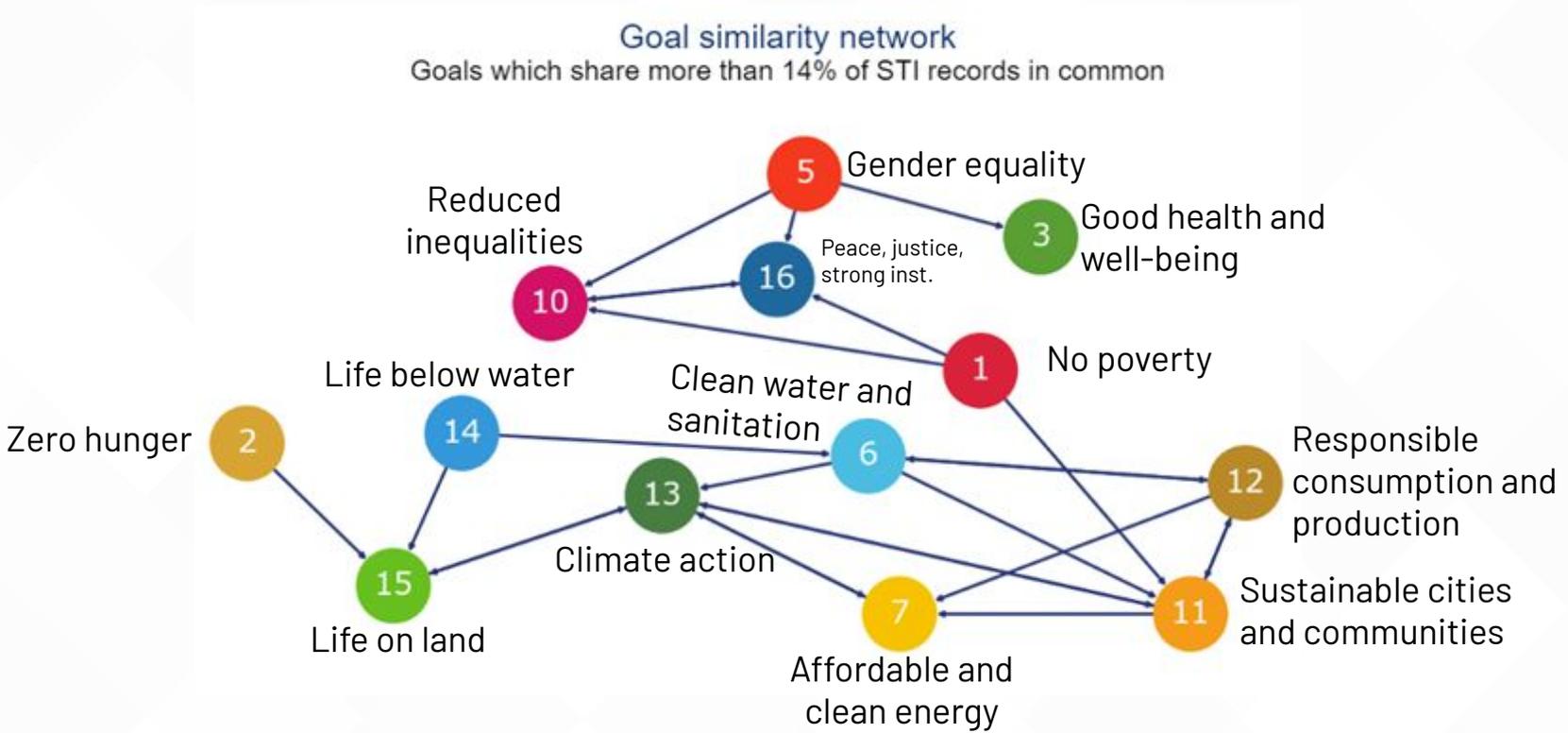


Source: Authors based on Scopus (Elsevier), CORDIS, Innovation Fund and EPO.



Source: Authors based on Scopus (Elsevier), CORDIS, Innovation Fund and EPO.

(semantic) Relationship between the goals



Contents

1. Policy context and project objectives
2. Objectives, methodology and data sources
3. Main results and conclusions
4. Final thoughts

Smart specialisation and the STI for SDG roadmapping are, above all, **collective efforts to connect and mobilise actors in the exploration, discovery and exploitation of innovation opportunities and sustainable development pathways.**



Data, analysis, and experts' insights are only a foundation to facilitate priority-setting and optimise stakeholder engagement (EDP)

1. **In SD goals with sufficient capacities in the Serbian STI ecosystem:**
 - a. **Mobilise the knowledge and private sector in pursuing SDG-oriented innovations**, particularly in the framework of the smart specialisation priorities, benefiting from the entrepreneurial discovery process and the funding and implementation of support programmes.
 - b. Mobilise and **leverage the expertise** of the knowledge sector, the public sector and non-for-profits in localising solutions to the SDG challenges in **better public policy, social innovation and social, economic and sustainability transformations**.

2. **In SDG challenges presenting STI knowledge gaps in the Serbian STI ecosystem:**
 - a. **Build STI capacities** in the public, private and third sector, which requires longer term science and innovation policy in the framework of STI roadmaps for the SDGs.
 - b. **Support partnerships with international actors** to tackle projects, import skills and accelerate the capacity-building of local actors.

Addressing societal challenges is an effort grounded on the social, economic and cultural context of societies^[1].

SDG-related **STI capacities may be available**, and actors may promote the development and adoption of SDG-oriented solutions resulting from science and innovation, but the **existence of dysfunctional social realities** (such as inequality, discrimination or an ineffective public sector) could very well **hamper the adoption or dissemination of such solutions**.

An example would be the situation of minority populations in many countries, which present lower health outcomes, education attainment and employment levels of.

[1] See "[Social Development for Sustainable Development](#)", Department of Economic and Social Affairs, United Nations, for further material on this questions.

That's why STI for SDGs roadmaps can only be a partial building block within wider national sustainable development strategies.

1. Necessity to define **challenge-specific objectives and indicators** (such as in health, education, energy efficiency or climate mitigation)
2. **Key role of the line ministries/departments** (Health, Public Administration, Agriculture and Rural Development, Sustainable Development, Energy, Transportation, etc)
3. **S3 governance + interministerial coordination** as a tool to guarantee coherence, implementation, monitoring and evaluation
4. Need for **additional policy frameworks to tackle transversal issues in the SDGs** (RRI, gender, minorities, consumption, innovative public procurement, industrial regulations, etc.)
5. **Learning by monitoring**, to understand what works at the policy and project level, and exchange with the main participants in the quad-helix on how to improve implementation and impact

Thank you!

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Goal 2: Zero Hunger

LOWER
priority challenge

Analysis of Serbian SDG-related assessments and policy documents

Statistical assessment of the gap in the SDG indicators with EU countries

12th

LOW
Indicated Goal

11th MEDIUM-SIZED
gap with leading EU countries

Rank and share of Goal 2 in the STI analysis

This table presents the rank of Goal 2-related STI activities, in relation to the rest of goals. For publications and H2020 projects, the share vs. EU27 provides a notion of relative specialisation.

Publications (out of 16 goals)		Horizon 2020 (out of 14 goals)		Innovation Fund (out of 11 goals)	Patents (out of 10 goals)
12th	12th	4th	7th	1st	3rd
1.4% Serbia	1.2% EU27	9.2% Serbia	2.7% EU27	10.5% Serbia	5.4% Serbia

Scientific impact of Goal 2-related publications

% of publications in TOP10% journals <div style="text-align: center; font-size: 24px; font-weight: bold;">7.0%</div> Serbian average = 10.2%	Normalised citation impact (vs. Serbian pubs.) <div style="text-align: center; font-size: 24px; font-weight: bold;">1.3</div> Serbia = 1
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Active organisations in Goal 2-related STI activities

This table presents the number of organisations engaged in Goal 2-related STI activities, providing a notion of critical mass and international linkages.

N. of organisations in publications		N. of organisations in Horizon 2020		N. of orgs. in Innovation Fund	N. of orgs. in patents
58	927	23	470	20	5
National	International	National	International	National	National

Relation with other goals and with smart specialisation

MOST RELATED GOALS	MOST RELATED S3 PRIORITY DOMAINS
<div style="display: flex; justify-content: space-around;"> <div style="background-color: #2e8b57; color: white; padding: 5px; text-align: center;"> <p>15 LIFE ON LAND</p> <p>17% Similarity</p> </div> <div style="background-color: #2e8b57; color: white; padding: 5px; text-align: center;"> <p>13 CLIMATE ACTION</p> <p>9% Similarity</p> </div> </div>	Food for Future Energy Efficient and Eco-Smart Solutions Key Enabling Technologies (Biotechnology)

Goal 11: Sustainable Cities and Communities

MEDIUM
priority challenge

Analysis of Serbian SDG-related assessments and policy documents

Statistical assessment of the gap in the SDG indicators with EU countries

10th

LOW
Indicated Goal

10th MEDIUM-SIZED
gap with leading EU countries

Rank and share of Goal 11 in the STI analysis

This table presents the rank of Goal 11-related STI activities, in relation to the rest of goals. For publications and H2020 projects, the share vs. EU27 provides a notion of relative specialisation.

Publications (out of 16 goals)		Horizon 2020 (out of 14 goals)		Innovation Fund (out of 11 goals)	Patents (out of 10 goals)
3rd	4th	1st	2nd	4th	5th
3.1% Serbia	2.4% EU27	18.3% Serbia	7.8% EU27	6.4% Serbia	3.5% Serbia

Scientific impact of Goal 11-related publications

% of publications in TOP10% journals <div style="text-align: center; font-size: 24px; font-weight: bold;">11.0%</div> Serbian average = 10.2%	Normalised citation impact (vs. Serbian pubs.) <div style="text-align: center; font-size: 24px; font-weight: bold;">1.4</div> Serbia = 1
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Active organisations in Goal 11-related STI activities

This table presents the number of organisations engaged in Goal 11-related STI activities, providing a notion of critical mass and international linkages.

N. of organisations in publications		N. of organisations in Horizon 2020		N. of orgs. in Innovation Fund	N. of orgs. in patents
123	791	44	599	14	2
National	International	National	International	National	National

Relation with other goals and with smart specialisation

MOST RELATED GOALS	MOST RELATED S3 PRIORITY DOMAINS
<div style="display: flex; justify-content: space-around;"> <div style="background-color: #2e8b57; color: white; padding: 5px; text-align: center;"> <p>13 CLIMATE ACTION</p> <p>18% Similarity</p> </div> <div style="background-color: #ffa500; padding: 5px; text-align: center;"> <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p> <p>15% Similarity</p> </div> </div>	Energy Efficient and Eco-Smart Solutions Information and comm. technologies Food for Future