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REVIEW OF NATIONAL AND REGIONAL RESEARCH AND INNOVATION STRATEGIES FOR SMART SPECIALIZATION (RIS3) IN POLAND

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Acknowledgments

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List of Abbreviations

ASI	Area of Strategic Intervention
CSF	Common Strategic Framework
EC	European Commission
EDP	Enterprise Development Program (PRP)
EIES2020	Economy Innovation and Effectiveness Strategy: "Dynamic Poland 2020" (SIEG2020)
EPDS	Eastern Poland Development Strategy (SRPW)
EPL	Eastern Poland
EPL5	Five Regions composing the macro-region Eastern Poland
EPOP	Eastern Poland Operational Program (PO PW)
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communication Technology
M&E	Monitoring and Evaluation
MoE	Ministry of Economy
MoSHE	Ministry of Science and Higher Education
MRD	Ministry of Regional Development
NCBR	National Center for Research and Development
NGA	Next Generation Access
NLDS2030	National Long-term Development Strategy 2030 (DSRK2030)
NMDS2020	National Medium-term Development Strategy 2020 (SSRK2020)
NRefP	National Reform Program (KPR)
NRP	National Scientific Research Program (KPB)
NSDC2030	National Spatial Development Concept 2030 (KPZK2030)
NSRD	National Strategy for Regional Development (KSRR)
PA	Partnership Agreement
PARP	Polish Agency for Enterprise Development
R&D	Research and Development
R&I	Research and Innovation
RDS	Regional Development Strategy (SRW)
RIS3	Research and Innovation Strategy (RSI)
RoI	Return on Investment
ROP	Regional Operational Program (RPO)
RoR&D	Large R&D Infrastructure Roadmap
RTD	Research, Technology, and Innovation
TC	Territorial Contract
TO	Thematic Objective (part of the EC *ex ante* conditionality)
WB	World Bank

1. Executive summary

1. **Poland has so far demonstrated relative efficiency in absorbing EU funds.** The country has been the largest beneficiary of EU funds 2007-2014, amounting to €67.3 billion[1]. Due to its high absorptive capacity, to date it has utilized the majority of these. They have helped the country and its sixteen regions ("voivodships") to accelerate growth by supporting crucial investments and helping to meet socio-economic challenges. EU funds have proven especially supportive during the financial crisis, with Poland being the only EU economy to avoid recession.

2. **Nonetheless, Poland and its regions still have a long way to go to converge with Western European income levels.** In 2012, Poland's GDP per capita was only approx. 66 percent of the EU-28 level (PPP). In many individual voivodships however, especially in the eastern, less developed part of the country, the income level amounted to less than half of the EU-28 average.

3. **Poland is expected to receive another €72.9 billion in structural funds within the 2014-2020 EU financial perspective, representing around 2 percent of its GDP per year.** Roughly €10 billion will be earmarked for national and regional innovation programs, of which somewhere in the region of one third is likely to be spent by the Polish regions.

4. **Efficient spending of these new EU funds will be key to ensuring long-term and sustainable socio-economic transformation and continued convergence with the more developed regions and countries.** The central challenge for the next EU programming period 2014-2020 will be to shift the spending paradigm from absorption to "value for money", especially as the new budget may be the last to provide funds robust enough to allow for fundamental economic transformation. If spent wisely, these funds could provide a historic chance to help close the majority of the existing gap in income and living standards relative to Western Europe.

5. **However, to receive funds for innovation in the next European Union financial perspective 2014-2020, Poland must develop an innovation framework.** This includes Research and Innovation Strategies (RIS3s) and is aimed at setting national and regional (voivodship) innovation development priorities[2]. The framework needs to be consistent with the new "smart specialization" concept developed by the European Commission. "Smart specialization" is a development strategy that builds on existing competitive advantages to increase the impact of research and innovation policies on economic growth in EU member states. Each member state's Partnership Agreement with the European Commission will determine the thematic objectives of the strategy, as well as a monitoring and results framework tracking the performance of each country/region. Failure to meet the EC's *ex ante* conditionalities for RIS3 could result in the need to undertake remedial actions during 2014/2015 or could lead to suspension of access to EU funds altogether.

6. **A successful RIS3 should formulate a clear and unique vision statement, goals and objectives that will guide the process of concentrating scarce resources.** The process of formulating the RIS3 is of particular importance as it should actively engage key stakeholders (the business community, academia, NGOs, and the general public) to develop a consensus-based approach to development. The RIS3 should also be underpinned by SWOT analysis that indicates key challenges facing the region and its endogenous potential. Efficient and effective RIS3 strategies should focus on an implementation system which (i) establishes new governance structures and processes; (ii) develops robust M&E systems to enable just-in-time decision-making similar to that applied in the private sector; and (iii) focuses on specific smartly designed initiatives/projects to help achieve the final outputs and outcomes. Finally and most importantly, the RIS3 should explain how it will help to ensure the socio-economic transformation of each region and of the country as a whole.

7. **In this context, the Ministry of Regional Development (MRD) has requested the World Bank's assistance.** The request included reviewing the Eastern Poland macro-regional

1. Ministry of Economy (2013), *EIES2020*, p.92 [SIEG2020].
2. European Commission's Cohesion Policy proposal for 2014-2020 - Appendix 7.1 (2011).

program (developed for the five poorest voivodships in the eastern part of Poland) and three national strategies[3]. The Bank's assistance focused on two main goals: (i) to review RIS3 strategies in Poland on a regional, macro-regional (supra-regional) and national level and provide recommendations on how to help ensure their closer compliance with the European Commission's *ex ante* conditionality on "smart specialization"; and (ii) to assess the internal coherence of RIS3 strategies at the regional, macro-regional and national levels.

Box 1. Definition of RIS3 – research and innovation strategy for smart specialization

RIS3 is an integrated, place-based economic transformation agenda that does five important things:

It focuses policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures;

It builds on each country's/region's strengths, competitive advantages and potential for excellence;

It supports technological as well as practice-based innovation aiming to stimulate private investment;

It gets stakeholders fully involved and encourages innovation and experimentation;

It is evidence-based and includes sound monitoring and evaluation systems.

Source: Commission (2012), Guide to Research and Innovation Strategies for Smart Specialisations (*RIS 3*)

8. This report analyzes four aspects of Poland's innovation system to assess whether the proposed new smart specialization framework will lead to sustainable socio-economic transformation. **Figure 1** provides a synthetic presentation of this relationship. The report does not intend to assess (second-guess) the rationale used to select smart specializations at the national and regional levels. Although an important element of the RIS3 framework, smart specializations are merely a part of the innovation system as a whole and should be considered nothing more than a useful tool in achieving socio-economic transformation. Instead, the report looks at the overall RIS3 framework and its implications for national and regional development.

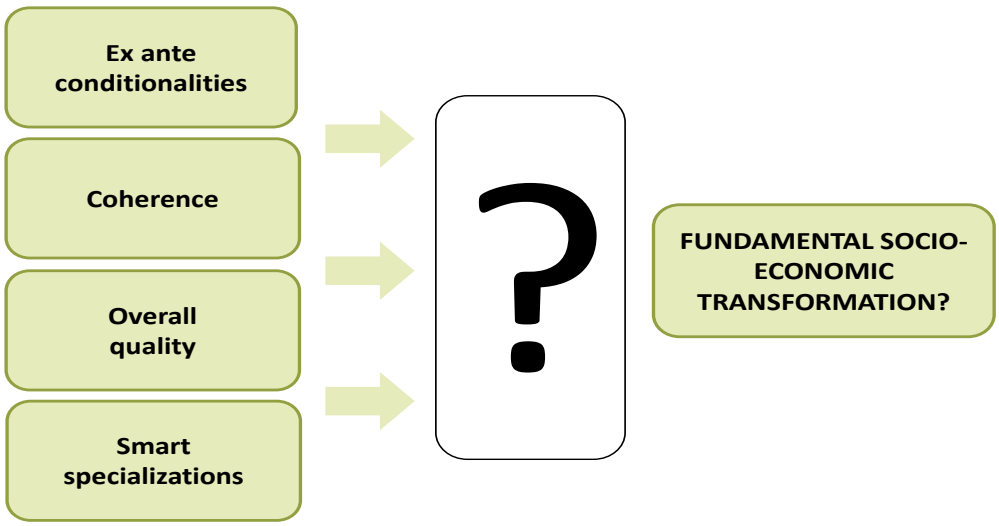


Figure 1. Approach to the assessment of the smart specialization framework

Source: World Bank staff

9. The report concludes that at present, existing RIS3 frameworks at the national, macro-regional, and regional levels, while already quite developed, require additional work to be fully in line with the EC's conditionalities. While substantial work has already been done in designing regional innovation strategies based on the new smart specialization concept, in the Bank's assessment the resulting RIS3s may not yet be fully compliant with the EC's *ex ante* conditionalities. **Table 1** summarizes the extent to which the EC's *ex ante* conditionalities are fulfilled at the national, macro-regional and regional levels with regard to thematic objective No. 1. It should

3. Economic Innovativeness and Efficiency Strategy adopted by the Council of Ministers, National Research Strategy developed by the Ministry of Higher Education and Science, and Enterprise Development Program developed by the Ministry of Economy.

be emphasized that the Bank's assessment is not a substitute for the final evaluation by the European Commission, the ultimate arbiter. The purpose of the Bank's assessment is to draw attention to the fact that at this stage existing RIS3 frameworks leave space for improvement.

***Ex ante* conditionality**	**National level**	**Macro-regional level**	**Regional level**
	Assessment of the current situation		
A national or regional research and innovation strategic policy framework for smart specialisation is in place that:	Partly fulfilled	Not fulfilled	Partly fulfilled (not a significant threat)
… is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities;	Partly fulfilled	Partly fulfilled	Partly fulfilled (weak point)
… outlines measures to stimulate private RTD investment;	Not fulfilled (not enough data to assess - the EDP drafting process is ongoing)	Partly fulfilled	Not fulfilled (not enough data is available for a thorough assessment)
… contains a monitoring and review system.	Partly fulfilled	Not fulfilled	Partly fulfilled (weak point)
A framework outlining available budgetary resources for R&I has been adopted.	Partly fulfilled	Not fulfilled	Not fulfilled
An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted.	Partly fulfilled	Not fulfilled	Not fulfilled

Table 1.
The Bank's summary assessment of the fulfillment of EC's *ex ante* conditionality for TO1 in Poland, at the national, macro-regional and region level

Source: World Bank staff

10. Likewise, the draft RIS3s will need further improvement to ensure that they contribute to socio-economic transformation. While meeting the formal *ex ante* conditionalities is important, mechanical fulfillment alone will not bring about fundamental change. Improvements in the overall innovation and RIS3 framework are needed to support socio-economic transformation and rapid income convergence. The report identifies a number of key interrelated problems undermining RIS3 framework quality and adversely affecting its ability to leverage funding for efficient and effective change. The key challenges for the framework are as follow:

i. RIS3 systems at the national, macro-regional and regional levels do not yet seem to constitute a coherent whole; this includes the lack of consistency in the methodology for the choice of smart specialization;
ii. There is insufficient evidence that the newly proposed RIS3 framework goes beyond the "business as usual" from the previous EU financial perspective;
iii. There is no clear demarcation between the national, macro-regional, and regional scope of action and responsibility;
iv. There seems to be insufficient trust and open communication between national and regional governments;
v. Within the strategic innovation framework, institutions have limited capacity at all three governance levels. Leadership could also be further strengthened, particularly at the national level, to guide and steer the process of formulating and implementing RIS3s.

11. The report provides a list of recommendations on how to improve the RIS3s to help meet the EC's requirements and how to enhance their impact on national and regional development. Specifically, its key recommendations are:

i. To improve RIS3s by making them truly operational and easily understandable to the public, introducing a clear action plan for implementation, and leaving space for the required flexibility.
ii. To strengthen the rationale used to select smart specializations on the basis of robust evidence and a new business planning model;

iii. To build more internal capacity among key stakeholders;

iv. To introduce a rigorous monitoring and evaluation system and take steps towards measuring the net effects of public interventions;

v. To enhance internal coherence in individual regions between their RIS3, regional development strategy and regional operational program to ensure that they complement each other;

vi. To reform the innovation system to eliminate the fragmentation and duplication of information, resources and responsibilities;

vii. To provide stronger ownership and leadership, ensuring that the RIS3 belongs to the respective regions, reflects their actual development priorities and promises efficient implementation;

viii. To look beyond the next financial perspective by ensuring that the innovation system remains self-sustainable even after the EU funds flowing into the region are reduced post-2020 (to plan how to live without "easy" money)

12. **This report is organized as follows: Chapters 1 and 2 present the executive summary and introduction.** Chapter 3 presents the strategic framework of the RIS3 policy at European, national, macro-regional and regional levels. Chapter 4 assesses Poland's strategic documents on RIS3 from the viewpoint of the EC's *ex ante* conditionalities, the coherence of the framework in Poland, its overall quality, and the key challenges behind smart specializations. Chapter 5 focuses on key conclusions from the report and recommended improvements to the framework. **Figure 2** summarizes the report's structure.

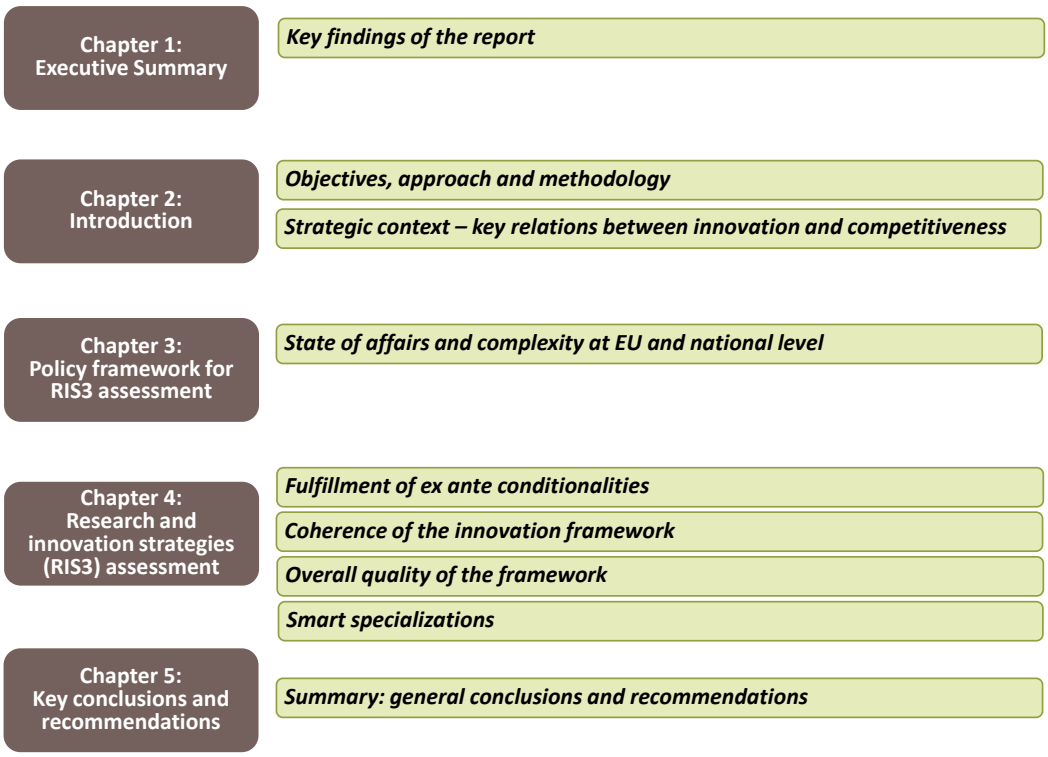


Figure 2.
Internal structure of the report

Source: World Bank staff

2. Introduction

13. The objective of the Bank's proposed technical assistance is to support the Ministry of Regional Development in:

- reviewing RIS3 strategies in Poland at the regional, macro-regional (supra-regional) and national levels and providing recommendations as to how to ensure compliance with the European Commission's *ex ante* conditionality on "smart specialization";
- assessing the internal coherence of RIS3 strategies at the regional, macro-regional and national level.

14. The report analyzes approximately twenty documents defining smart specialization strategies (usually drafts) for each region. These cover the Eastern Poland macro-region and the national level (*Economy Innovation and Effectiveness Strategy, National Research Program and Enterprise Development Program*). The report provides a brief summary of the existing RIS3s and specifies the complementary activities that need to be undertaken on each level to fulfill the *ex ante* conditionality as stipulated in the most recent draft general regulation of the European Commission, and to ensure strategic coherence across all documents.

Thematic objective	*Ex ante* conditionality	Criteria for fulfillment
1. Strengthening research, technological development and innovation (***R&D target***) (referred to in Article 9(1))	1.1. *Research and innovation:* The existence of a national or regional research and innovation strategy for smart specialization in line with the National Reform Program, to leverage private research and innovation expenditure, which complies with the features of well-performing national or regional research and innovation systems.[4] 1.2. The existence of a multi-annual plan for budgeting and prioritization of investment	1.1. A national or regional research and innovation strategy for smart specialization is in place that: - is based on a SWOT analysis to concentrate resources on a limited set of research and innovation priorities; - outlines measures to stimulate private RTD investment; - contains a monitoring and review system. 1.1. A framework outlining available budgetary resources for research and innovation has been adopted; 1.2. An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures –ESFRI has been adopted.

Table 2.
Thematic *ex ante* conditionality for research and innovation (relevant to RIS3)

Source:
European Commission (2012).

15. The report also assesses whether the draft RIS3s will contribute to the socio-economic transformation of the country. In the review, the report focuses on several important aspects, including (i) formal fulfillment of *ex ante* conditionalities; (ii) coherence of key strategic documents within Poland's innovation framework; (iii) the overall quality of the framework; and (iii) smart specializations.

16. As part of the assignment, the Bank and the Ministry of Regional Development organized a special workshop for all sixteen regions to present the report's initial findings, discuss conclusions and recommendations and follow up with regions and voivodships (regions) on specific areas of interest. The Bank team also visited all sixteen voivodships in a 'tour de Pologne' to meet the key people responsible for formulating regional RIS, and stakeholders engaged in the process. These visits also provided an opportunity to i) gather good practices among regions to be reflected in the report; ii) explain the Bank's role in the project; iii) answer any questions from the regions; and iv) develop relationships with local stakeholders. The Bank translated the DG Regio RIS3 Guide into Polish, sharing the document with the regions and key stakeholders within the Ministry of Regional Development. The project's methodology builds on analytical

4. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Europe 2020 Flagship Initiative Innovation Union (COM(2010) 546 final of 6.10.2010). Commitments 24/25 and Annex I "Self-assessment tool: Features of well performing national and regional research and innovations systems". Conclusions of the Competitiveness Council: Conclusions on Innovation Union for Europe (doc. 17165/10 of 26.11.2010).

work conducted by the World Bank and other key institutions (see the Bibliography for details).[5]

Basic relations between competitiveness and innovation – establishing common ground for understanding

17. Smart specializations aim at facilitating regional growth based on endogenous strengths. The idea of smart specializations (**Box 2**) was introduced as an instrument in the *Europe 2020* strategy (*E2020*)[6]. It builds on the concepts developed by Foray, van Ark[7], and Hall[8], working within the *Knowledge for Growth* group. Smart specialization strategies can be understood as development strategies which – capitalizing on existing comparative advantages – focus more heavily on maximizing the contribution of knowledge factor to economic growth (**Box 1**). The adoption of smart specialization strategies was initially recommended to member states in the Innovation Union Report as a means of increasing the impact of research and innovation on economic growth. The European Commission then incorporated the need for smart specialization strategies into the *ex ante* conditionalities for access to Structural Funds 2014-2020.[9]

Box 2. Smart specialization – a concept with many meanings[10]

The smart specialization concept is based on the idea of economic specialization and the ability of a country/region to build a competitive advantage on unique, locally based expertise that can be applied in a new and innovative manner (innovation is understood not only as pure R&D, but also as non-technological, social and service innovation). Two aspects of this concept make it novel and "smart". Firstly, a new way of combining the efforts of the business and R&I communities to achieve the socio-economic transformation is proposed, i.e. a process of entrepreneurial discovery is favored. Secondly, the country/region is encouraged to look beyond its borders – competition on international markets is crucial to boost growth, in other words local resources have to be tuned to the broader market to generate the highest possible return on investment for the country/region. What is evident from the above is that, instead of being a static concept, smart specialization is a dynamic process: to constantly enhance its competitiveness level, the region has to regularly monitor the market to ensure development in prospective directions.

Thus entrepreneurial discovery is an ongoing process aimed at identifying areas with the potential to achieve critical mass based on local (endogenous) resources, e.g. qualified labor, natural resources, clusters, R&D expertise, etc. Stakeholders representing the quadruple helix (business, R&D, society, administration) should be empowered and actively participate in the process of discovering viable potentials. Smart specialization should not be mistaken for the economic specialization or economic strength of a country/region.

While the latter is an important element in the development of smart specialization, it is not sufficient or necessary. Smart specialization emerges where there is the potential to combine R&I and industry, where there is an ambition for excellence and where market niches are identified. Areas selected as smart should create exceptional added value (return on investment above the average growth path of a country/region) and later spill over to other sectors of the economy, thus enhancing overall performance and productivity.

5. Among key bibliography: a) *Europe 2020 Poland Report "Fueling Growth and Competitiveness in Poland through Employment, Skills, and Innovation"*. This Report argued that accelerating post-crisis rate of growth and meeting the *E2020* targets could be achieved through reforms in three specific areas: raising employment, improving skills, and enhancing technology absorption and innovation. b) *Poland Enterprise Innovation Support Review Report*. This Report concluded that, despite a substantial EU-funded increase in public support for innovation, it is (i) not stimulating long term enterprise innovation but rather technology absorption; (ii) large enterprises rather than SMEs still receive a sizable share of public funds; and (iii) most funding goes to low-technology enterprises and only a small proportion to firms from medium- and high-tech sectors. c) *Toolkit for Regional Innovation* by Jean-Louis Racine, World Bank; Policy note on "Research and Innovation for Smart Specialization Strategy. Concept, Implementation Challenges and Implications". d) Background note from the workshop on *"Smart Investment for Smart Specialization: A Regional Practitioners' Exchange"*, World Bank, 2012; e) The World Bank's *"Guidebook for the Development of Regional Innovation Strategies and Action Plans in the Russian Federation"* (2011)
6. European Commission (2010), Europe 2020 – A European strategy for smart, sustainable and inclusive growth.
7. Foray, Dominique and Van Ark, Bart (2007), "Smart specialisation in a truly integrated research area is the key to attracting more R&D to Europe," Knowledge Economists Policy Brief No. 1.
8. Foray, Dominique, Paul A. David, and Bronwyn Hall (2009), "Smart Specialisation–the Concept", Knowledge Economists Policy Brief, v. 9.
9. European Commission's Cohesion Policy proposal for 2014-2020 - Appendix 7.1 (2011).
10. Based on the EC's *RIS3 Guide* and communication with representatives of the EC.

18. It is difficult to discuss innovation outside the broader context of other key aspects facilitating long-term, sustainable growth (Figure 3). In many cases, the notions of growth (understood as socio-economic development), competitiveness, productivity and innovation are confused or used interchangeably, and their interrelations are unclear and not fully comprehensible. The aim of a country's development strategy is to foster economic growth in order to improve the living conditions of its citizens. To a large extent, economic growth depends on the competitiveness of the economy, which in turn is tied to the level of domestic innovation. Innovation enhances productivity, increasing the competitiveness of a region, country or enterprise, thus facilitating economic growth.

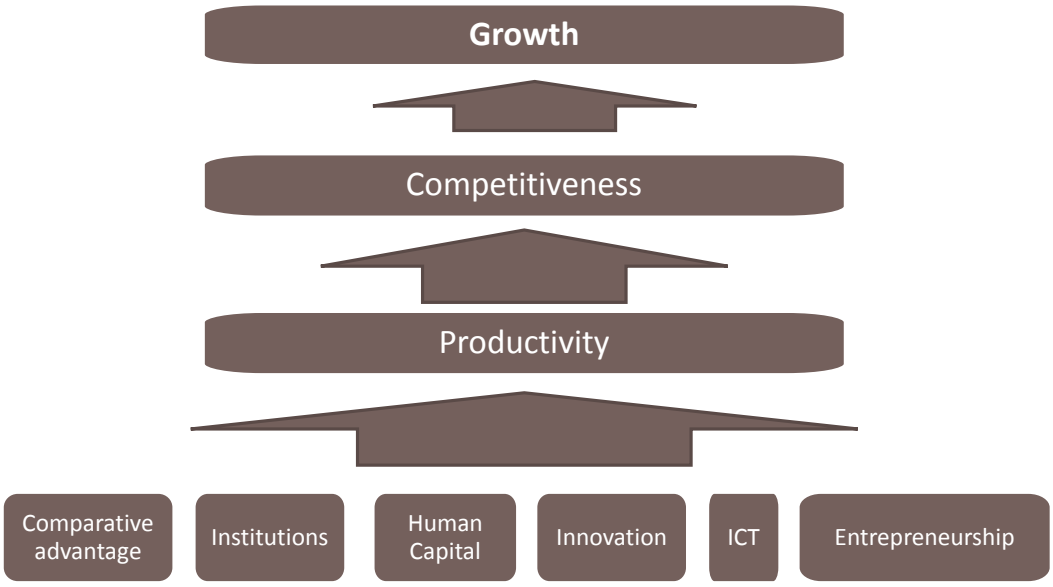


Figure 3.
Relationship between innovation, productivity and competitiveness

Source: World Bank staff

19. Competitiveness is a broad concept applied to a wide range of entities, including enterprises, countries and regions. The OECD defines competitiveness as the "ability of companies, industries, regions, nations, and supranational regions to generate, while being and remaining exposed to international competition, relatively high factor income and factor employment levels on a sustainable basis".[11] The European Commission defines competitiveness as "a sustained increase in the standards of living of a nation or region and as low a level of involuntary unemployment as possible".[12] Where enterprises are concerned, competitiveness consists of maintaining and improving a position in global markets. Hence, competitiveness is not an end in itself but an instrument of growth. Competitiveness is relative in nature: it is not an absolute value; rather, it is always measured against something else. Typically, competitiveness is tracked by indicators such as real exchange rates, comparative advantage indicators, and export and import levels.

20. Key competitiveness and productivity determinants include entrepreneurship. Entrepreneurship (the process of starting and growing a business, institution, etc.) is closely correlated with certain personal characteristics of the individuals involved, but is also affected by the quality of the institutional environment in the country/region where the entrepreneurial venture is located. To develop, enterprises need to ensure continual improvement in their competitiveness, enabling them to compete on the market. To be able to increase their productivity, they must improve the quality of the goods and services they produce via involvement in innovation, development of human resources, etc.

11. Hatzichronoglou, T. (1996), "'Globalisation and Competitiveness: Relevant Indicators", OECD Science, Technology and Industry Working Papers, 1996/05, OECD Publishing.
12. European Commission (2008), *European Competitiveness Report 2008*, p.15.

21. It is widely accepted that absorption of innovation and technology plays a critical role in growth, especially in more developed countries. In fact, in the long-term, innovation-driven increases in productivity fuel overall economic growth and facilitate improvements in living standards. This is one of the reasons why the European Union places such emphasis on the development of RIS3 documents: to create conditions conducive to innovativeness. The task is complicated as it requires a comprehensive, streamlined ecosystem based on strong human capital, high levels of education and R&D, robust enterprises, well-developed stakeholder networks, etc. Nevertheless, the creation of this type of innovation ecosystem is one of the main objectives of a regional RIS3

Box 3. Definitions of innovation and the level of innovation

According to the Oslo Manual, an innovation is "the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations".[13] The European Commission acknowledges this broad and multifaceted definition of innovation.[14]

According to the World Bank, innovation is closely interlinked with technology absorption. Innovation is the "development and commercialization of products and processes that are new to the firm, new to the market, or new to the world. The activities involved range from identifying problems and generating new ideas and solutions, to implementing new solutions and diffusing new technologies".[15]

Absorption, a subset of innovation, is the "application of existing technologies, processes, and products in a new environment, in which they have not been tested yet and their markets and commercial applications are not fully known—that is, they are 'new' to the firm".[16]

In turn the level of innovation (in Poland used interchangeably with "innovativeness") is a much broader concept: it relates to the capacity and preparedness of various entities to be on the lookout for innovative solutions and performance improvements. This attitude of readiness and constant pursuit of new, improved solutions may manifest itself in various ways, e.g. through investments in human capital, partnerships with other stakeholders, allocation of resources to R&D, etc.[17] These efforts should result in innovations. On a regional scale, the level of innovation depends on the creation of conditions conducive to the development of innovations, i.e. an environment encouraging stakeholders to be innovative, and supporting them in their commitment to innovation.

13. OECD/Eurostat (2005), *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*, 3rd Edition, p. 48.
14. European Commission (2012), Connecting Smart and Sustainable Growth through Smart Specialisation: A practical guide for ERDF managing authorities, p.18.
15. World Bank (2011), *Igniting innovation: Rethinking the role of Government in emerging Europe and Central Asia*, Washington, DC.
16. *Ibid*.
17. Krajowa Izba Gospodarcza (2006), *Określenie istoty pojęd: innowacji i innowacyjności, ze wskazaniem aktualnych uwarunkowao i odniesieo do polityki proinnowacyjnej – podejście interdyscyplinarne.* [National Chamber of Commerce (2006), *Specifying the Essence of the Terms Innovation and Innovativeness, Taking into Account Present-Day Circumstances and References to Innovation Policy – an Interdisciplinary Approach.*]

3. Policy framework for RIS3 assessment – strategic multi-level context

22. The purpose of this chapter is to present the overall background for RIS3 documents across different governance levels. Four levels of innovation management are discussed: EU, national, macro-regional, and regional. Each level is discussed in detail and inter-level relations are presented. The highest-level point of reference for RIS3 is the EU, followed by national and macro-regional strategic documents, and finally the region's own strategic documents. The latter should match the objectives and adhere to the guidelines and requirements of national- and EU-level strategic documents (**Figure 4**).

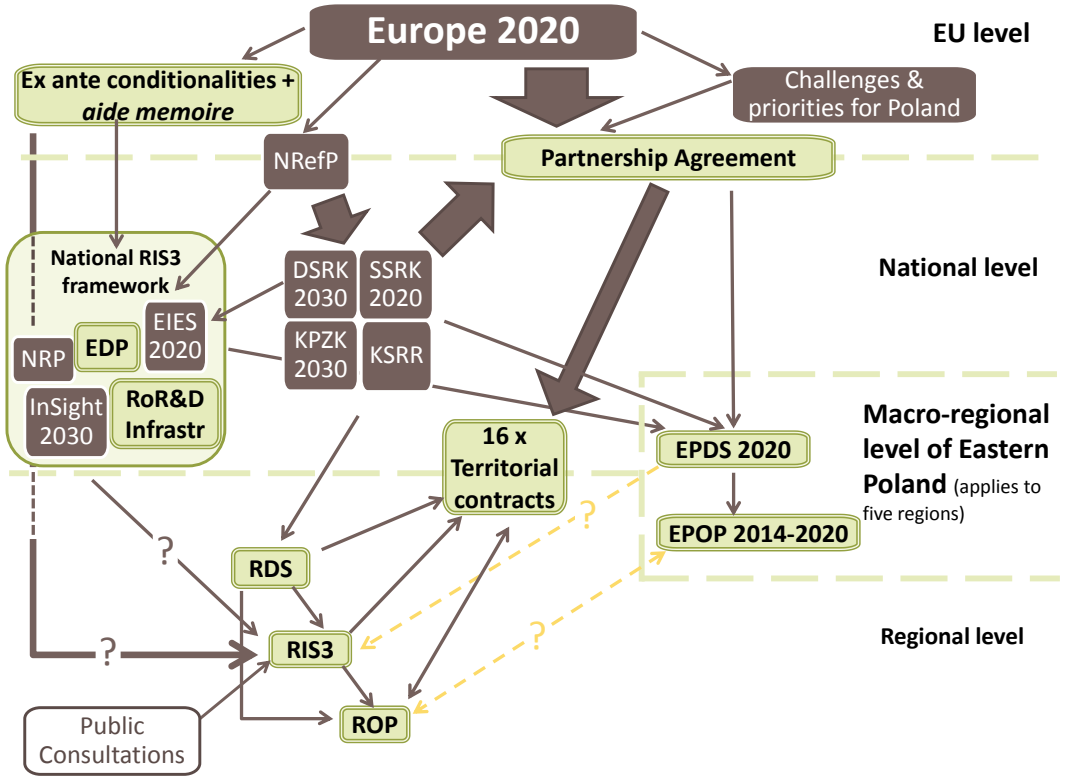


Figure 4.
RIS3 environment: relation between documents at different governance levels

Blue boxes with white letters denote documents already accepted. Yellow boxes with black letters indicate documents that are still not adopted (correct as at mid-June 2013).

Source: World Bank Staff

Legend:

Abbreviations	Full name of the document (abbreviation in Polish)	Abbreviations	Full name of the document (abbreviation in Polish)
EDP	Enterprise Development Program (PRP)	NRefP	National Reform Program (KPR)
EIES2020	Economy Innovation and Effectiveness Strategy: "Dynamic Poland 2020" (SIEG2020)	NRP	National Scientific Research Program (KPB)
EPDS	Eastern Poland Development Strategy (SRPW)	NSDC2030	National Spatial Development Concept 2030 (KPZK2030)
EPOP	Eastern Poland Operational Program (POPW)	NSRD	National Strategy for Regional Development (KSRR)
InSight2030	Technology Foresight "InSight2030"	RDS	Regional Development Strategy (SRW)
NLDS2030	National Long-Term Development Strategy2030 (DSRK2030)	ROP	Regional Operational Program (RPO)
NMDS2020	National Medium-Term Development Strategy 2020 (SSRK2030)	RoR&D Infrastr	Large R&D Infrastructure Roadmap

23. The system of strategic documents relating to RIS3 and smart specialization is complex. One reason for this is that it reflects the EU's multi-level governance structure and further sub-divisions within Poland. The following paragraphs present the main strategic documents shaping the smart specialization context at each level. **Figure 4** presents relations between the main strategic documents relating to the RIS3 thematic and shows the dependencies between them. Question marks indicate significant relations, which are not fully clear at the moment. This is not an exhaustive set of issues encountered during the analysis, but these seem crucial for the regions, as they will be scrutinized by the European Commission. More information about the relations between strategic documents is provided in section 4.2 – strategic document system coherence.

EU level

24. EU-level strategic documents should guide the goals and the priorities of innovation-related programs in member states. *Europe 2020* (*E2020*), the European Commission's Position Paper on the Partnership Agreement with Poland and the Agreement itself, as well as *ex ante* conditionalities, will shape the binding innovation policy framework for Poland and its regions.

25. *Europe 2020* strategy is the key strategic document identifying major development areas for the EU for the current decade. This strategy sets the following three overarching objectives for the EU to attain by 2020:

- Smart growth: knowledge- and innovation-based;
- Sustainable growth: competitive and low-emission economy based on efficient resource utilization;
- Socially inclusive growth: economy with high employment rates to ensure economic, social and territorial cohesion.[18]

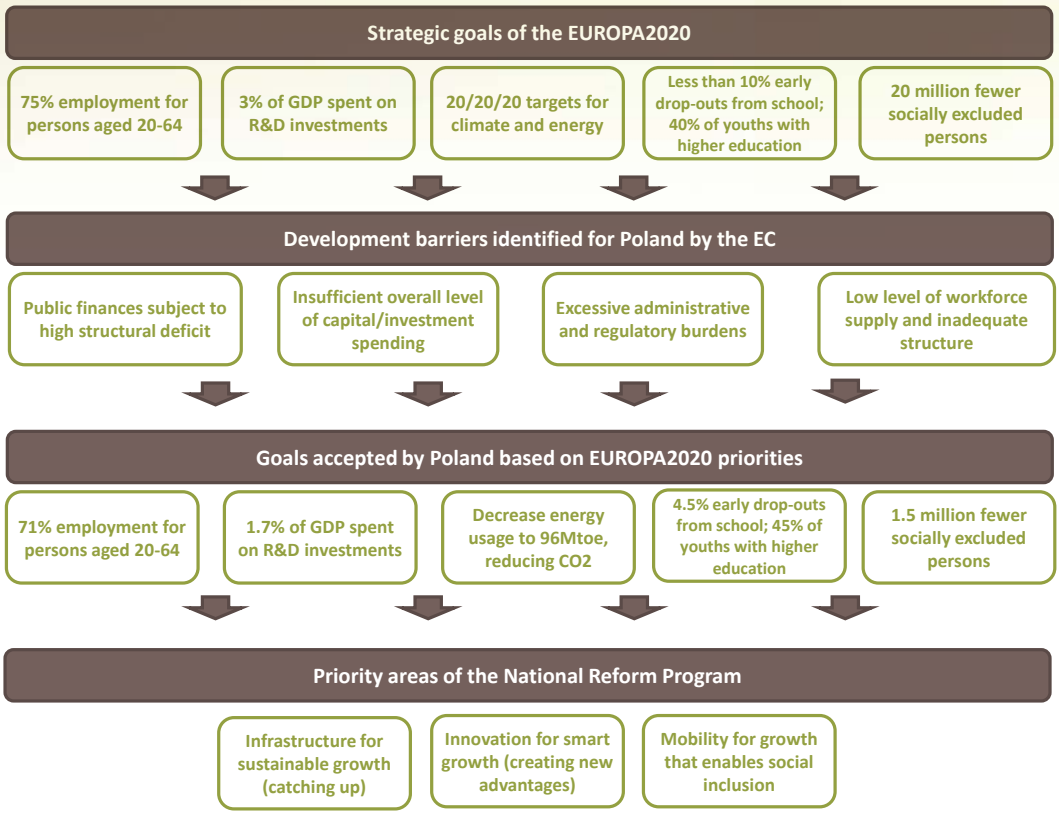
26. *Europe 2020* sets out specific, measurable performance indicators corresponding to the EU's strategic objectives. **Figure 5** presents how the European goals translate into Poland's targets: employment rate at 75 percent (71 percent for Poland), R&D expenditures in the EU at 3 percent of GDP (1.7 percent for Poland), a 20 percent cut in greenhouse gas emissions relative to 1990 levels, an increase in the share of energy from renewable sources to 20 percent of overall energy consumption (15 percent for Poland), a 20-percent increase in energy efficiency (the so-called 20-20-20 package in the areas of emissions, renewable energy and energy efficiency), improved educational attainments (two measures: reducing early drop-out rates to less than 10 percent (4.5 percent for Poland), and increasing the percentage of people with higher education in the age group 30-34 to min. 40 percent (45 percent for Poland), and reduction in the size of the population living in poverty, on the edge of poverty or at risk of social exclusion by 20 million (1.5 million for Poland).

27. *E2020* is implemented through national reform programs developed by individual member states and through seven flagship initiatives. The *National Reform Program* (*NRefP*) translates the *E2020* goals into the national context and is updated on an annual basis. Flagship initiatives include the Innovation Union, Youth on the Move, the Digital Agenda for Europe (under the smart growth objective), Resource-Efficient Europe, Industrial Policy for the Globalization Era (under the sustainable growth objective), Agenda for New Skills and Jobs, and the European Platform Against Poverty (under the socially inclusive growth objective). Similar sources of economic growth have been identified by the World Bank, which advocates a focus on raising employment, improving skills and enhancing technology absorption and innovation in Poland.[19]

18. European Commission (2010), *Europe 2020* – A European strategy for smart, sustainable and inclusive growth.
19. World Bank (2011), *Europe 2020 Poland: Fueling Growth and Competitiveness in Poland through Employment, Skills, and Innovation.*

Figure 5.
Translation of Europe 2020 goals into strategic targets for Poland

Source: World Bank Staff based on the *National Reform Program* of 30 April 2013



28. The EU has introduced "*ex ante* conditionalities", which member states have to fulfill to receive EU funds in the 2014-2020 perspective. The conditionalities encompass eleven diverse areas directly related to the *E2020* goals (termed "thematic objectives") and their fulfillment is a precondition for member states to be eligible for resources allocated under the Common Strategic Framework (CSF)[20]. If the *ex ante* conditionalities are not met at the commencement point of programs financed by the CSF, i.e. 2014, member states are obliged to put forward a schedule of activities to ensure target attainment prior to 2017.[21] The EC links each thematic objective with *ex ante* conditionalities and the criteria for their fulfillment. Another Commission document, *Position Paper on the Development of a Partnership Agreement*, identifies key challenges and investment priorities for Poland. These correspond closely to the *ex ante* conditionalities, as their goal is attainment of the *E2020* priorities. The first thematic objective (TO) pertains to innovation and RIS3, with a focus on strengthening research, technological development and innovation. The remaining ten thematic objectives may also benefit from innovations, but there are three further TOs relating to the RIS3 concept, focusing on digital growth (TO2), enhancing SME competitiveness (TO3), and the shift towards a low-carbon economy (TO4).

29. The EC can block disbursement of EU funds if a member state has not fulfilled *ex ante* conditionalities. The Commission will verify national and regional documents shaping the RIS3 policy framework, i.e. research and innovation strategies, operational programs, etc., to ensure that the EU's requirements are met. This process has to be completed by the end of 2013 in order to enable programs financed under the new financial perspective to commence from the beginning of 2014.

30. One *ex ante* conditionality obliges member states to prepare RIS3 documents that encompass R&D-related objectives. The regions must formulate relevant strategic documents based on reliable analytical work such as SWOT or equivalent, setting priorities for public

20. CSF funds include the European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development, European Maritime and Fisheries Fund.
21. Ministry of Regional Development (2012), Programming financial perspective 2014-2020 - Partnership Agreement Assumptions, draft of November 16, 2012 (Programowanie perspektywy finansowej 2014-2020 - Założenia Umowy Partnerstwa, projekt z dnia 16. Listopada 2012).

interventions that are compliant with the EU's strategic documents. Such documents must also encompass multi-annual investment funding programs and plans for stimulating private sector involvement (including financial involvement) under selected thematic objectives (**Box 4**). Key conditions include establishing an efficient monitoring and evaluation system for implemented programs, taking the demand side for innovation and investments into account in the strategies being developed, and making sure that the broadband Internet infrastructure development plan is both in line with Next Generation Access (NGA) requirements and based on a sustainable investment model.[22]

Box 4. Main principles for the new 2014-2020 EU financial perspective

There will be significant changes in the principles governing transfer of EU funds to member states under the new financial perspective 2014-2020. First and foremost, the EC will provide more detailed directives stipulating where funds should be allocated, by means of eleven thematic objectives set by the European Commission. Moreover, a partnership agreement (PA) will be negotiated between the EC and each member state, specifying the amount of EU resources allocated for each objective and setting measurement indicators. The PA will serve as the basis for the development of national operational programs, and the new ring-fencing instrument will define the minimum percentage of resources from each EU fund to be allocated to the implementation of individual thematic objectives. For all Polish regions (with the exception of the Mazowieckie region), whose GDP per capita is below 75 percent of the EU average, the minimum of 50 percent has been established for the ERDF, i.e. at least half of the resources from this fund must support the following thematic objectives: research and innovation, support for SMEs, energy efficiency and renewable energy sources (the relevant goal being smart and sustainable growth). Moreover, minimum 5 percent of ERDF funding must be disbursed to cities. For the ESF, 25 percent is ring-fenced (the relevant goal here is social inclusion).

From a comparative perspective, for the Mazowieckie region, the only Polish voivodship falling into the "transition region" category, the limits are 80, 5 and 50 percent respectively. Another important modification in the next budget perspective is a greater emphasis on the application of revolving instruments for beneficiaries (enterprises, regional and local government, etc.) under all operational programs. More assistance will be distributed in the form of loans, guarantees or capital inputs. The EU is considering allocating 15 percent of aid for these support instruments, while Poland is proposing 10 percent (the figure currently stands at around 2-3 percent.) Moreover, future regional operational programs will be financed from two funds, the ERDF and ESF, hence regions will have greater control over ESF expenditures.

Source: based on information from the MRD and EC

31. However, guidance on RIS3 at European level needs further clarification. The EC will assess RIS3 documents on the basis of the following: the *RIS3 Guide* (published May 2012), *ex ante* conditionalities (under development), and their further elaboration in a form of an aide memoire (under development) – **Box 5**. These guidelines have not yet been formally adopted, thus the regions and national bodies are not yet fully aware of the EC's requirements and assessment criteria.

22. The other thematic objectives are as follows:
    3. Enhancing the competitiveness of small and medium-sized enterprises (SMEs)
    4. Supporting the shift towards a low-carbon economy in all sectors
    5. Promoting climate change adaptation and risk prevention (climate change target)
    6. Protecting the environment and promoting the sustainable use of resources
    7. Promoting sustainable transport and removing bottlenecks in key network infrastructures
    8. Promoting employment and supporting labor mobility (employment target)
    9. Investing in skills, education and lifelong learning (education target)
    10. Promoting social inclusion and combating poverty (poverty target)
    11. Enhancing institutional capacity and efficient public administration

Box 5. The European Commission's checklist for RIS3

To begin distributing EU structural policy-related funds from the start of the new EU budgetary period, i.e. 2014, the EC must first assess whether member states have met the obligations listed in the EC's *ex ante* conditionalities. These are divided in eleven thematic objectives (TOs). The first (R&D target) relates directly to the RIS3 context and obliges member states to elaborate "a national or regional research and innovation strategy for smart specialization in line with the National Reform Program, to leverage private research and innovation expenditure, which complies with the features of well-performing national or regional research and innovation systems."[23] The EC will thus scrutinize research and innovation strategies for smart specialization (RIS3), national operational programs (OP) and regional operational programs (ROP) to ensure that the *ex ante* conditionalities are reflected in strategic documents. The two latter programs are operational documents of critical importance for implementation of RIS3, since they translate strategies into tangible projects with specific dates and budgets.

The Commission has indicated the three main aspects it will investigate during the RIS3 framework assessment:

- Fulfillment of *ex ante* conditionalities,
- Application of the appropriate RIS3 formulation process, including stakeholder involvement,
- A guarantee that RIS3 will contribute to the economic transformation of a country/region.

It is evident that RIS3 documents are important elements of RIS3 systems, however implementation of strategy is of key significance. The documents (strategic and operational) must demonstrate that the RIS3 is implementable, monitorable and realistic, which is why the EC will examine various aspects of RIS3-related documents.

Ex ante conditionalities are to be presented in a European regulation which is still to be adopted and which has been under development for more than a year. This regulation will be crucial for the RIS3 context, specifying the formal requirements for member states and their regions, but it is unclear when it will be adopted by the EU. Without it, the EC lacks the formal basis to assess RIS3 frameworks (RIS3 documents, OPs, ROPs). There is a risk that the regulation will not be adopted before the end of 2013, meaning that the EC would be incapable of assessing RIS3 frameworks before the start of the new programming period. This situation also puts national and regional authorities in a position where they are expected to finalize their programmatic documents but lack full clarification of EC requirements, generating a risk that national and regional documents will not be in line with the EU documents.

32. The Partnership Agreement (PA) will outline the path for Poland to achieve the *E2020* goals. The PA incorporates core obligations for the EU and Poland's government and outlines the key goals and targets for both parties to achieve during the 2014-2020 programming period (in all areas where the member state chooses to utilize EU funds – Poland has decided to act in all eleven thematic objectives). Additionally, the PA specifies how much money will be earmarked for each of the operational programs. Finally, the PA will constitute the basis for negotiating territorial contracts, i.e. agreements similar to PAs but negotiated between Poland's national and regional governments, defining the parties' targets, monetary transfers and obligations for the 2014-2020 period.

33. The Partnership Agreement will be negotiated between the European Commission and the Polish government. To prepare for negotiations with Poland, the Commission has elaborated a position paper identifying the major challenges or "bottlenecks" that Poland faces, alongside the funding issues that Poland has to address to overcome these.[24] The action directions will impact regional RIS3 strategies. The "bottlenecks" include: i) underdeveloped infrastructure (railway and ICT), ii) an unattractive research and innovation system and weak business

23. The EC's draft regulation on *ex ante* conditionalities.
24. The World Bank also offers a set of main priorities for Poland to concentrate on to meet the Europe 2020 goals. For more details see World Bank (2011), *Europe 2020 Poland: Fueling Growth and Competitiveness in Poland through Employment, Skills, and Innovation*.

competitiveness, iii) low labor market participation, and iv) inefficient use of resources. On the other hand, the financing priorities comprise: i) development of modern network infrastructure for growth and jobs; ii) creation of an innovation-friendly business environment; iii) increase in labor market participation through improved employment, social inclusion and education policies; and iv) environmentally friendly and resource-efficient economic development. These are rather general development goals, and are broadly in line with regional development objectives, so their incorporation by the regions into RIS3 should not be too difficult. The issues of ICT and the innovation system are directly related to RIS3, which should send a strong signal to the regions to elaborate their innovation strategies.

34. The text of the Partnership Agreement has yet to be finalized. The PA is currently still being drafted. The Polish government has so far conducted consultations on PA assumptions with all regions. Delay in elaborating the PA has significant impact on the whole RIS3 system, as it blocks the negotiation of territorial contracts. Without these, regional operational programs (ROP) cannot be established, and project selection criteria cannot be finalized and announced to potential applicants for funds from the new financial perspective. The late adoption of ROPs, envisaged in December 2013, means that project selection criteria will be elaborated only in 2014, and the first project tenders will not be launched before the end of 2014 or beginning of 2015. For entrepreneurs, this means that access to EU funds will be blocked for almost two years (i.e. from 2013, when the previous financial perspective comes to an end and new tenders dry up or are scaled back, through 2014 due to the ongoing process of finalizing new documentation).

National level

35. Poland has recently simplified its strategic document system. Its key strategic documents at the national level include the *National Long-term Development Strategy "Poland 2030. Third Wave of Modernity"* (*NLDS2030*), the *National Spatial Development Concept 2030* (*NSDC2030*), and the *National Medium-term Development Strategy 2020: Active Society, Competitive Economy, Efficient State* (*NMDS2020*). These three main strategic documents are supplemented by nine integrated strategies (including one devoted to innovation and entrepreneurship development – *EIES2020*), setting directions for change over the next several years.[25] The main document is *NMDS2020* and its goal is to "reinforce and utilize economic, social and institutional potential for faster and sustainable national development and improved living standards." This goal is to be achieved through a focus on three priority thematic objectives, namely: effective and efficient state, competitive economy, and social and territorial cohesion. These objectives were assigned key indicators, with the following target values in 2020: GDP level equivalent to 74-75 percent of the EU average (measured in PPS), gross disposable household income up 38-42 percent in relation to 2010, public sector deficit at 1 percent GDP, Global Competitiveness Index at 5.2, and 25th place in the ranking.

36. At national and macro-regional levels, there will be a set of documents shaping the innovation framework rather than a single RIS3 document. The latest and most important document dealing with innovation is the *Economy Innovation and Effectiveness Strategy: Dynamic Poland 2020* (*EIES2020*), one of the nine integrated strategies. This is followed by other program documents, which do not however have the *de jure* status of national strategies. These are the *National Research Program* (*NRP*), *Large R&D Infrastructure Roadmap* (*Roadmap*), and the *Enterprise Development Program* (*EDP*). At the macro-regional level there is the draft *Eastern Poland Development Strategy* (*EPDS*) with a separate operational program attached (*Eastern Poland Operational Program*). One of the goals of the *EPDS* will be to develop innovation within the five poorest regions of eastern Poland. At present, smart specializations are not chosen either at the national

25. The integrated strategies are as follows: *Strategy for Innovations and Economic Efficiency; Human Capital Development Strategy; Transport Development Strategy; Energy Security and the Environment; Efficient State Strategy; Social Capital Development Strategy; National Regional Development Strategy 2010-2020. Regions, Cities, Rural Areas; Strategy for the National Security of the Republic of Poland; Strategy for Sustainable Development of Rural Areas and Agriculture.*

level or at the macro-regional level.[26] **Table 3** shows the current status of the innovation framework at national and macro-regional levels, revealing that many documents are still under development and that the situation is evolving dynamically. This is also confirmed by the status of work carried out by the MoE (**Box 6**). The following sections will present these documents in greater detail, summarizing their primary features and rationale.

Table 3.
Status of key documents on innovation at the national, macro-regional and regional levels

Source: World Bank staff

Document	Status as at the end of June 2013
Eastern Poland Development Strategy	Under development
Eastern Poland Operational Program	Under development
EIES2020	Adopted in January 2013
Enterprise Development Program (EDP)	Under development
InSight2030	Adopted in December 2011 and modified in December 2012
Large R&D Infrastructure Roadmap	Currently being updated
National Research Program	Adopted in August 2011
Operational Program Smart Growth (to implement EIES2020)	Under development
Partnership Agreement	Under development
Territorial Contract	Under development

Box 6. Ongoing work on the national-level RIS3 framework

The Ministry of Economy (MoE) is the *de jure* innovation system leader in Poland.[27] The MoE is also formal coordinator of the smart specialization selection process at the national level. The ministry has drafted *EIES2020* (the *Economy Innovation and Effectiveness Strategy*) and is in the process of developing the *Enterprise Development Program* (*EDP*), which is an operational document for *EIES2020*. The *EDP* will also identify national smart specializations. To ensure the best possible results, various analyses are currently ongoing and existing studies have been reviewed. For example, these pertain to projects implemented by Polish technology platforms, to analysis of R&I areas such as patents and commercialization, to selection of smart specializations by the regions, to the geographical distribution of innovation potential (mapping out potential specializations throughout Poland), to value chains (for areas where companies crucial for enhancing the country's competitiveness operate), and to emerging market niches, both at the national and global level. At the same time, the MoE is working on a system to implement, monitor, review and update national smart specializations. To achieve this, a set of indicators to measure RIS3 framework progress is being developed.

In terms of the implementation framework for the national innovation system, a division of roles between the National Center for R&D (NCBR) and the Polish Agency for Enterprise Development (PARP) is envisaged. NCBR will be responsible for financing all stages of research and development, including demonstration (TRL – technology readiness levels from 1 to 9), and PARP's financial support will focus on technological application (supplementary, also including the final stages of the demonstration phase), new forms of innovation (non-technological) and internationalization. By and large, the situation for the Polish smart specialization framework is dynamic and changes are taking place at an accelerating pace.

26. After work on this report was completed, the MRD decided to abandon the idea of selecting macro-regional smart specializations, something also advocated by the World Bank. Reference to macro-region specializations are still included in this report, since on publication they remained a viable option.
27. The formal leadership of the innovation system (including smart specialization) lies with the MoE, however it is the MRD that plays a more active role in this field, especially in terms of coordinating regions' work on their RIS3s and selection of smart specializations. This situation does not create an optimal flow of information between governance levels and should be addressed.

EIES2020: "Economy Innovation and Effectiveness Strategy: Dynamic Poland 2020"

37. *EIES2020* is the key document in the national RIS3 framework. The strategy outlines the path towards enhancing the Polish economy's innovation and effectiveness levels and its key goal is to reach a highly competitive (innovative and efficient) economy based on knowledge and cooperation. In turn, this should contribute to the country's socio-economic growth. The strategy is directly linked to the concept of smart specializations, although to a limited extent. The *EIES2020* was developed by the Ministry of Economy (MoE) and adopted by the government in January 2013. Its position with regard to higher-level strategic documents, both at the European and national level, is clearly outlined. *Europe 2020's* goals as well as the EU's flagship initiatives are taken into consideration and *EIES2020's* relation to these is indicated in general terms. Similarly, *EIES2020* presents both links to the Medium-Term National Development Strategy and its role in tuning into broader national development strategies.

National Research Program (NRP)

38. The *NRP's* goal is to formulate strategic objectives for research and development in Poland. It will also indicate the goals and assumptions of national policy for innovation and science and technology. In turn, these will provide a foundation for the formation of strategic research and development programs by the National Center for Research and Development (NCBR).[28] The program was developed by the Ministry of Science and Higher Education (MoSHE) in August 2011. At that time *E2020* was already well-known, and the *NRP* includes several cross-references to this European agenda, although allusions to the concepts of smart specialization or research and innovation strategy remain relatively scarce. The document was formulated within the framework of priorities established by *E2020*. However, it only refers to the European context in very broad terms, without providing much detail on how and to what extent the program will contribute to achievement of the *E2020* goals. Although the *NRP* was developed well before *EIES2020*, it seems to fit well into the framework established by the latter document – it states that national R&D policy is aimed at enhancing the national innovation and effectiveness level and thus focuses on the Polish economy's growth and increased competitiveness. The EC was positive in its assessment of coherence between Poland's real strengths (economic and scientific production) and sectors indicated in the *NRP*, stating that matching Poland's scientific and economic potential, in other words commercializing knowledge, still remains a challenge.[29] The *NRP* fails to formulate a clear vision, explicit priorities or strategic goals. Although it presents statements which are reminiscent of goals and objectives, there is no clear hierarchic structure or relationship between them. Its main objective seems to be to enhance Poland's development level through science in seven selected areas.[30] The general nature of this document is the result of previous experiences with a strategic document that was very specific and rich in details. The previous document explicitly stated specific solutions to be supported by the state, but these quickly became

28. NCBR is a public agency responsible for carrying out tasks in the field of science and R&D. It also serves as an intermediary institution in the management of some national operational programs. It reports directly to the Ministry of Science and Higher Education and is financed from central government and EU funds.
29. There are four sectors mentioned: i) food, agriculture and fisheries, ii) energy, iii) ICT, and iv) materials; European Commission (2013), *Research and innovation performance in EU Member States and Associates Countries: Innovation Union progress at Country Level.*
30. The program outlines seven interdisciplinary R&D priorities for Polish science. These priorities will be developed further into strategic R&D programs by the NCBR. Information is lacking on how these priorities interconnect with each other, how they are prioritized against each other, how the private sector and businesses contribute to their development and, conversely, how these R&D fields can contribute to the development of businesses. From the RIS3 perspective, another key piece of information which is missing is the form applied in the selection process for these seven R&D priorities – was it bottom-up, ensuring broad stakeholder participation, etc.? The MoSHE emphasizes that the initial strategic documents were elaborated in a top-down manner, while the current program is a mixture of top-down and bottom-up approaches due to the involvement of stakeholders in the co-creation of strategic R&D programs, and moreover it is strongly evidence-based. Finally, the *NRP* should be more specific about program timescale, since at present it offers only a vague stipulation that strategic R&D priorities should be pursued for approx. 10-15 years.

obsolete due to the dynamically changing environment. Currently, the *NRP* offers only broad directions for actions, and as a consequence these have to be supplemented with specific details by the NCBR Council.[31] This Council will be tasked with selecting the best method to follow the path indicated by the *NRP*, e.g. by creating sectoral programs – a bottom-up process (**Box 7**). This marks a significant change in thinking about the strategic development of science in Poland, and is a step towards decentralized policymaking.

Box 7. Bottom-up research agenda for Polish science – sectoral programs

To establish an R&D sectoral program, an application must first be submitted by a legal entity, e.g. a chamber of commerce, sectoral association or technology platform, representing a specific economic sector/field, that expresses a need for a research program in a given sector. The application must include analyses of the current situation, a proposed R&D agenda, the envisaged economic and scientific effects, a declaration of financial contribution from applicant entities, and optionally a medium-term development strategy for the sector/field. The application must be approved by the NCBR Council and only then can the level of funds allocated to the program be agreed between the NCBR and the applicant. There are currently two such sectoral programs: INNOLOT and INNOMED (aviation and medicine), with budgets of €125 and €75 million respectively and contributions from participating entities of 40 and 35 percent.

Large R&D Infrastructure Roadmap (Roadmap)

39. *The Large R&D Infrastructure Roadmap* covers the thirty-three infrastructural R&D projects with the greatest scientific potential. The *Roadmap* is a short document developed from mid-2009 and published in February 2011 by the MoSHE, which presents a list of R&D projects capable of addressing some of the long-term challenges faced globally, e.g. demographic change, sustainable development, environmental protection, etc. The *Roadmap* divides these projects into eight broad thematic categories[32] and each project is paired with an R&D institute or center to manage it. The *Roadmap* does not formulate a vision, goals or objectives. It is merely a list of envisaged key projects lacking in detailed information – it provides neither background nor project selection methodology. Input for the document was provided on the basis of an open call for project applications to be submitted by consortia (typically consortia of R&D institutes). It can therefore be claimed that the selection process has the features of a bottom-up approach, yet is limited to the R&D sector.[33] The competitive process had two stages, which resulted in the final selection of thirty-three proposals out of almost eighty, preceded by analysis of the potential of Polish R&D institutes and centers and their investment policies.[34] Only such R&D undertakings which demonstrated nationwide importance or presence were eligible for the competition, and these had to prove excellence in a given field. The reason behind this approach was to provide exclusive support for the leading R&D units in Poland and to develop centers of excellence with critical mass for ground-breaking research, as opposed to investing money in mediocre and small-to-medium-size institutes failing to ensure top-class research. The main project selection criteria under the *Roadmap* were research and scientific excellence, along with the given project's potential (the *Roadmap* also covers infrastructure devoted to primary research). Thus the consortia of R&D institutes that submitted applications were not required to provide detailed financial information or elaborate on the organizational and managerial aspects of their projects (e.g. envisaged

31. The Council comprises 30 representatives, with ten of them in each of the three specific groups: science, business and administration.
32. These are: basic research; interdisciplinary research; high quality of life; efficient healthcare; effective power generation, storage and transmission; advanced materials and technologies; smart systems and infrastructure; sustainable natural and human environment.
33. Consortia of R&D institutes and private companies were permitted, but few businesses participated.
34. In the first stage of the competition, project proposals were assessed by Polish experts (these were less-detailed versions of applications), while in the second stage (where applications were supplemented with additional information), international experts were also involved and projects were independently assessed by Polish experts and two international experts, before a subsequent joint assessment was undertaken.

budgets, efficiency of the proposed research, etc.).[35] The latter were to be assessed separately in subsequent stages. For this reason, inclusion in the *Roadmap* does not automatically mean that a given project will obtain investment financing – the *Roadmap* is not linked to the disbursement of funds.[36] Other selection criteria were related to coherence with national R&D goals and the European Strategy Forum on Research Infrastructures (ESFRI). The *Roadmap* is currently being updated, and the rationale behind this process is twofold. Firstly, it was envisaged that the *Roadmap* would be updated every two years, and secondly, since initial selection in 2011, some projects have failed to commence or plans have been significantly modified. Proposals to be included in the update were submitted until March 2013. The update deadline has not been fixed, but will probably take place at the end of 2013. It is expected that around ten new projects will be added, but old projects will not be removed from the document. The relationship between the updated *Roadmap* and national smart specializations, which will be presented in the *Enterprise Development Program* (see the section below for more details on *EDP*), remains unclear. Coordination between the MoSHE and MoE in developing these two documents still has to be agreed upon. The *EIES2020* states that smart specializations will be based on the *Roadmap*, thus it could be expected that the latter will be prioritized. It seems however that the *EDP*, which includes national smart specializations, will be released earlier.

Industry Technology Foresight – InSight2030

40. *Industry Technology Foresight – InSight2030* is a study analyzing the development potential of specific economic fields, and identifying competitive industry sectors and key future technologies. *InSight2030*, which has been commissioned by the Ministry of Economy (MoE), focuses primarily on Polish industry, and it is a study that aims to inform policy makers in decision-making process surrounding funding for the branches of industry or technologies that demonstrate the highest socio-economic potential. *InSight2030* is a part of a broader "movement" of foresight studies (regional and sectoral) that have been conducted over the last decade, including the pilot National Foresight Program, and National Foresight Program – Poland 2020. In total, several dozen such studies have been conducted, enabling the formation of a strong community across the country familiar with foresight methodology. *InSight2030* identified 10 research areas, 99 key technologies and 33 priority technologies of key significance for the strategic development of Polish industry over the next two decades. These technologies were selected based on the country's current economic and political situation and took into account the global challenges facing both Europe and Poland. Moreover, both demand and supply aspects were included in the selection rationale. The analysis of available resources and potentials resulted in a list of 10 research areas central to the future development of Polish industry. These were presented in late 2011 and modified in December 2012, and encompass: i) industrial biotechnologies, ii) nanotechnologies, iii) advanced manufacturing systems and materials, iv) IT technologies, v) microelectronics, vi) photonics, vii) rationalization of energy utilization and cogeneration, viii) innovative natural resource acquisition technologies, ix) healthy society, and x) green economy. 127 key technologies were initially outlined, with the number subsequently limited to 99, of which 33 were identified as priority technologies.

Enterprise Development Program (EDP)

41. *The Enterprise Development Program* (*EDP*) is developed as an operational (executive) document for *EIES2020*. It encompasses instruments and schemes designed to support innovation and entrepreneurship in Poland, and its timescale is in line with *EIES*, i.e. up to 2020. Developed by the MoE, the program adopts a comprehensive approach to innovation support

35. Not all projects encompassed by the *Roadmap* are eligible for funding from EU structural funds. Some may be financed by MoSHE funds or from other sources.
36. However, MoSHE indicates that inclusion in the *Roadmap* is a positive sign and should help in obtaining the necessary finance from structural funds.

and aims to alleviate barriers to entrepreneurship and innovation development, as well as to build a supportive environment for companies, and actively encourage innovation and entrepreneurship. The scope of the *EDP* is broader than the goals pursued under 2014-2020 operational programs. For this reason, the *EDP* will be financed from both national and European funds. The final amount allocated to the *EDP* has not yet been decided, and depends on negotiations with the Ministry of Finance (MoF) and on the Partnership Agreement. The analyzed *EDP* draft originates from January 2013. It was submitted to public consultation at the beginning of 2013 and currently is being re-worked. An updated version, which is expected to be heavily revised, should be released shortly. There are no plans for the updated version to be submitted for another round of public consultation, but it will be presented to social partners during a meeting finalizing the overall consultation process.

Macro-regional level

42. The Eastern Poland macro-region comprises five regions with the lowest GDP level per capita in Poland and one of the lowest in the EU, and it has therefore been granted additional financial support via EU structural funds.[37] The five regions of Eastern Poland (EPL5) also demonstrate the lowest level of innovation among Polish regions, although there are significant differences across the macro-region as a whole. The MRD has created the *Eastern Poland Development Strategy* (*EPDS*), a macro-regional strategy unique in Poland, to address these issues and contribute to faster macro-regional growth. To tackle problems of the macro-region a separate operational program has been designed for Eastern Poland (EPL). For details, see the point below.

43. The *Eastern Poland Operational Program* (*EPOP*) was financed from special EU funds granted to Poland to additionally boost growth in the EPL5. The *EPOP* will also continue during the 2014-2020 perspective, although with significantly reduced funding (the allocation for 2007-2013 was approx. €2.8 billion, dropping by approx. €900 million in 2014-2020).[38] The macro-region constitutes one of five Areas of Strategic Intervention (ASI) identified in the Partnership Agreement. This means that EPL will be treated as a priority in other nationally-managed operational programs, which are obliged to take all ASIs into consideration.

44. The priorities identified in the *Eastern Poland Development Strategy* (*EPDS*) focus on innovation, human resources and infrastructure and are translated into the following objectives:

- Raising macro-regional innovativeness through the creation and reinforcement of competitive advantages based on existing economic specializations and a stronger research and science sector;
- Labor force mobilization and raising the quality of human capital through augmentation of human resource potential and effective prevention of exclusion in the macro-regional labor market;
- Raising external accessibility and internal coherence, including for the main functional labor markets.

45. Eastern Poland's smart specializations have not yet been defined, but will be included in the *EPDS*. So far, expert analysis has identified the economic areas/industries of crucial importance for Eastern Poland, compared with the rest of the country.[39] These areas can be considered in terms of the macro-region's endogenous advantages: the food industry, rubber and plastic products industry, timber and furniture industry, manufacture of machinery and equipment, and the aviation and tobacco industries.[40] Although not tantamount to smart specializations, the list

37. The Eastern Poland macro-region includes the following regions: Lubelskie, Podkarpackie, Podlaskie, Swietokrzyskie and Warminsko-mazurskie.
38. Based on interviews at the MRD.
39. Selection is based on two values: production sold and employment in the industry.
40. Dej, M., Domaoski .B., et al. (2011), Znaczenie przemysłu dla „inteligentnego i trwałego" rozwoju regionu Polski Wschodniej oraz podejmowanych działao dotyczących jego restrukturyzacji i modernizacji (Signficance of Industry for the Smart and Sustainable Development of Eastern Poland and Initiatives for its Restructuring and Modernization).

will contribute to the choice of macro-regional specializations, as these will be matched with potentially promising technologies developed in Eastern Poland, and in turn specializations will be selected.

Regional level

46. Poland is a unitary state divided into 16 regions (voivodships) with substantial regional autonomy. The regions differ significantly in terms of size, population and economic performance. The national capital, Warsaw, is located in the Mazowieckie voivodship and is not a separate administrative unit. Polish regions pursue their own development policy within the framework shaped by the central government. They also manage their own budgets, although most of their income originates from resources distributed by the state. Within the regions, executive authority is held by a marshal (*marszałek* in Polish) and a regional executive. Both the marshal and executive are appointed by the regional assembly (*Sejmik*) from among its members. The regional assembly is elected through popular elections every four years and holds legislative authority in the region. It develops the regional legal framework and adopts key regional documents, e.g. development strategies.

47. The Regional Development Strategy (RDS) sets regional development goals and is the most important strategic document in each voivodship. Other strategic documents (including thematic strategies or strategic programs) remain at a lower hierarchical level and should be subordinated to the RDS and conform to its goals and targets. The second most important regional document relating to innovation and smart specializations is the research and innovation strategy (RIS), which currently takes the form of research and innovation strategies for smart specialization (RIS3). Thirdly, there are regional operational programs (ROP), developed by each region in line with its broad development needs, goals and priorities. ROPs define how EU funds granted to the region will be utilized over the entire financial perspective, alongside the priorities to be highlighted. Regional operational programs are the most important source of financing for innovation-related initiatives in the regions, although do not constitute the exclusive source. Funds channeled by ROPs may be thought of as "easy" innovation money as ROPs are independently managed by the voivodships in their entirety. The total budget for the 16 ROPs amounted to almost €21 billion in 2007-2013, or 25 percent of the total EU allocation of €84.4 billion (including EU and national funds - **Table 4**).

Figure 6. Administrative division of Poland

Table 4.
Financial allocation to ROPs, 2007-2013 (in millions of euro)

Source: World Bank Staff based on MRD data.

Region	EFRD contribution	Poland contribution	Total ROP amount	% of total ROP allocation	% of total EU funds allocation	
Podkarpackie	1,199	249	1,448	6.9%	1.7%	Eastern Poland macro-region
Lubelskie	1,193	211	1,403	6.7%	1.7%	
Warminsko-mazurskie	1,071	200	1,270	6.1%	1.5%	
Swietokrzyskie	770	136	905	4.3%	1.1%	
Podlaskie	673	120	793	3.8%	0.9%	
Mazowieckie	1,869	330	2,198	10.5%	2.6%	
Slaskie	1,747	310	2,058	9.8%	2.4%	
Wielkopolskie	1,333	434	1,766	8.4%	2.1%	
Malopolskie	1,356	239	1,595	7.6%	1.9%	
Dolnoslaskie	1,240	336	1,577	7.5%	1.9%	
Lodzkie	1,046	288	1,334	6.4%	1.6%	
Pomorskie	938	354	1,292	6.2%	1.5%	
Kujawsko-pomorskie	996	183	1,179	5.6%	1.4%	
Zachodniopomorskie	863	152	1,015	4.8%	1.2%	
Lubuskie	494	87	582	2.8%	0.7%	
Opolskie	491	87	578	2.8%	0.7%	
TOTAL	**17,278**	**3,716**	**20,994**	**100.0%**	**24.9%**	
			Eastern PL	**27.7%**	**6.9%**	

48. Poland's regions are at diverse stages of RIS3 development and apply heterogeneous approaches. Some regions have already adopted innovation strategies, some are ready with a draft, some are still working on formulating an initial version, and some have decided to completely opt out of RIS3 in their strategic frameworks. **Table 5** presents the current state of affairs in the context of regional RIS3 (status as of June 2013).

RIS3 exists	LODZKIE: RIS3 ready additional doc – Entrepreneurship Dev. Strat ready to be approved MALOPOLSKIE: RIS3 ready to be approved LUBELSKIE: draft RIS3 ready to be approved KUJAWSKO-POMORSKIE: draft RIS3 exists, ongoing works on RDS OPOLSKIE: draft RIS3 ready to be approved SLASKIE: RIS3 ready
RIS3 under preparation	SWIETOKRZYSKIE: draft ready but work will start again due to leadership and stakeholder dissatisfaction PODKARPACKIE: RIS3 under preparation, should be approved October 2012 LUBUSKIE: work recently started PODLASKIE: experts' draft exists but work will start again due to general dissatisfaction MAZOWIECKIE: RIS from 2007 – needs update – under preparation WIELKOPOLSKIE: RIS3 under preparation
Other forms of RIS	ZACHODNIO-POMORSKIE: RIS from 2011, work ongoing on Strategic Program that implements RDS and points to regional specializations that will transform into smart specializations DOLNOSLASKIE: no RIS3, RIS from 2011, partial RDS, RDS implementation plan
No RIS3 at all	WARMINSKO-MAZURSKIE: no RIS only RDS, describing smart specializations. POMORSKIE: no RIS3 only RDS, works on Regional Strategic Program, in the process of choosing methodology to select smart specializations.

Table 5.
Different approaches and stages of RIS3 development at the regional level (status as of June 2013)

Source: World Bank staff

49. A Territorial Contract, which is an agreement between the central government[41] and individual regions, defines the principles underlying disbursement of EU resources allocated to the region for 2014-2020. A Territorial Contract (TC) includes the region's tasks and objectives during the next financial perspective 2014-2020, together with the level of funds allocated to such activities, e.g. the amount of funds to be granted to the region for the implementation of regional programs. Importantly, a demarcation line between the responsibilities of central and regional government will be delineated in the TC, meaning that the TC develops a framework for regional intervention. In the course of TC negotiations with the MRD, the regions will highlight intervention areas of particular significance to their local circumstances. Territorial Contracts are still at the preparatory stage, as they cannot be finalized without the Partnership Agreement (PA). This puts regional governments in a difficult position – they are now formulating regional operational programs, regional development and innovation strategies on the basis of draft regulations (PA and TCs) which may still change. Consequently, there is a risk that regional strategies will be inconsistent with national or macro-regional level documents since the former will be subject to approval before the latter have been finalized.

41. The Ministry of Regional Development is the negotiator on behalf of the central government.

4. Assessment of research and innovation strategies (RIS3s)

50. The EC expects that the strategic framework for RIS3s will fulfill the *ex ante* conditionalities together with specific quality elements. Following this assumption, the assessment covers the following key aspects:

1) fulfillment of the EC's formal *ex ante* conditionalities (**Table 6**) within thematic objective 1 on strengthening research, technological development and innovation at national, macro-regional and regional levels;
2) coherence in the system of strategic documents related to smart specializations, i.e. their interlinkages, sequencing, and relations between visions, goals and objectives across different governance levels;
3) overall innovation policy framework quality, taking into account the broad range of aspects that should be considered when striving to achieve regional and national socio-economic transformation;
4) challenges stemming from assessment of the status quo and the approach adopted for the selection of smart specializations in Poland.

51. The results of the assessment should help to formulate RIS3s leading to socio-economic transformation at both national and regional level. From the DG Regio guidance, it seems that the process of formulating key documents is sometimes more important than the content, or at least equivalent. **Box 8** below shows DG Regio's suggested approach for the process of formulating RIS3s.

Box 8. A six-step approach to RIS3 formulation

The process of RIS3 formation can be conducted in the sequence presented below:[42]

STEP 1: Analysis of the national / regional context and potential for innovation: 3 main dimensions: i) regional assets – major regional strengths and weaknesses, any innovation system bottlenecks and key challenges – economy and society; take into account the region's position relative to other regions; ii) linkages with the rest of the world and the region's position within the EU and global economy; iii) dynamics of the entrepreneurial environment (lively, poor, weak?).

STEP 2: Set-up of a sound and inclusive governance structure: Stakeholders of different types and levels should participate extensively in its design – industry, education and research institutions, government, market and citizens groups (innovation users, groups representing the demand-side perspective, consumers, relevant non-profit organizations representing citizens and workers).

STEP 3: Production of a shared vision about the region's future: Analytical evidence should be used to depict a comprehensive scenario for the region's economy, society and environment, which is shared by all stakeholders. This scenario constitutes the basis for developing a vision of where the region would like to be in the future.

STEP 4: Selection of a limited number of priorities for regional development: An effective match between a top-down process of identifying broad objectives aligned with the EU policies, and a bottom-up process of discovering niches with the potential to become smart specializations. The focus on a limited number of priorities should be in line with the potential for smart specialization detected at the analytical phase, and should be based on entrepreneurial discoveries. Areas where a region can realistically hope to excel are treated as priorities.

STEP 5: Establishment of suitable policy mixes: Strategy should be implemented by a means of a transparent action plan (how to outline and organize the regulations and tools used for a region to achieve prioritized goals within a specified timeframe, identification of funding sources, tentative budget allocation, division of responsibilities among those involved, etc.) allowing for a degree of experimentation through diverse pilot projects.

STEP 6: Integration of monitoring and evaluation mechanisms: Both systems should constitute an integrated part of the strategy. Monitoring refers to the need to follow an implementation progress (verify that activities are carried out, that funds are spent as planned and deliver envisaged outputs, and that output and result indicators evolve in the desired direction); evaluation pertains to the assessment of whether and how strategic objectives are met or missed and to understand why a given outcome is achieved.

42. EC RIS3 Guide.

4.1. *Ex ante* conditionality

52. This section analyzes the three governance levels through the prism of the EC's *ex ante* conditionalities. Firstly, **Table 6** offers an overview of thematic objective No.1 (TO1) as presented in the most recent draft of the EC regulation on *ex ante* conditionalities. Requirements for TO1 are divided into smaller elements to facilitate assessment. The second part of the table includes the EC's guidance from the draft aide memoire explaining how to understand the *ex ante* conditionalities. Secondly, the national, macro-regional and regional documents that shape RIS3 frameworks at the respective levels are analyzed in the context of the elements presented in **Table 6**. Short descriptions of each level precede a more detailed description of all the levels included in **Table 8**, **Table 9** and **Table 10**.

Table 6.
Assessment grid for fulfillment of the formal *ex ante* conditionalities (thematic objective No.1)

Source: Based on thematic objective No.1 and the EC's *Aide memoire.*

No.	*Ex ante* conditionalities	Guidance from the draft of EC's Aide memoire[43]
1.1 A	A national or regional[44] research and innovation strategic policy framework for smart specialisation is in place … that:	• the relevant operational programme contains a reference to the name of the framework and indicates where it or its different elements are published (in a form of a link).
1.1 B	… is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities;	• there is evidence that a SWOT or a similar analysis has been conducted in order to establish priorities for investment • there is a description of the methodology used for the analysis[45] • there is a description of the prioritisation/elimination process, including the involvement of stakeholders[46], and of its results.
1.1 C	… outlines measures to stimulate private RTD investment;	• there is a description of the policy-mix planned to be used for the implementation of smart specialisation[47] and indication which programme/instrument will be used for their funding, • there is an explanation on how these measures are tailored to the needs of enterprises, in particular SMEs (e.g. description of the „entrepreneurial discovery process" used for the strategy development), and other private R&I investors and/or which other measures are undertaken to incentivise private research and innovation investments. [48]
1.1 D	… contains a monitoring and review system.	• there is a description of the methodology, including the chosen indicators, and governance structure of the monitoring mechanism.[49] • there is a description of how the follow-up to the findings of the monitoring will be ensured.
1.1 E	A framework outlining available budgetary resources for R&I has been adopted.	• the relevant operational programme contains a reference to the name of the framework and indicates where it is published (in a form of a link) • a framework outlining available budgetary resources for research and innovation has been adopted, indicating various sources of finance [and indicative amounts] (EU, national and other sources as appropriate)

1.2 A	An indicative multi-annual plan for budgeting and prioritisation of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted.	• The strategic policy framework for smart specialisation contains an indicative multi-annual plan for budgeting and prioritisation of investments linked to EU priorities:
		  • The prioritisation responds to the needs identified in the smart specialisation strategic policy framework;
		  • The prioritisation of investments took into account existing R&I infrastructures and capacities in by Europe and as appropriate, the priorities identified by the European Strategy Forum on Research Infrastructures (ESFRI).
		  • The framework outlines available and foreseen budgetary resources for investments in R&I infrastructure and centres of competences and, indicates various sources of finance [and indicative amounts].

53. Poland has to step up efforts to bring its RIS3 framework in line with the *ex ante* conditionalities. At present, many strategic documents pertaining to R&I are still missing. Their

43. Draft Guidance on *Ex Ante* Conditionalities Part II, EC DG Regio, March 15th, 2013.
44. Regional research and innovation strategic policy frameworks should be in line with the National Reform Program.
45. see: RI3 guide step 1.
46. see: RI3 guide step 4.
47. see RI3 guide step 5.
48. A mere declaration of political intentions to conform with the 3% target" is insufficient.
49. see: RIS guide step 6.

absence or lack of finalization means that information on how the issues referred to in the *ex ante* conditionalities will be addressed is absent. In turn, these areas cannot obtain the positive assessment summarized in **Table 7**. Although at an advanced stage, activities relating to establishment of the RIS3 frameworks are delayed and should be ready within the next few months. Due to the fact that they have not been completed, their quality, internal coherence and interconnections cannot be assessed. In addition, more attention should be paid by RIS3 authors to the leading role of SWOT analysis. The remaining elements of the *ex ante* conditionalities constitute a much bigger challenge for RIS3 frameworks. Although national documents seems to tackle these issues slightly better than their macro-regional and regional counterparts, they also require further improvement and the provision of more detailed information to be fully in line with EC's expectations.

***Ex ante* conditionality**	**National level**	**Macro-regional level**	**Regional level**
	Assessment of the current situation		
A national or regional research and innovation strategic policy framework for smart specialisation is in place that:	Partly fulfilled	Not fulfilled	Partly fulfilled (not a significant threat)
… is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities;	Partly fulfilled	Partly fulfilled	Partly fulfilled (weak point)
… outlines measures to stimulate private RTD investment;	Not fulfilled (not enough data to assess - the EDP drafting process is ongoing) [50]	Partly fulfilled	Not fulfilled (not enough data is available for a thorough assessment)
… contains a monitoring and review system.	Partly fulfilled	Not fulfilled	Partly fulfilled (weak point)
A framework outlining available budgetary resources for R&I has been adopted.	Partly fulfilled	Not fulfilled	Not fulfilled
An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted.	Partly fulfilled	Not fulfilled	Not fulfilled

Table 7.
Assessment of *ex ante* conditionalities – overview

Yellow fields mark those areas where positive signs and elements heading in the direction of fulfilling the set conditions are observed, but which require further improvement. Yellow often signals that a mandatory element is present, but that fundamental adjustment is necessary. Red denotes that important aspects of the framework are missing and that more work is needed to fulfill the EC's conditionality.

Source: World Bank staff

National level

54. The assessment covers five key documents constituting the national-level strategic innovation framework: 1) *The Economy innovation and effectiveness strategy: Dynamic Poland 2020* – (*EIES2020*) (one of nine horizontal strategies at the national level), 2) the *National Research Program* – (*NRP*), 3) *Large R&D Infrastructure Roadmap Projects*, 4) the *InSight2030* foresight, and 5) the *Enterprise Development Program* (*EDP*). These documents are not assessed separately since they are intended to create a coherent framework, detailed analysis of which is presented in **Table 8**. National operational programs (OP) are not yet in place since they depend on the Partnership Agreement, thus they are not included in the analysis. No specific financial planning is possible without the PA. In terms of innovation support, the most important OP will be the *OP Smart Growth*, the successor to 2007-2013's *OP Innovative Economy*. Other nationally managed OPs will also contribute to enhancement of the innovation level in Poland, for instance *OP Eastern Poland*. *OP Smart Growth* is to be ready in late 2013 and currently it is difficult to assess its influence on smart specialization.[51]

50. According to information from the MoE, details on the stimulation of private RTD investments will be provided in two documents, *EDP* and *OP SG*. The *EDP* will outline actions and *OP SG* will cover instruments aimed at this objective. Eventually, the expectation is that private investment in RTD will grow.
51. According to information from the government, *OP Smart Growth* will pay special attention to the stimulation of private RTD investments. Successful instruments and programs from the current planning period will be continued, e.g. specific-purpose and development projects. Details of these solutions will be available in an updated version of the draft *OP SG*.

Macro-regional level

55. The *Eastern Poland Development Strategy* (*EPDS*) macro-regional framework will need to be further enhanced to fulfill the *ex ante* conditionalities (Table 9). The *EPDS* is a macro-regional development strategy, thus is not a regional research and innovation strategy. Neither is it a classic RDS, as it only deals with a relatively narrow scope of issues which are to be subsidiary to regional RDSs. Development of the *Eastern Poland Operational Program* (*EPOP*) is still at too early a phase to be subject to in-depth scrutiny. However, it is used as supplementary material for the analysis. Due to the status of the *EPOP*, some questions regarding *ex ante* conditionalities cannot be answered clearly, hence some gaps exists in the presented picture. The *EPDS* and *EPOP* should meet the *ex ante* prerequisites indicated in TO1 since they address the R&I thematic – the *EPDS* names enhancement of the macro-region's level of innovation as one of its three core priorities.

Regional level

56. More work at the regional level is needed to fully meet the *ex ante* conditionalities. Taking into consideration the regional diversity discussed above, **Table 10** is to provide an overall snapshot of the current situation across the regions. It does not aim to be an exact description of individual regions (these are presented in annexes), but will point out interrelated issues in reference to fulfillment of the EC's *ex ante* conditionalities. It should not be interpreted as a reflection of any single region, but rather as a baseline and general reference point for further individual analyses. The table presents assessment of the formal *ex ante* conditionalities, carried out on the basis of available documents (mostly RIS3s and RIS3 drafts, but also in some cases RDSs and ROPs), as well as interviews. **Table 11** summarizes the status of work on research and innovation frameworks in all Polish regions as of the end of June 2013. The analysis was carried out on the basis of EC documents (*RIS3 Guide*, the draft regulation on the Common Strategic Framework, spelling out the *ex ante* conditionalities, and the draft *aide memoire*, an EC document providing a more precise description of the *ex ante* conditionalities), alongside a number of meetings and discussions with the various European Commission DGs. Since the final RIS3 document assessment framework is not set in stone, the Bank's team has strongly relied on communication with the EC, as well as good practices for strategic planning and the development of a viable and usable implementation system and governance structure. It should be noted that the current situation is dynamic, and the assessment criteria may still evolve to some degree. Thus constant monitoring of the EC's work is necessary, as it provides the chance for the regions to actively participate in the European decision-making process and to voice their expectations and concerns in front of the Commission.

57. Regional smart specialization frameworks also need to be adjusted to fully comply with the quality standards and expectations set by the European Commission. Moreover, the fact that development of ROPs is at an early stage does not justify the majority of the identified shortcomings. The gap that emerges from the regional framework assessment results from the paradigm shift based on smart specialization, as proposed by the European Commission. The EC has outlined challenging requirements, which entails Poland's regions to change their way of thinking about strategies, strategy implementation, and dialogue with business and social partners. This is not an easy task, since it means a major shift in attitudes towards strategic planning and strategy implementation. The difficulty of meeting this requirement is reflected by the scarcity of fields marked green, i.e. elements assessed as fulfilling the EC's criteria (**Table 11**). Positive assessment mostly relates to descriptive elements, which can be fulfilled with relative ease and rapidity. But much more needs to be done.

Table 8. Assessment of the EC's *ex ante* conditionalities at the national level for TO1

***Ex ante* conditionality**	**Result of assessment**	**Assessment of the current state of affairs and rationale**
A national or regional research and innovation strategic policy framework for smart specialisation is in place that:	Partly fulfilled	The national strategic policy framework for smart specialization is not yet fully ready. The key strategic documents are mostly in place (e.g. *EIES2020*, *NRP*, *InSight2030*), however some vital elements are still in the pipeline, namely the *EDP*, which is to spell out the selection of smart specializations, and the *Large R&D Infrastructure Roadmap*, which is currently being updated. Although the *EIES2020* names the documents that will constitute the basis for selecting smart specializations, there is no information on how these will be selected, by whom and when. Moreover, relations between the key strategic documents relating to the smart specialization thematic require more clarification.
… is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities;	Partly fulfilled	*EIES2020* provides extensive SWOT analysis, which includes many important elements but is too broad. Hence it is difficult to differentiate key strengths or weaknesses from less important ones. This approach to SWOT is difficult to interpret and utilize for goal setting. In fact, the SWOT is not discussed or elaborated in the text of the strategy, and linkages between elements identified in the analysis and the goals and objectives presented in *EIES2020* are not clearly shown.
… outlines measures to stimulate private RTD investment;	Not fulfilled (not enough data to assess - the *EDP* drafting process is ongoing)	The key strategic document, *EIES2020*, sets out the main priorities for action in terms of innovation and entrepreneurship development. These include goals directed at stimulation of private investments in R&D but details are lacking on how this will be carried out. *EIES2020* will be further operationalized by the *Enterprise Development Program* (*EDP*), which is still being prepared at the MoE. Since the available version of the *EDP* draft was published in January 2013 (according to information from the MoE it is already significantly outdated) and the expected new version of the draft, to be revealed in July 2013, is to differ significantly from the January version, it is not possible to assess how the issue of private sector investment in RTD will be tackled.
… contains a monitoring and review system.	Partly fulfilled	Monitoring and evaluation mechanisms are weak. *EIES2020* offers a chapter on M&E but this is too general and does not ensure that monitoring and impact evaluation will be methodologically and rigorously conducted. Other documents forming the smart specialization framework, such as the *Roadmap*, *NRP* or *InSight2030*, do not provide any information on M&E. The M&E chapter in the draft *EDP* needs to be strengthened and supplemented with more details on the setup of the M&E system. Indicators in the *EDP* are divided into output/outcome/impact categories and provide an understanding of what will be checked. However, some indicators seem to be based on data which is not currently available. More information is needed on how this information will be gathered, including start date and frequency. Some numerical targets would also be welcome to indicate the scale of the change envisaged by these strategic documents. Finally, the M&E time horizon should be reconsidered, as this information is largely lacking at present.
A framework outlining available budgetary resources for R&I has been adopted.	Partly fulfilled	The Partnership Agreement (PA) is not in place yet, and this is a crucial document that will specify the level of EU funds to be allocated to innovation in individual operational programs (OP). While EU funds are not the only source of R&I funding in Poland, they constitute a significant proportion. Indeed, the *EDP* mentions that it will achieve goals that go beyond OP objectives, and that it will also be financed from budgetary resources.
An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted.	Partly fulfilled	As stated above, a general multi-annual budgetary plan with indicated investment priorities will be outlined in the PA, which is still under development. Thus efforts must be stepped up to meet this *ex ante* conditionality. Similarly, linkages to ESFRI are still missing. The *Roadmap* adopted in 2011 formulated weak linkages to this European initiative, and at present this document is being updated and thus assessment cannot be conducted. On the other hand, the *EDP* makes a formidable effort to outline the funds needed to ensure the instruments proposed in the program. However, for the time being this information is insufficient to be referred to as a multi-annual plan for budgeting and prioritization of investments, since the *EDP* has not yet been adopted. Additionally, the *EDP* provides only a general outline of investment dates – the majority of these are to last seven years, i.e. the whole financial perspective, which is too ambiguous. Finally, interviewees from the MoE point out that negotiations with the MoF have not yet been completed, which in turn means that the figures given are only indicative, and some will most probably be subject to significant change.

Source: World Bank staff

Table 9. Assessment of the EC's *ex ante* conditionalities at the macro-regional level for TO1

Ex ante conditionality	Result of assessment	Assessment of the current state of affairs and rationale
A national or regional research and innovation strategic policy framework for smart specialisation is in place that:	Not fulfilled	A *sensu stricto* macro-regional strategic framework for RIS3 does not yet exist. Since the current draft of the *EPDS* does not mention any macro-regional smart specializations, and *EPOP* is still at an early drafting phase, it is difficult to speak of such a framework at the present time. Moreover, more clarity is needed about the way in which smart specializations will be selected and how this process will be organized to ensure a bottom-up approach. The *EPDS* is silent on these issues, which are critical to the selection of smart specializations, and no applicable details have been provided. EPL's smart specialization framework is less developed than the respective documents at the national or regional levels. This may in fact be advantageous for the macro-region, as the *EPDS* seems to play a subsidiary role to national and regional strategies for development, research and innovation. What is currently lacking is a formal explanation of whether macro-regional smart specializations will have to be mirrored or perhaps avoided in the regional RIS3, and what the relation will be between specializations on both levels. It is also not yet clear whether each macro-region smart specialization will have to be representative for all five EPL regions or only for some. From the interviews conducted in the MRD, it seems that EPL's smart specializations will have to encompass at least two of the five regions within the macro-region.
… is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities;	Partly fulfilled	The SWOT analysis has a sensible format and length and allows quick review of the macro-region's main problems and strengths. It avoids the risk of being a lengthy, all-encompassing and incomprehensible enumeration of elements that have an impact on the macro-region. However, the SWOT is too superficial to coherently link the analysis to the EPDS strategy components. The limited number and scope of the strengths and opportunities identified bear little relation to the preceding analysis and provide little indication of elements within the macro-region that can be built on. Because the weaknesses and threats are also fairly generic, they provide little guidance on the contemporary challenges that need to be addressed. Moreover, although initial hints can be observed, the SWOT is not linked with the concept of smart specializations. The analysis states that there is coherence between R&D and industrial specializations within the macro-region, which is the limit of references to the topic of smart specializations. Such a generic statement does not provide any foundation for further selection or prioritization of smart specializations and does not direct further analysis or decision-making in any way.
… outlines measures to stimulate private RTD investment;	Partly fulfilled	Measures to stimulate private RTD investments have yet to be presented. In fact the draft *EPOP* already rightly touches on the issue of stimulating private investment in R&D, and encouraging private firms to collaborate more closely and network with R&D and academic units. However, more details still have to be provided on this matter to be able to assess it properly. At the moment, it can be stated that the *EPOP* has taken a step in the right direction to address this element of the *ex ante* conditionality stated by the EC.
… contains a monitoring and review system.	Not fulfilled	The *EPDS* monitoring and evaluation system is weakly developed and does not refer to the smart specialization theme. The current *EPDS* draft outlines the main blocks of the strategy's M&E system, with general information about system functioning. Hints for monitoring and evaluation of smart specialization areas are not provided either in the draft *EPDS* or *EPOP*. It is not clear whether the strategy envisages an explicit monitoring and evaluation system for smart specializations and what the basis for an eventual assessment of the success or failure of a given specialization will be.
A framework outlining available budgetary resources for R&I has been adopted.	Not fulfilled	The budgetary framework for the macro-regional smart specialization framework has yet to be prepared. Total funding devoted to realization of the *EPDS* are unknown since the Partnership Agreements (PA) between the EU and Poland has not yet been agreed. The PA will shape the budgetary boundaries of the EPDS and the smart specialization framework. Besides the PA, national operational programs are also not yet in place. Since the Eastern Poland macro-region is one of the areas of strategic intervention (ASI), all nationally managed operational programs will have to relate to it. OPs can make special financial concessions for EPL: for instance they can earmark a certain amount of money exclusively for the EPL5 or have special consideration for EPL. The latter option is more likely, our interviewee from the MRD claims unofficially.
An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted.	Not fulfilled	A multi-annual action plan has yet to be established. Work on the *EPDS* and *EPOP* is still ongoing. The *EPOP* will be a document classified as an EC-required multi-annual action plan. This document will specify financial details and deadlines, alongside the financial prioritization of investments. However, it is not possible to finalize the *EPOP* without prior adoption of the PA. It is crucial that the goals of the *EPDS* are clearly reflected in the action plan. The *EPDS* and *EPOP* are being drafted concurrently within the MRD. It is of vital importance that these two documents, which are crucial for the macro-region, share the same objective and channel their attention and efforts in the same direction. The MRD assures us that the departments responsible for preparing both documents are working in close cooperation. Indeed, coordination of this simultaneous work is crucial for the successful implementation of the strategy during 2014-2020. During this preparatory work it must be remembered that the *EPDS* is superior to the *EPOP*, and that the latter should contribute to achievement of the former's goals, just as it should be at the regional level, where regional operational programs should reflect RDS and RIS objectives.

Source: World Bank staff

Table 10. Assessment of the EC's *ex ante* conditionalities at the regional level for TO1 (general assessment)

***Ex ante* conditionality**	**Result of assessment**	**Assessment of the current state of affairs and rationale**
A national or regional research and innovation strategic policy framework for smart specialisation is in place that:	Partly fulfilled (not a significant threat)	The majority of the regions intend to adopt an RIS3 document, and only two regions have decided not to. However, in these two cases the policy framework for smart specialization will be provided in regional development strategies (RDS), which also seems to be an acceptable solution. Unlike the national level, the regional policy frameworks for smart specialization are relatively simple and generally consist of two main documents, RIS and ROP, which will eventually be evaluated by the EC. At the moment, it is not possible to assess most of the ROPs since their drafts are not ready yet. These cannot be finalized due to the absence of the PA and TCs. The smart specialization framework should be in place at the beginning of 2014 and by that time RIS3s and ROPs have to have been adopted. Despite current delays in finalization of the PA, TCs and important EU regulations, which slow down the process of creating the smart specialization framework at the regional level, this conditionality does not pose a significant threat. Nevertheless, efforts should be intensified to not only finalize these documents, but also make them consistent with each other and mutually reinforcing.
… is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities;	Partly fulfilled (weak point)	Regions utilize SWOT analysis or a similar method in their strategic documents. These analyses take different forms, some being long and extensive, others being much shorter and focused. A general trend is for SWOT analyses to be all-encompassing and broad, lacking concentration on selected issues. Often they are simply a list of items left without any elaboration showing links and synergies between SWOT elements. SWOT analysis should be the outcome of prior broad socio-economic diagnosis of the region and its potential; it should only identify the key strengths, weaknesses, opportunities and threats. Their identification should inform formulation of strategic objectives and priorities, and strategy should clearly present how SWOT and goals/priorities are interrelated. At the moment, this element is lacking in regional strategies and requires reinforcement.
… outlines measures to stimulate private RTD investment;	Not fulfilled (not enough data is available for a thorough assessment)	Stimulation of private investments in RTD will predominantly be picked up in ROPs, since these documents will decide on the methods for the distribution of EU funds and the nature of private sector involvement in RTD investment projects. Instruments presented in the ROPs will take priority in this respect, but some RIS3s also indicate that stimulation of private RTD engagement will be included in their priorities. However, there is often no proposal of explicit instruments or measures, and no explanation of how this should be achieved or what kind of targets would indicate success.
… contains a monitoring and review system.	Partly fulfilled (weak point)	In general, the monitoring and evaluation (M&E) system is the Achilles' heel of the innovation system in Poland, not only at the regional, but also at national and macro-regional levels. Strategies usually devote separate chapters to M&E, but often these are superficial and without the necessary specific data. The governance structures outlined in these chapters are not discussed, the roles of engaged entities are not clarified, timeframes are not presented, and indicators are very general and simplistic, lacking the ability to measure the impact of proposed goals and programs. Finally, the feedback loop between evaluation and decision-making is often not discussed, which constitutes a significant weakness for strategies.
A framework outlining available budgetary resources for R&I has been adopted.	Not fulfilled	This *ex ante* conditionality is not fulfilled since the absence of the PA and TCs (and thus the demarcation line between central and regional governments' scope of action) prevents the identification of available resources dedicated to R&I. Additionally, the lack of detailed information about nationally managed operational programs introduces uncertainty for regions and makes the planning exercise obscure and potentially variable. However, as discussed above, EU funds are not the only innovation-oriented resources available to regions, thus a lack of information on non-EU fueled budgetary framework cannot be purely blamed on the higher layers of governance structure.
An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted.	Not fulfilled	Most of the time, the available RIS3s and draft RIS3s do not contain multi-annual action plans outlining budgets for specific programs and identifying investment priorities, which would be in line with the EU goals including ESFRI. The preparation of such multi-annual plans is not possible without knowing the exact level of funding available to regions in the 2014-2020 perspective (again, the impact of the PA and TC delay is sensed here). Nonetheless, the regions have a general sense of what they will obtain in the coming perspective, and they have already identified at least some core R&I related investments they would like to pursue, thus the development of an outline for such multi-annual plans would already have some grounding. This has not taken place in most of the regions and will have to be addressed soon.

Source: World Bank staff

Table 11. Individual summaries of the 16 regions' compliance with the EC's formal *ex ante* conditionalities for thematic objective No.1 (status as of June 2013)

TO	*Ex ante* conditionality	aide memoire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.1.A	A national or regional research and innovation strategic policy framework for smart specialisation is in place that …	a) the relevant operational programme contains a reference to the name of the framework and indicates where it or its different elements are published (in a form of a link).																
1.1.B	is based on a SWOT or similar analysis to concentrate resources on a limited set of R&I priorities.	b) there is evidence that a SWOT or a similar analysis has been conducted in order to establish priorities for investment																
		c) there is a description of the methodology used for the analysis																
		d) there is a description of the prioritization/elimination process, including the involvement of stakeholders, and of its results.																
1.1.C	outlines measures to stimulate private RTD investment	e) there is a description of the policy-mix planned to be used for the implementation of smart specialisations and indication which programme/instrument will be used for their funding,																
		f) there is an explanation of how these measures are tailored to the needs of enterprises, in particular SMEs (e.g. description of the "entrepreneurial discovery process" used for strategy development), and other private R&I investors and/or which other measures are undertaken to incentivize private research and innovation investments.																
1.1.D	contains a monitoring and review system	g) there is a description of the methodology, including the chosen indicators, and governance structure of the monitoring mechanism.																
		h) there is a description of how the follow-up to the findings of the monitoring will be ensured.																
1.1.E	A framework outlining available budgetary resources for R&I has been adopted	i) the relevant operational programme contains a reference to the name of the framework and indicates where it is published (in the form of a link)																
		j) a framework outlining available budgetary resources for research and innovation has been adopted, indicating various sources of finance [and indicative amounts] (EU, national and other sources as appropriate)																
1.2.A	An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and where appropriate, the European Strategy Forum on Research Infrastructures (ESFRI) has been adopted	k) The strategic policy framework for smart specialisation contains an indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities:																
		• The prioritisation responds to the needs identified in the smart specialisation strategic policy framework;																
		• The prioritisation of investments took into account existing R&I infrastructures and capacities in by Europe and as appropriate, the priorities identified by the European Strategy Forum on Research Infrastructures (ESFRI).																
		• The framework outlines available and foreseen budgetary resources for investments in R&I infrastructures and centres of competences and indicates various sources of finance [and indicative amounts].																

1. Dolnoslaskie; 2. Kujawsko-pomorskie; 3. Lubelskie; 4. Lubuskie; 5. Lodzkie; 6. Malopolskie; 7. Mazowieckie; 8. Opolskie;
9. Podkarpackie; 10. Podlaskie; 11. Pomorskie; 12. Slaskie;13. Swietokrzyskie; 14. Warminsko-mazurskie; 15. Wielkopolskie; 16. Zachodniopomorskie

Source: World Bank staff

Fulfilled | Partly fulfilled | Not fulfilled | No drafts available yet

4.2. Innovation framework coherence

58. Interlinkage between RIS3 documents across governance levels needs to be strengthened. The interconnections between strategic documents forming the RIS3 framework at the national, macro-regional and regional levels are too loose. Indeed, every strategic document in Poland refers to *Europe 2020* and its broad goals, as well as to the objectives outlined in the Long- and Medium-term National Development Strategies. Such explicit linkages are a necessary condition to ensure coherence of various strategies, but they are not a sufficient factor. More elements have to be put in place to complete the puzzle. *E2020* and the *National Reform Program* (*NRefP*) set ultra-specific numerical targets for Poland, to be achieved by 2020 (see Chapter 3 for more details). To attain these goals Poland has to make a coordinated effort, with various strategies and programs reinforcing and complementing each other at all governance levels. Coordination between these programs and efforts has to be stepped up, as it is not fully clear now how the various strategies contribute to achievement of the designated objectives. The following questions should be asked and answered: How will national strategies influence change? To what extent will Eastern Poland and regional programs and strategies contribute to national targets? How can synergies between the regions be utilized and encouraged? Such planning is not easy; it requires a tremendous amount of horizontal and vertical communication, collaboration, political commitment and long-term planning. These questions cannot only be addressed in a top-down manner, but have to constitute the outcome of thorough discussion based on facts regarding political and socio-economic background.

59. Demarcation lines between strategic documents need more clarity. The analyzed documents do not usually ensure thorough discussion of their relations to other strategic documents, making it difficult to understand their relative position and function. For example it could be expected that at the national level *EIES2020*, which is the key strategic document for national smart specializations, would not only mention the documents which will be taken into consideration when selecting national smart specializations, but would also provide details on the selection process, timing, main assumptions, etc. At the macro-regional level the *EPDS* could also explain how macro-regional smart specializations will be selected, and what kind of relation there will be between regional and macro-regional specializations (complementarity, exclusiveness, duplication etc.). Such statements would inform other governance levels about basic assumptions and would provide them with some of the grounding necessary for their own planning in this field. Similarly, it would also be helpful for the regions if elements of the smart specialization framework were clearly outlined. The absence of this information raises uncertainty among the regions, and makes it difficult to coordinate actions and strategic objectives at the bottom of the Polish administrative system's hierarchical pyramid. Moreover, there is still a lack of certainty about the demarcation line in terms of thematic objective No. 1 (R&D target), which spells out the *ex ante* conditionalities crucial for RIS3. A decision still needs to be made as to whether certain project types related to R&I will be managed exclusively at the national level, or whether responsibility will be divided between regional authorities and the central government. The ground for such demarcation remains unclear and causes tension between Warsaw and regional capitals. It has already been mentioned several times that territorial contracts are not yet in place, since they are dependent on adoption of the PA. However, even without these important documents, the model for division of responsibilities could already be announced in order to shape a framework within which the regions could start planning the following seven years of their development.

60. To ensure system coherence there should be a clear sequencing of strategic documents. The main flow should follow a path where the main strategic documents at the European level set out objectives that are then taken up at the national level and eventually translated to the sub-national level (macro-regional and regional). **Figure 7** shows the present situation and a schematic process of how key documents have been prepared (AS-IS), while **Figure 8** depicts an improved (but not ideal) version of how the process could appear (COULD-BE), taking into account the documents that have been elaborated so far.

61. The process of elaborating RIS3 strategic documents could be enhanced. Figure 7 offers a schematic depiction of the current RIS3 system and the simplified path of its creation over recent years. This situation significantly differs from the "could-be" picture presented in Figure 8. Initial stages of the process have been in line with a model picture, however sequencing then went off track at various levels.

62. At the EU level, the lengthy process of producing the two remaining key documents may have slowed down progress of RIS3. This is represented by a long horizontal arrow pointing to the two documents that will shape the smart specialization framework, namely the EC regulation (including the *ex ante* conditionalities) and the *aide memoire*, which offers more details to the former documents. Without these, member states and their regions are not fully aware of what will be required and assessed by the EC when verifying RIS3 documents. In addition, the absence of the Partnership Agreement halts the progress of the system as a whole and disturbs the sequencing of the strategic document formulation process.

63. At the national level, smart specializations are not yet selected, though most key documents are ready and some of them were created prior to the EU guidelines. As at the European level, the national RIS3 framework has been developed over an extended period of time and has not yet been completed. The first two framework documents (*Roadmap and National Research Program*, or *NRP*) were created in 2011, when the concept of the national RIS3 system was not yet in place. Further elements were introduced at the end of 2011 (*InSight2030*, modified in December 2012) and the beginning of 2013 (*EIES2020* – the key strategic document). Moreover, the *Roadmap* is currently being updated, while the *Enterprise Development Program* (*EDP*), an operational document to *EIES2020*, is still under development. This situation means that both the macro-region and individual regions lack a stable reference point for their strategic documents. Additionally, the absence of national smart specializations invites a degree of ambiguity and raises doubts over whether the national RIS3 framework is in line with the EC's *ex ante* conditionalities. *EIES2020* states that national specializations will be selected on the basis of three documents, of which two (*NRP* and *Roadmap*) were created before the *RIS3 Guide* was in place – a time precedence implying the potential risk that the methodology for obtaining results in these documents is not in line with the entrepreneurial process of discovery, as recommended by the EC. In fact, the *Roadmap* is now being updated, but this seems to be chiefly an activity involving the R&D sector, though there are also signs of business engagement. This situation does not necessarily encroach on EU recommendations if the *Roadmap*, *NRP*, and *InSight2030* are treated as sectoral analyses and an input in the process of selecting smart specializations, in other words if they constitute a foundation for further deliberation on the selection. However, since information on the process of selecting national specializations is lacking, and the character of these documents is not elucidated, it cannot be excluded that the national framework remains out of step with the EC's expectations. [52]

64. The macro-regional strategy and operational program do not yet provide guidance for the regions. As is the case at the national level, the macro-regional documents shaping the RIS3 framework are not yet ready and cannot serve as a guide for the regions. This is not necessarily a negative feature, since the *EPDS* should play a subsidiary role to regional development strategies. Nonetheless, as is evident from Figure 7, the timing of macro-regional document development falls late in the process of establishing a strategic policy framework.

52. MRD, MoE, and MoSHE indicate that this is the goal of these documents and state that the selection of national smart specializations is in line with the European Commission's requirements.

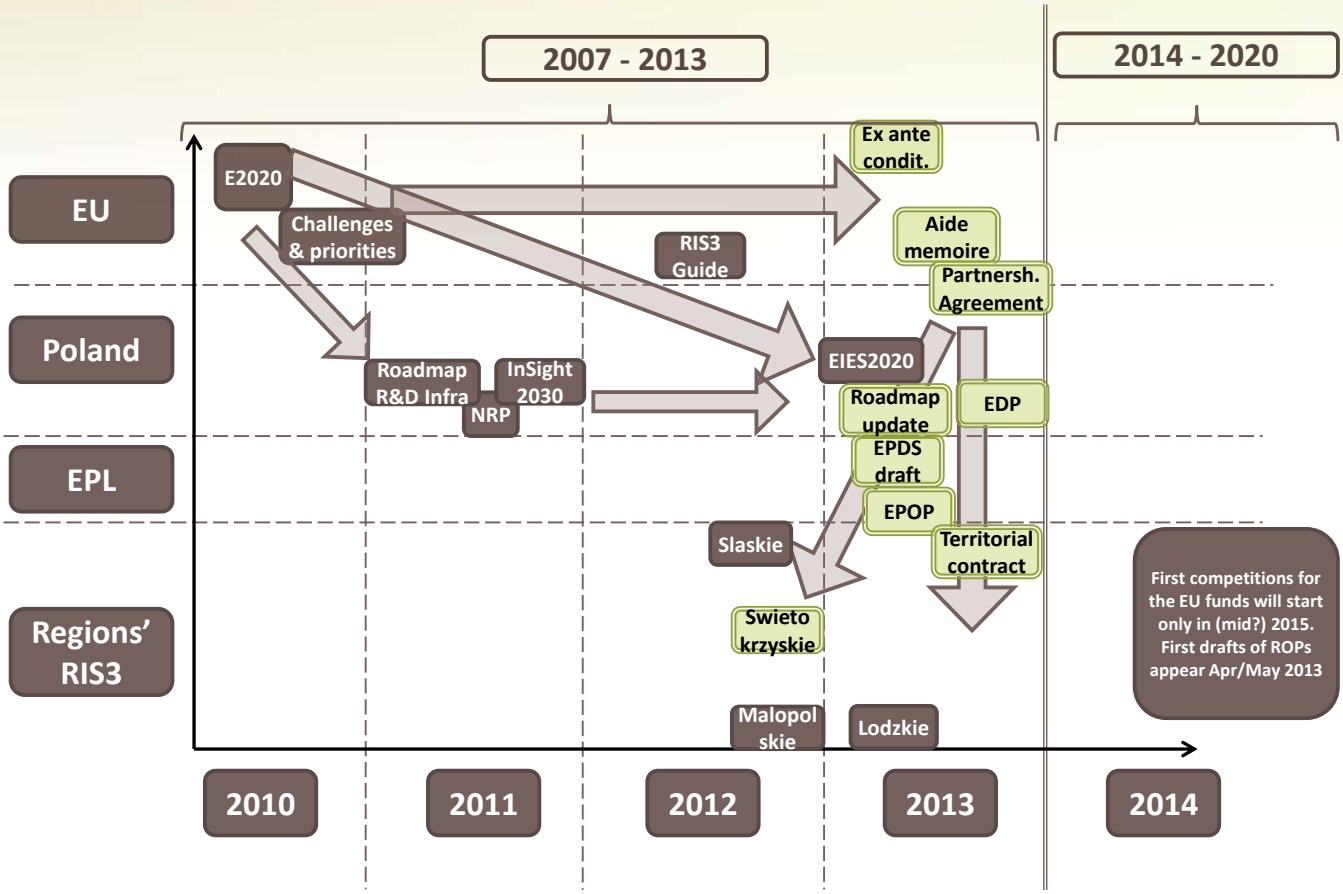


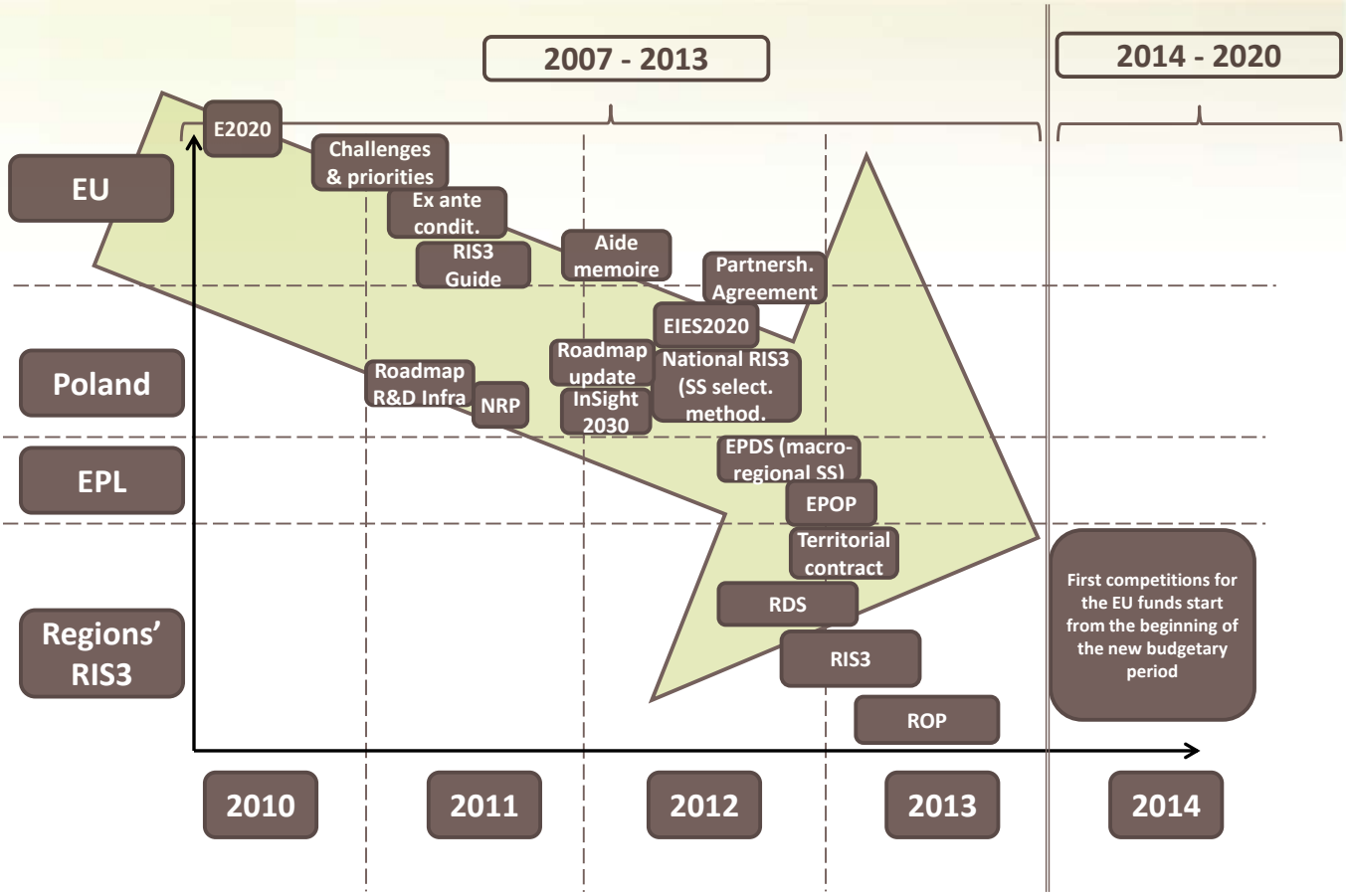
Figure 7.
Real-life timing of RIS3 strategic documents (AS-IS)

Blue boxes with white letters denote documents already accepted. Yellow boxes with black letters indicate documents that are still not adopted (status: mid--June 2013).

Source: World Bank Staff

65. RIS3 frameworks at the regional level were established before those at the national and European level. Some regions had already finalized and adopted their RIS3 documents in 2012, much ahead of the European and national level. Many more also had the first drafts of their RIS3s ready. This means that they did not wait for an official position to be established in the superior documents and went ahead with development of their own visions and objectives for innovation development. With the benefit of hindsight it was a good move for the regions to start working on their strategies before the "higher" documents were ready, because had they waited for the adoption of European- and national-level documents, they would not have had the chance to finalize their own frameworks.

66. An improved process could have followed a different model, as presented in Figure 8. The main message behind this model is that to achieve system coherence, by and large there should be as much relatedness as possible between strategic documents channeling the whole flow towards the bottom right-hand corner (the large arrow in the diagram), meaning that lower level regulations should be adopted after the higher-level documents are in place. In the real world, it is often noted that the relatedness between different levels is almost vertical, which means that documents at different governance levels are adopted at the same time. There is also movement in the reverse direction, and it seems neither possible nor desirable to eliminate this completely, yet the quantity of such opposite flow should be limited. Too many reverse flows could disrupt the system and introduce high levels of chaos and uncertainty.



67. The proposed sequencing model blueprint would fit well into multi-level governance. Communication across levels is not shown in the presented scheme, but it is an important extra layer of the picture. Although also not depicted, concurrent work on documents at various levels is not ruled out. The point is that system consistency requires some general structure and sequencing, allowing lower documents enough time and space to adjust to hierarchically senior documents.

Figure 8. Improved (but not ideal) model sequencing for RIS3 strategic documents (COULD-BE)

Source: World Bank Staff

4.3. RIS3 innovation framework quality

68. The purpose of this chapter is to assess the overall quality of the analyzed documents, specifically *EIES2020, EPDS,* and the 16 draft RIS3 strategies. The assessment of strategic framework quality will help establish whether RIS3s need to be further enhanced to lead to socio-economic transformation. Certain elements and aspects of the innovation framework under key documents appear throughout the three assessed RIS3 levels: national, macro-regional, and regional. We use these common features to assess the overall quality of the strategic framework. Especially among key decision-makers at the EU level, the common notion is that RIS3s and their strategic frameworks form a solid foundation for real socio-economic transformation. It is considered that when creating and implementing RIS3s things should be done differently; there is a need to find other solutions, use different tools, be active in promoting innovative ideas, etc. These common features observed at the three innovation framework levels in Poland are to be compared with selected critical success factors (or good practices) of an efficient and effective research and innovation strategy (RIS3). If met, critical success factors combined together to form the strong basis and preconditions for successful strategy (**Table 12**). [53]

Common features of effective strategy	Common weaknesses to be avoided
• Is embedded in its institutional, socio-economic and territorial context; • Identifies a widely shared vision for the future development of the region; • Engages regional stakeholders in an open and inclusive planning process; • Communicates its key messages clearly to a diversity of audiences; • Identifies delivery mechanisms and responsibilities in a phased and coherent manner; • Establishes not too complicated yet effective monitoring framework; • Is flexible enough to react to unforeseen circumstances and is able to take advantage of windows of opportunity	• An over emphasis on analysis and description of the region; • Limited engagement of relevant stakeholders; • Poor communication strategy that limits the profile of the strategy; • Avoidance of wicked issues (i.e. particularly difficult and complex issues); • Weak linkages between the analysis, strategy and implementation mechanisms; • Excessively broad focus trying to address all issues or spread resources too thinly; • Lack of clarity about delivery mechanisms, responsibilities and phasing; • Insufficient attention to monitoring frameworks and an over emphasis on quantitative rather than qualitative data and indicators.

Table 12.
Selected features of successful strategies

Source:

Based on Adams and Harris (2005).

69. Our analysis shows that most of the preconditions for successful RIS3s at all three levels of the strategic framework have not yet been fully met. In the majority of analyzed cases/documents at all levels of the strategic framework, there are certain deficiencies that need to be addressed in order to improve the present status quo and push for a paradigm shift, i.e. to concentrate resources to lead to sustainable socio-economic transformation. The general quality assessment below covers the following key aspects of the strategic framework:

- rationale,
- analysis/diagnosis,
- vision,
- goals/objectives,
- implementation system and governance,
- M&E system/measurement,
- financial plan.

53. The AS-IS of the strategic framework in Poland is further assessed against critical success factors (good practices) in **Table 17** later in the chapter.

Assessing the rationale for RIS3

70. In general, the purpose, role and status of the RIS3 need to be more clearly identified and better evidenced. A clear rationale for the purpose and focus of the RIS3 is essential. There are sometimes a number of useful ideas described in the draft RIS3, but effective implementation of the strategy is threatened due to ambiguity about its rationale, purpose, role and status. Usually, no justification is provided as to why it is necessary to pursue a separate strategy such as RIS3. The purpose of RIS3 strategies and their relationship to other strategies, instruments and mechanisms at the national level, macro-regional (supra-regional) level and in individual regions is not clearly defined and is therefore ambiguous. The resulting ambiguity could potentially create tensions between the levels. Fundamental questions that form the strategic context are: "Why do we need RIS3?"; "Whom is it for?"; "What are the relations between RIS3 and other key documents such as national level strategies, regional development strategies?"; and last but not least "How are operational programs connected to RIS3?" There is also no indication that lessons from the strategy formulation and implementation of existing RIS3s have been taken into account. There is no discussion of what was successful or less successful in the existing strategies. An ability to learn from previous experience is essential in effective regional development, and to strengthen the credibility of the revision process it is also important to demonstrate to others that lessons have been learned.

Assessing the quality of diagnoses/analyses including SWOT

71. Diagnoses and conclusions drawn from background analyses could be used more consistently to formulate vision, goals, objectives, and priorities. In general, there are four common features observed within the analyzed levels of the strategic framework:

a) A different internal structure and logic is applied in the analysis (under diagnosis) in different sectors; a more structured and transparent approach to analysis and diagnosis will increase comparability within and between sectors/topics, and would positively influence the clarity of assessments by providing key conclusions and specific summaries for each chapter/sector within the diagnosis.

b) The analysis contained in reviewed RISs is primarily limited to a description of quantitative data and lacks sufficient qualitative discussion about what this data implies for the future development of innovation. A more qualitative discussion and analysis of the data's implications would provide useful insights and enable clearer links to be established between the different elements of the strategy. The themes for analysis are broad and focus on economic, environmental, social and infrastructural characteristics of the country, macro-region and region.

c) Though the diagnoses contain much relevant and interesting data, generally they are weak in terms of explaining the reasons underlying the observed phenomena. For example, low levels of entrepreneurship are identified on the basis of the low company formation rate, but a proper understanding of the causes of this phenomenon is critical if effective measures are to be identified to address the issue.

d) SWOT is a commonly used technique but it is rather superficial and does not provide a coherent link between the analysis and the RIS3 strategy components. Strengths, weaknesses, opportunities and threats usually bear little relation to the preceding analysis. The weaknesses and threats are also highly generic and provide little guidance on the contemporary challenges that need to be addressed in different levels. It does not include further analysis identifying key links within the SWOT:

- will this strength help us take advantage of the opportunity and mitigate the threat?
- does the weakness restrict the possibility to take advantage of the opportunity and amplify the risk connected with the threat?
- does the opportunity reinforce the strength and help eliminate the weakness?
- does the threat eliminate the strength and highlight the weakness?

Assessing the quality of visions and priorities

72. In general, strategic visions for RIS3 at regional level need more differentiation. The challenge for RIS3 visions is to provide an illustration for the desired future of the country, macro-region and region that can encapsulate the diversity of these levels and meet the varied aspirations of individual regions, and in doing so establish a consensus for stakeholders to work towards. The failure to adequately identify the scope of the strategy and the weakness of the SWOT analysis make it difficult to see how the vision has stemmed from the analysis. The visions are highly generic and usually contain no elements pertaining to the specific characteristics of different levels and their endogenous potential, and could therefore apply to any country or region in Europe or elsewhere. There are a number of criteria that can be applied to assess the quality of the vision and these are illustrated in the table below for the strategic visions formulated within the framework.

73. More discussion on how the RIS3 priorities have been identified would be welcome. This relates to the fact that there is no coherent explanation of the purpose, scope and role of a given RIS3. The strategies do not include demarcation lines between themselves and other strategies and programs at national vs. sub-national vs. regional level. The lack of clarity that this creates is exacerbated by the weakness of the SWOT analysis – these issues have been discussed earlier in this assessment. The justification for selecting these as opposed to other priorities should provide a clear explanation of the reasons for their selection. There is usually no discussion about the selection of priorities within priorities, e.g. what is the most important element to be achieved when dealing with multiple aspirations.

Criteria	Analysis
Understandable and simple	Visions are usually unclear and ambiguous about what they intend to achieve. The visions are jargon-rich and substance-poor, using generic terminology and providing little or no indication of the desired situation for the country, macro-region or specific region at the end of the given time horizon.
Concrete	The visions are highly generic and provide little or no clarity that could either provide a basis for formulating objectives or guide decision making and resource allocation. There is no clarity as to how the country, macro-region, or specific region will look if the strategy is implemented.
Flexible	The vision is focused on the three identified priorities, which would preclude other potentially beneficial opportunities that may arise during the strategy's time horizon.
Realistic	In many cases the visions focus on specific priorities but there is insufficient explanation of how pursuing these priorities will influence innovation. The lack of discussion in relation to the implementation of the previous/existing strategy and operational programs for innovation also makes it difficult to assess how realistic the new strategies will be.
Benefits	The long-term benefits of the vision are unclear due to the generic way in which the vision is articulated.
Specific	The vision could apply to any other country or region as there is nothing context-specific or locally distinctive and nothing that local stakeholders can recognize or relate to.
Inspiring	The generic and jargon-rich nature of the visions means that they are unlikely to motivate or inspire stakeholders. There is little or nothing that country or regional stakeholders can relate to or identify with and nothing to suggest that the vision is building on endogenous potential or unique territorial capital.
Subsidiarity	The current vision is so vague and generic that it fits in with higher-level strategic documents, but does not identify how it proposes to build on or optimize national policies. There is also insufficient explanation of the purpose, scope and role of the *EPDS* or the demarcation lines between it and other strategies and mechanisms including the various operational programs at the national and sub-national level.

Table 13.
General analysis of RIS3 visions according to good practice criteria[54]

Source: World Bank staff based on JP. Kotter: Leading change, Harvard Business School Press, 1996.

Assessing the quality of goals and objectives

74. Priorities, objectives, goals and actions should provide a clearer sense of local distinctiveness. Goals and objectives are usually vague and abstract and the lack of elements that provide any sense of context-sensitivity or local distinctiveness is unlikely to unite stakeholders. There also appears to be considerable overlap between some of the goals and actions and there is no explanation provided about why it is appropriate to address these issues at the national level rather than at the macro-regional or regional level. There is a commonly used method to assist in formulating good quality goals/objectives but also to assess them – it is called the SMART method (the abbreviations are explained in **Box 9**). A general assessment of the quality of goals/objectives in the analyzed documents within the strategic framework of innovation is provided in **Table 14**.

54. These are the following criteria:
easy to understand, so the mission/vision can be explained during a short conversation; frequently these are easy to remember;
concrete - stating clear goals and objectives to be achieved;
to the point – they should support decision-making and resource allocation processes;
flexible - easy to change on the back of important external or internal circumstances;
realistic – i.e. achievable in the context of available resources and capacity;
beneficial – with clearly described long-term, sustainable benefits for the region and stakeholders;
specific – clearly describing the direction of region's development and actions taken by the region to prepare for change; at the same time, the mission and vision cannot be so broad as to create the impression that the wording is generic and applicable to any region;
inspiring – they should be powerful enough to motivate stakeholders (including the administration involved in the strategic process) and should contain specific values of regional importance; a good test of this aspect is to ask whether you would like to live in a region which defines its mission and vision in such a way;
subsidiarity – they should be aligned with the mission and vision prescribed in higher level documents

Box 9. Using the SMART method to assess the quality of goals/objectives

The SMART approach is a commonly used method helpful in formulating goals and objectives and in verifying their quality. The acronym is based on the key attributes of a well-formulated goal, i.e.: S for *specific*; M for *measurable*; A for *achievable*; R for *realistic*; T for *time-bound*.[55] In that context, a well-formulated goal or objective should be:

S – specific: it should be focused on the most important aspects; it should be detailed, action- and outcome-oriented. In order to make sure that the goal is truly specific, we can ask ourselves the following questions: What are we going to do?; Why is this important?; Who will do what and who else should be involved?; When do we want to have this completed?; How are we going to do that?; Is the result and intended outcome clear and understandable?; Will a goal formulated in this way lead to the expected results and outcomes?

M – measurable: both in terms of quality and quantity to keep track of the results. Exemplary questions: How will we know that there has been progress and development? Is the measurement defined in this way available?

A – achievable: there should be the right balance between goal attainability (not too easy to attain) and its viability (it cannot be unrealistic). An ambitious goal should motivate people to take action, and this should not be too distant in terms of time: Is the goal formulated in that way attainable in the timeline provided? Do we understand the resulting restrictions and problems? Is the goal inspiring and motivational? Is it too easy to attain?

R - realistic, relevant: i.e. a goal that can be achieved with available resources. Helpful questions: Do we have adequate resources to achieve that goal? Is it possible to achieve that goal?

T – time-bound: within the deadlines by which the intended outcome is to be achieved. Helpful questions: When will the goal be achieved? Is there a deadline attached to the goal?

Table 14.
Assessing the quality of goals/objectives using the SMART method[56]

Source: World Bank staff

Criteria	Assessment
S - specific	Strategies usually focus on a narrow set of goals, which is a positive development. However, strategic goals often lack specificity, they are general and do not refer to the strengths of individual regions/the country. It would sometimes be beneficial to include more diversification, especially of objectives according to the capabilities of individual regions. Additionally, it is difficult to speak of growth based on smart specializations in a situation where these specializations are in many cases yet to be selected and there is no information about their relation to country or cross-regional smart specializations, for example.
M - measurable	The offered indicators relating to the strategic goals are purely quantitative, which eases measurement of their progress. Thus, utilization of these indicators would allow regular and quantitative monitoring of strategy implementation. However, it would also be worthwhile to supplement these indicators with qualitative indicators, which would provide "denser" information about the strategies' impact. In many cases, the indicators used do not guarantee efficient measurement of results, especially in the context of quality measurements, since they are focused on values. Furthermore, it is not completely clear how the indicators such as "enterprise innovation level" will be formulated, or if the measurement and data required are indeed available. Terms such as: "increased level", "greater access", "development of training system", "creating better conditions", without a concrete, number- and quality-based dimension, are rather unspecific and imprecise.
A - achievable	In many cases it is difficult to assess if the proposed targets, and in turn the strategic goals/objectives, are achievable, since RISs do not offer any assumptions about the socio-economic development of the whole country, macro-region (supra-region), or regions within the discussed time horizon, and the targets strongly depend on these assumptions. More information would be necessary to assess the achievability of selected targets. It is not quite clear what final outcome is expected in 2020. Terms such as: "SME development" or "increasing their innovation" are rather imprecise. Since the focus is on actions and not the outcome, it is difficult to assess whether the objective is attainable within the deadline. An objective formulated in this way can have poor motivational effect because the implementation timeline is distant and the provisions are not specific. There is usually also no discussion on how given goals and objectives relate to each other.
R –relevant/realistic	A discussion of the remaining goals which have been taken into account during work on the strategies but which were not included into the current drafts, together with rationale as to why they were abandoned, would enrich the relevancy of the proposed selection. There are no references to resources and realistic implementation capacity, and thus there is reason to doubt whether the "relevance" criterion is satisfied here.
T – time-bound	The strategies usually offer a clear time limit, i.e. 2020, which according the n+2 principle extends to 2022. What is not clear is why all the target values in 2020 and 2022 are identical. Nor is it clear what the added value of indicating the same numbers for both these years is. Additionally, in many cases the strategies do not offer any mid-term "check" values, which would be helpful for a mid-term assessment of the strategy. Moreover, it is not fully clear if any of the goals should be implemented earlier than others to create synergies and strengthen their effects.

55. http://www.thepracticeofleadership.net/2006/03/11/setting-smart-objectives/
56. For the samples of selected visions, goals, objectives, and priorities see **Table 15**.

Table 15. Comparing different level visions, goals, objectives, and priorities

	Vision	Goal(s)	Objectives	Priorities
National Reform Program				1. Infrastructure for sustainable growth (catching up) 2. Innovation for smart growth (creating new advantage) 3. Mobility for growth that enables social inclusion
Economy Innovation and Effectiveness Strategy (EIES2020)	Open and expansive economy, offering new jobs based on mutual trust and cooperation between participants of economic life, with stable growth due to innovations and high resource use efficiency, that will ensure an increase in living standards and business competitiveness in the global market by 2020	Highly competitive economy (innovative and open) based on knowledge and cooperation	1. Adjusting the regulatory and financial environment to the needs of an innovative and efficient economy 2. Stimulating innovativeness through an increase in the efficiency of knowledge and work 3. Increasing efficiency of using natural resources and raw materials 4. Increase in the internationalization of the Polish economy	
Enterprise Development Program (EDP)		High and sustainable increase in enterprise productivity leading to enhanced international competitiveness.	"Intermediate goals": 1. Adjustment of the regulatory and financial framework to the needs of and innovative and effective economy; 2. Animating innovation through increased knowledge and labor effectiveness; 3. Increased effectiveness and utilization of natural resources and raw materials; 4. Enhanced internationalization of the Polish economy	
Eastern Poland Development Strategy (EPDS2020)	Eastern Poland is a macro-region developing dynamically in line with the principles of sustainable growth, gradually and methodically improving its development and competitive position in Poland and the European Union, which: is able to compete effectively in Poland and abroad due to its macro-regional smart specializations; has a modern workforce for a knowledge-based economy and effectively prevents social exclusion; is accessible and internally coherent in terms of transport	1. Raising macro-regional innovativeness through the development and reinforcement of competitive advantages based on existing economic specializations, and a stronger research and science sector 2. Mobilizing the labor force and raising the quality of human capital through augmenting the potential of modern human resources and effective prevention of exclusion in the macro-regional labor market 3. Increasing external accessibility and internal coherence, including for the main functional labor markets.	1. Creating sustainable competitive advantages based on existing macro-regional smart specializations 2. Strengthening the potential of the research and science sector 3. Preventing exclusion in the macro-regional labor market 4. Strengthening the potential of modern human resources for a knowledge-based economy 5. Eliminating barriers related to peripheral location 6. Strengthening the internal coherence of Eastern Poland 7. Strengthening energy security of Eastern Poland	1. Innovativeness 2. Workforce and quality of human capital 3. Transport and electricity infrastructure
One of the regions – draft RIS3	A region with high competence to create and develop modern solutions to support the region's economy and its inhabitants	Development of innovative enterprises	1. Creation of a modern business environment 2. Accelerate change by innovation specializations	1. Enterprises; 2. Human resources, 3. Innovation climate; 4. Services to entrepreneurs; 5. Specializations

Source: World Bank staff

Assessing the implementation and governance system

75. More robust RIS3 document implementation plans need to be elaborated. Effective implementation requires clarity about goals, roles and responsibilities as well as timescales, actions, specific projects, milestones, etc. These need to be agreed with the relevant stakeholders in a consensual process so that all relevant actors and institutions are aware of what is expected of them and are pulling in the same direction. An implementation plan should be drawn up as a matter of urgency. Effective implementation of strategies will also depend on a robust monitoring framework being in place so that progress can be assessed at appropriate intervals and remedial action can be taken where necessary. Without such an implementation plan there is a danger that any strategy remains an academic exercise.

76. Demarcation lines between national and regional levels should be established without delay to allow RIS3s and implementation plans to be finalized. The demarcation line relates to activities to be performed at the national level vs. the regional level. The institutional structure in relation to the different levels (but also within analyzed levels) is weak and highly fluid, and both vertical and horizontal relationships need to be strengthened. Robust governance arrangements are a precondition for effective implementation and these formal and informal structures and networks need to be strengthened considerably to increase the chances of effective implementation. The identification of roles and responsibilities in the implementation plan is important. It is also essential that an element of flexibility is retained in the implementation plan to react to unforeseen circumstances and to be receptive to local needs. Cooperation and consensus are often the most important delivery mechanisms in strategy implementation, and clear lines of responsibilities and an open and inclusive planning process are essential preconditions to achieve this. Implementation and action plans, alongside associated financial plans, need to be robust, clearly delegate responsibilities and specify timing and resource implications.

77. The regions argue that the current plan for the demarcation line leaves only limited influence over the innovation system at regional level. Most decisions and projects are to be regulated at the national level. There are strong voices and arguments stating that in fact this reflects current trends to centralize the country, which challenges the subsidiarity rule ("let's leave all matters that we believe can be governed/better delivered at the regional level rather than the national level"). On the other hand, the ministry indicates that R&D activity in Poland is predominantly financed from the national budget (not European funds) – according to the ministry, national funds are responsible for approx. 75-80 percent of outlays on R&D in Poland, and EU funds, which play a supportive role to national funds, should not undermine the current system. In the ministry's view, regions can pursue some R&D activities better, e.g. technology transfer, while other areas perform better at the national level, since redundancy and fragmentation of efforts is limited, e.g. R&D infrastructure or scientific programs.[57]

57. The MoSHE proposes that only the R&D infrastructure included in the *Roadmap* be financed in the upcoming financial perspective (and regions' contribution from their operational programs is welcomed here). In terms of R&D projects supporting regional smart specializations, the idea of regional research agendas is put forth. Such research agendas would be set up for smart specializations selected by several regions, and would be coordinated by the NCBR with joint financing from the PO SG and ROPs. Such an approach would aim to ensure a minimum quality standard for projects, as well as avoiding duplication of initiatives. The demarcation line has yet to be elaborated for financing R&D projects in enterprises, which should be accomplished as soon as possible.

Box 10. Support for enterprise innovation – Polish national experience from 2007-2012

A recent evaluation of the Polish system of support for enterprise innovation revealed that, despite the government's efforts to facilitate innovation development in the Polish economy, there is ample room for improvement. The ratio of public R&D expenditure to GDP continued to stagnate at 0.45 percent of GDP in 2010 as funding appears to have financed non-R&D innovation activities – this is despite increasing funds from the EU devoted to innovation support.

Examination of the national system of innovation support points out that the current framework did not deliver the expected results. The goal of the system is to encourage R&D and breakthrough innovation among enterprises, thus enhancing the productivity and competitiveness of the Polish economy. Enterprise innovation support was aimed at assisting predominantly high-tech and high-risk SMEs to invest in R&D and innovation in fields with high potential. Instead, the risk-averse selection process steers large proportions of public funding to big companies in the form of grants for absorption-oriented activities, and neglects innovative SMEs. Government agencies have allocated more than 40 percent of OP IE funds to large companies for technology upgrading through capital investment. Firms have used an overwhelming 87 percent of their resources on innovation to finance technology absorption in the form of fixed capital investments in plant machinery and only 13 percent to support R&D, which indicates that technology absorption remains relevant for Polish enterprises.

Public funding for innovation also tends to finance projects at the later stages of the innovation process, where market failure risk is reduced, while firms at earlier stages of the innovation process obtain only a fraction of these resources. By and large, the selection process ends up channeling the bulk of R&D support into low- and medium-low tech manufacturing, presumably also due to risk aversion. Importantly, public funding contributes marginally to enterprise R&D. The majority of R&D outlays, 88 percent, are financed by firms themselves.

The institutional infrastructure supporting Poland's enterprise innovation system suffers from fragmentation, and requires greater inter-agency coordination. Additionally, an overly legalistic process may be the reason behind Poland's overall underperformance in innovation, with three outstanding issues. Firstly, selection criteria established by the implementing bodies weed out variation. Secondly, the application process uses a disproportionate number of non-substantive criteria and assessment mechanisms that do not sufficiently focus on the inherent qualities of the proposed projects. Thirdly, the selection process is largely paper-based, which suggests that applications prepared by professional intermediaries have a greater chance of succeeding.

Last but not least, the innovation support system lacks a well-functioning impact evaluation system which utilizes rigorous methodology and delivers reliable information. Most importantly, even the conclusions of otherwise useful evaluation studies have not received sufficient attention from policy makers, making the whole exercise largely futile.

Source:
World Bank (2012), Poland Enterprise Innovation Support Review: From Catching up to Moving Ahead.

Assessing monitoring, evaluation and measurement

78. The RIS monitoring and evaluation framework needs substantial strengthening. Monitoring, evaluation and review should be an ongoing process so that organizations are aware of whether the implementation of the strategy is proceeding as anticipated. An effective monitoring framework will allow problems to be identified at an early stage so that remedial action can be taken if necessary. Objectives and targets should be set in such way that they can be monitored, and targets should only be identified to monitor strategic issues so that the process does not become too resource intensive and require the diversion of extensive resources away from implementation. Examining all aspects of the strategy in equal measure is time- and resource-intensive, and excessive monitoring is unlikely to be appropriate considering the long-term nature of the RIS3s. The balanced scorecard, used for example in the Lower Austria region, is one method that has increasingly been applied to strengthen resource allocation, effectiveness, efficiency and accountability.[58]

58. The MoSHE commissioned a project to elaborate a comprehensive system for the gathering, monitoring and modeling of information related to RDI sectors. This system is currently being elaborated and is envisaged to assist in evidence-based policy-making at national and regional levels.

79. There is overreliance on economic indicators in strategic documents. Substantial resources have been devoted to the design and use of indicators in recent years. Good practice suggests that the number of indicators should be limited to avoid possible data manipulation, and where possible quantitative statistics should be supplemented with qualitative evidence. EU good practice often distinguishes between three different types of indicators: output, result and impact indicators. Output indicators express the direct and measurable "product" of a given action such as the number of kilometers of a newly-built road; result indicators refer to the wider effect of a particular action such as the reduction in journey times due to the building of a new road; and impact indicators refer to more indirect consequences of the action over time, such as the reduction in the number of road traffic accidents due to a new road. This highly structured approach enables the immediate, medium- and long-term impact of an action to be monitored, alongside the direct and more indirect consequences of actions. Some examples of output, result, and impact indicators are provided in **Table 16**.

	Development of science and technology park	Road from A to B	Redevelopment of brownfield land
Inputs	Development cost	Construction cost	Project cost
Outputs	Floor-space developed and direct jobs created, number of trained people	Length constructed	Area redeveloped
Results	Attractiveness of the site compared to neighboring sites	Reduced journey times between A and B	Range and extent of uses/activities on brownfield land
Impacts	Number of innovative firms in the region, number of co-operations between firms/R&D after 1-2-3 years	Number of vehicles using the road after 1 year, change in the density of traffic in cities	Increased population and stronger socio-economic population profile
	Indirect jobs created / retained	% of regional enterprises satisfied with accessibility	% of population willing to stay

Table 16.
Examples of output, result and impact indicators

Source: World Bank staff

Assessing financial plans

80. The RIS3s should discuss implementation budgets in more detail and should be more closely aligned with the overall vision. The implementation of innovation development is to be financed from a wide range of sources including various operational programs managed at the national level, cross-regional level, and within the 16 regions (regional operational programs). This lack of clarity as to which level finances which specific activities, how much private funds can be generated, and what the other possible sources of financing innovation are, constitutes a significant gap in the current drafts that needs to be addressed. Moreover, horizontal co-operation between agencies, especially at national and regional levels responsible for managing these various programs and funds, should be improved to promote synergies and avoid potential conflicts and inefficiencies. The challenge will be to align financial cohesion between the existing draft RIS3 documents and currently formulated operational programs at national, cross-regional and regional levels.

Quality assessment summary

81. There is scope for further improvement in the quality of the draft RIS3s. **Table 17** presents a synthetic assessment of the overall RIS3 framework in Poland from the viewpoint of the EC's RIS3 Guide and its approach towards the process of RIS3 formulation (see **Box 8** above for a summary of the six-step approach). Each criterion analyzed here is paired with an element presented in the EC's guide. **Table 18** shows how each of the individually assessed regions scores against the RIS3 quality criteria proposed in this review. All of the discussed quality assessment aspects can be related to the RIS3 creation process provided by the EC's DG Regio. At the moment, none of the analyzed documents would pass the test and much work is required to upgrade the existing documents to bring them to the quality level desired by the Commission.

Table 17. Summary of quality assessment – AS-IS vs. pre-conditions (good practices) for successful RIS3 strategy (joint assessment of the national, macro-regional, and regional levels).

Preconditions for good quality RIS3	Definition – good practice (TO BE)	Result of quality assessment (AS IS)	Reference to *RIS3 Guide*
DIAGNOSES/CONTEXT			
Benchmarks – how to wisely compare	The RIS3 uses benchmarks, especially international comparisons, wisely. This means that similar characteristic countries/regions are selected to study their path and decisions made to reach their present state of development.	Benchmarks are only used at the diagnostic stage, usually to compare between regions and within the country.	STEP 1: Analysis of the national / regional context and potential for innovation
Lessons learned – use your experience	The RIS3 analyses current successes and failures – what went wrong and why, what can be improved and how, to what extent current goals/objectives are being fulfilled, why we are formulating a new set of vision/goals/objectives, etc. In general, information about our impact should be gathered, analyzed, and smartly used in the draft RIS3 in order to strengthen synergies between the current and desired state.	Lessons learned are not analyzed; no conclusions are drawn as to what went well, what not, and why.	STEP 1: Analysis of the national / regional context and potential for innovation
Conclusiveness of diagnosis – what does this mean for us?	Diagnoses and analyses should not only play an informative role (describing AS-IS) but should also focus on drawing conclusions, explaining inter-linkages between analyzed areas, and providing explanations as to why certain observed phenomena occur. Conclusions should form a strong basis to formulate our priorities, vision, goals and objectives.	Diagnoses usually focus on description of numbers; qualitative assessment is hardly ever performed. Conclusions are rare.	STEP 1: Analysis of the national / regional context and potential for innovation
External coherence – in search of synergies	The RIS3 should reflect higher-level strategy documents. It is not compulsory that the RIS3 formulates its own vision, goals, and objectives. Of more importance would be to explain how the RIS3 will support the vision, goals/objectives formulated by higher-level strategies (e.g. regional RIS3 explains how it fits into the *National Reform Program*, *EIES2020*, and regional development strategy). Documents should also explain their mutual relations in order to achieve a well-defined common vision and goal.	There is usually no explanation of how RIS3 is to support higher-level documents. All strategy documents formulate their own generic visions, goals and objectives. We found no evidence that the framework as a whole has ever been described or thought through.	STEP 1: Analysis of the national / regional context and potential for innovation
Rationale – why, for whom, and what?	The RIS3 should explain its purpose, its position among other strategic documents, its target audience, and why we need the RIS3	Rationale is hardly given, especially in the context of regional RIS3 and other key documents such as RDS, ROP, etc.	STEP 1: Analysis of the national / regional context and potential for innovation
STRATEGIC PRIORITIES			
Quality vision – our aspirations	Vision is a depiction of a future desired state, from which goals / objectives should be drawn. A test for a 12-year-old elementary school student can be applied – if he/she understands what he/she reads then such a vision passes the test (it should be understood not only by technocrats and academics but also by society at large).	Visions are usually generic and constitute a one-size-fits-all approach. They can easily be applied to other countries and foreign/domestic regions. They lack location- and people-based approaches.	STEP 3: Articulation of a shared vision for the region's future
Quality goals/objectives – desired state	Goals and objectives are drawn directly from the vision, explaining it in more detail and providing the necessary guidance for the set of actions and activities that can lead to fulfillment of the desired objectives, goals, and finally vision. Preferably there is only one strategic goal and several (but not too many) objectives drawn from the goal.	Goals/objectives are often vague and generic. It is difficult to assess what we want to achieve out of them.	STEP 3: Articulation of a shared vision for the region's future
Internal coherence – puzzles forming a logical shape	There is a logic and coherence between diagnoses and conclusions, vision, goal, objectives, and specific actions. Only this approach provides the necessary synergy between key strategic elements of the RIS3.	Links between analysis and vision and goals are usually weak or not displayed at all. Thus it is unclear how they are related to each other. It should be evident that an analytical part has to constitute the basis for further selection of priorities. Another aspect is sometimes the lack of coherence between RIS3, RDS and ROP at the regional level.	STEP 3: Articulation of a shared vision for the region's future
Concentration of resources – let's be efficient and effective	A limited number of priorities provides a better chance for sufficient concentration of resources, explaining what is really important. It enables the necessary focus.	Priorities are unclear. No explanation of who selected them, why and how.	STEP 4: Selection of a limited number of priorities for regional development

IMPLEMENTATION SYSTEM			
Implementation plan – what, how, when and who (accountability)	The implementation plan provides the necessary information on the specific actions, projects and activities envisaged to make a strategy a reality. It usually answers the questions of: what, how, when, by whom, why, but also providing key logical relations between specific actions in the plan. The implementation plan adds realism to the envisioned priorities. It also analyses who (all possible direct and indirect stakeholders) can be engaged in implementing the strategy (all hands aboard) and how.	In the majority of cases analyzed there is no concrete implementation plan that would be specific in terms of resources and actions to be implemented. This poses a risk to the realism and reliability of the strategies.	STEP 5: Establishment of suitable policy mixes
Financial plan – how much and from where	The financial plan also adds to the realism of a given strategy. It shows the financial resources available and required to implement the strategy. Each planned activity should also be assessed based on available, planned finances. It also analyses potential sources of funds including own budget, sponsors, donors, as well as private funds that could be generated to implement the strategy.	If they exist, financial plans are of a generic nature, usually with a focus on EU funding. They do not include private financing or other alternative sources of finance for innovation.	STEP 5: Establishment of suitable policy mixes
MONITORING AND EVALUATION			
M&E supporting decision-making – let's not be blind	The M&E system should support the decision-making process. It should provide both qualitative and quantitative information, draw conclusions, and help decision-makers to quickly react to a changing and dynamic environment.	Impact is not measured. M&E focuses on absorption. No value-for-money concept has been introduced yet. It is based on quantitative data and is rarely used for corrections.	STEP 6: Integration of monitoring and evaluation mechanisms
Qualitative measures – capturing subjective opinions	Quantitative measures based on available public statistics should also be supported by qualitative measures.	Qualitative data, assessment, analyses are hardly visible.	STEP 6: Integration of monitoring and evaluation mechanisms
Measuring impact – influencing the reality	The M&E system should provide timely and regular information about the degree to which vision, goals, and objectives are fulfilled. Also it should describe the extent to which we change reality through specific actions, how companies operate under our support (are they in much better shape or not and why? This is a question of our efficiency and effectiveness). A treatment group should be compared with those who received support to assess and validate our performance and decisions.	No treatment vs. control groups exercises or assessment is performed.	STEP 6: Integration of monitoring and evaluation mechanisms
TOOLS AND PROCESS			
Internationalization – going global	The RIS3 should describe how decision-makers see opening the country and region to global competitiveness, strengthening ties with the external world.	Internationalization is not a priority for RIS3.	STEP 5: Establishment of suitable policy mixes
New tools/solutions – be creative	The RIS3 should describe what new solutions and tools will be applied. It is an agent of constant change, should inspire, experiment, and show different and alternative paths.	New tools are hardly visible; this is rather a continuation of business-as-usual.	STEP 5: Establishment of suitable policy mixes
Cross-regional cooperation – look beyond your own back yard	This is another aspect of being more open and supporting ideas that are cross-regional in nature.	Hardly any RIS3 focuses attention on cross-regional issues finding synergies among regions/countries.	STEP 5: Establishment of suitable policy mixes
Internalization – transferring strategy into internal actions	This is a difficult issue of how we translate the RIS3 into the internal functioning of responsible institutions (ministries, agencies, marshal offices, subordinate institutions). It is of the utmost importance to ensure that actions, plans, projects related to strategy implementation are included in the scope of responsibilities of different units.	Institutions do not translate the RIS3 into the functioning of more than 1-2 units directly engaged in formulation of the strategies. The RIS3 does not change the scope of responsibilities for leading institutions, subordinate agencies or stakeholders.	STEP 5: Establishment of suitable policy mixes
R&D focus – use the scientific grid	An RIS3 is not only about innovation, it should also address issues connected to research and development, and how they relate to each other through synergies.	In many cases the R&D aspect is insufficiently accented, especially at the regional level, sometimes due to a lack of practical tools to influence reality in this field.	STEP 5: Establishment of suitable policy mixes
Private sector mobilization – let's involve business	Private business should play a crucial role in developing the RIS3. A complementary RIS3 should describe how it envisions private sector involvement in implementing the strategy (also by using private funds in the process of financing RIS3).	There is an ongoing dialogue between business and administration, especially at regional level. There is a continuous and lengthy effort to build mutual trust and understanding. The process should not be halted after the delivery of the RIS3, on the contrary it should be continued and intensified.	STEP 5: Establishment of suitable policy mixes

PROCESS			
Leadership – who is in the driving seat?	There should be clear, visible and active participation from the leadership engaged in the process.	The role of leadership has to be strengthened. Strategic decisions have to be in line with the vision for the country/region's development and this is decided by top decision-makers in close cooperation with stakeholders.	STEP 2: Set-up of a sound and inclusive governance structure
Partnership – joint discussion: listen and learn	The quadruple helix should be applied. Discussions between administration, business, academia and the public should be held. The feedback mechanism should be applied and actively sought (feedback obtained and provided). This is a difficult and lengthy process of building relationship and trust between key stakeholders.	The strategic documents should provide clear information on how they empower stakeholders representing the quadruple helix. Platforms for regular and long-term communication should be established and developed and mechanisms should be put in place that ensure translation of agreements into actions. Finally, these partnerships should continue into the implementation phase and do not end with adoption of the RIS3 documents. Adoption is just the first step.	STEP 2: Set-up of a sound and inclusive governance structure
Internal capacity – are we strong and able enough?	A common and visible trend is to outsource analytics, decision-making, often the strategic process to external consultants, academics, etc. The role of public administration is then limited to organizing tender processes, and selecting and accepting work done by someone else. As a result there is no chance to build strong analytical skills. Managing the process becomes a difficult task, and its quality deteriorates as such an approach weakens leadership and ownership.	Assessment of the administrative capacity of units responsible for managing RIS3s has not been displayed. Hence it is not clear whether there is enough knowledge on the capacity gap in public administration, i.e. if units responsible for implementation are able to carry out the tasks assigned to them. As a result no information is provided on how to tackle potential gaps.	STEP 5: Establishment of suitable policy mixes
Process is described	The RIS3 should inform and describe the formulation process (who was engaged, how and when) as well as the consultation process (who was engaged, how and when).	Usually the process of stakeholders' engagement in and impact on the smart specialization strategies is not sufficiently described. More effort should be made to show that partners from the quadruple helix have been actively engaged, which companies and organizations they have influenced, and to what degree, etc.	STEP 2: Set-up of a sound and inclusive governance structure

Source: World Bank staff

Table 18. Summary of the qualitative analysis of Polish regions' (draft) RIS3 documents (status as of June 2013)

Preconditions for good quality RIS3	Step in the EC's *RIS3 Guide*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DIAGNOSES/CONTEXT																	
Benchmarks – how to wisely compare	Step 1																
Lessons learned – use your experience	Step 1																
Conclusiveness of diagnosis – what does this mean for us?	Step 1																
External coherence – in search of synergies	Step 1																
Rationale – why, for whom, and what?	Step 1																
STRATEGIC PRIORITIES																	
Quality vision – our aspirations	Step 3																
Quality goals/objectives – desired state	Step 3																
Internal coherence – puzzles forming a logical shape	Step 3																
Concentration of resources – let's be efficient and effective	Step 4																
IMPLEMENTATION SYSTEM																	
Implementation plan – what, how, when and who (accountability)	Step 5																
Financial plan – how much and from where	Step 5																
MONITORING AND EVALUATION																	
M&E supporting decision-making – let's not be blind	Step 6																
Qualitative measures – capturing subjective opinions	Step 6																
Measuring impact – influencing the reality	Step 6																
TOOLS																	
Internationalization – going global	Step 5																
New tools/solutions – be creative	Step 5																
Cross-regional cooperation – look beyond your own back yard	Step 5																
Internalization – transferring strategy into internal actions	Step 5																
R&D focus – use the scientific grid	Step 5																
Private sector mobilization – let's involve business	Step 5																
PROCESS																	
Leadership – who is in the driving seat?	Step 2																
Partnership – joint discussion: listen and learn	Step 2																
Internal capacity – are we strong and able enough?	Step 5																
Process is described	Step 2																

1. Dolnoslaskie;
2. Kujawsko-pomorskie;
3. Lubelskie;
4. Lubuskie;
5. Lodzkie;
6. Malopolskie;
7. Mazowieckie;
8. Opolskie;
9. Podkarpackie;
10. Podlaskie;
11. Pomorskie;
12. Slaskie;
13. Swietokrzyskie;
14. Warminsko-mazurskie;
15. Wielkopolskie;
16. Zachodniopomorskie.

Fulfilled

Partly fulfilled

Not fulfilled

No drafts available yet

Source: World Bank staff

4.4. Smart specializations – approach and methodology

82. Economic differentiation is one of the central principles behind smart specialization. A major novelty of the smart specialization approach is that a country/region has to make its strategic decisions taking into account its position relative to other European countries/regions, which implies that the RIS3 approach requires looking beyond regional administrative boundaries.[59] This "outward dimension" will shelter a country/region from blind duplication of other countries/regions' development paths. It is also argued that assessment of regional strength is not a linear process – on the contrary it requires iteration and going back and forth in the process. Similarly, innovation itself is not produced in a linear fashion, i.e. by innovative companies which obtain public support. Innovation is "a result of co-operation, interaction and mutual learning between different actors within a region/country – companies, research organizations and public administration". The chapter below discusses certain phenomena observed in relation to the process of selecting smart specializations at different levels of the innovation framework, and describes the key challenges facing decision-makers in the context of achieving the right mix of smart specializations.

Specific phenomena observed in the framework in relation to smart specializations

83. Key strategic documents avoid the issue of selecting smart specializations at national and macro-regional level. Neither *EIES2020* nor *EPDS* touch on the issue of selecting smart specializations. The methodology, the issues of who, when, how, and why are not discussed. This poses a problem of coherence between the levels. What we observe at the moment is an asymmetrical approach – regions are far further ahead than national and cross-regional levels in terms of finding their methods and actually selecting the mix of smart specializations. For more details on the smart specialization selection approach and status, see box below.

Box 11. Support for enterprise innovation – Polish national experience from 2007-2012

***SIEG2020* is one of the few strategic documents with direct reference to the theme of smart specializations.** However, the selection process and its time horizon are not fully clear. In fact, the strategy does not present the selection of national smart specializations, despite offering a hint that these are indicated by other documents, namely the *National Reform Program, Large R&D Infrastructure Roadmap,* and foresight analyses, including *InSight2030*. The strategy argues that cross-examination of the above documents and the potential areas and technologies indicated in them will lead to the emergence of national smart specializations. *SIEG2020* only briefly mentions that specializations will be selected, but more details are needed on who will conduct this selection, how and when. No official document has been issued so far to clarify this process.

***NRP* does not mention the concept of smart specializations and RIS3.** This is not surprising as the idea was at the initial stage of development when *NRP* was created. Also, *Europe 2020* does not provide much detail in this respect. *EIES2020* mentions that the *NRP* will play an important role in selecting national smart specializations, but its role in this process is not clear.

The *Roadmap* offers indirect links to the concept of smart specializations. The document had already been published when *Europe 2020* was put in place, but the smart specialization concept was still not very well known and is not mentioned in the *Roadmap*. Nevertheless, the objective of the *Roadmap* and analyses conducted during its elaboration seem to be very much in line with the process leading to the identification of smart specializations, since these processes have assessed the potential of the R&D sector and such an analysis is a critical part of the selection process.[60] The *Roadmap* is currently being updated, however there is some discrepancy about the process. *EIES2020* stipulates that specializations will be chosen on the basis of several documents, including the *Roadmap*, yet our interviewees at the MoSHE suggested that the *Roadmap* update would be finalized only after the *Enterprise Development Program* (*EDP*), i.e. a document that will identify smart specializations, is completed.

59. EC RIS3 Guide, pp. 18-19.

60. It could be argued that the selection of projects covered in the current Roadmap reflects mainly the opinions of the R&D sector, although it is also true that applications were submitted by consortia of stakeholders that also included companies. The current update of the Roadmap shows that some applications have a commercial character and that businesses are also attempting to influence the document. This is an important signal, since by and large private companies in Poland are not overly interested in R&D investments, and in infrastructural R&D investments in particular. The MoSHE informs us that during the second stage of the Roadmap update, applications will also be assessed from the viewpoint of smart specializations – additional points will be given to application that pursue national or regional smart specializations.

The current draft *EDP* (*EIES2020* executive document) will identify national smart specializations. Interviews with the MRD, MoSHE and MoE pointed out that the selection of national smart specializations will be included in an attachment to this document. The *EDP* should then also elucidate the process of smart specialization update and verification. The current draft of the *EDP* frequently refers to the concept of smart specialization, yet no operational information about their selection and update is provided.

***InSight2030* constitutes one of the foundations for national smart specializations.** In fact, *InSight2030* does not offer a list of potential specializations, instead providing a list of research fields and priority technologies where Polish industry has potential to excel. In this respect, *InSight2030* will be a part of a triangulation system during the selection of national specializations, which takes into account Poland's scientific, research and industrial potential.

The *Eastern Poland Development Strategy* (*EPDS*) does not suggest any smart specializations at macro-regional level. The MRD plans to include smart specialization for Eastern Poland into the *EPDS*, however selection is not yet ready. At present, *EPDS* presents a list of key economic sectors which will most probably constitute the basis for smart specializations.

84. In many cases the process of selecting smart specializations leads to heated debate. DG Regio's message is clear: smart specializations are a method of concentrating resources on specific areas. As a result, there is an inherent risk to those sectors that will not be part of smart specializations. They (rightly) believe that their support will be limited if not withdrawn. This means that the stakes are high and the pressure to include certain industries and sectors is growing. In such an environment, leaders in certain regions may sometimes try to avoid tough final selection decisions. The solution is to transfer the process of selecting smart specializations to external consultants (academics who also function as local consultants). This weakens the process of gaining ownership and leadership.

85. There is no uniform method of selecting smart specializations, and in many cases the chosen mix is insufficiently motivated. We are observing rather chaotic attempts to spread more knowledge and build more capacity within sectors: there is no coordination between key actors, especially at the national level, on how and when to help the regions with their attempts. Regional stakeholders argue there is weak support from central government agencies. A lack of sufficient capacity results in the tendency to outsource key tasks to local external consultants (including academia). However, in many cases the rationale and argumentation behind selecting a specific mix of smart specializations is insufficient and weak. In addition, there is practically no provision of specific arguments as to why certain (and sometimes stakeholder-expected) sectors/industries/specializations are not finally selected. The EC's *RIS3 Guide* stresses the importance of consultation in the specialization selection process. This takes a considerable amount of time and requires broad social consultation and consensus building. Yet there is no single best method of assessing the competitive advantage of the region/macro-region/country, which would in turn assist in selecting smart specializations for a given RIS3. Some of these methods are primarily suitable for the evaluation of regional strengths and the "discovery" of latent potential. The graph below describes the methods that are not mutually exclusive. On the contrary, a prudent policy-maker will use a mix of these methods to obtain a comprehensive overview of potentials. There is also no clear timeline or sequencing for how these methods should be applied, although it seems reasonable to start with the two first methods (analyses of S&T and economic specializations), since they are relatively easy to conduct and provide decision-makers with basic information about the region's innovation system. The latter methods are more complex, but could well be more accurate as quantitative analysis is complemented by a qualitative layer. It is advisable to carry out both types of analyses when assessing endogenous potentials. **Figure 9** and **Box 12** briefly summarize the existing methods of selecting smart specializations.

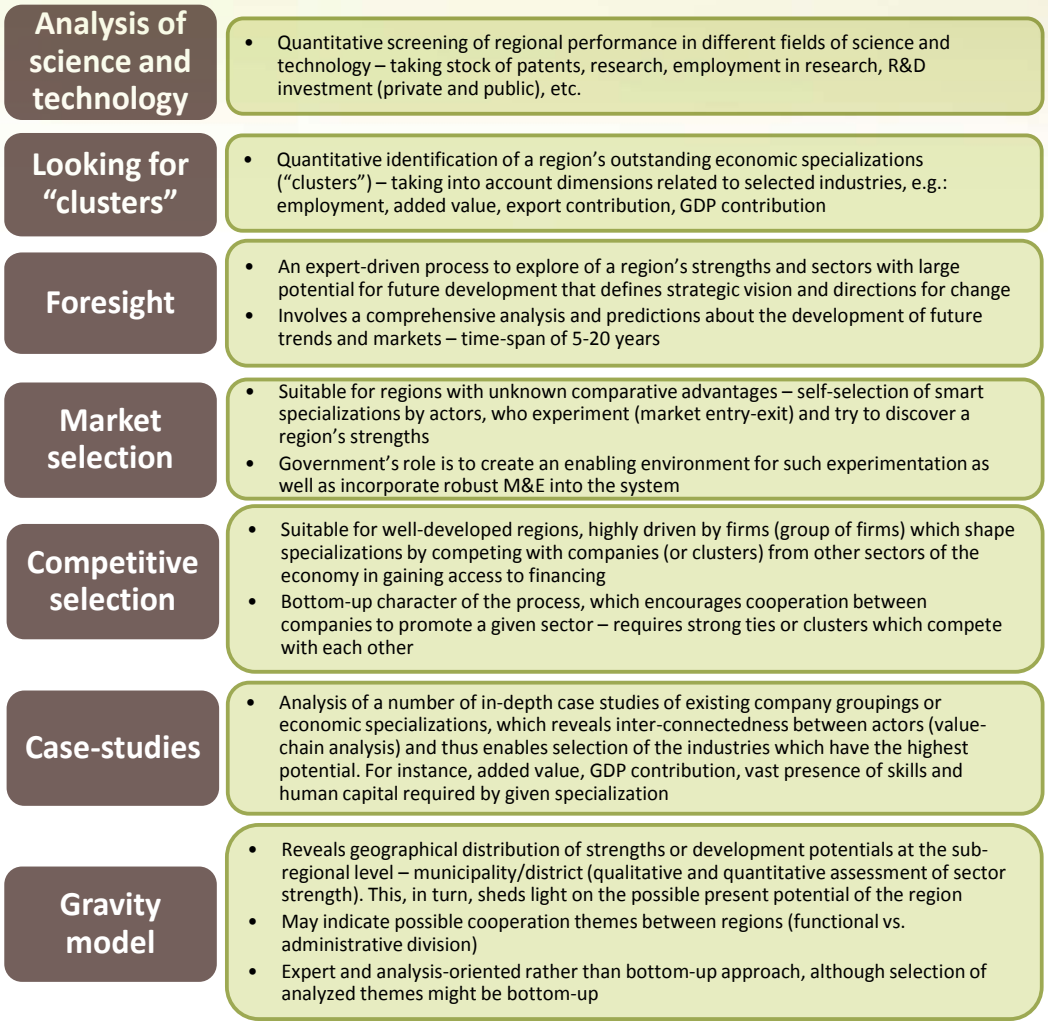


Figure 9.
Potential methods of selecting smart specializations

Source: World Bank staff

Box 12. Selecting smart specializations (World Bank market selection model)

The World Bank's approach is similar to that advised by authors closely related to the European Commission, i.e. competitive selection. This method recognizes that choosing smart specializations, i.e. concentrating resources on a set of limited aspects, may be an efficient approach for development, both in innovation-advanced and less-advanced regions. However, putting too strong an emphasis on research and innovation (R&I) in such documents is not always recommended. There are two reasons for this: imperfect information and an inherent bias towards incumbent interests. Regions with an explicit or latent comparative advantage may utilize direct targeting of R&I policies, and as such public investments would support pre-selected strengths. For regions where comparative advantages are not evident, policymakers should prioritize the policies and tools that develop an enabling environment for market-selection of specializations, and in fact they should promote entrepreneurship. In other words, policies should focus firstly on the results of innovation policies and not on areas of research and innovation, and secondly on reinforcing and embedding a system of monitoring and evaluation into strategies to enable the assessment of such experiments.

86. Leadership of the RIS3 process within the three innovation framework levels could be further strengthened. *De facto* accountability is divided between the Ministry of Regional Development, Ministry of Economy, Polish Agency for Enterprise Development (PARP), Ministry of Science and Higher Education (MoSHE), and National Center for R&D (NCBR). Some key decisions and clear guidance is expected from DG Regio and this aspect is also debated and questioned among different stakeholders in Poland. Questions such as "Who is the leader?"; "Who makes key decisions?"; "Whom do I contact if I have doubts?" arise, and these require clear answers; legislation places responsibility for innovation and smart specialization with the MoE, but this is not followed in current practice.

87. The demarcation line between smart specializations at different levels of the framework and the general guidelines are currently being negotiated. It is not clear what mutual relations between national, cross-regional and regional levels should be in place in terms of smart specializations: are these to be complimentary, should they be subordinate to each other, or is there another way? It is not clear in practical terms what the implications will be for the selection of a specific set of smart specializations at the regional level if a different set is selected later at the national level. To add to the existing uncertainty, there is a further macro-regional level (the five comprising the Eastern Poland macro-region) that will also deal with innovation. This in turn creates pressure to design smart specializations in as wide a scope as possible (for instance, *InSight2030* discusses 99 leading technologies and 33 industrial areas with the highest potentials for growth as the basis for smart specializations selection at the national level).

88. The innovation framework is relatively complex, as it involves three levels of innovation support, each governed by its own rules, selection criteria and ideas for support. Considering the significant diversity of inter-regional characteristics, it is worth asking whether the selection of macro-regional smart specializations is possible and efficient. Finally, such selection would need to draw a clear demarcation line between the specializations of the Eastern Poland macro-region and those of its five constituent regions, which would also have to fit into the division of specializations between the national and regional levels. Again, this would complicate the system of innovation in Poland by adding to an already complex structure, which does not necessarily translate into enhanced efficiency, effectiveness and value for money.

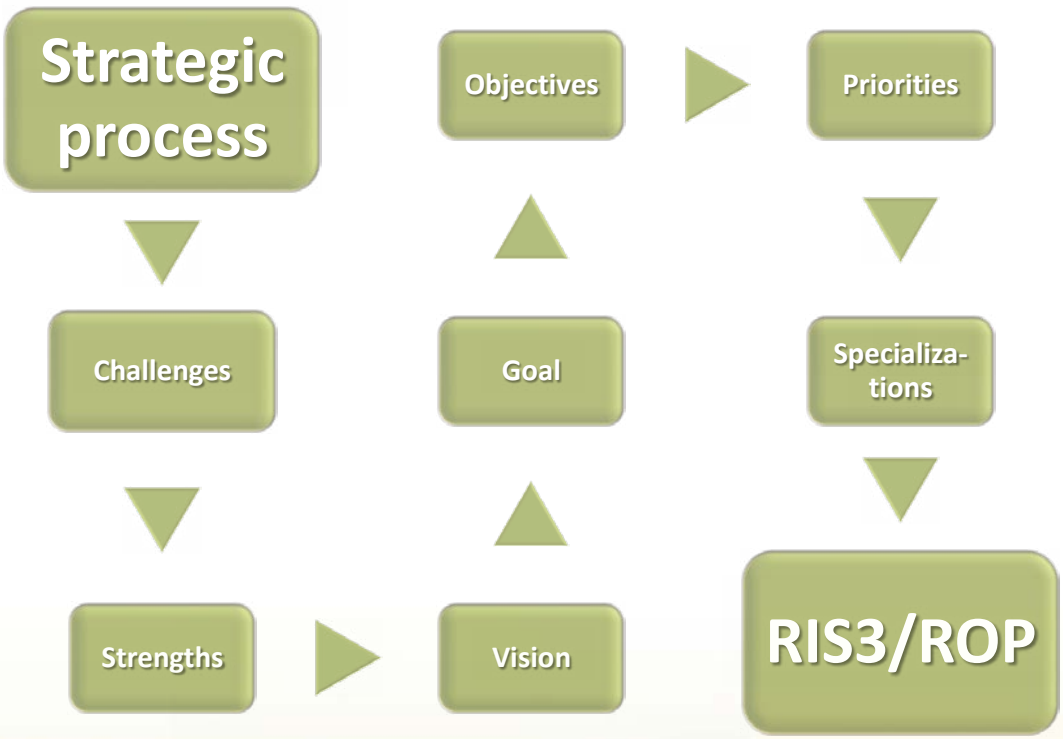


Figure 10.
Proposed key steps in the strategic process of selecting smart specializations

Source: World Bank staff

89. The issue of adaptation to future unknowns and sufficient flexibility in the system should be strengthened and addressed. At the moment the framework does not address the issue of "black swans" – ideas, sectors and entrepreneurs we are unaware of at the moment but who may come up with brilliant ideas in the future – potential stars and business leaders. The system of managing smart specializations should be flexible enough to incorporate such events, and be able to change initial lists of smart specializations to add/subtract certain sectors/industries/specializations. The danger of being too attached to the initial selection of smart specializations is that when external circumstances/economic conditions deteriorate and a possible crisis hits those specializations, the funds used to support dying industries are wasted.

90. Contrary to our view, for many key actors in the framework, selecting smart specializations seems to be the most important element of the RIS3 process. We believe that this process and its result should be deeply imbedded in the strategic method of formulating the vision, goals and objectives of the given RIS3. In other words, selecting smart specializations should be subordinate to the strategic stance, and the mix itself should strongly support realization of the RIS3's vision and strategic goal. **Figure 10** shows how selection of smart specializations should be perceived in a wider context.

5. Conclusions and recommendations

91. The World Bank's assessment is not, cannot, and should not be treated as a substitute for the final assessment of *ex ante* conditionalities by the European Commission, the ultimate arbiter. The Bank's assessment should be treated as an input for the authorities and policymakers involved in RIS3. Mechanical fulfillment of the *ex ante* conditionalities will not bring about fundamental change. The regions should look beyond and deep into the concept of smart specialization to use it as a key tool for efficient and effective public intervention.

92. Innovation systems at the national, macro-regional and regional levels need additional work to become fully coherent. Despite some inter-level linkages, the individual systems do not yet fully build on each other and fail to make full use of the available synergies. The different levels seem to be somewhat detached from each other, which results from the fact that the various key documents were developed concurrently and that the system is, by and large, complex. The latter feature stems from its multi-level governance structure and will not change. It must therefore be accepted, and better procedures for inter-level collaboration and communication must be developed and learned. There are numerous reasons at every level for the current situation, and there is no single element or actor behind the current weak interconnection of the RIS3 system in Poland. Thus there is a list of issues and smaller inefficiencies leading to this outcome, and they are cumulative and sometimes sequential in nature (**Figure 11** presents interrelations between the various key challenges and their complexity). There is also more work needed to steer the whole innovation framework in a new direction, going beyond business-as-usual.

93. The national framework for RIS3 needs further elaboration and clarification, including the design of a fair and clear demarcation line between national, macro-regional and regional scopes of action and responsibility. The issue of which national documents create the framework for smart specialization strategies is not straightforward, and the regions do not have full knowledge of the broader strategic environment of which they should be a part. It seems that most of the national documents regarding RIS3 are already in place: the *EIES2020*, *National Research Program* (*NRP*) and *Large R&D Infrastructure Roadmap* (currently being updated), although none of these documents includes a set of smart specializations. Moreover, they do not explain how these smart specializations will be selected. The methodology and deadline for the final decision are not clear, and the decision-makers designated to select smart specializations are not indicated.

94. More open and regular communication, as well as stronger trust between actors at all governance levels, would be useful. At the moment the regions, which enjoy certain autonomy, are under the impression that new solutions are often imposed on them by the central government without proper communication. For instance, this includes a perceived lack of information-sharing regarding the demarcation line delineating the scope of responsibility between central government and the regions during the 2014-2020 programming period. The regions feel that the national government is attempting to seize as much ground for itself as possible, leaving the regions with only minor duties which will not allow them to steer their own regional development. On the other hand, having seen the inefficiencies of the 2007-2013 period and dispersion of structural policy funds, the national government is endeavoring to address this issue by concentrating certain resources on narrower fields or projects. Both parties thus have valid and rational arguments, however these are poorly communicated to each other, and the lack of information results in mutual mistrust between should-be partners.

95. Connection between regional and macro-regional smart specialization requires further clarification. Presently, no official statement has been issued elucidating the role of macro-regional smart specializations and their position against regional specializations. There needs to be clarification of whether the five Eastern Poland regions (EPL5) will have to include macro-regional smart specializations into their RIS3s, or whether they can simply bypass some (but how many?) or all of these smart specializations. Since the *EPDS* seems to be a hierarchically senior document to regional RIS3s, it could be stipulated that the EPL5 will have to adjust their smart specialization selection to the *EPDS* choice, or at least not be contradictory to each other. Definitions of contradiction or complementarity need to be further explained.

96. The European Commission's guidance on RIS3 requires further clarification. The EC has made a considerable effort to popularize and clarify the concepts of RIS3 and smart specialization, for instance it has issued the *RIS3 Guide*, established a peer review S3 Platform, elaborated a draft version of *ex ante* conditionalities, etc. These are all important steps, but at the same time the EC signals that there is an important piece of legislation (the regulation on *ex ante* conditionalities) to be released in June 2013, which will be crucial for the assessment of RIS3 documents. In addition, DG Regio's *aide memoire* providing a more detailed description of the *ex ante* conditionalities is in the final stage of elaboration.[61] Both these documents will assist regional and national governments in drafting their innovation strategies. The *ex ante* conditionalities redrafted several times over the last year have been useful in elaborating national and regional strategic documents. Nevertheless, certain issues remain to be fully clarified, which in turn means that the Polish authorities are working with potentially ambiguous guidance. This raises the risk of inconsistency between European expectations and national/regional documents.

97. The assessed regions have made formidable efforts to elaborate their RIS frameworks, yet more work is needed to bring them fully in line with the EC's *ex ante* conditionalities. Tough questions will most likely be asked during the negotiations between the regions and the EC on the framework for research and innovation over the next perspective (each RIS3 document and regional operational program will be treated as one package), which by any means will not be a simple formality. These questions will go beyond formal *ex ante* conditionalities and may well concentrate on the following aspects: regions' capacity to implement strategy, the desired outcome, return on investment from every euro spent in the region, the new approaches, ideas and tools described in the RIS3, proof of concept to transform the region, etc.

98. The regions have to demonstrate that the new innovation frameworks are capable of effecting socio-economic transformation in line with the concept of smart specialization. Conversely, what the regions have prepared so far is a description of the business-as-usual approach. There is no fundamental change in the way of thinking, no paradigm shift, and limited value added. It seems that the system is again built around the idea of high-level of absorption rather than value for money. Lessons learned are not analyzed, there is a lack of coherence between diagnosis, SWOT, vision, goals, and objectives, and the strategic stance is of poor quality. The demand side (entrepreneurs) is not studied sufficiently, and there is also limited proof of true and strong ownership, leadership and sufficient involvement from the authorities. These factors pose a real threat to successful implementation of the strategies.

99. While already relatively advanced, RIS3 implementation systems need to provide more specific evidence that strategies are realistic. The ideas and approaches presented in the analyzed national, macro-regional and regional frameworks sometimes seem vague and ambiguous, and thus difficult to implement. The realism of the strategy should be further strengthened by an indication of how the existing internal capacity of regional and central government leadership (marshal office and the ministry) supports implementation (how many projects can physically be generated and implemented vs. envisioned actions). There should be plans for how to internalize strategy into action plans for specific units within the marshal's office and subordinate institutions, alongside designation of demand-driven actions and the specific tools to be used to implement specific actions. In most cases, it is not clear how the RIS3 framework would support smart specializations (if at all), how these will translate into fulfillment of vision/goals/objectives, and consequently how the economic transformation will be achieved.

100. The capacity of institutions at all three governance levels has to be further enhanced and leadership at the national level should be further strengthened. In general, institutions are not sufficiently equipped (lack of sufficient tools, authority) for efficient implementation of the strategies. Insufficient capacity (low strategic management skills) often results in the outsourcing of crucial work to external consultants to avoid internal pressure and debates among decision-makers and key stakeholders/beneficiaries (business). Another crucial aspect of this situation is

61. As of end of June 2013.

that public administration is increasingly reliant on business support institutions, including for strategic decisions and actions which should be handled by regional authorities. There are examples of agencies and/or limited liability companies being created by the region to manage innovation-related issues. This is done to provide a greater degree of freedom and flexibility, and to make their work faster (e.g. avoiding cumbersome public procurement legislation). These newly established entities are often not fully market-oriented and are kept afloat because they are fueled by structural funds. Innovation frameworks seem to be increasingly reliant on such entities. There is a risk that, when the influx of EU money decreases after 2020, the innovation system will prove insufficient to sustain itself.

101. Stronger leadership is a particular priority given that the framework is relatively complex. This is the primary reason for the system's unclear boundaries, vague demarcation lines, low level of coordination and low synergies within and between the levels of the framework.

102. There is substantial scope for further improvement to enhance the quality of the overall innovation framework and thus to use research, development and innovation to leverage real and long-term socio-economic transformation of the regions and the country as the whole (see **Figure 11** for the identified interrelations between the main challenges).

Summing up the conclusions…

103. The 27 key problems identified within the current system of innovation support, including the RIS3 frameworks both at the national and regional levels, are concentrated in four aspects of limited coherence, low quality, vague ideas for smart specializations, and unrealistic implementation schemes, namely:[62]

1) coherence – limited cohesion not only between but also within the various governance levels, which results in chaotic actions and a high degree of uncertainty in the system;
2) quality – the low quality of strategic documents, including RIS3, as well as failure in fulfilling *ex ante* conditionalities, resulting in "business-as-usual" rather than supporting a fundamental socio-economic change;
3) smart specializations – selection of smart specializations is not treated as a key tool in socio-economic transformation;
4) implementation – an implementation system (actions, plan, finances, relations, entities involved, responsibilities, etc.) is still a weak element in the RIS3 framework, which lowers the realism of the presented ideas and weakens the impact of the strategy.

The identification of all key problems within the four aspects of the innovation system (coherence, quality, smart specializations, implementation) is presented in **Table 19**. A list of "known unknowns" supplements the key problems. These include aspects crucial for the design of the system, which the RIS3 framework leaders must answer to obtain a clear picture and understanding of current and future issues in the context of RIS3 and smart specialization.

62. All of these problems were covered as topics of discussion during a two-day workshop in Kielce organized in August 2013 for key innovation system stakeholders in Poland, including fourteen of the sixteen regions, the MRD, MoE, MoSHEe, Polish Academy of Sciences, DG Regio, private sector representatives, and the World Bank.

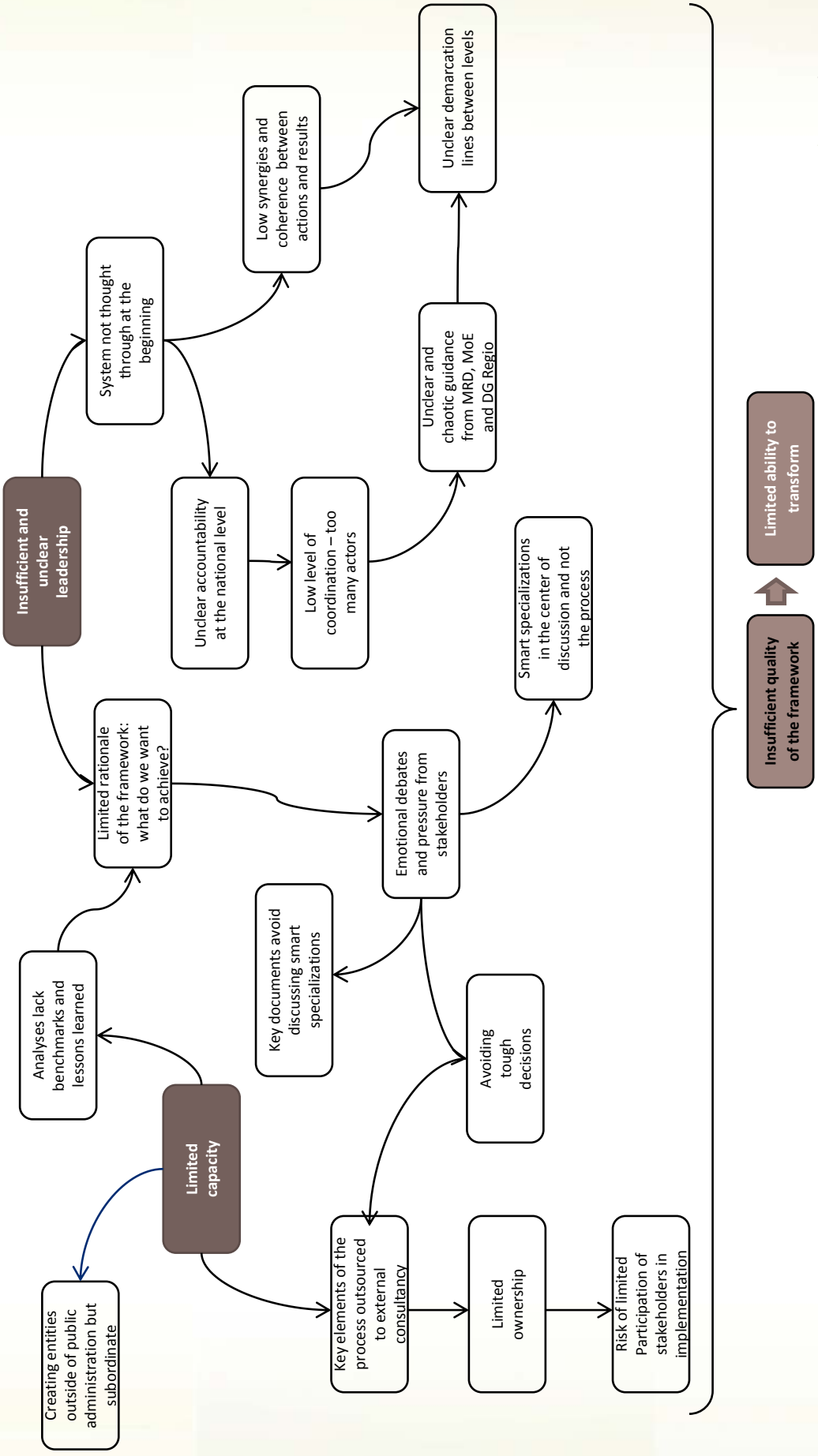


Figure 11.
Relations between the key challenges that translate into limited ability to transform.

Source: World Bank staff

Table 19. Identification of all key problems and "known unknowns" within the current and planned RIS3 framework

COHERENCE: Limited cohesion not only between but also within different levels, which results in chaotic actions and a high level of uncertainty	
Key identified problems:	**Known unknowns (things we know that we do not know):**
Problem 1: lack of overall concept relating to how the system should function within and between different levels. This results among others from: a) lack of a demarcation line concerning what is supported at the national level vs. regions and why; and b) complexity of the system with 3 levels, wide range of programs, actors, criteria etc. **Problem 2:** it is not fully clear and commonly understood what the rationale of the system is: why we need RIS3, whom it is for, why we need smart specializations, their role, etc. **Problem 3:** there is no straightforward and strong leader who could take responsibility, or who has an appealing, comprehensive, and logical vision. Moreover, the division of responsibilities is not clear. This results for instance from an insufficient flow of information, uncoordinated actions and lack of sufficient ownership and involvement on the part of leadership. **Problem 4:** unclear boundaries between innovation and competitiveness – vague definitions and relations including the weak position of RIS3 in the system of strategic documents and a blurred hierarchy between RDS, RIS3, ROP, etc., resulting in turf wars between different units within authorities. **Problem 5:** innovation and competitiveness is insufficiently horizontal – there is a weak link between R&I and other areas within operational programs such as transport, education, environment, etc. **Problem 6:** the system is built without deep knowledge and understanding of demand from business. It is not clear who the system is working for – who is our client and what do they want from us? How can we help them to expand?	1. Within the system of innovation support – what can be done at the central and regional levels and why? What should the relations and rationale be? How should the demarcation line be drawn? 2. Is public aid a barrier in supporting companies? 3. What will the level/amounts supporting innovation be? 4. Taking into consideration the complexity of the system, is an extra level – macro-regional – necessary to support innovation? 5. Is it possible to successfully formulate RIS3 without important elements such as e.g. territorial contracts, demarcation lines, the partnership agreement, etc.? 6. What quantity of funds can we earmark for innovation within regional operational programs? 7. How can we support and strengthen the position of RIS3 within the framework? Is RIS3 necessary? 8. How should the framework be defined? 9. How can effective competition with better developed regions of Western Europe be ensured? What are the critical success factors in the catch-up?
QUALITY: Low quality of strategic documents including RIS3s, together with failure in fulfilling *ex ante* conditionalities, resulting in "business-as-usual" rather than supporting fundamental socio-economic change.	
Key identified problems:	**Known unknowns (things we know that we do not know):**
Problem 1: difficulties in providing evidence that draft RIS3 provides new quality, e.g. lack of analysis concerning the successes and failures of the current period, lack of review into the efficiency of the tools currently used, no lessons learned or benchmarks used, etc. **Problem 2:** limited internal strategic management and analytical capacity, resulting in low document quality and excessive use of outsourcing. **Problem 3:** Polish RIS3 framework at national and regional levels does not currently fulfill the EC *ex ante* conditionalities for thematic objective no. 1. **Problem 4:** the currently formulated innovation support system (based on RIS3, smart specializations, etc.) does not lead to fundamental socio-economic change. The key aim is high-level absorption rather than value for money. **Problem 5:** measuring and efficiency is practically non-existent, and the M&E does not fulfill the basic requirements as an effective tool to support system management. **Problem 6:** public administration in Poland is characterized by low levels of innovation, is bureaucratic and focuses on procedures rather than solving real-life problems. **Problem 7:** it seems negotiations with the EC will not be a mere formality; it will be a demanding experience for which both the country and regions should be prepared.	1. How will the final version of *ex ante* conditionalities be formulated? 2. What is the meaning of RIS3 being more the process than the document – how should we understand this? 3. What are the specific deadlines for the delivery of documents to DG Regio so that they can be assessed based on the *ex ante* conditionalities? 4. What type of questions will DG Regio ask during negotiations on the next financial perspective 2014-2020? 5. How much time do we have to correct documents, approaches, processes? 6. In practical terms, when exactly will the new financial perspective start? 7. What else can be corrected/improved within the current perspective to have a positive effect in the next period, 2014-2020? 8. Why is there no clear guidance from the national level?

SMART SPECIALIZATIONS: Selection of smart specializations is not treated as a key tool in socio-economic transformation	
Key identified problems:	**Known unknowns (things we know that we do not know):**
Problem 1: the concept of smart specializations is not clear and not universally understood – what are they, why and how should they be selected in practice? **Problem 2:** the current, rather wide definition of smart specializations is not coherent with the condition to concentrate resources. The selection process evokes heated and emotional debate under pressure from different lobbying groups. **Problem 3:** the still-unresolved issue of relations between smart specializations at national, cross-regional and regional levels. **Problem 4:** smart specializations are often not integral parts of RIS3, when chosen they do not support vision, goals and objectives. **Problem 5:** unclear relations between smart specializations and the research & development concept.	1. What are relations between smart specializations and other economic areas – what amount of funds can be spent of smart specializations vs. other sectors outside of specializations? 2. Why do we need smart specializations at the national level? Conversely, why do we need smart specializations at regional level? 3. How could "black swans" be supported and what about the elasticity of the innovation support system? 4. What happens if the country or region does not select smart specializations? 5. How could we replace smart specializations if those originally selected show no positive results? 6. Which smart specializations will be more important – those selected by the region or by the country, and why?

IMPLEMENTATION: Implementation system (actions, plans, finances, relations, entities involved, responsibilities, etc.) is still a weak element in the RIS3 framework, which lowers the realism of the presented ideas and weakens the impact of the strategy	
Key identified problems:	**Known unknowns (things we know that we do not know):**
Problem 1: issues of innovation/competitiveness are the sole domain of a single unit within the office. The implementation system does not support the engagement of not-so-obvious partners such as municipalities, towns, police, tax offices, commercial courts, etc. **Problem 2:** vague and overly generic implementation programs/action plans, no financial plans, low quality M&E systems. **Problem 3:** low level of analytical capacity within authorities. **Problem 4:** low status of smart specializations/innovation within the regional executive, including limited leadership and ownership. **Problem 5:** insufficient internalization of RIS3 (no transformation of the strategy into a day-to-day plan of action for individual units and the regional executive) as well as insufficient internationalization (going global). **Problem 6:** implementation plans are formulated without reference to existing tools, which weakens the realism of the strategy. **Problem 7:** low level of risk-taking acceptable to Polish public administration. **Problem 8:** lack of common framework/guidance on M&E as well as measurement of the efficiency and effectiveness of business support institutions to link performance with funds. **Problem 9:** low level of cooperation between academia (R&D) and business.	1. Why don't we use concept of pilot projects? 2. What can we do to ensure that the innovation support system is smart enough to learn and adapt? 3. How can we increase the level of risk-taking by public administration? 4. How can we improve the strategy implementation process? 5. How can we ensure that implementation of the strategy is the most important aspect of the authority's functioning? 6. How can we motivate leadership to take full responsibility and be more active in the strategy implementation process? 7. How can we strengthen the position and mandate of persons responsible for the innovation strategy? 8. What can we do to ensure that the people responsible for RIS3 are more innovative themselves, and how?

Source: World Bank staff

General recommendations for the innovation support system in Poland

104. The recommendations are divided into several thematic and functional groups. These are arranged by a) type of activity (low cost/high impact quick wins vs. strategic/systemic change); b) group responsible for implementing the recommendation (DG Regio, ministries, regions); and c) stages of development (immediate actions vs. later-stage activities). In general, as presented in **Table 20**, several possible solutions have been developed for each key problem identified. Most of the proposed actions were jointly defined by the participants of the two-day workshop organized for key innovation system stakeholders in Poland, held in Kielce in August 2013.

105. As a general rule, it is advisable to focus firstly on quick wins rather than systemic/strategic changes. This will address the issue of improved information flow within the system, and to enhance the overall quality of both RIS3 framework documents and the innovation support system. The primary focus should be on remedy actions that horizontally address as many problems as possible (see **Table 21** for a matrix of solutions and problems). The key actions to be dealt with in the first place (immediately) that meet the criteria of being "quick win" and focusing on improving the information flow are the following:

PHASE 1 – immediate actions:

- I.1.1. – description of the system (action by the Troika: the MRD, MoE and MoSHE): addressing ten identified problems;
- I.1.3. – continuing workshop meetings for and by key stakeholders (to be coordinated by the MRD): twelve problems addressed, including I.1.2. – mailing list, and the postulate to limit formal correspondence – I.1.4.;
- I.2.1. – a practical guidebook on RIS3 in Polish (coordinated by the MRD): sixteen problems addressed;
- I.2.3. – a dedicated website for the RIS3 and innovation framework (coordinated by the MRD): fourteen problems addressed, including I.2.5. – improvement of the information flow through FAQs, answering known unknowns, adopting a single telephone number to the system leader;
- I.3.3. – more visibility and better engagement of RIS3 development decision-makers (coordinated individually at country and regional level): eleven problems addressed;
- I.5.1. – training sessions/workshops on innovation issues (regions and ministries individually): twelve problems addressed;
- II.7.5. – feedback from regions on demand for expertise, as well as II.7.7. – an agenda for the current and planned engagement of external experts/projects relating to the innovation framework contracted at the national level.

DG Regio should immediately address the following list of quick wins: I.2.2. – informal meetings between DG Regio, the regions and national level participants; I.3.2. – individual meetings between regional marshals and DG Regio in Brussels; and II.7.1-II.7.4. – strengthening peer reviews in the S3 Platform, description of the negotiation process, FAQs, DG Regio experts on the RIS3 framework sharing the results of assessment.

Attention should be focused on improving document (RIS3 framework) quality to pass the *ex ante* conditionality test, especially on the part of the regions, and proving that RIS3 will contribute to regional transformation. Individual recommendations for each of the regions are presented in **Table 22**. We also suggest that the regions should address the following actions in the first stage of enhancing their RIS3s: I.4.1. – RIS3 less complex and more focused on competitiveness; I.4.2. – RIS3 more flexible and less formal; I.5.3. – innovation more horizontal; II.1.1. including lessons learned; II.5.2. – introducing new project selection criteria; III.5.1. – R&D to be part of RIS3; IV.1.3. – assessing existing tools (those that support innovation); and IV.4.2. – using benchmarks.

The MRD should also quickly decide on I.1.6. – making the RIS3 system less complex and eliminating the macro-regional level of innovation support (Eastern Poland); I.1.7. – flexible demarcation line; and I.1.5. – increasing the presence and representation of the regions in the OP Smart

Growth formulation process. Discussion should focus on whether the proposed actions are feasible or not, and why.

106. In general, the remaining remedy actions should retain a strict focus. This should concentrate on a) strengthening leadership/ownership and building trust among key stakeholders, b) strengthening internal capacity, c) enhancing implementation and introducing systemic/strategic changes ("phase 2"). These should be addressed during 2013/2014.

Actions devoted to strengthening leadership/ownership and building trust among stakeholders: I.3.1., I.3.3., I.6.4., I.6.6., II.1.3., II.3.1., II.5.1., II.5.4., IV.1.1., IV.4.1.

Actions devoted to strengthening the internal capacity of administration and business: I.5.1., I.5.4., I.5.5., I.6.2., I.6.3., II.1.2., II.1.4., II.2.1., II.3.3., II.4.2., II.5.7., II.5.3., II.7.6., IV.1.4.

Actions devoted to strengthening the implementation system: II.4.3., II.5.5., II.5.6., II.5.8., II.5.9., III.4.1., IV.1.5., IV.1.6., IV.1.7., IV.1.8., IV.3.1.

107. There are some actions that require special attention from innovation system decision-makers and leaders in Poland. Their effects are far-reaching and fundamental. The suggestion is to start working on these issues in 2013 and continue throughout 2014 so that the necessary changes are ready for implementation in 2015. These actions deal with the following key aspects: measuring demand from businesses (what do companies need from the government and why, how can the government help business to address their needs, etc.) – I.6.5., treating RIS3 as a business plan rather than a rigid document – III.4.1., changing the governance system and introducing the idea of management boards instead of monitoring committees; IV.1.5., a new M&E system – where monitoring is focused on progress in the RIS3 implementation plan and evaluation is focused on measuring impact, effects and the fulfillment of envisaged goals/objectives – II.5.5.

Table 20. A map of problems and corresponding remedy actions that form the recommendation framework for the innovation system in Poland

Source: World Bank staff

I. COHERENCE **Diagnosis: limited coherence of the innovation system between as well as within individual governance levels results in chaos and uncertainty**	
Problem description	**Recommended solutions**
Problem 1: the lack of an overall concept how the innovation support system should function within and between different governance levels. This results in: a) the lack of the demarcation line, i.e. what and why is supported at the national level vs. the regional level; and b) complexity of the innovation support system with three levels, many programs, many actors, many criteria, etc.	**Quick wins – low cost, high impact:** 1. **Document – a system description** – preparing a document that describes the vision of the innovation system in a simple and concise manner. This document presents basic definitions (e.g. innovation, smart specialization, coordination, innovation system leader, etc.), explains relation between the governance levels, and presents arguments behind proposed solutions. An important aspect to explicate is the relation between the national and regional levels in terms of smart specializations. Moreover, it presents the role and scope of responsibility of key players, and indicates the innovation system leader, leader's role and the meaning of being the leader as well as expectations of the innovation system stakeholders towards the leader. The document also explains the reason(s) for and the goal(s) of possessing national and regional smart specializations, as well as results, which are intended to be achieved by the innovation system. The documents should also address questions and doubts formulated during the workshop in Kielce (Aug 1st-2nd, 2013), i.e. "known unknowns" and expectations. It is proposed to establish a small working group led by the MRD with a task of elaborating the mentioned document. Representatives of relevant ministries and selected regions would compose this group. This body should start its work as soon as possible and accomplish the task within four weeks. The outcome would be a ten-page document, which will have an open character and can be modified when needed. The MoE will formulate a draft selection of national smart specializations by August 20th, 2013. This will help to alleviate the current information gap and will constitute the ground for discussion on relations between the governance levels and system coherence. 2. **A mailing list** – creation of a mailing (e-mail) list for the participants of the workshop held in Kielce (Aug 1st-2nd, 2013) with the aim of informal and open communication among persons who deal with the operational side of the RIS3 and smart specializations in Poland. The mailing list would create a forum for looking for answers and advice, as well as for sharing practices and information about innovation-related events, etc. The list with a short code of conduct should be created within two weeks from the Kielce workshop. The list should be managed by the MRD. The mailing list should be compiled by August 15th, 2013. The result is a functioning mailing list for about thirty people, who are strongly engaged in the theme of smart specializations and RIS3. 3. **Follow-up workshop** – organization of a follow-up working meeting to the Kielce workshop. The main theme of this one-day meeting should be the smart specialization theme, especially regarding the relationship between the national and regional levels (including the demarcation line) and, time allowing, issues related to M&E and criteria for project selection. Such meetings should take place regularly to bring together people making decisions on RIS3 and smart specializations at the central and regional levels. The MRD should take the lead on coordination of these meetings. The next one could take place in Gdansk, between September 12th and September 19th. The World Bank can provide an international expert who has been involved in the evaluation of the previous generation RISs and who can provide information on smart specializations, international examples, and participate in the discussion. The details of such a meeting would have to be agreed upon between the MRD and Marshal Office in Gdansk. 4. **Limit the exchange of formal letters** among the innovation system stakeholders – it is recommended to switch more to telephone calls, e-mails, and informal meetings. This should be implemented quickly and the lead on that should be taken by the MRD. Other reinforcing actions would be to establish a mailing list and a schedule of working meetings. A custom could be introduce that formal letters regarding innovation/RIS3 are sent only in very important cases and other actors interested in this topic would be included in cc. Another example of sending formal correspondence would be in cases when such an action definitely strengthens the position and importance of the RIS unit. 5. **Strengthen the regions' role in the process of preparing the new Operational Program Smart Growth** (POSG). During the workshop the issue of regions' low influence on this operational program was raised, hence the coherence between regional and national operational programs in light of innovation was discussed.

	Systemic and strategic proposals: 6. S**implification of the innovation support system** thanks to the elimination of the macro-regional level. Along the World Bank's proposal expressed in the review of Eastern Poland Development Strategy (May 2013), it is advocated to keep Poland's innovation system as simple as possible, and not add a smart specialization layer at the macro-regional level, i.e. for the five poorest regions in the Eastern Poland. This will contribute to the transparency of the system and ease building communication between the national and regional levels, without including an intermediary layer. In line with the subsidiarity principle, tasks that can be performed at the regional level should stay with the regions. An extra macro-regional level that would be introduced for innovation support is, in our assessment, of limited added value. The decision on this step should be consulted by the MRD (departments responsible for the *Eastern Poland Development Strategy* and *Eastern Poland Operational Program*) with the five regions of Eastern Poland. 7. **A floating demarcation line** – the demarcation line could be established according to flexible criteria, which would be partly decided by the regions. For instance in terms of smart specialization, the region would decide what kind of projects it finances from its resources (ROP, own means etc.). Here the maximal value of projects or relatively narrow areas could be included, and everything beyond the regional scope could be financed by the national level programs. Hence regions could adjust the demarcation to their needs and characteristics and flexibility could result in enhanced efficiency of spent resources.
Problem 2: it is not fully clear and commonly understood what the rationale of the system is: why we need RIS3, for whom, why we need smart specializations, their role etc.	**Quick wins – low cost, high impact:** 1. **A Polish version of a manual (similar to the EC's *RIS3 Guide*) for the managers of the innovation support system** – this would explain in plain language key definitions and be an attempt to unify definitions and understanding of currently unclear concepts. The manual would be a compendium of knowledge about RIS3 and smart specializations, while taking into account Polish background. The characteristic feature of this manual would be its open-ended nature, with the possibility to continuously enrich its content, e.g. it would include good practices at the regional, national, and international levels. One of the aspects of the manual would concern the ideas on how to maintain the horizontal understanding of innovation. This action would be to a large degree in line with action I.1.1. on the description of the system. A broader version of the manual would be the very first practical handbook of strategic management of the region – this would include not only innovation but also strategic management thus could be used also by persons responsible for regional development strategies, operational programs, etc. The document could also be used by lower level of regional and local governments such as gminas and poviats. A follow up to the manual/handbook would be a hands-on, practical series of strategic management workshops for different levels of public management. 2. **Constant and informal contact with the EC** – enabling more frequent informal meetings of Polish regions and ministries with the DG Regio to exchange information, understand expectations, and identify common issues. One of the aspects of this activity should be a more proactive approach of the DG Regio's representatives that are "in charge" of individual regions. The EC representatives should engage in deeper and more frequent contact with the regions and be the direct support and first contact point. It is suggested that the EC's DG Regio would coordinate the development of this enhanced communication. The progress on this aspect should start as soon as possible and the formula of more intensive meetings and contacts should be launched in September/October 2013. 3. **A separate website devoted to RIS3 and smart specialization themes** – this would be the simplest and most generally accessible tool for supporting the process of RIS3 formulation and implementation. The MRD could be a coordinator of this idea in collaboration with MoE and MoSHE, whereas the regions should have influence on the substance of the webpage. The webpage would be based on the above-mentioned proposals I.1.1., I.1.2., I.1.4., I.2.1., I.2.2. The design of the website should start soon and the launch of the website would occur in the second half of 2014. **Systemic and strategic proposals:** 4. **Awareness-raising activities** – a PR campaign at both the national and regional levels that engages key stakeholders/beneficiaries of the innovation support system. 5. **Smoothing out the information flow** between the ministries and the regions. We recommend creating a set of frequently asked questions (FAQs), which should be then jointly answered by the ministries and the regions. A first batch of questions could be composed of "known unknowns" formulated during the workshop in Kielce (August 2013). The FAQ section has to be open and updated on a regular basis. The MRD could be responsible for managing FAQs and a working group made of ministries and regions' representatives would work out answers to new questions. An important element of communication would be that questions and answers expressed by the regions to the innovation-related ministries (MoE, MRD, MoSHE) would first be discussed among the regions, and communication from the national level would also first be discussed among national stakeholders and addressed to all the regions. A time limit should be established to speed up communication. This mechanism would work in both directions.

Problem 3: there is no obvious and strong leader who possesses an appealing, comprehensive, and logical vision, and who is taking responsibility for and driving the system. Moreover the division of responsibilities is not clear. These result in e.g. insufficient flow of information, uncoordinated actions, as well as weak sense of ownership and engagement of policy makers.	**Quick wins – low cost, high impact:** 1. **Indicating not only a formal, but a real leader of the innovation support system** (management center) – this would include clarifying the role of the Troika (MRD, MoE, MoSHE). At present the MRD holds a mandate to negotiate agreements on behalf of the Polish government with the EC. It is also responsible for managing European funds, which are the most important chunk of funds spent on enhancing innovation and competitiveness levels. The MoE is responsible for indicating national smart specializations. Along with indicating the institutional leader, a chief innovation officer should be appointed both at the national and regional level, who with her knowledge, vision, and a strong mandate would support innovation policy and RIS3 stance. This person would provide reliable information on innovation policy and RIS3, and could be contacted in case of encountered doubts (a time limit for providing answers could be established) – the core idea would be to have a single phone number dedicated to innovation policy. 2. **Organizing a meeting of individual marshals and ministers with the DG Regio.** The main goals would be to ensure the smooth communication between the EC and key national and regional decision-makers, clarifying the progress of work on RIS3, exchange of information, addressing fundamental issues of innovation system leadership and the socio-economic transformation of the region/country in the context of strengthening smart specializations. **Systemic and strategic proposals:** 3. **Engaging key leaders in the process of formulation and implementation of RIS3 and smart specializations.** The key decision-makers (ministers, marshals, management boards) should be more heavily involved and more visible throughout the whole process, and they should not only accept proposed decisions, but also participate in their formulation and consideration of different options. The function of providing clear and stable (mid- and long-term) signals to a broader audience should be reinforced and understood by the decision-makers.
Problem 4: unclear boundaries between innovation and competitiveness – vague definitions of key concepts and their mutual relations including weak position of RIS3 in the general system of strategic documents. Blurred hierarchy between RDS, RIS3, ROP etc. These result in turf wars and poor communication between different units within offices that are responsible for different strategic documents.	**Quick wins – low cost, high impact:** 1. The following the above-mentioned actions can mitigate this problem: *I.1.1., I.1.2., I.1.3., I.1.7, I.2.1, I.2.3., I.2.4., I.3.1., I.3.2., I.3.3.* **Systemic and strategic proposals:** 2. **Simplification of RIS3 documents and broadening their scope** – this should encompass explaining relations between RDS, RIS3, and ROP. The RIS3 should be viewed through the prism of an economic development strategy and enhancing competitiveness (by utilizing smart specializations as a tool), also beyond 2020.
Problem 5: innovation and competitiveness lack strong horizontal dimension – there is a weak link between R&I and other areas within operational programs such as: transport, education, environmental protection, etc.	**Quick wins – low cost, high impact:** 1. **Training sessions for the broader audience in offices** that would explain to other civil servants what innovation means, what the RIS3 is, what the key success factors are and how their work can contribute to the realization of RIS3. **Systemic and strategic proposals:** 2. **Changing the law on public procurement** or introducing such changes that strengthen criteria other than the lowest price, this would include creating a catalogue of such not-price-related criteria. 3. **Making an effort to modify ROPs and other operational programs (OPs) to underline in them the horizontal character of innovation policies.** This requires close cooperation with departments responsible for creating ROP as well as operational programs for other strategies. Limited time remaining for the adoption of ROPs/OPs and a necessity to coordinate across various departments constitute a major difficulty here. It is suggested that collaboration and coordination of the responsible units be increased, in order to enable the necessary modifications in the approach before finalizing ROPs/OPs.

4. **Shaping a culture of innovation in administration: "innovation is in us"** – looking for innovative aspects and ideas in every action of administration, including public procurement. This is a long-term process, yet one which would be worthwhile to launch immediately, in order to prepare the concept of changes of the corporate culture of public administration. One of the first steps could be to prepare a code of conduct of an innovative public servant and a set of good practices to be included in the manual (*I.2.1.*) or on the website (*I.2.3.*) – this would include specific and novel organizational and managerial ideas, which have been successfully implemented in other places.
5. **Working out innovative projects that fundamentally change public administration**: a) establishing a "skunk work" unit within the office, which would not adhere to rigid operational rules, could break the bureaucratic straightjacket, could experiment, and make mistakes; b) a project "open data/open government" – an initiative to open up public repositories to provide the public with information that is gathered by administration. Open data chimes into a broader idea of an open government that is to transform the governance systems by encouraging stakeholders to participate in governing; c) a "large scale innovation" project that encourages collaboration with leading organizations, for instance the Institute for Large Scale Innovation, or Institute for the Future, to design innovation support programs at the national and regional levels, including clearly stated actions, estimation of costs and time schedules. According to the World Economic Forum's document (2011) *The Future of Government*, governments will have to become flatter, agile, streamlined, and technology-based (FAST).

Problem 6: the innovation support system is being constructed without sufficient knowledge and understanding of the demand side, i.e. the private sector. It is not clear for whom the system works; who is the client; what business expects from administration; nor how administration can help business to expand.

Quick wins – low cost, high impact:

1. The description of the innovation system in Poland and the manual proposed in the actions *I.1.1., I.2.1.* should address the following basic questions: for whom is the innovation support system designed?, who is the client?, what are clients' expectations?, does administration know how to help the client?, etc.
2. **Training public servants, including members of the regions' management boards**, on strategic management, basics of management, motivation, work planning etc., to improve their basic competencies in managing their offices (this also relates to *I.5.1., II.1.4.*).
3. **Training private sector managers** to enhance their business competencies, management skills, and understanding of the concept of innovation and how to use it.
4. **Establishing a custom of regular meetings between a region's marshal and the management board members with companies from the region.** This would also include appointing by the marshal a special advisory council(s), composed of businessmen, which would support the marshal in boosting up economic transformation of the region. One of the aspects of this action is to encourage (or allow) the marshal office units dealing with innovation to reach out to the private sector and engage in the dialogue, also during face-to-face meetings on neutral ground (outside the office).

Systemic and strategic proposals:

5. **Creating a model for measuring the demand of companies for innovation-related services:** this would be based on questionnaires, interviews, focus groups (private sector e.g. company owners/knowledgeable workers, and business consultants on behalf of administration). The process of gauging the demand would be necessary for formulation of not only a viable RIS3, but also a working monitoring and evaluation system. The latter would allow an ongoing and quick assessment of changing needs of companies from a given sector or specialization and flexible adjustment of services provided by the public sector to the beneficiaries of the innovation system. Both the M&E system and the demand measurement should be accomplished by mid-2014, and then eventual adjustments should be introduced into RIS3s and ROPs. It is suggested that the concept of such a demand measurement be created in cooperation with private sector representatives, MRD/MoE, and the regions. The work should be initiated as soon as possible.
6. **Building trust between companies and administration:** this is a long-term process requiring patience and commitment (experience from other regions show that it can last between five and ten years, e.g. in the South Moravia region), yet it is necessary for creation of a successful and sustainable system of innovation support. This process can benefit from rich international experience gathered over the years. The concept of this process should be ready by the end of 2013, thus the work should start very soon. It should aim at such values as: honest information sharing, asking companies for opinions and using them in policy-making, admitting to mistakes and failures, respecting agreements and commitment to agreed solutions, looking for shared solutions, etc. An element of this trust network would be also actions *I.6.4., I.6.5.*

II. QUALITY

Diagnosis: low quality of strategic documents including RIS3s as well as shortcomings in fulfilling the EC's *ex ante* conditionalities. As a result, the situation looks like pursuing a "business as usual" approach rather than supporting a fundamental socio-economic change.

Problem description	Recommended solutions
Problem 1: difficulties in providing evidence that a draft RIS3 marks new quality, e.g. an analysis of successes and failures of the current/ previous period is lacking, efficiency of tools currently used is not discussed, no lessons learned and benchmarks are documented, etc.	**Quick wins – low cost, high impact:** 1. **Lessons learned are reflected in a RIS3 –** a RIS3 presents or summarizes an analysis pertaining to the vision and goals of the previous planning period (a preceding RIS) that addresses a set of questions: what was successfully achieved?, what were strong points of the previous period?, what was not achieved (failures)?, and why did it fail? This reflection would be a reference point for designing a new innovation support system, and it would help to build new quality. The observed lessons would have to be utilized now, before the package of innovation-related documents is negotiated with the EU. Both the national and regional levels would have to individually approach the issue of their own experiences and eventual changes. 2. **An obligation to formulate and publish annual reports** – these would include a summary of actions, successes and failures and would serve a role of a communication tool between administration and stakeholders. Work on the format of such reports can begin in the coming months, and the pilot project could run during 2014, so the system of reporting to the public on innovation-related issues in a concise manner is ready in 2015. **Systemic and strategic proposals:** 3. **Admitting to failure is not a failure –** introducing a culture of acknowledging failures and focusing on drawing lessons, improving mistakes, and not looking for scapegoats. The innovation system is to encourage the application of new solutions, inspirations, and improvements even at the costs of failures (more flexibility, more responsibility, performance related pay). Part of this task would be to consider a modified approach towards evaluations, which, unfortunately, oftentimes paint a rosy picture instead of being critical and providing added value. The system would support open communication with stakeholders, other offices and within the office, and using a pilot project, etc. It is proposed that the concept of changes is completed by a team led by the MRD and composed of representatives of ministries and regions by mid-2014. A part of the system would be to rethink the role of control mechanisms in the system, in a sense that it should not be too repressive, but rather it should to a greater extent encourage administration to innovate and experiment. These proposals could be combined with the following recommendations: *I.1.3, I.1.4, I.2.1, I.2.3, I.2.4, I.2.5, I.5.1., I.5.3., I.5.4, I.6.2, II.1.4.* 4. **Designing a public MBA study program** – high-quality education would strengthen competences of key persons managing public administration in Poland. This would be applicable to both the heads of central administration dealing with innovation as well as members of the regional management boards (for instance, a person appointed to the management board would be obliged to accomplish a study program within a given time, and would be obliged to partly finance the study out of her own pocket). This idea could be further elaborated under the auspices of the MRD and a concept note and program could be prepared by the end of 2014. The first cohort could start in 2015 (this would tune into the regional elections in 2014 and parliamentary election in 2015), see also related ideas in *I.6.2., II.1.3.*
Problem 2: limited internal capacity in the areas of strategic management and analysis, which results in low quality of documents and excessive use of outsourcing.	**Systemic and strategic proposals:** 1. **Aiming at conducting key and strategic analyses with own resources of an office.** Outsourcing of such tasks should be performed only occasionally and in special cases (it is better to carry out an analysis with own capacity, even if quality might be partly compromised, rather than outsource everything to external companies. The former option allows officials to build up the internal capacity of administration – see also recommendation *I.5.2.* **Other related actions:** • *I.1.3., I.1.2., I.2.3., I.3.3., I.5.1., I.5.4., I.5.5., I.6.2., II.1.2., II.1.3., II.1.4.*
Problem 3: The present Polish RIS3 framework at the national and regional levels does not fulfill the EC's *ex ante* conditionalities stated in the thematic objective No. 1.	**Quick wins – low cost, high impact:** 1. **Preparing an action plan ("plan B") in case the *ex ante* conditionalities are not fulfilled** – the goal is to manage risk and be proactive, thus an early preparation of a rescue plan (assuming the worst case scenario when some RISs are turned down by the EC) would ensure that actors know how to behave in case of RIS3 rejection, whom to ask for support, where to look for information and know-how, etc. The rescue plan would help to quickly kick off remedy actions to amend the rejected innovation support system or its elements. Such a plan, encompassing the national and regional levels, should be created by the end of 2013 and the MRD should coordinate this work. 2. **Addressing the World Bank's recommendations** – that are included in this report, with special attention devoted to recommendations for individual regions and the national overall system of innovation support in Poland. See also related action *I.1.1.* 3. **Taking advantage of assessment provided by the EC's experts on the state of preparation to the new financial perspective and RIS3.**

Problem 4: the currently formulated innovation support system (based on RIS3, smart specializations, etc.) does not seem to lead to fundamental socio-economic change. The key aim of the current system is a high level of EU-fund absorption rather than the concept of value for money.	**Quick wins – low cost, high impact:** 1. **Implement recommendations of the World Bank** – some quick wins are provided in this report, relating to national and regional innovation systems and the overall system. 2. **Look for and apply good practices** – learning from better developed regions, stepping up international contacts, utilizing the S3 Platform, etc. See also following related recommendations: *I.1.2., I.1.3., I.2.1., I.2.3., I.5.1., I.6.2., II.1.4.* **Systemic and strategic proposals:** 3. **How to live after EU funds?** – consider this issue, which will come up after 2022 (n+2 rule), when there will be a real end to the new 2014-2020 financial perspective. Presently it is expected that the stream of EU funds to Poland will significantly decline in the next 2021-2027 perspective. This could cause major problems, not only for business-support institutions, which heavily rely on the EU funds, but also public administration, because in some offices more than a third of the total employee number is paid through the EU projects. Potential consequences and risks of this development for the functioning of the innovation support system should be thought through. On this basis, remedy actions should be already included in the projects financed in the 2014-2020 programming perspective to address potentially disadvantageous developments after 2022. Work on that could start in 2014 and continue into 2015. **Other related recommendations also addressing this problem:** • *I.6.5., I.6.6.* and recommendations paired with the Problem No. 5
Problem 5: measuring policy impact is practically non-existent, and the M&E system does not fulfill basic requirements to be an effective tool supporting system management.	**Quick wins – low cost, high impact:** 1. **Removing the absorption counter of the EU funds from the main website of the MRD**, which is now the only measure of success, and changing it to an impact counter or some kind of outcome measurement. 2. **Elaborating new rules for project selection criteria** – the criteria should be tied to envisaged effects to be attained within individual projects/programs, and beneficiaries (both at the national and regional levels) should participate in this process of criteria selection. 3. **Involving employees of the Central Statistical Office (GUS) into designing the innovation support system** - this applies to defining the criteria (*II.5.2.*), designing/updating the monitoring and evaluation system (*II.5.5.*), and outlining a new way of measuring impact (*II.5.8.*). This is the MRD task to involve the GUS experts into the process and it is urgent. **Systemic and strategic proposals:** 4. **Breaking with a custom of awarding the regions on the basis of fast absorption of large amount of money** – results should be the basis for awarding regions. This action would require an additional analysis of the EU law regulating this issue. A new mechanism for distinguishing regions that invest efficiently should be prepared by mid-2015, to allow regions to plan their programs and spending in the new financial perspective accordingly. This new mechanism should be prepared by the MRD in close cooperation with the regions. An innovative and transparent method of awarding regions with additional resources could be a TV show in which the regions would demonstrate their efficiency and outcomes on the basis of verified evidence. The decision would be made by a panel of external experts. 5. **An updated system of monitoring and evaluation** – this should be a streamlined and practical tool to support the innovation support system. The monitoring system should concentrate on envisaged actions (time schedule, realization progress, budget, etc.) and should form the basis of a broader information system that allows policy planning and adjustments. The monitoring should be perceived as an information-gathering tool and not as a tool for punishment. The evaluation system should focus on the attainment of strategic goals and results and address questions of how and why things work or do not work. 6. **Conducting a critical analysis of the innovation support system (deregulation, legal audit)** – to scrutinize the system with the goal of streamlining procedures, lowering costs and time, especially for the system beneficiaries. Necessary analyses and remedy actions should be prepared during the course of the year 2014. The MRD should take the lead on this activity, in collaboration with regions, to enable improvements both at the national and regional levels. It also seems natural to include final beneficiaries (companies) in the process. 7. **Training employees of institutions monitoring the innovation system.** See also related recommendations: *I.2.1., I.5.1., I.6.2., II.1.4.* 8. **Designing a method to define and measure the impact** – this should include comparing a control and a treatment group (where possible) to verify effects of public intervention. The work on this recommendation should be initiated in 2013 and be completed by mid-2014 to allow a working system and specific tools to be established by the end of 2014. The MRD should take the lead on this initiative and regions should assist in its realization.

	9. **Innovative tools and new approached to project selection** – speed up decision-making process and fund disbursement to applicants. In the case of standardized projects, information (but also preferably funds as well) should flow within sixty days from the application date. The pre-selection of projects should be introduced, as should a panel of two experts assessing the quality of applications. Elaboration of detailed selection guidelines should take place under the auspices of the MRD by the end of 2014. **Other related recommendations also addressing this problem:** • *I..2.1., I.2.3., I.5.4., I.6.2., II.1.2., II.1.3., II.1.4.*
Problem 6: Polish public administration is characterized by a low level of innovation, a high level of bureaucracy, and its focus on procedures rather than on solving real-life problems.	**Other related recommendations also addressing this problem:** • *I.1.3., I.2.1., I.2.3., I.2.5., I.5.1., I.5.4. I.5.5., I.6.2., I.6.6., II.1.3., II.1.4.*
Problem 7: it seems that negotiations with the EC in terms of the RIS3 framework will not be a mere formality; it will be a tough experience for which both the country and regions should be prepared	**Quick wins – low cost, high impact:** 1. **Participating in the S3 platform peer review –** the analytical feedback provided by the EC's experts during the S3 Platform review sessions should be reinforced (this is the EC's role). Polish regions should not only sign up to the Seville Platform but also utilize it as a source of information and an opportunity to network with other regions that have similar problems or have possible solutions to one's doubts. 2. **Describing the negotiation process on the side of the EC** – more specific information is needed on how the process of consultation/negotiation between the EC and Poland/Polish regions will look, especially in the context of the thematic objective No. 1. (TO1), how the EC will arrive at the decision of whether or not a given RIS framework fulfills the *ex ante* conditionalities of TO1 or not; what, why, and how it will be assessed; what will happen if the EC states that some *ex ante* conditionalities are not met. It is the EC's role to provide answers to these questions. 3. **A set of FAQs to be published by the EC** – a catalogue of frequently asked questions, originating from various European regions, would help stakeholders understand the EC's expectations towards the member states and their regions. Such a catalog of FAQs, where answers are prepared by the EC (after consultation among different DGs engaged in the innovation thematic) should be prepared as soon as possible. 4. **An early assessment of Poland's RIS3 framework by the EC** – dissemination of analysis results by the EC's experts regarding Poland's RIS3 system and fulfillment of the EC *ex ante* conditionalities among Polish ministries and regions. These studies (so far conducted for the Wielkopolskie and Slaskie regions) are expected to show what and how was evaluated by the EC and this would constitute a reference point for the ministries and regions during their further work on the RIS3 documents. 5. **Providing necessary expertise, analyses, evaluations** – the regions should inform the national level what kind of data, analyses and information accessible at the national level they need, which could support the process of RIS3 formulation. 6. **Performing a self-check on the fulfillment of the available EC's conditions** – a tool (check list, description, etc.) should be created, which allows regions and the central level a step-by-step self-analysis from the angle of meeting the EC's conditionalities (formal *ex ante* and other quality prerequisites). This tool should be designed within next two to three months to make it operational before submitting RIS3 documents to the EC. A support mechanism should be a part of this self-check system, i.e. a possibility to look for assistance from the national level when searching for solutions on how to fulfill the EC's conditionalities. The MRD should coordinate this action and the regions should provide support. 7. **Sharing information on planned programs, projects, and analyses** – the national level should inform the regions about all planned (during 2013) or currently realized initiatives (projects, analyses, evaluations, etc.) that relate to the RIS3 and smart specialization themes and are carried out on behalf of the ministries. The rationale and added value of these initiatives should be explained clearly. The MRD should coordinate this information with MoE and MoSHE. The goal of this action is to provide regions with knowledge about what kind of data will be gathered and analyzed at the national level, and give the regions a chance to roughly estimate engagement of their human resources in such initiatives driven by the national level. The information could be prepared by the end of August 2013. **Other related recommendations also addressing this problem:** • *I.1.1., I.1.3., I.2.1., I.2.2., I.3.1., I.3.2., I.3.3., I.6.4., I.6.6., II.1.3., II.3.1., II.3.2., II.3.3.*

III. SMART SPECIALIZATIONS Diagnosis: specialization selection is not treated as the key tool to transform the region.	
Problem description	**Recommended solutions**
Problem 1: the concept of smart specializations is not clear and its common understanding is absent – what is it, why, and how, in practice, should smart specializations be defined? **Problem 2:** currently a rather broad definition of smart specialization is not consistent with the requirement to concentrate resources. The selection process triggers heated and emotional debates and takes place under pressure from different lobby groups. **Problem 3:** a still unresolved issue of the relationship between smart specializations at the national, macro-regional, and regional levels	**Other related recommendations also addressing this problem:** • *I.1.1., I.1.3., I.1.7., I.2.1., I.2.2., I.2.3.* **Ideas gathered during the workshop**, which pertain to the relationship between smart specializations at different levels: providing financial statements (who finances what?); definition of a smart specialization – what does it really mean?; a meeting between regions and the central level after the selection of national smart specialization to discuss the relationship between both levels; national smart specializations should not be just a mere compilation of regional choices; the solution could be that national specializations concentrate on the scope/amount of project financing as well as on building international competitiveness; national smart specializations could relate to issues that are the sole responsibility of the state, e.g. security, power, etc.; explain how the principle of subsidiarity and complementarity will operate on the line between regional and national smart specialization; set a (flexible) demarcation line.
Problem 4: smart specializations at the national level are not an integral part of the RIS3 framework. Moreover, at the regional level, when already selected, specializations' contribution to the realization of strategic goals is unclear.	**Systemic and strategic proposals:** 1. **Changing the approach towards RIS3s** – a RIS3 should not be perceived as yet another generic strategy that is not very conclusive: a RIS should be viewed as a tool with elements of a business plan, which contributes to the realization of precisely stated goals/results (for details see the main body of the report). This idea is closely related to the recommendation on measuring demand for innovation-oriented public services of the companies (see recommendations *I.6.5., III.5.1.*). **Other related recommendations also addressing this problem:** • *I.1.1., I.1.3., I.2.3., I.3.3., I.4.2., I.6.4., I.6.5., I.6.6., II.3.1., II.3.2.*
Problem 5: unclear relationships between smart specializations and R&D dimension.	**Quick wins – low cost, high impact:** 1. **Incorporating an aspect of collaboration between business and science into RIS3s** – although cooperation of business and science lays at the foundation of the smart specialization concept, it is once again advocated here to strongly embed this issue of cooperation between business, science, and administration into RIS3s. These strategies should demonstrate ideas on how business and science sectors will mutually reinforce each other. These actions link with the following recommendations: *I.6.5., I.6.6., III.4.1.*

IV. IMPLEMENTATION
Diagnosis: the implementation system (action plan, finances, resources, relations, actors, responsibilities, etc.) is still a weak element in the RIS3 framework which weakens the realism of ideas presented and efficiency and effectiveness of the results.

Problem description	Recommended solutions
Problem 1: issues of innovation/competitiveness are the sole domain of a single unit within the office. Implementation system does not support engagement of not-so-obvious partners such as gminas, towns, police, tax offices, commercial courts etc. **Problem 2:** very vague and too generic implementation programs/action plans, no financial plans, low quality of M&E systems.	**Quick wins – low cost, high impact:** 1. **Initiating a dialogue with other public stakeholders in the regions/country** – this is a process that requires time, yet in our view it has to be started and continued even if at the beginning it will not bring expected results. Since there is a limited set of tools at the disposal of public administration, then attracting "others'" engagement to utilize synergies (for instance development strategy of a city and its actions tune into the RIS3), budget, human resources etc. becomes one of the critical success factors. We understand that the marshal offices do not have power over e.g. economic courts or revenue offices, however, this does not justify the absence of: dialogue, attempts to explain RIS3, engaging others in preparatory work and implementation of the strategy, explaining relationships to other aspects of the economy, taking responsibility for the region by various, less obvious actors, who have significant direct and indirect influence on the development of competitiveness and innovation level. The marshal offices should reach out to following not-that-obvious stakeholders and get them involved into dialogue: economic courts, revenue control offices, revenue offices, police, statistical offices, cities, districts, municipalities. The interplay of power in the regions should also mobilize a national-level dialogue e.g. national administration and revenue offices, courts etc. This process should be launched as soon as possible at various governance levels and should last during the whole implementation process. 2. **Conditioning support on being in line with RIS3** – it is suggested that project applications in the area of innovation to ROPs should fulfill criteria that fall into the approach and an action plan implementing RIS3. This would also pertain to projects submitted by not-so-obvious stakeholder of the innovation system. 3. **Comparing and appraising available tools** – while preparing documentation for the new financial perspective, the regions and the national level should critically analyze tools that have been utilized so far for RIS implementation and to adjust the implementation accordingly. It may turn out that some of the tools are inefficient and do not deliver expected effects. Such an appraisal should be carried out at the individual governance levels, and could encompass following areas: business support institutions, grants, loans, venture capital funds, clusters, guarantees, etc. The MRD should prepare and disseminate guidelines for the assessment implementation. Conclusions should be included into RIS3 and should constitute the ground for elaboration of a better implementation system. Assessment of tools should be finalized in 2013. See also related recommendation *IV.1.7*. 4. **Organizing a series of debates/workshops** – within the marshal offices such meetings would explain to the heads of other units and departments importance of RIS3, its new quality, change of RIS3 approach, expected effects, and a link between effective implementation of the RIS and contributions from the whole office, and not only from a leading unit. Debates and workshops should be individually conducted by the marshal offices till the end of 2013. Moreover, a continuous communication on RIS3-related issues with other units should be carried out during the whole implementation process, e.g. by organizing regular staff meetings (one a week/month). See also related recommendations *I.5.1.*, *I.6.2*. **Systemic and strategic proposals:** 5. **Changing the governance paradigm –** empowering regional and central steering committees and reshaping them in a way so that they resemble management boards in private firms. Currently, the committees are deprived of real influence on the innovation system, there is also a managerial competency gap, as well as the lack of tools for monitoring and evaluation and enforcing actions within the system. A reformed committee's role would be to ask difficult questions. Its members could be recruited from international experts and out of the regions persons. It is suggested that details of such changes would be worked out within the next three months and implemented as pilot projects in 2014, the fully operating solutions could come into force in 2015. This would also provide enough time to select proper people to sit in the committees, who would help to close the competency gap. 6. **Linking action plans of individual units from the office and subordinated agencies to programs and actions serving RIS3 implementation** – there should be an understanding that everyone acts in such a way to push the boat to the envisaged goal. This also translates into creating formal links between organizational units and their employees, and actions directly originating from RIS3 implementation. Actions related to RIS3 should have priority. 7. **Introducing key performance indicators (KPI) for business support institutions (BSI)** – at present, BSI do not possess action plans that would chime into the RIS3, even those BSI that formally depend on the marshal offices. They are also not responsible for achieved results. It is recommended that BSIs: 1) are obliged to possess action plans that fit into realization of RIS3; 2) obtain KPIs, which state the minimal level, quality, and effect of provided services, these would be agreed on between the office and BSI and would be prerequisite for transferring money to BSI; 3) introducing performance-related pay to achieving results; 4) releasing annual reports by BSIs that show progress of their performance as well as their plans. It is suggested to create a set of KPIs that would be comparable across Poland to be able to identify best practices and solutions as well as rank BSI. The BSIs should also become more market-oriented to be able to face the challenge of 2022, when influx of EU funds will drop suddenly. The MRD should be a leader of this action and work on the new solutions should start by the end of 2013 and last till end of 2014, as a result the system would be ready to implement in 2015 – see also *IV.1.3*.

	8. **Joining topics of competitiveness, innovation, and growth** – it is suggested that the marshal offices should reorganize their structure and processes to bring matters relating to competitiveness, innovation, and economic growth into one department, due to their thematic proximity. Splitting these themes between various departments contributes to limited synergies and causes tensions between departments, which might be further aggravated by the fact that different departments are overseen by different members of the management boards. This action should be adopted individually by the regions. **Other related recommendations also addressing this problem:** • *I.2.4., I.3.3., I.3.3., I.5.3., I.5.4., I.5.5., I.6.4., I.6.5., I.6.6 , II.1.2., II.4.3., II.5.3., II.5.5.* *Problem 2 is addressed especially by following actions: III.4.1. – RIS3 as a business plan, I.6.5. – demand assessment of the private sector, II.5.5. – a new M&E system; see also Problem 5 in the section on quality.*
Problem 3: low level of analytical capacity within offices.	**Systemic and strategic proposals:** 1. **Assessing the capacity gap –** i.e. a gap between the current state of knowledge, competencies, and skills among persons responsible for RIS3 (including the regional management boards) and the situation that would allow effective implementation of the strategy. The identified gap should constitute the basis for creation of individual development plans (trainings). This action should be performed by individual offices. The MRD should issue general outlines on this issue within three months. **Other related recommendations also addressing this problem:** • *I.1.3., I.2.1., I.2.3., I.3.1., I.3.3., I.5.1., I.5.4., I.5.5., I.6.2., II.1.4., – especially important II.2.1.elaboration of analyses by the office itself*
Problem 4: low status of smart specializations/innovation in the Management Board, including limited leadership and ownership. **Problem 5:** insufficient internalization of RIS3 (lack of transforming the strategy into actual day-to-day plan of action of individual units and the Management Board) as well as insufficient internationalization (going global).	**Quick wins – low cost, high impact:** 1. **Issuing an official letter (or similar actions) to the marshals on the basis of the presented here recommendations** – this would help to formally strengthen the rationale for remedy actions. The letter (or similar action such as meetings by Minister Bienkowska during the Convent of Marshals) should demonstrate strong political clout and thus could be signed by Minister Bieńkowska and Deputy Prime Minister Piechociński, and be addressed directly to the marshals. This would also reinforce the position of RIS3 documents, as well as personnel responsible for innovation. The letter should inform of recommendations and should indicate those which are the most important from the viewpoint of the MRD. It should also ask for the appointment of a plenipotentiary for RIS3, who would have to have a strong enough political mandate. This letter should be a joint initiative of the MRD, MoE, and MoSHE and be disseminated to the regions by the second half of September 2013, i.e. before the next workshop on RIS3 is to take place – the suggested date is between September 12th and 19th. 2. **Benchmarking** – identifying and utilizing experience of the regions that have faced similar problems or utilized similar tools and processes. **Other related recommendations also addressing this problem:** • *I.3.1., I.3.2., I.3.3., I.6.2., I.6.4., I.6.6., II.1.3., IV.1.1. – especially important recommendations from the Problem 3 in the fiche on coherence, and IV.1.6.* *In the context of the Problem 5: III.4.1. – RIS3 as an action plan, I.6.5. – demand assessment of the private sector, II.5.5. – a new M&E system; see also Problem 5 in the section on quality.*
Problem 6: implementation plans are formulated without any reference to existing tools, which weakens the realism of the strategy.	**Other related recommendations also addressing this problem:** • *IV.1.3.,IV.1.6., IV.1.7.*
Problem 7: low level of risk-taking acceptable by Polish public administration.	**Other related recommendations also addressing this problem:** • *I.3.1., I.3.3., I.5.1., I.5.4., I.5.5., I.6.2., I.6.6., II.1.3., II.1.4., IV.1.1., IV.1.5.*

Table 21. A matrix of problems and corresponding remedy actions

	COHERENCE						QUALITY							SMART SPECIALIZATION					IMPLEMENTATION							TYPE OF ACTION	
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6	P7	P1	P2	P3	P4	P5	P1	P2	P3	P4	P5	P6	P7	Quick wins/strategic	SUM
I.1.1.	X			X		X		X	X				X	X	X	X	X									Quick win	10
I.1.2.	X			X				X		X																Quick win	4
I.1.3.	X			X			X	X		X		X	X	X	X	X	X				X					Quick win	12
I.1.4.	X						X																			Quick win	2
I.1.5.	X																									Quick win	1
I.1.6.	X																									Strategic	1
I.1.7.	X			X										X	X	X										Strategic	5
I.2.1.		X		X	X	X	X			X	X	X	X	X	X	X			X	X	X		X			Quick win	16
I.2.2.		X										X	X	X	X	X										Quick win	6
I.2.3.		X		X			X	X		X	X			X	X	X	X		X	X	X		X			Quick win	14
I.2.4.		X		X			X												X	X						Strategic	5
I.2.5.		X					X					X														Strategic	3
I.3.1.			X	X									X								X	X	X		X	Quick win	7
I.3.2.			X	X									X									X	X			Quick win	5
I.3.3.			X	x				X					X				X		X	X	X	X	X		X	Strategic	11
I.4.1.				X																						Quick win	1
I.4.2.				X													X									Quick win	2
I.5.1.					X	X	X	X		X	X	X							X	X	X		X		X	Quick win	12
I.5.2.					X																					Strategic	1
I.5.3.					X		X												X	X						Strategic	4
I.5.4.					X		X	X			X	X							X	X	X		X		X	Strategic	10
I.5.5.					X			X				X							X	X	X				X	Strategic	7
I.6.1.						X																				Quick win	1
I.6.2.					X	X	X	X		X	X	X							X	X	X	X	X		X	Quick win	13
I.6.3.						X																				Quick win	1
I.6.4.						X							X				X		X	X		X	X			Quick win	7
I.6.5.						X				X							X	X	X	X			X			Strategic	7
I.6.6.						X				X		X	X				X	X	X	X		X	X		X	Strategic	11
II.1.1.							X																			Quick win	1
II.1.2.							X	X			X								X	X			X			Quick win	6
II.1.3.					X		X	X			X	X	X						X	X		X	X		X	Strategic	11
II.1.4.					X	X	X	X		X	X	X							X	X	X		X		X	Strategic	12
II.2.1.					X																X					Strategic	2
II.3.1.									X				X				X									Quick win	3

II.3.2.									X				X				X									Quick win	3
II.3.3.									X				X													Quick win	2
II.4.1.										X													X			Quick win	2
II.4.2.										X																Quick win	1
II.4.3.										X									X	X						Strategic	3
II.5.1.										X	X								X	X			X			Quick win	5
II.5.2.										X	X								X	X			X			Quick win	5
II.5.3.										X	X								X	X			X			Quick win	5
II.5.4.										X	X								X	X			X			Strategic	5
II.5.5.										X	X								X	X			X			Strategic	5
II.5.6.										X	X								X	X			X			Strategic	5
II.5.7.										X	X								X	X			X			Strategic	5
II.5.8.										X	X								X	X			X			Strategic	5
II.5.9.										X	X								X	X			X			Strategic	5
II.7.1.													X													Quick win	1
II.7.2.													X													Quick win	1
II.7.3.													X													Quick win	1
II.7.4.													X													Quick win	1
II.7.5.													X													Quick win	1
II.7.6.													X													Quick win	1
II.7.7.													X													Quick win	1
III.4.1.																	X	X		X						Strategic	3
III.5.1.																	X	X								Quick win	2
IV.1.1.																			X	X		X	X		X	Quick win	5
IV.1.2.																			X	X						Quick win	3
IV.1.3.																			X	X				X		Quick win	3
IV.1.4.																			X	X						Quick win	2
IV.1.5.																			X	X					X	Strategic	3
IV.1.6.																			X	X				X		Strategic	3
IV.1.7.																			X	X				X		Strategic	3
IV.1.8.																			X	X						Strategic	2
IV.3.1.					X																X					Strategic	1
IV.4.1.																						X	X			Quick win	2
IV.4.2.																						X	X			Quick win	2

Source: World Bank staff

Table 22. Individual recommendations for each of the assessed regions in Poland

Source: World Bank staff

Region	Recommendations in a nutshell
Dolnoslaskie	1. Update existing RIS3 from 2011 and develop reliable and detailed action plan to implement RIS3. 2. Correct RIS3 to fulfill *ex ante* conditionalities, showing the process and a proof that funds in the next perspective will be invested in a right and possibly most efficient way to transform the region (what would be estimated return on investment?) 3. Make final a decision as to selecting smart specializations. In principle RIS3 should explain smart specializations – it is advised to use the following method of describing specific smart specializations (or regional assets): 1) concept, 2) rationale for selecting this smart specialization and not the other, 3) why this selection will boost regional economy, 4) what is the specific action plan to move from regional asset to smart specialization?, 5) risk analysis and mitigation plan, 6) expected outputs and timeline for having results (what would be the expected return on investment?), 7) description of how smart specializations as a tool will support fulfilling vision, goals, objectives. 4. Focus its attention on implementation of the RIS3: realistically assess available, planned tools, human resources and their capacity to formulate and deliver projects, available funds, assess the level of ownership, and leadership – a dedicated team of people is more important in implementation than the document itself, link monitoring/evaluation with specific actions designed to implement RIS3, present a realistic and detailed action plan – based on the plan build KPI's, indicators of success, a monitoring and evaluation system, and a financial plan. The framework should be strongly linked with the concept of smart specializations, in fact the implementation plan should be dedicated to actions/projects supporting further development of selected specializations. 5. Show realistically possible outcomes that can be achieved. Prove that your smart specializations will transform your region. 6. Show the process behind formulating the RIS3 and smart specializations, especially the involvement of the business community (study the demand side and its expectations, business plans, etc. to better customize your offer to businesses' actual needs) – entrepreneurial discovery. 7. Improve the quality of vision, goals/objectives using, among others, the SMART method – limit the number of goals/objectives/priorities. More distinction between challenges/areas/goals/objectives/directions/actions should be introduced (at the moment they all sound the same). 8. The strategy should show assessment of existing policy/operational tools and discuss new tools/measures to implement RIS3 supporting further development/strengthening of smart specializations in a new financial perspective. 9. The strategy should show lessons learned. It is not known how much funds have been spent so far and what results this brought versus the situation of the region from the period before joining the EU. It is not known how efficient and effective public intervention has been so far. 10. Quality of goals/objectives should be improved. More distinction between goals/objectives/directions/actions should be introduced (at the moment they sound the same).
Kujawsko-pomorskie	1. Work more on a connection between SWOT and the strategic goals, as well as rethink causation between the vision and goals/actions; 2. Concentrate on consistency of the strategic documents pertaining to the RIS3 framework; 3. Refine the M&E system – add the quality dimension, pay greater attention to impact evaluations; 4. Improve implementability of the strategy by having feasible action and budgeting plans; 5. Limit the number of smart specializations and ensure that they can truly be supported (demand and supply side have to be sufficient); 6. Make an effort to identify local leaders of innovation (in business, R&D, society, administration), who strongly identify her-/himself with the innovation strategy and who is willing to drive the strategy forward by making a personal contribution. Empower these people and involve them in the process of implementation.
Lubelskie	1. Correct RIS3 to fulfill *ex ante* conditionalities, showing the process and a proof that funds in the next perspective will be invested in a correct and most efficient way possible to transform the region (what would be estimated return on investment?) 2. In principle RIS3 should explain smart specializations – it is advised to use the following method of describing specific smart specializations (or regional assets): 1) concept, 2) rationale for selecting this smart specialization and not the other, 3) why this selection will boost regional economy, 4) what is the specific action plan to move from regional asset to smart specialization?, 5) risk analysis and mitigation plan, 6) expected outputs and timeline for having results (what would be the expected return on investment?), 7) description of how smart specializations as a tool will support fulfilling vision, goals, objectives. 3. Focus its attention on implementation of the RIS3: realistically assess available, planned tools, human resources and their capacity to formulate and deliver projects, available funds, assess the level of ownership, and leadership – a dedicated team of people is more important in implementation than the document itself, link monitoring/evaluation with specific actions designed to implement RIS3, present a realistic and detailed action plan – based on the plan build KPI's, indicators of success, a monitoring and evaluation system, and a financial plan.

	4. Show realistically possible outcomes that can be achieved. Prove that your smart specializations will transform your region. 5. Show the process behind formulating the RIS3 and smart specializations, especially the involvement of the business community (study the demand side and its expectations, business plans, etc. to better customize your offer to businesses' actual needs). 6. The implementation system (actions, financial plan, accountability, implementation path, etc.) needs to be further elaborated, and it should be proven that the strategy is realistic. Realism of the strategy should be further strengthened by showing how existing internal capacity of the Marshal Office supports implementation (how many projects can it generate and implement vs. envisioned actions) and how it wants internalize the strategy into action plans of specific units within the Office and subordinate institutions. At the moment even with Strategic Program Economy – the implementation plan is vague and insufficient. 7. Simplify the complexity of the strategic stance – show clear links and inter-relations between goal/objectives/priorities and how smart specializations fit into the framework. 8. Improve the quality of vision, goals/objectives using, among others, the SMART method. 9. Improve internal consistency and coherence within your existing RIS3 – especially between diagnosis/conclusions, SWOT, vision, goal/objectives, and smart specializations.
Lubuskie	Follow the guidance provided in the assessment report
Lodzkie	1. Ensure that there is consistency between the main innovation-related documents – the RDS, RIS and ROP; 2. Make vision and goals more specific, so they can guide actions and programs and at the same time explain what they intend to achieve; 3. Improve the M&E system by adding the qualitative dimension of the monitoring indicators and be more specific about milestones on the way to 2030 goals. Without proper "in between" guiding points it may be impossible to reach the destination; 4. Describe the process of the involvement of quadruple helix stakeholders and create procedures and platforms to maintain and reinforce their engagement in implementation of the strategy; 5. Elaborate action and budgeting plans that will guide strategy implementation. 6. Identify innovation leaders in the region who will help to implement the strategy and who have a sense of strategy ownership. This should be achieved by empowering social and business partners in the process of both elaboration but also implementation. The strategy has to show that a platform for regular communication exists and that it will be utilized during the implementation phase. Moreover, the dialogue with the innovation system stakeholders has to go beyond just information exchange, it has to translate into real and tangible actions, to manifest that the stakeholders have influence on the strategy.
Malopolskie	1. Work more on a linking SWOT and the strategic goals and priorities, provide clear links between these elements which justify the development path of the region; 2. Prepare an action plan for strategy implementation and a budgeting plan which prioritize actions envisaged in the strategy and then operationalized them in the ROP; 3. Provide descriptions of the engagement of quadruple helix into the process of smart specialization selection and the influence of all partners on this process; 4. Ensure that the M&E system will take into account also qualitative measures and will pay a due attention to impact evaluations. 5. Analyze the goals presented in the strategy through the prism of Marshal Office's capacity, can you deliver on these elements that you ascribed to yourself, do you have enough resources, can other partners also fulfill what they should, are they conscious of their role (internalization process).
Mazowieckie	1. Provide clear descriptions of what, how, and why you do, i.e. describe diagnosis part and show linkages between diagnosis, the SWOT analysis and goals and priorities, show how the smart specializations were selected and how quadruple helix partners have been engaged in this process and how they influenced it; 2. Concentrate on consistency of the strategic documents pertaining to the RIS3 framework –there is close cooperation between departments preparing the RIS and ROP, which bodes well for putting the ROP in line with the RIS's goals. Keep in mind that the EC will be looking at the both documents when verifying the smart specialization framework; 3. When thinking of goals and actions/programs to achieve them, think in operational terms, and consider whether you can deliver on them and do not limit your perspective only to the area of public administration; 4. Design the M&E system that allows measuring impact of your actions, also include qualitative dimension to the monitoring to obtain a full picture on the progress of the strategy implementation.
Opolskie	1. Correct RIS3 to fulfill *ex ante* conditionalities, showing the process and providing proof that funds in the next perspective will be invested in the correct and possibly most efficient manner to transform the region. 2. In principle RIS3 should explain smart specializations – it is advised to use the following method of describing specific smart specializations (or regional assets): 1) concept, 2) rationale for selecting this smart specialization and not the other, 3) why this selection will boost regional economy, 4) what is the specific action plan to move from regional asset to smart specialization?, 5) risk analysis and mitigation plan, 6) expected outputs and timeline for having results, 7) description of how smart specializations as a tool will support fulfilling vision, goals, objectives.

	3. Focus its attention on implementation of the RIS3: realistically assess available, planned tools, human resources and their capacity to formulate and deliver projects, available funds, assess the level of ownership, and leadership – dedicated team of people is more important in implementation than the document itself, link monitoring/evaluation with specific actions designed to implement RIS3, present realistic and detailed action plan – based on the plan build KPI's, indicators of success, monitoring and evaluation system, and financial plan. 4. Show realistically possible outcome that can be achieved. Prove that your smart specializations will transform your region. 5. Show the process behind formulating RIS3 and smart specializations especially involvement of business community (study the demand side and its expectations, business plans, etc. to better customize your offer to businesses' actual needs). 6. Implementation system (actions, financial plan, accountability, implementation path, etc.) need to be further elaborated, and it should be proven that the strategy is realistic. Realism of the strategy should be further strengthened by showing how existing internal capacity of the Marshal Office supports implementation (how many projects can it generate and implement vs. envisioned actions) and how it wants internalize the strategy into action plans of specific units within the Office and subordinate institutions. At the moment even with Strategic Program Economy – the implementation plan is vague and insufficient. 7. Limit the number of priorities (goals/objectives) to concentrate resources. Simplify the strategic structure of goals/objectives/horizontal challenges/vertical challenges. 8. Improve the quality of vision, goals/objectives, using, among others, the SMART method. 9. Improve internal consistency and coherence within your existing RDS – especially between diagnosis/conclusions, SWOT, vision, goal/objectives, and smart specializations. 10. Explain how you want to internalize your framework – prove the implementation will be inter-departmental efforts.
Podkarpackie	1. Improve consistency of the document by ensuring smooth flow of sections, e.g. merge sections that examine the same issues as well as make the vision and goals more concrete to make them more appealing and easy to implement; 2. Formulate an action plan as well as a budgeting plan for strategy realization. It has to be clear what will be implemented and how, and what kind of resources there will be available to do so; 3. Analyze whether there is a capacity gap in the Marshal Office, i.e. check if the planned actions and programs are possible to carry out with possessed resources, and if gaps are identified address them; 4. Prepare a M&E system that includes qualitative indicators as well as pay due attention to impact evaluation of the strategy implementation; 5. Think of international benchmarks that could help you to develop the region further; 6. Involve innovation leaders and empower them to enhance their sense of strategy ownership and show them that they have a real impact on the strategy (both formulation and implementation). Since the region has a strong aviation sector, identification of such a leader should be relatively fast. Also make an effort to support another smart specialization, but firstly reconsider its scope and try to narrow it down; 7. Describe the process of strategy creation and engagement of actors from the quadruple helix – show their involvement and impact on the strategy and selection of smart specializations. The strategy provides a link to a separate document that describes this process, but a summary of the process could be also provided in the strategy. Moreover, demonstrate how the communication with these partners will be continued during the implementation phase, it has to be clear that there is a communication platform to exchange information on a regular basis and that these discussions will translate into actions and do not stay only on paper.
Podlaskie	1. Formulate a separate RIS3 document based on the existing framework and selection of smart specializations avoiding weaknesses (listed above) of existing documents. 2. Focus its attention on implementation of the RIS3: realistically assess available, planned tools, human resources and their capacity to formulate and deliver projects, available funds, assess the level of ownership, and leadership – dedicated team of people is more important in implementation than the document itself, link monitoring/evaluation with specific actions designed to implement RIS3, present realistic and detailed action plan – based on the plan build KPI's, indicators of success, monitoring and evaluation system, and financial plan. 3. Show realistically possible outcome that can be achieved. Prove that your smart specializations will transform your region. 4. Show the process behind formulating the RIS3 and smart specializations, especially the involvement of the business community (study the demand side and its expectations, business plans etc. to better customize your offer to businesses' actual needs). 5. Limit the number of priorities (goals/objectives) to concentrate resources. 6. Improve internal consistency and coherence within your existing RDS. 7. Explain how you want to internalize your framework – prove that implementation will be an inter-departmental effort.
Pomorskie	1. Formulate separate RIS3 document based on existing framework, and selection of smart specializations avoiding weaknesses (listed above) of existing documents.

	2. Focus its attention on implementation of the RIS3: realistically assess available, planned tools, human resources and their capacity to formulate and deliver projects, available funds, assess the level of ownership, and leadership – a dedicated team of people is more important in implementation than the document itself, link monitoring/evaluation with specific actions designed to implement the RIS3, present a realistic and detailed action plan – based on the plan build KPI's, indicators of success, monitoring and evaluation system, and financial plan. 3. Show realistically possible outcome that can be achieved. Prove that your smart specializations will transform your region. 4. Show the process behind formulating the RIS3 and smart specializations, especially the involvement of business community (study the demand side and its expectations, business plans etc. to better customize your offer to their actual needs). 5. Limit the number of priorities (goals/objectives) to concentrate resources. 6. Improve internal consistency and coherence within your existing RDS. 7. Explain how you want to internalize your framework – prove the implementation will be inter-departmental efforts.
Slaskie	1. Concentrate on consistency of the strategic documents pertaining to the RIS3 framework, keep in mind that the EC will look at both the RIS and the ROP and their consistency; 2. Make vision and strategic goals more specific to enhance their implementability and strengthen their guiding role; 3. Refine the M&E system – add the quality dimension, pay greater attention to impact evaluations; 4. Improve implementability of the strategy by having feasible action and budgeting plans; 5. Ensure that you have enough capacity to carry out tasks that you have indicated in the strategy, in terms of financial, human, and time resources. Consider whether all responsible agencies and social/business partners know their goals and are willing and ready to participate in the strategy implementation. Think of commonly agreed upon KPIs for your business support institutions to transform them into partners, who are aiming at the same goal as you do. 6. Look for innovation leaders who would be willing and are able to contribute to the realization of the strategy. Individuals with a strong sense of leadership and ownership are crucial for successful implementation of the strategy. They have to have a real influence on the strategy and the way it is implemented, thus a platform of continuous dialogue has to be created, and the dialogue has to be later translated into real actions. 7. Describe the process of strategy elaboration and selection of smart specialization more thoroughly to indicate what the impact of quadruple helix partners on the final outcome was and how such partners have been engaged in the whole process.
Swietokrzyskie	1. Make RIS's vision, goals and priorities more specific to be a real driver of change that inspires to action and sets challenging but motivating goals. These should be related to the SWOT analysis and this link should be clearly presented; 2. Explain the process of involvement of actors from the quadruple helix, demonstrate their participation, describe their impact on the process of strategy creation and smart specialization selection. Show that the partnership developed during the strategy formulation will be continued also during the implementation phase, ensure that a permanent platform for an ongoing dialogue is established and that procedures are in place to translate this dialogue into real life action; 3. Set up a M&E system that takes into account impact evaluations of the strategy implementation as well as qualitative indicators; 4. Make vision and goals more specific, so they can guide actions and programs and at the same time explain what they intend to achieve; 5. An action plan and a budgeting plan both still have to be designed. The Marshal Office has to analyze how much resources it will have at the disposal to invest into innovation and decide which areas will be prioritized. This in turn, has to be reflected in the ROP and further in project selection criteria for individual tenders; 6. The Marshal Office should also check whether it has sufficient resources to carry out all goals and actions that are envisaged in the strategy. The capacity gap should be identified and addressed accordingly; 7. Involve stakeholders and find innovation leaders (also beyond administration) who have a strong sense of ownership of the strategy and who can also help implement it.
Warminsko-mazurskie	1. The strategy has to explain the engagement of the stakeholders from the quadruple helix and discuss if they had a real influence on the strategy formulation. Describe the whole process of strategy creation and smart specialization selection in a transparent manner. Show that the partnership developed during the strategy formulation will be continued also during the implementation phase, ensure that a permanent platform for an ongoing dialogue is set up and that procedures are in place to translate this dialogue into real-life action; 2. Concentrate on consistency of the strategic documents pertaining to the RIS3 framework, keep in mind that the EC will look at both the RIS and the ROP and their consistency; 3. Provide clear descriptions of what, how, and why you do, i.e. describe diagnosis part and show linkages between diagnosis, the SWOT analysis and goals and priorities, show how the smart specializations were selected and how quadruple helix partners have been engaged in this process and how they influenced it; 4. Ensure that the M&E system includes impact evaluations allowing assessing the efficiency of the strategy implementation. The quality indicators also have to be present in the monitoring system;

	5. When thinking of the strategy goals and specific actions/programs leading to these goals, think in operational terms, and consider whether you can deliver on them and do not limit your perspective only to the area of public administration; 6. Look for individuals in the region who can play a role of innovation leader, who has strong commitment and a sense of ownership of the strategy. Such people play an important role during the implementation of the innovation strategy, they have to be empowered (see point 5 above) and have tangible influence on the strategy.
Wielkopolskie	Follow the guidance provided in the assessment report
Zachodniopomorskie	1. Update existing RIS3 from 2011 and develop reliable and detailed action plan to implement the RIS3. 2. Correct the RIS3 to fulfill *ex ante* conditionalities, showing the process and a proof that funds in the next perspective will be invested in a correct and most efficient way to transform the region (what would be estimated return on investment?) 3. Make final decision as to selecting smart specializations trying to narrow their definitions to concentrate resources. In principle RIS3 should explain smart specializations – it is advised to use the following method of describing specific smart specializations (or regional assets): 1) concept, 2) rationale for selecting this smart specialization and not the other, 3) why this selection will boost regional economy?, 4) what is the specific action plan to move from regional asset to smart specialization?, 5) risk analysis and mitigation plan, 6) expected outputs and timeline for having results (what would be expected return on investment?), 7) description of how smart specializations as a tool will support fulfilling vision, goals, objectives. 4. Focus its attention on implementation of the RIS3: realistically assess available, planned tools, human resources and their capacity to formulate and deliver projects, available funds, assess the level of ownership, and leadership – dedicated team of people is more important in implementation than the document itself, link monitoring/evaluation with specific actions designed to implement RIS3, present realistic and detailed action plan – based on the plan build KPI's, indicators of success, monitoring and evaluation system, and financial plan. The framework should be strongly linked with the concept of smart specializations, in fact implementation plan should be dedicated to actions/projects supporting further development of selected specializations. 5. Show realistically possible outcomes that can be achieved. Prove that your smart specializations will transform your region. 6. Show the process behind formulating RIS3 and smart specializations especially involvement of business community (study demand side and their expectations, business plans etc. to better customize your offer to their actual needs) – entrepreneurial discovery. 7. Improve the quality of vision, goals/objectives using inter alia SMART method – limit number of goals/objectives/priorities. More distinction between challenges/areas/goals/objectives/directions/actions should be introduced (at the moment they all sound the same). 8. Improve internal consistency and coherence within your existing RIS3 – especially between diagnosis/conclusions, SWOT, vision, goal/objectives, and smart specializations. 9. The strategy should show assessment of existing policy/operational tools and discuss new tools/measures to implement RIS3 supporting further development/strengthening of smart specializations in the new financial perspective. 10. The strategy should show lessons learned. It is not known how much funds have been spent so far and what results this brought versus the situation of the region from the period before joining the EU. It is not known how efficient and effective public intervention has been so far.

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