

# SLOVAK REPUBLIC



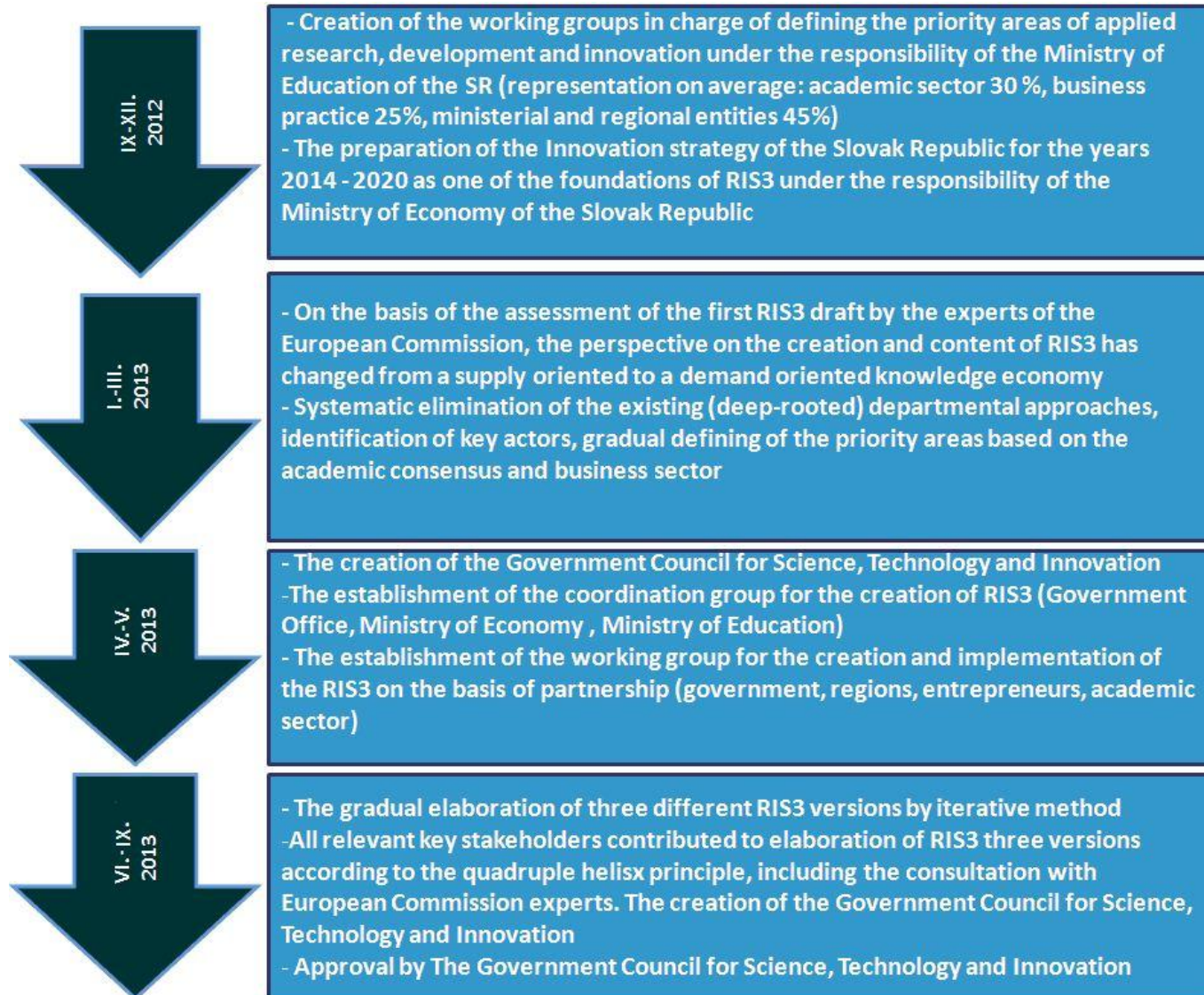
Dublin, 3-4 July 2014

# Questions to be discussed:



- ❖ Q1: How to ensure the transnational/macro-regional coordination of RIS3 strategies?
- ❖ Q2: What are the potential obstacles for implementation of new governance approach?
- ❖ Q3: How to implement the areas of specialisation and their synergies into practice?
- ❖ Q4: How to design a set of result indicators for monitoring the progress of field-specific thematic areas?
- ❖ Q5: How to design a set of output indicators for monitoring the field-specific thematic areas?

# Research and Innovation Strategy in Slovakia - Preparation



# RIS3 in Slovakia



- **Approved by the Government on 13 November 2013**
- **Vision:** To drive a structural change of the Slovak economy towards growth based on increasing innovation capability and R&D excellence to promote self-sustaining growth in income, employment and standard of living.
- **Four strategic objectives:**
  - 1. Deepening integration and embeddedness of key major industries increasing local value added through the cooperation of the local supply chains and turning local supply chains into embedded clusters
  - 2 Increased contribution of research to the economic growth via global excellence and local relevance
  - 3. Creating a dynamic, open and inclusive innovative society as one of the preconditions for the increase in the standard of living
  - 4. Improving the quality of human resources for an innovative Slovakia

# RIS3 Priorities – Policy Mix



Vision	Strategic objective	Partial objective	Measure
Promoting innovation capability and R&D excellence to promote self-sustaining growth in income, employment and standard of living.	Deepening integration and embeddedness of key major industries increasing local value added through the cooperation of the local supply chains and turning local supply chains into embedded clusters	Create conditions for growth of added value generated at home in total exports by 5 % until 2020 in comparison to the current status.	Development of innovative capacities through cooperation between enterprises and research institutions
		Increasing the number of large companies that become Tier 2 suppliers	Technological upgrade for structural changes in industry
		Improve the linkages of local SMEs with large MNC suppliers.	Support for building research and innovation capacities in Slovak enterprises
	Increased contribution of research to the economic growth via global excellence and local relevance	Increase the share of private resources for R&D in comparison to public resources in a ratio 2:1 while keeping at least the current share of public resources in total R&D expenses	Establishment of indirect motivational tools
		Make institutional arrangement of R&D base more effective	Development of excellent research while ensuring the necessary infrastructure for research and development
			Creation of linkages among universities, Academy of Sciences, research institutions and partners from the area of industry
		Increase the share of total expenses for R&D to at least 1.2 % of GDP by 2020	Fostering excellence of research financed by national sources (knowledge generation)
			Systematic support and stimulation of international cooperation in science and technology
			Protection and utilization of intellectual property



# RIS3 Priorities – Policy Mix



To drive a structural change of the Slovak economy towards growth based on increasing innovation, employment and standards

			Protection and utilization of intellectual property
Creating a dynamic, open and inclusive innovative society as one of the preconditions for an increase in the standard of living	Creating conditions for enterprises (especially SMEs) to increase their innovation capacities		Supporting dynamic business environment favorable to innovation
	Increase the share of creative industry in GDP creation		Stimulating KIBS, knowledge-oriented services and creative industry
	Increase the share of KIBS in total production of business sector		
	Support for the implementation of various kinds of innovations into practice for the needs of society		Supporting research and innovation in environmental areas including adaptation to climate change
			Research and innovation in addressing major societal challenges in Slovakia
			Supporting an open and inclusive society
Improving the quality of human resources for an innovative Slovakia	Increase the employability of secondary school and university graduates	Lifelong learning	Improving the quality of secondary education
			Improving the quality of higher education
			Strengthening the vocational competencies verification system
			Establishment of the quality of consultant services verification system
			Increasing emphasis on education in fields relevant to the RIS3 priority areas
	Improve linkages between educational system and practice		Improving business involvement in education
	Increasing the intersectoral mobility of workers Supporting the creation of international teams		Supporting the mobility of highly skilled workers



# Place-based dimension of the RIS3 SK

## Main competitive advantages

- Key industrial sectors represented by MNC
- Competitive technological level and production level in export sectors
- Increasing interest of businesses and industrial clusters in rebuilding the industrial R&I structures (entities)
- Increasing share of information services in export services

## Key challenges

- Main opportunities for future regional development
- Main objectives of the strategy
- Creation of linkages between MNCs' R&I and domestic business R&I framework
- Concentration of R&I centres on the limited number of RIS3 priority areas
- Potential for using land and strategic domestic natural resources (magnesite, water, timber) in an innovative economy
- The support of R&I projects within Visegrad Four countries and the EU Strategy for the Danube Region and interlinking within ERA also by utilizing the Centroe region potential (Bratislava-Brno-Vienna)
- SWOT analysis served as a basis

# Transnational/transregional cooperation activities



- ❖ Bratislava region member of **IRE (Innovating Regions in Europe)**; 60 % of R&D+I concentrated in Bratislava region
- ❖ **EU Strategy for the Danube Region** – Priority Area 07 "To develop the Knowledge Society (research, education and ICT)" is coordinated by Slovakia and Serbia, (Slovakia coordinates also PA 04 Water Quality)
- ❖ Slovakia – leader of the flagship project – Danube Region Research and Innovation Fund (**DRIFF**) – creation of an institutional system for drawing funds in the area of research and innovation
- ❖ Opportunity to utilize the Centrope region potential (Bratislava-Brno-Vienna)
- ❖ A heavy emphasis on linkages in RIS3 SK regarding the macroregional strategies, transnational cooperation projects, Horizon 2020, FP7

**Q1: How to ensure the transnational/macro-regional coordination of RIS3 strategies?**

**Is the link between RIS3 strategies sufficiently determined?**



# Governance



- ❖ A radical change in the governance structure is foreseen in order to achieve an efficient and result-oriented R&D governance system with a collaborative and inclusive approach
- ❖ The key authority is the **GOVERNMENT COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION** (GCSTI), which will establish as its working body **THE STANDING COMMITTEE OF THE GOVERNMENT COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION FOR RIS3 IMPLEMENTATION** (SC GCSTI). For the sake of eliminating the current fragmentation and achieving the synergic effects, the existing network of implementation institutions (seven) is to be transformed into two public agencies: **RESEARCH AGENCY** and **TECHNOLOGICAL AGENCY**
- ❖ All key stakeholders were involved in the process based on a principle of quadripartity (quadruplehelix). The RIS3 document is a consensus created through the participation of scientists, entrepreneurs (including SMEs), business clusters, academic sector, regional government structures, civil society structures and foreign European Commission experts

# Governance



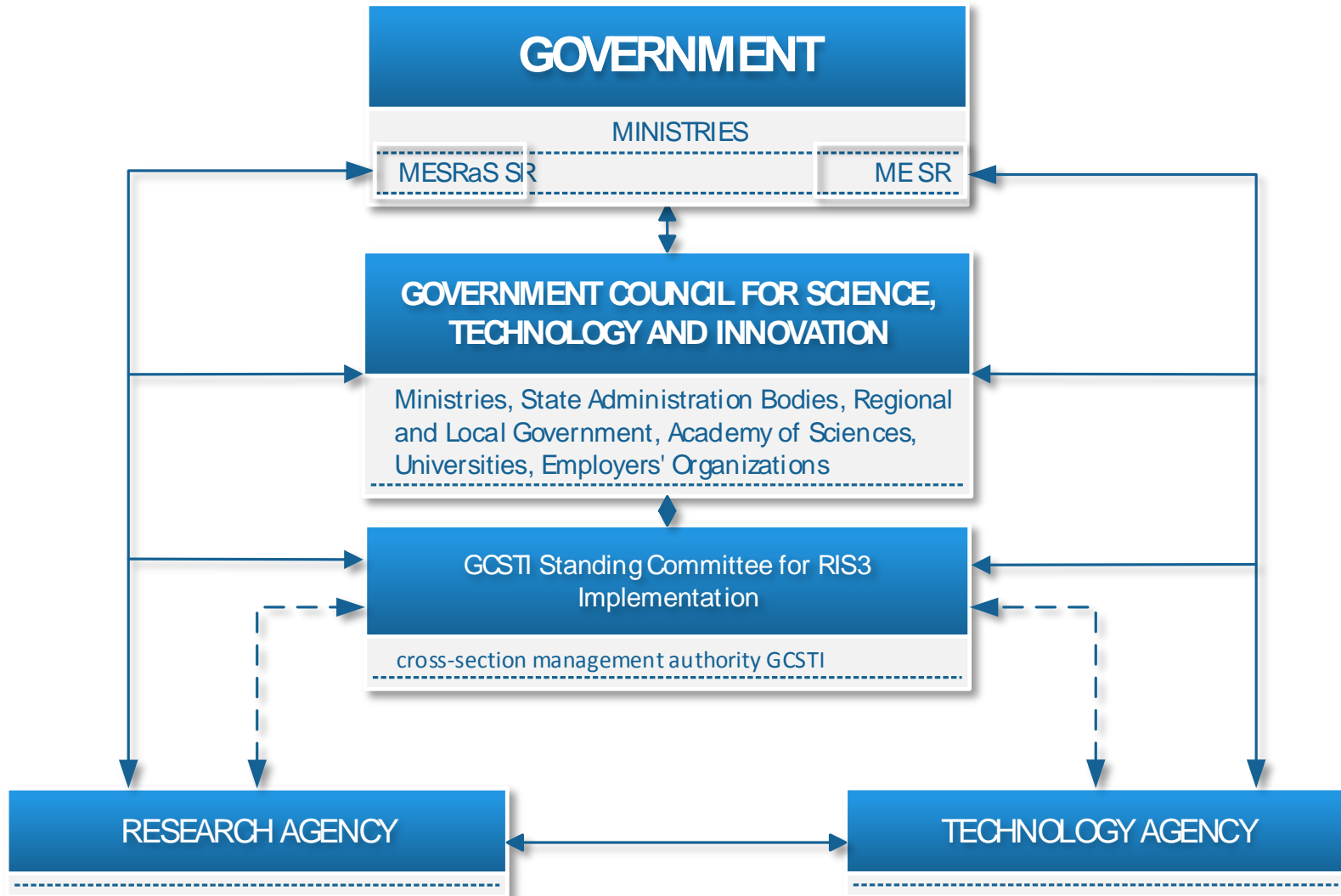
- ❖ GCSTI represents a continuing collaboration in a quadruple helix model
- ❖ Engagement of relevant actors is secured through their participation in working groups as well as in the board of both agencies.
- ❖ The supreme body of both agencies will be the board, which is to be composed on a principle of partnership of public and private sector in a ratio 50 : 50, while at least one third of its members will simultaneously participate in the board of the other agency (and vice versa)
- ❖ The composition of the participants will ensure the facilitation of the permanent continual entrepreneurial process of discovery

## Q2: What are the potential obstacles for implementation of this new governance approach?

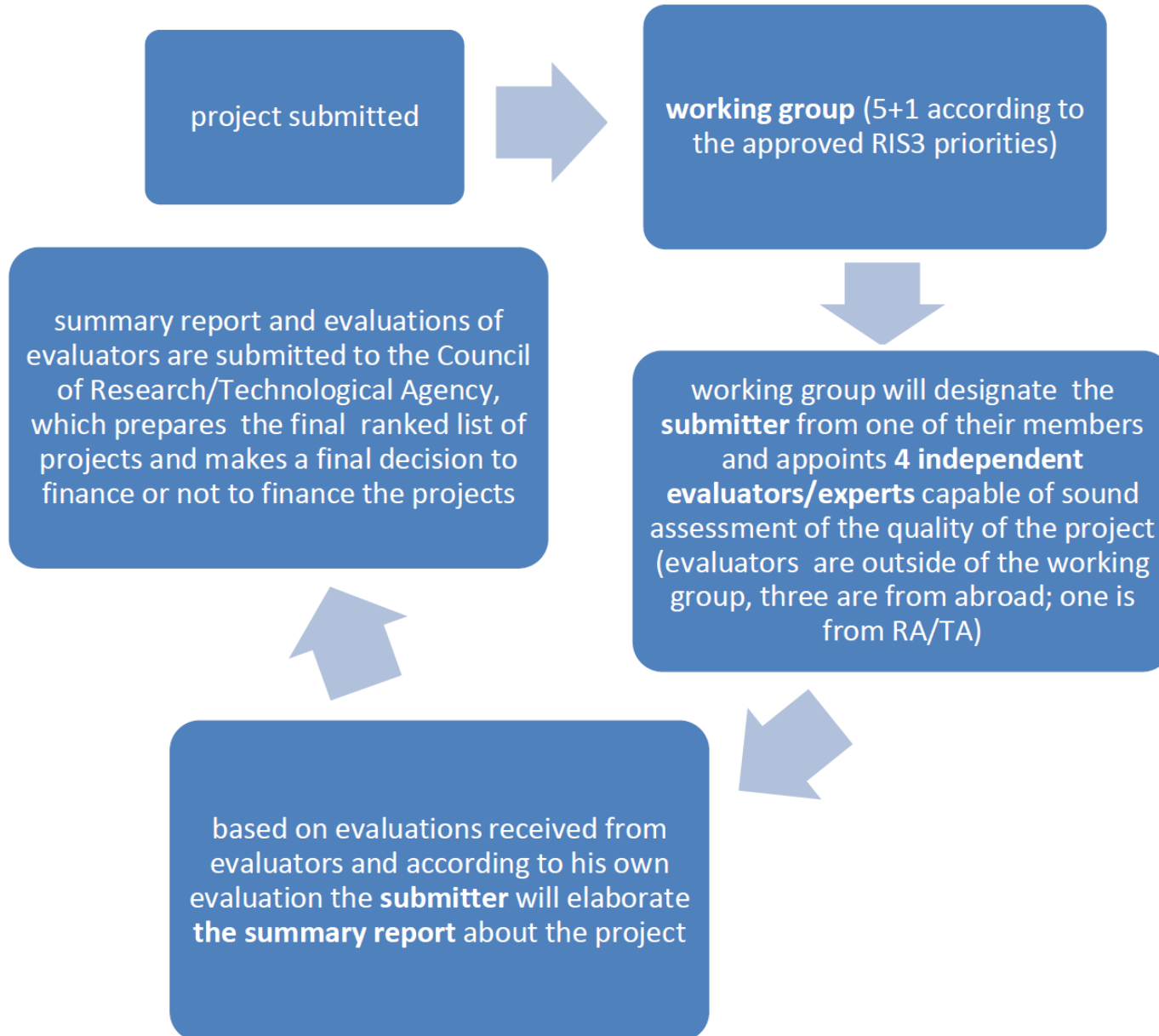
What is the experience of other countries in case they implemented a completely new governance system (in comparison with the previous one)?

# Governance

## Organisational scheme of RIS3 institutional management



# Governance



**Draft  
Workflow of  
the  
assessment  
of cross-  
sectional  
projects from  
ESIF and  
state budget  
within the  
framework of  
2014-2020  
priorities**

# Areas of RIS3 SK specialisation

Three areas of specialisation:

## AREAS OF ECONOMIC SPECIALISATION

- ❖ Automotive and mechanical engineering industries
- ❖ Consumer electronics and electrical equipment
- ❖ Information and communication products and services

Production and processing of iron and steel

## PROSPECTIVE (TECHNOLOGY) AREAS OF SPECIALISATION

- ❖ Automation, Robotics and Digital Technologies
- ❖ Processing and increasing the value of light metals and their alloys
- ❖ Production and processing of polymers and progressive chemical substances (including smart fertilizations)
- ❖ Creative industry
- ❖ Increasing the value of domestic raw material base
- ❖ Support of smart technologies in the area of processing raw materials and waste in the regions of their occurrence

## AREAS OF SPECIALISATION FROM THE POINT OF VIEW OF AVAILABLE SCIENTIFIC AND RESEARCH CAPACITIES

- ❖ Research of materials and nanotechnologies
- ❖ Information and communication technologies
- ❖ Biomedicine and Biotechnology
- ❖ Environment and agriculture including modern enviro-friendly chemical technologies
- ❖ Sustainable energy and energetics





# Areas of RIS3 SK specialisation - Synergies



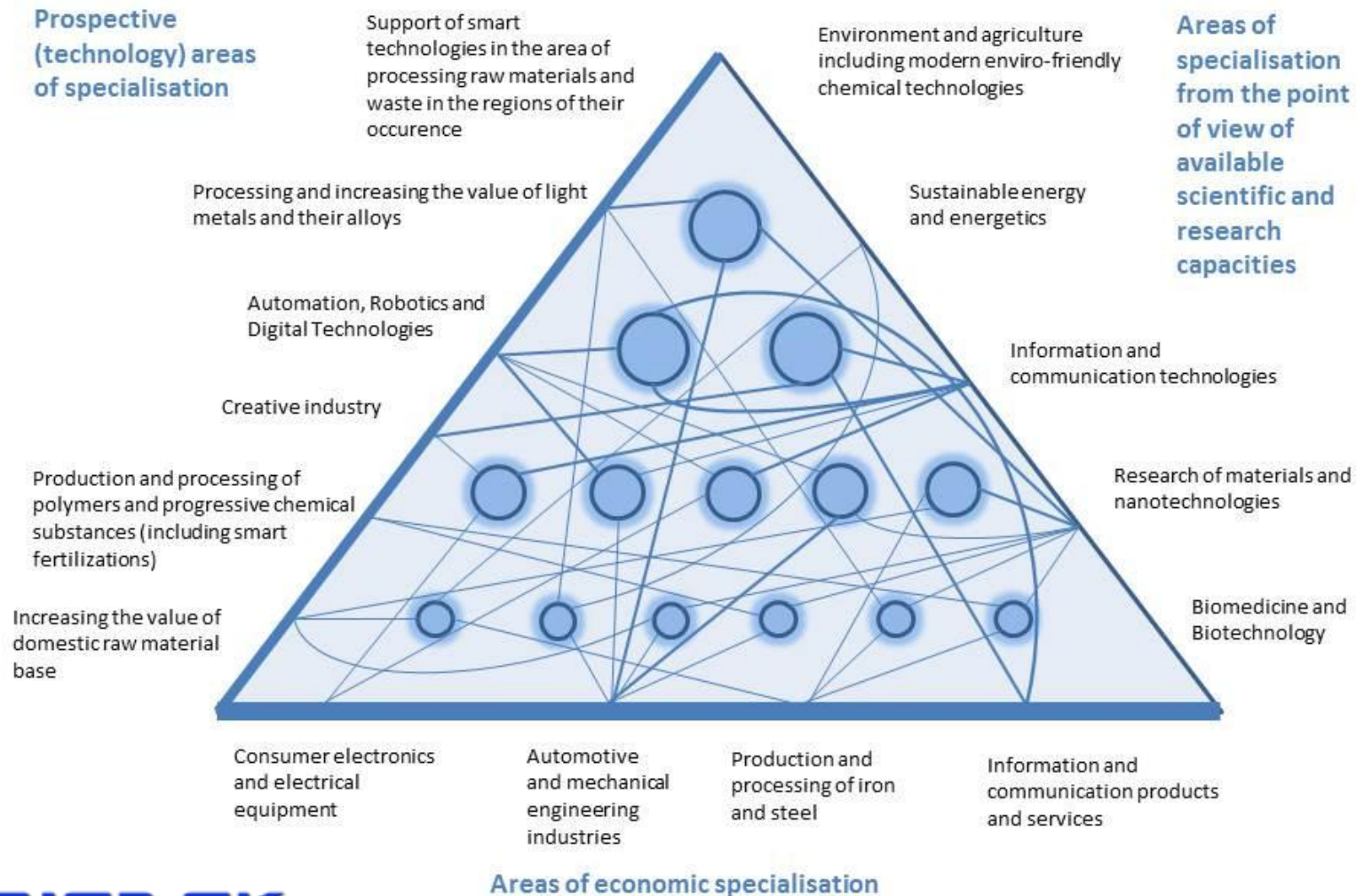
X	XX		X	X	X	VSŽ	RIS3 SK			
		XXX			XXX	IKPS				
XX	X	XX	X	X	XX	SE				
X	X		X	XXX	XXX	APS				
INT	SUR	KP	POLY	KOV	AUT		APS	SE	IKPS	VSŽ
XX	XXX		XXX	XXX	XX	MAT	XXX	XX	X	XXX
X		XXX		X	XXX	IKT	XX	XXX	XXX	X
XX	X		X		X	BIO		X	XX	
XX	XX		XX	X	X	AGRO	XX		X	X
X	XX		X	XX	X	ENG	XX	XX	XX	XXX

	Synergy of areas of economic, perspective (technology) and research-scientific specialisation								
Strength	3	4	5	6	6	6	7	8	9
	IKT VSŽ KOV	IKT APS INT	IKT SE KOV	ENG APS SUR	MAT APS INT	IKT APS KOV	MAT APS POLY	MAT APS AUT	MAT APS KOV
	IKT VSŽ INT	BIO SE AUT	IKT VSŽ AUT	ENG SE AUT	MAT SE AUT	IKT SE INT	MAT APS SUR	MAT VSŽ SUR	IKT IKPS AUT
	BIO SE POLY	AGRO VSŽ POLY	BIO SE INT	ENG SE KOV	MAT SE KOV	BIO IKPS AUT	MAT VSŽ KOV	IKT APS AUT	IKT IKPS KP
	BIO SE SUR	AGRO VSŽ INT	AGRO APS POLY	ENG SE SUR	MAT SE POLY	AGRO APS AUT	MAT VSŽ POLY	IKT SE AUT	
	AGRO VSŽ AUT	ENG APS POLY	AGRO APS SUR	ENG SE INT	MAT SE SUR	AGRO APS KOV	ENG APS KOV	IKT SE KP	
	AGRO VSŽ KOV	ENG APS INT	AGRO APS INT	ENG VSŽ AUT	MAT SE INT	ENG APS AUT	ENG VSŽ SUR		
		ENG SE POLY	AGRO IKPS AUT	ENG VSŽ POLY	MAT IKPS AUT	ENG IKPS AUT			
			AGRO VSŽ SUR	ENG VSŽ INT	MAT VSŽ AUT	ENG VSŽ KOV			
					MAT VSŽ INT				

# Areas of RIS3 SK specialisation



## Smart specialisation



# Distribution of financial allocation of R&D areas of specialisation



## Weight Coefficients of particular aspects

Weight Coefficients of particular aspects		0,20	0,20		0,150	
Priority	Weight	Econ. Sign. - poll	Production/Expe nditures		Researchers	
	%	%	mil. €	%	FTE	%
Research of materials and nanotech. (MVNT)	31,4	29,0	42217	50,3	2200	14,4
Information and communication tech. (IKT)	13,1	9,7	9888	11,8	2360	15,5
Biomedicine and Biotechnology (BB)	19,4	19,4	5809	6,9	2360	15,5
Sustainable energy and energetics (UEE)	11,3	22,6	11735	14,0	2050	13,4
Agriculture and environment (PŽP)	15,2	19,4	6039	7,2	2200	14,4
Societal problems and challenges (SPV)	9,6	0,0	8277	9,9	4100	26,9
Total	100,0	100,0	83965	100,0	15270	100,0

0,150		0,150		0,150	
Publication activities		Citation performance		FP7 projects	
num. of pub.	%	num. of cit.	%	mil. €	%
7 348	32,5	21284	34,3	6,53	22,7
1 647	7,3	2119	3,4	9,35	32,5
6 224	27,5	23950	38,6	3,63	12,6
684	3,0	1663	2,7	2,14	7,4
3 842	17,0	11017	17,8	4,84	16,8
2 855	12,6	2016	3,2	2,29	8,0
22600	100,0	62049	100,0	28,78	100,0

# Synergies



**Q3: How to implement the areas of specialisation and their synergies into practice?**

- **Link to ESIF, state policies?**
- **Practical implementation of synergies?**
- **Relation to the monitoring system?**

# Implementation and Budget



- ❖ First Action Plan to be approved by the Government in June 2014
- ❖ Extensive list of various tools - ESIF, state budget, non-financial policy measures, indirect financial tools, changes in law, etc.
- ❖ Main financial source is OP R&I, other OPs according to their particular relevance and also other state policies through operations from the state budget
- ❖ The goal is to attract as much private resources as possible. Partial objective: Increase the share of private resources for R&D in comparison to public resources to a ratio 2:1 while keeping at least the current share of public resources in total R&D expenses
- ❖ There are specific measures in the legislative process aiming to attract private investment and motivate the private investors to focus on R&D (e.g. Income Tax Act)
- ❖ An annual RIS3 reports monitoring the progress are intended – the first report: the beginning of 2016
- ❖ Depending on the progress measured by the indicators, a further elaboration of RIS3 will take place in a relevant action plan



# Measuring the progress



## Design of the monitoring system: 6 sets of indicators:

- ❖ Horizontal output indicators
- ❖ Horizontal result indicators
- ❖ Horizontal context indicators
  
- ❖ Field-specific thematic output indicators
- ❖ Field-specific thematic result indicators
- ❖ Field-specific thematic context indicators

As much quantitative indicators as possible, complemented by qualitative indicators where data is not possible to collect.

Extensive collaboration with various ministries and institutions.

COLSAF, SO SR, IPO, ME SR, MESRaS SR, SIEA, MLSaF SR, SCSTI, SIA, etc.

# RIS3 SK Result indicators - SAMPLE

Strategic objective	Partial objectives	Result indicator of partial objective	Baseline value	Year for baseline value	Target value - 2023	Method for calculating the target value
2. Increased contribution of research to the economic growth via global excellence and local relevance	2 a) Increase the share of total expenses for R&D to at least 1.2 % of GDP by 2020	Research and development expenditure (% of GDP)	0,82	2012*	1,2 (2020)	Stated in the National Strategic and Reference Framework (NSRF)
	2 b) Increase the share of private resources for R&D in comparison to public resources in a ratio 2:1 while keeping at least the current share of public resources in total R&D expenses	Share of private resources in total R&D expenditure (% of GDP) Share of public resources in total R&D expenditure (% of GDP)	43 : 56	2012	66 : 33	Political commitment
	2 c) Make institutional arrangement of R&D base more effective	Creation of Technological Agency and Scientific Agency	0	2013	2 (2015)	The number indicates the establishment of the Technological and Research Agency

Source of data	Frequency of reporting	Definition/method for calculation	Unit of measure	Related RIS3 measures
Statistical Office of the Slovak Republic (SO SR)	once a year	Total expenditure on research and development as a percentage share of GDP	%	M 2.1 M 2.4 M 3.6
SO SR	once a year	The ratio of expenditure between public and private resources, while the allocation of public financial resources in absolute terms must not drop below the baseline value.	Ratio	M 1.3 M 1.4
ME SR, Ministry of Education, Science, Research and Sport of the Slovak Republic (MESRaS SR)	2015	Creation of Technological Agency and creation of Scientific Agency by 2015. By creation is meant the foundation of agencies under the competence of the relevant ministry	Number	M 2.2 M 2.3



# RIS3 SK Output indicators - simplified EXAMPLE



Measure	Activity	Link to OP R&I	Output RIS3 indicators	Link to OP/ policies	Unit of measure	Target value	Method for calc.	Source	Frequency of reporting
1.1. Development of innovative capacities through cooperation between businesses and research institutions	1.1.1. Creation of consortia for solving multi-disciplinary problems among the priority areas	ME R&I 2.2.2 ME R&I 1.2.2	Number of enterprises that receive support (subindicator: number of enterprises connected to supply chains for key industry)		Number	Cumulative value: OP R&I + ESIF + state policies		ME/MESRaS/MARD	once a year
			Number of enterprises cooperating with the research institutions		Number			ME/MESRaS/MARD	once a year
			Number of supported research institutions cooperating with the enterprises		Number			ME/MESRaS/MARD	once a year
			Increase in employment in supported enterprises		FTE			ME/MESRaS/MARD	once a year
	1.1.2. Support for the embeddedness of key major industries through clusters and other forms of networking on a local, regional, national and macroregional level	R&I 2.2.1 P R&I 1.2.1 P ME R&I 3.3.1 ME R&I 2.2.2 ME R&I 1.2.2	Number of supported cluster organisations		Number			ME/MESRaS/MARD	once a year
			Number of supported research institutions		Number			ME/MESRaS/MARD	once a year

# Measuring the progress

## Q4: How to design a set of result indicators for monitoring the progress of field-specific thematic areas?

- ❖ Quantitative data available only for partial areas or as a proxy, e.g. turnover/value added for automotive sector, but what about Increasing the value of domestic raw material base?
- ❖ This could further distort the monitoring system and make it more extensive. Moreover, the quality of indicators for various areas would significantly differ based on the available data.

### Solution: Qualitative approach?

Semi-structured interviews with experts.

Qualitative Textual description + ordinal rating scale for 3-5 criteria for every indicator (1 – very good to 5 – very bad).

Contextual information in order to grasp the qualitative view of every expert. The rating scale would allow monitoring the progress in the selected areas in a standardised fashion across all fields of specialisation.

How many experts per area? What criteria to use for selecting experts?

Frequency of reporting?



# Measuring the progress

## Q5: How to design a set of output indicators for monitoring the field-specific thematic areas?



- ❖ Parallel set of indicators in the OP R&I and other relevant OPs. The beneficiary will have to tick one of the selected areas he/she is associated with. This will allow to monitor the support of selected specialisation areas.
- ❖ Two indicators:
  1. Amount of allocated financial resources
  2. Number of supported subjects in the related area
- ❖ How to define the areas?
  1. Self-explanatory – based on the judgement of the beneficiary
  2. Own definition after expert discussion
  3. NACE Rev. 2 definition – good approach, but there is a problem to assign prospective (technology) areas
  4. Other

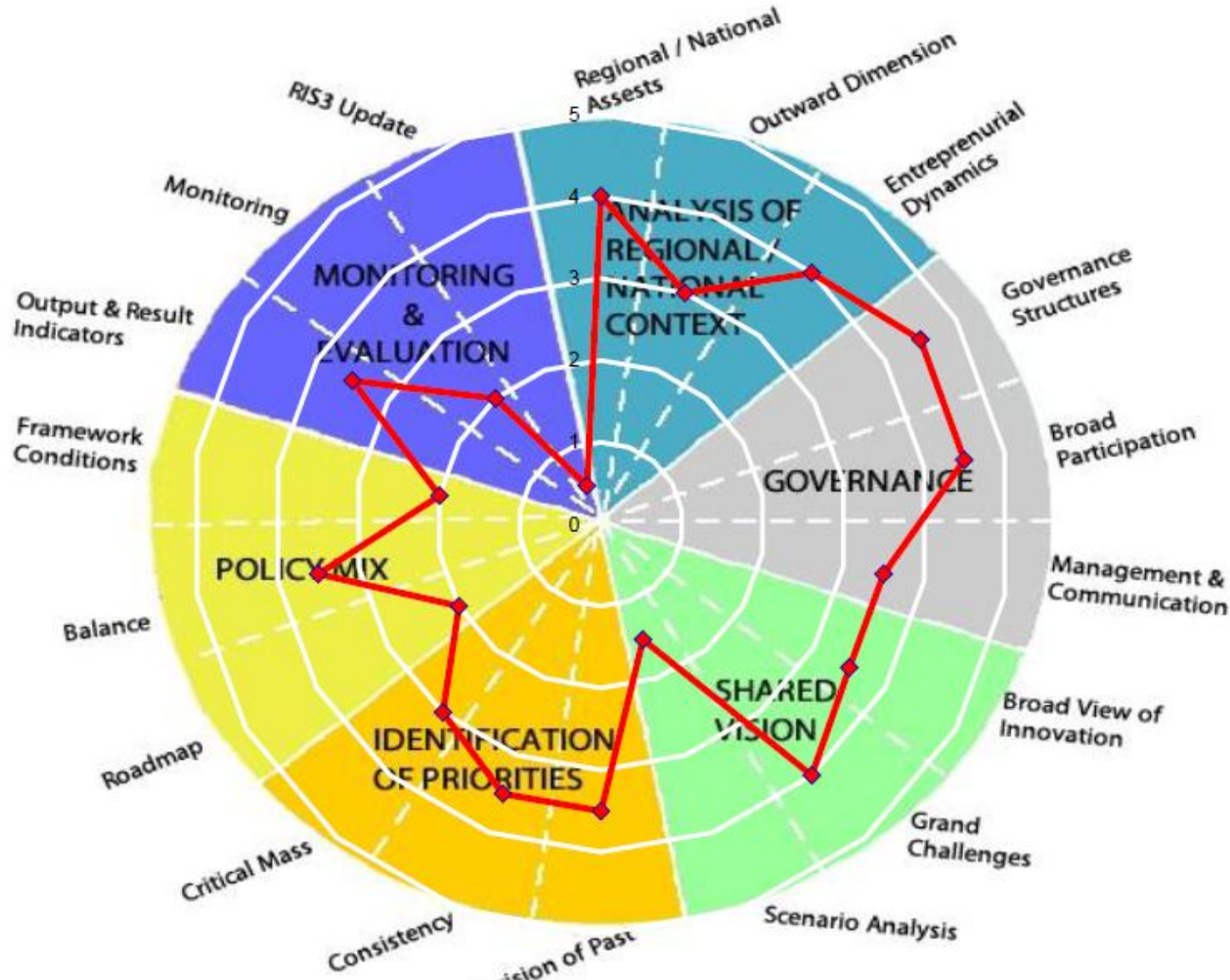


# Self-assessment RIS3 SK



Driving economic change through smart specialisation/RIS3

— R. Informal assessment - Slovakia



# Summary and next steps



- ❖ RIS3 has a strong high-level political support, however, sectoral influences may still occur
- ❖ Real ownership of all relevant ministries and departments is needed in order to increase the embeddedness of RIS3 process

## Next steps:

- ❖ Implementation and approval of the First RIS3 Action Plan
- ❖ Further elaboration of the monitoring system and its subsequent approval by the Government
- ❖ Elaboration of the National Roadmap for Infrastructure and its implementation

# Questions to be discussed:



- ❖ Q1: How to ensure the transnational/macro-regional coordination of RIS3 strategies?
- ❖ Q2: What are the potential obstacles for implementation of new governance approach?
- ❖ Q3: How to implement the areas of specialisation and their synergies into practice?
- ❖ Q4: How to design a set of result indicators for monitoring the progress of field-specific thematic areas?
- ❖ Q5: How to design a set of output indicators for monitoring the field-specific thematic areas?



Thank you for your attention.

# Questions for peers (1)

## Q1: How to ensure the transnational/macro-regional coordination of RIS3 strategies?



**Why:** The RIS3 strategies should be transnationally and macro-regionally embedded and coordinated in order to be competitive on a global level.

**Why:** The RIS3 should be transnationally integrated with other RIS3 strategies in order to produce a more coherent results across the regions/states.

**Current state of play:** S3 platform

**Challenge:** How to align RIS3 strategies of neighbouring countries/ regions/ within macro-regions? How to better coordinate the RIS3 strategies in order to increase their positive effects accross borders? How to avoid undesirable duplicity of RIS3 efforts of neighbouring regions?



# Questions for peers (2)



## Q2: What are the potential obstacles for implementation of new governance approach?

**Why:** Every existing system bears a strong tendency to self-preservation. RIS3 strongly depends on the successful implementation of a new governance system.

**Why:** RIS3 governance approach should aim for an inclusive and collaborative approach, eliminate the current fragmentation and achieve the synergic effects.

**Current state of play:** In Slovakia, new governance approach is to be implemented.

**Challenge:** Which potential issues/obstacles/bottlenecks should we anticipate when implementing a new governance structure? What is the experience of other countries in case they implemented a completely new governance system?

# Questions for peers (3)



## Q3: How to implement the areas of specialisation and their synergies into practice?

**Why:** There is a tendency to support a huge number of areas which leads to dispersion of resources. Moreover, there is still a strong sectoral approach when designing projects.

**Why:** The RIS3 SK states three areas of specialisation Economic, Prospective (Technology) and Available Science&Research Capacities. These areas should be implemented into practice through ESIF and other state policies.

**Current state of play:** The areas of specialisation and their synergies are to be implemented into OPs and state policies.

**Challenge:** How to implement these areas in practice? How to reflect these areas in horizontal policies/actions of OPs and state policies? How to reflect the synergies between them?

# Questions for peers (4)



## Q4: How to design a set of result indicators for monitoring the progress of field-specific thematic areas?

**Why:** Result indicators for monitoring the progress in the areas of specialisation are an important component of the RIS3 monitoring system.

**Current state of play:** Semi-structured interviews with experts. Qualitative textual description + ordinal rating scale for various criteria (3-5) of every indicator.

**Challenge:** How to properly design a set of result indicators that would reflect the real change in the development of selected areas? In case of interviews, how many experts per area? What criteria to use for selecting experts? Frequency of reporting? Method for calculation of baseline and target value?

# Questions for peers (5)



## **Q5: How to design a set of output indicators for monitoring the field-specific thematic areas?**

**Why:** Output indicators are needed to capture the amount of support that is channelled to the selected areas of specialisation.

**Why:** Output indicators are part of the RIS3 monitoring system.

**Current state of play:** Parallel set of indicators in the OP R&I and other relevant OPs. The beneficiary selects one of the areas he/she is associated with. (Indicators: Amount of allocated financial resources, Number of supported subjects in the related area).

**Challenge:** How to properly design a set of output indicators that would reflect the amount of support for selected areas of specialisation? How to collect the same indicators in all ESIF and other state policies? Which source for definition to use (own, NACE, self-explanatory)?