



A word cloud centered around the theme of innovation and smart specialisation. The words are in various colors (blue, green, orange, purple, yellow) and sizes. The most prominent words are 'innovation', 'Smart', 'Specialisation', 'Strategy', 'entrepreneurship', 'growth', 'potential', 'eco-system', 'universities', 'integration', 'economy', 'design', 'creativity', 'business', 'research', 'development', 'solutions', 'cooperation', 'services', 'jobs', 'energy', 'EU', 'ideas', 'natural resources', 'SME', 'renewable', 'natural', 'objectives', 'funds', 'opportunities', and 'design'. Below the word cloud is a large illustration of interlocking gears in blue, green, and yellow, with stylized human figures in the same colors integrated into the gear structure.

potential
energy
eco-system
universities
opportunities
entrepreneurship
integration
economy
design
creativity
business
research
development
solutions
cooperation
services
jobs
energy
EU
ideas
natural resources
SME
renewable
natural
objectives
funds
growth
Smart
Specialisation
Strategy

Marko Hren Slovenia's Smart Specialisation Strategy - S4: from Fund driven consortia towards strategic thinking partnership!

National Academy of Sciences of Ukraine. Kiev, Ukraine, 15.9.2016

From incentives towards strategic partnership

- **Context** – policy incoherence; incentives driven consortia
- **Context** – innovation, entrepreneurship, economy;
- **S4 EDP** - Entrepreneurial Discovery Process (**2014-2015**)
- **S4 TARGETS and PRIORITIES 2015**
- **S4 SDIPs' 2016...** towards strategic thinking partnerships
- **S4 implementation**
- **Conclusive remarks**

Policy Context_: General assessment of RTDI policy

- Intensive RTDI & SME policy :
 - ✓ Strong public side push
 - ✓ Strengthened links between firms & science
 - ✓ Establishment of intermediaries
 - ✓ Strong internationalisation
- But:
 - ✗ Policy gaps
 - ✗ Dispersion of efforts – critical mass
 - ✗ Time inconsistency
 - ✗ No consensus on policy effectiveness

Evaluation of ERDF funded measures

ERDF Measures (2007-2013) up-graded the Clustering programme (2000) and Technology networks programme (2005)

Instruments of Operational Programme for Strengthening Regional Development Potentials 2007 – 2013 aimed to strengthen the innovation capacity of the economy, support the transfer of Competitiveness and research excellence knowledge to the economy and development of employee competencies, focusing on the integration of the economy and science and transfer of results to markets.

INCENTIVES to:

- The centers of excellence,
- Competence centers and
- Development centers of the Slovenian economy



Common policy objectives (selection criteria):

- excellent science and/or new products/services/processes
- critical mass
- contribution to low carbon society

Other policy objectives

- enhanced cooperation within knowledge triangle
- private investment
- restructuring/diversification: new legal entities

Evaluation of ERDF funded measures

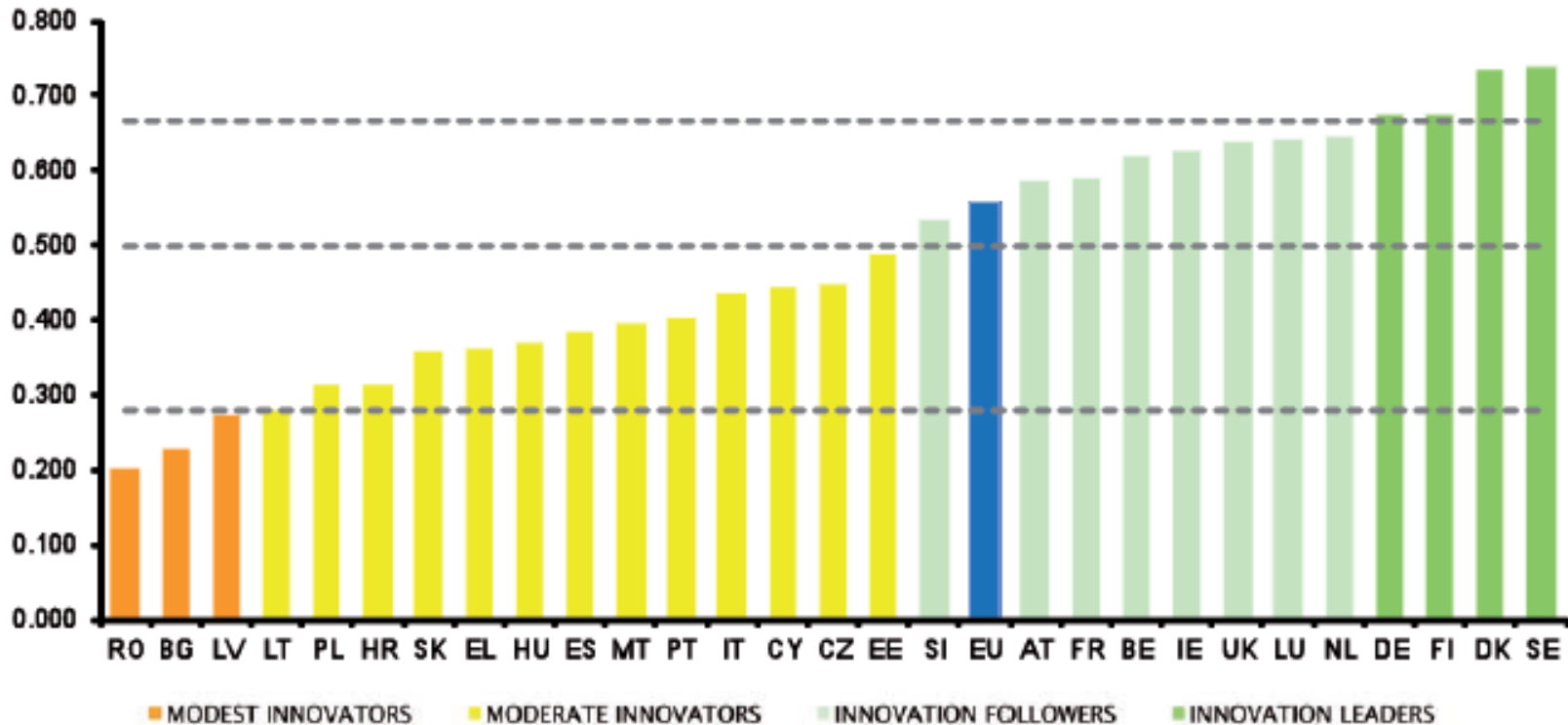
- By contributing EUR 244 million, the government encouraged further investments in research and development amounting to EUR 200 million.
- Implementing instruments resulted in total 29 collaborations with 324 partners, which together employed more than 2,500 people and generated 898 new intellectual property rights.
- The instruments ensure the sustainability of the implementation for five years. However, due to the dependence of the final beneficiaries on grants, a much smaller scale of operation and consequently, reduced impact was expected already by the evaluators.
- Nevertheless, the evaluations estimated that the positive contribution of instruments outweighed the negative effects which occurred during the implementation phase (fraud, irregularities, financial corrections, extensive administration).

Evaluations 2015 – recommendations; taken on-board within S4

- Increase quality control Including the mid-term and post-ante evaluation of the quality, impact and relevancy of Research effort.
- Systematic and predictable Reduction of the dependence on subventions by the introduction of financial instruments
- Organisational changes in terms of long-term consistency of governmental agencies and line ministries cooperation to assure predictability and stability of policy framework.
- For instruments to achieve greater impact and added value, from the complementarity and synergy perspective, a more strategic and coordinated – long term approach of the ministries is needed, based on a new approach to research degrees (use of “TRL”).

R&D – economy context → structural changes needed

Figure 1: EU Member States' innovation performance



Innovation **Union**
Scoreboard 2015

Empirical base...

- A. Revealed technological specialization
 - A. International comparison of industry-level R&R intensity
 - B. Participation in FP7 by industries and priority areas
- B. Revealed comparative advantage
 - A. WITS data (3-digit NACE2)
 - B. OECD BTDIxE data (2-digit NACE1; intermediate vs. Final goods)
- C. Inward FDI stock by host industry
- D. Identification of growing industries
 - A. Positive productivity growth (2008-12)
 - B. Positive export growth (2008-12)
- E. Identification of significant firms within identified prospective 3-digit industries

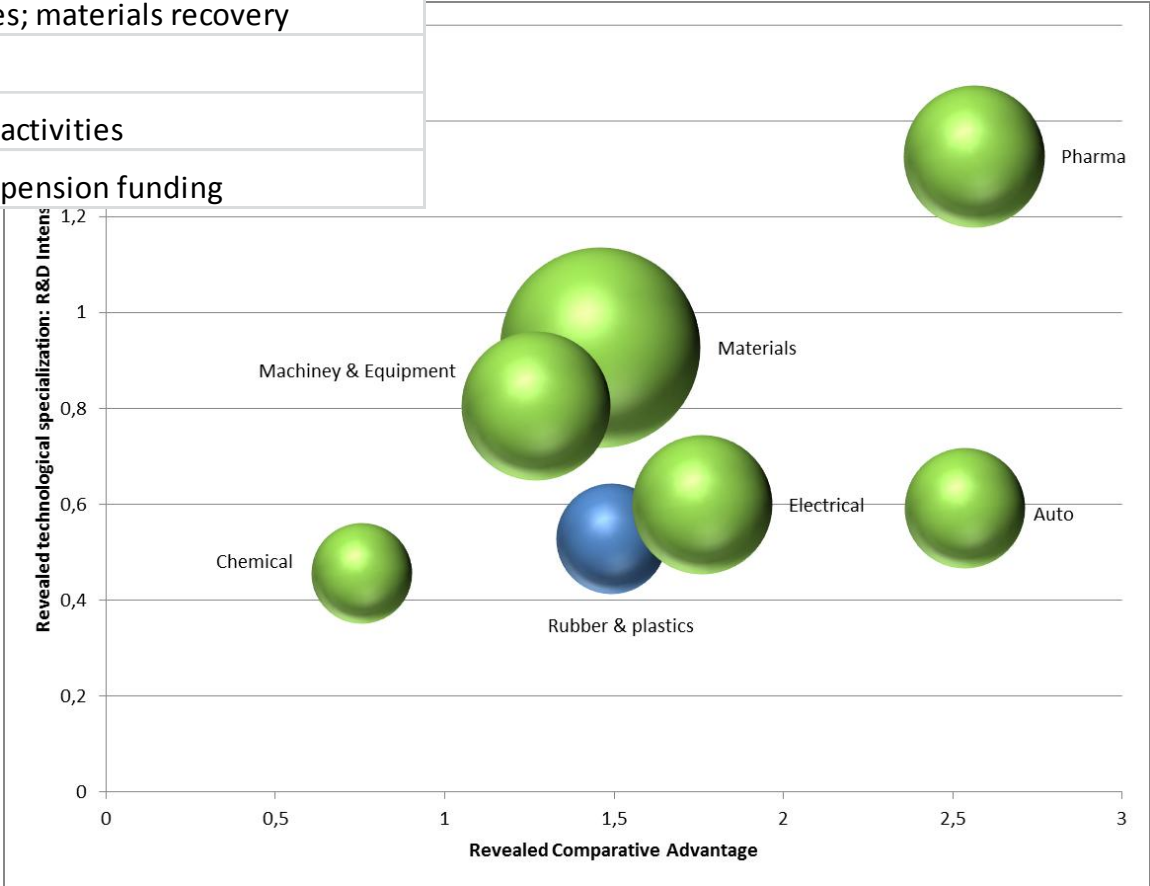
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- I. Assessment of industry innovation potential based on benchmarking of export values, with market leaders → Eurostat Trade Database at 4 digit product group
- II. Most intensive cooperation areas of science with the economy

Comparative sectoral performance

NACE	Technological Comp Adv	WITS_RCA	RCA Intermediate Exports	RCA Final Exports	Share in total inward FDI stock 2012	3 digit NACE EX & VAL growth
C10_ C11 - Manufacture of food products and beverages	0,74	0,42	0,44	0,51	1,1%	108, 109
C13 - Manufacture of textiles	2,83	0,46	0,73	0,68	0,5%	131
C16 - Manufacture of wood and of products of wood and cork	1,92	2,08	3,31	0,93	2,9%	162
C17 - Manufacture of paper and paper products	0,68	1,56	1,87	1,33	3,2%	
C20 - Manufacture of chemicals and chemical products	0,46	0,75	0,76	3,11	8,0%	203, 204, 206
C21 - Manufacture of basic pharmaceutical products and preparations	1,33	2,56	0,76	3,11	6,2%	
C22 - Manufacture of rubber and plastic products	0,53	1,49	2,06	1,18	2,3%	
C23 - Manufacture of other non-metallic mineral products	0,46	2,10	1,71	2,32	2,5%	232, 239
C24 - Manufacture of basic metals	0,91	1,16	1,16	0,00	1,2%	243
C25 - Manufacture of fabricated metal products	1,07	1,39	2,47	1,36	3,6%	256
C261 - Manufacture of electronic components and boards	0,45	1,05	0,11	0,11	0,0%	
C263 - Manufacture of communication equipment	1,73	1,52	0,13	0,36	0,3%	
C265 - Manufacture of instruments and appliances for measuring, testing	0,64	1,56	0,39	0,56	0,6%	265
C27 - Manufacture of electrical equipment	0,60	1,76	2,14	1,03		271, 272
C28 - Manufacture of machinery and equipment n.e.c.	0,78	1,26	1,72	1,36		283
C29 - Manufacture of motor vehicles, trailers and semi-trailers	0,59	2,54	1,02	1,87	1,9%	293
C301 - Building of ships and boats	8,68	1,35	0,47	0,15		
C303 - Manufacture of air and spacecraft and related machinery	0,75	2,03	0,47	0,15		
C325 - Manufacture of medical and dental instruments and supplies	0,90	1,86	0,39	0,56		325
C33 - Repair and installation of machinery and equipment	0,87	1,29				331
36-37 Manufacturing not else classified; Recycling			4,73	0,72		

- C10 - Manufacture of food products
- C20 - Manufacture of chemicals and chemical products
- C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
- C24 - Manufacture of basic metals
- C26 - Manufacture of computer, electronic and optical products
- C27 - Manufacture of electrical equipment
- C28 - Manufacture of machinery and equipment n.e.c.
- C29 - Manufacture of motor vehicles, trailers and semi-trailers
- C32 - Other manufacturing
- E38 - Waste collection, treatment and disposal activities; materials recovery
- J61 - Telecommunications
- J62 - Computer programming, consultancy and related activities
- K64 - Financial service activities, except insurance and pension funding



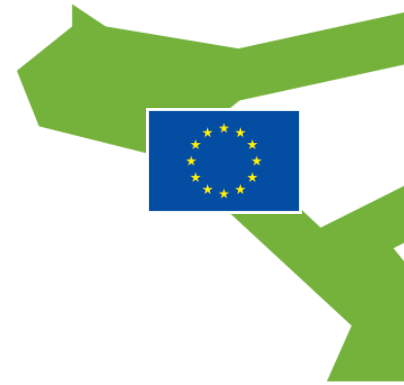
Discovery process - paving ground to long term strategic partnership

- **FROM** FUND DRIVEN CONSORTIA (CCs, COs, DCSE) **TOWARDS** STRATEGIC THINKING QUADRUPLE HELIX PARTNERSHIPS



S4 Entrepreneurial discovery process

Genesis



- 2013: first round:
 - EDP: 8 workshops ~ 500 stakeholders
 - Chamber of Commerce
 - Negative EC opinion
- 2014: second round
 - March: Office for Growth established
 - April – June:
 - ✓ 2 new empirical studies
 - ✓ 2 new independent expertise
 - ✓ Series of dedicated events, including written proposals
 - ✓ Elections in July
 - ✓ New version publicly presented on 29 August 2014



2015: round three

- I-2015: 2 academies: assessment and contribution focused on vision development

SUSTAINABLE TECHNOLOGIES AND SERVICES FOR HEALTHY LIVING

To be further development in the context of entrepreneurial discovery process (II-2015)

- ➔ Green, Active, Healthy and Digital
- ➔ Medium and High-tech in niche areas
- ➔ Creative and Innovative

➔ **SUCCESSFULLY FINISHING WITH GOV APPROVAL ON SEPT 20, 2015 AND EU November 5, 2015**



2014/2015:
Mapping of
scientific priorities

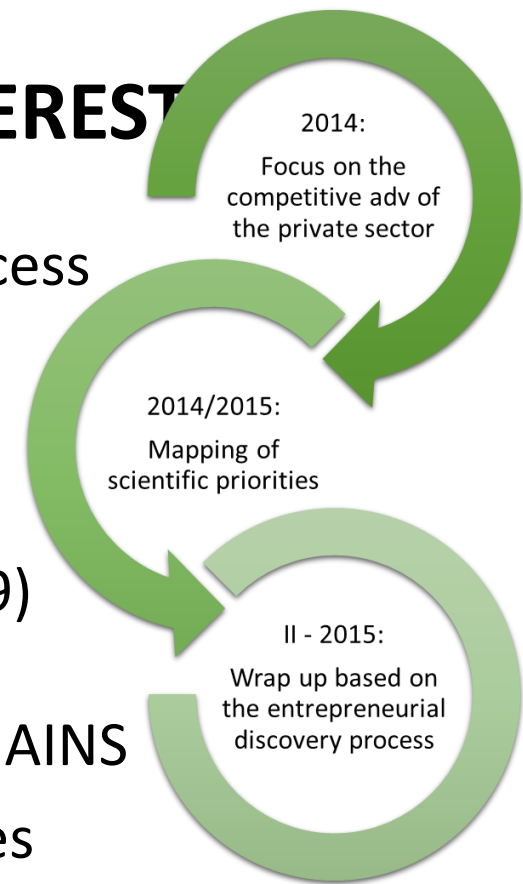
2014:
Focus on the
competitive adv of
the private sector

II - 2015:
The entrepreneurial
discovery process –
ALL IN

April-May 2015:

PUBLIC CALL FOR EXPRESSION OF INTEREST

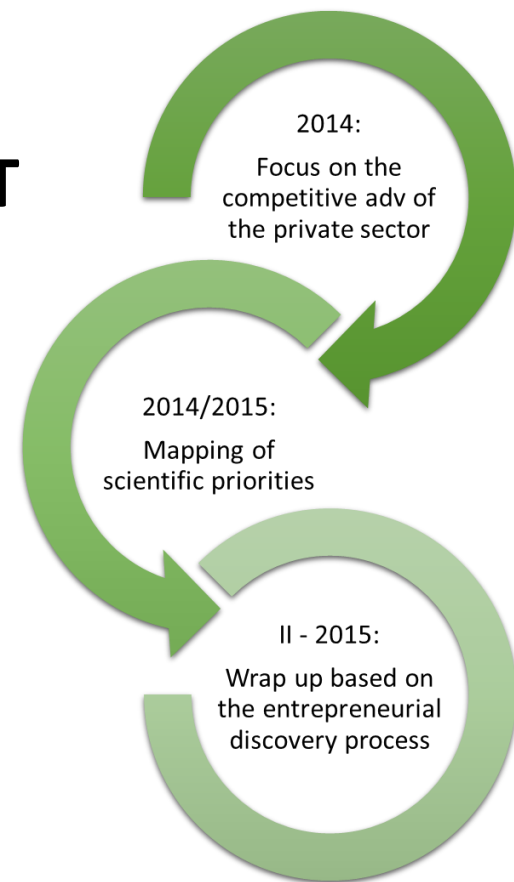
- Further focusing of priorities and elimination process
- Thus focus on identification of perspective
 - Technology fields (TRL 4-6)
 - Fields of application – product groups (TRL 6-9)
- ❖ WITHIN PREDEFINED SET OF PRIORITY DOMAINS
 - ✓ Structured according to complementarities
 - ✓ and by common characteristics from policy perspective
- ❖ Including international dimension!
- ❖ JOINTLY!!! **EDP - ENTREPRENEURIAL DISCOVERY PROCESS**



April-May 2015:

PUBLIC CALL FOR EXPRESSION OF INTEREST

- 170 initiatives :
- Strong response within ALL priority domains!
- On average 10 partners per initiative:
 - ✓ 60% private sector (~400+ companies)
 - 40% knowledge institutions
 - ✓ ALL relevant knowledge institutions engaged
 - ✓ All company sizes – also excellent response from new emerging value chains initiated by SMEs, including spin-offs
- Bridge between science and economy with clear market orientation established
- Strategic clustering already underway
 - ✓ Strong clustered vs. Focused initiatives with links still to be established



April-May 2015:

PUBLIC CALL FOR EXPRESSION OF INTEREST

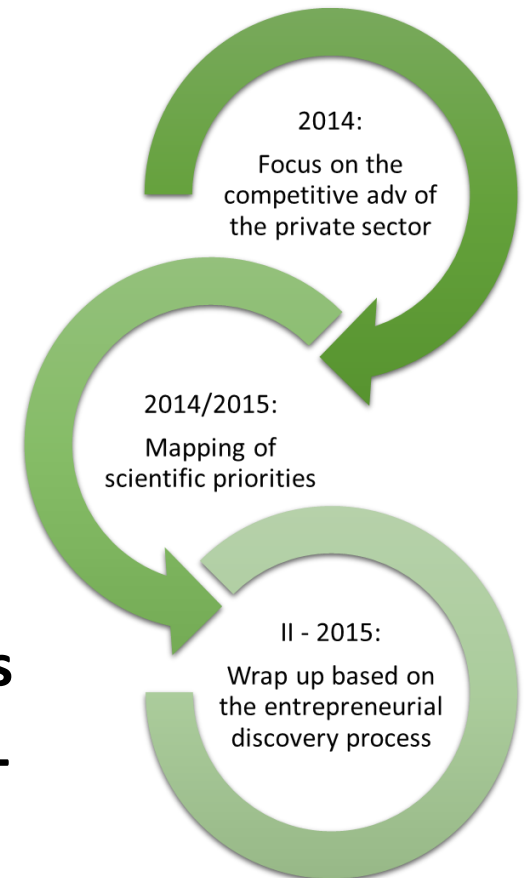
Prioritisation & „elimination“:

1. Strength in terms of **competencies**

- ✓ Research competence AND
- ✓ Market access competence

2. Initiative **quality**:

- ✓ Link to priority domain, **complementarities**
- ✓ **TRL specification and clear chain to TRL 9 - to the market**
- ✓ Expected results ➔ exports, VA/L, + international dimension
- ✓ Capacity to „do it“ – investment capacity, HR, equipment, R&D, marketing

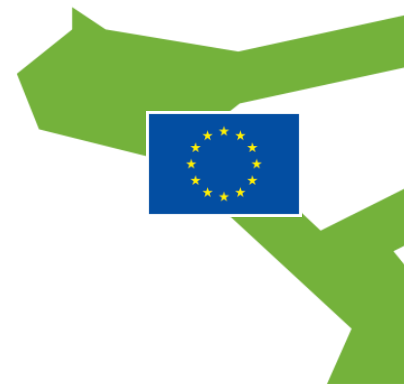




S4 – Document :

Targets and Priorities

What are we targetting?

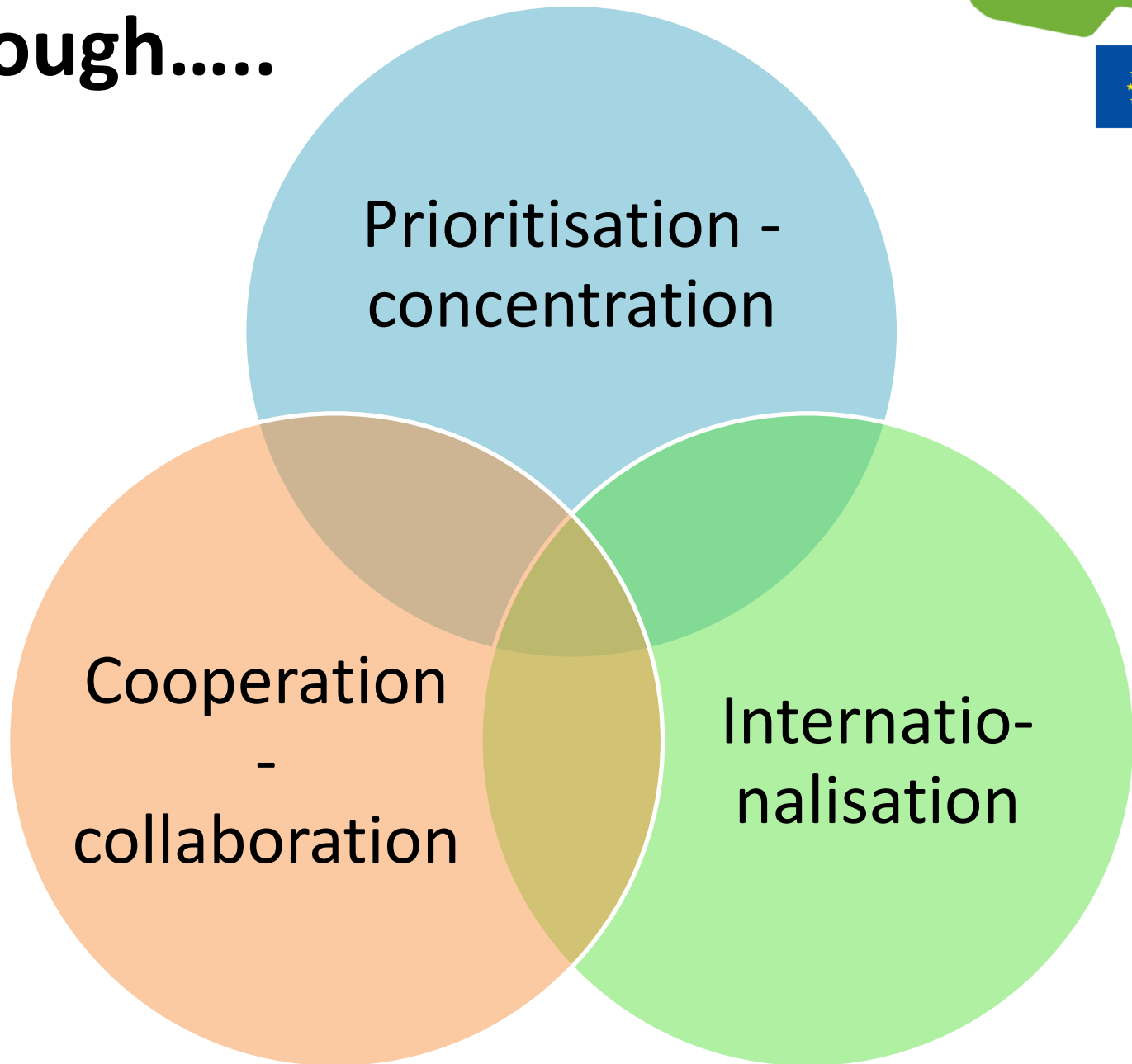


1. **VA / Employee** → targets set for each priority area.
2. **Share of high-tech intensive products in total EXPORT:**
from 22.3% to EU-15 average of 26.5%
3. **Share of knowledge-intensive services in total EXPORT:**
from 21.4% to 33%
4. **Overall entrepreneurial activity:**
from the current 11% to at least the EU average of 12.8%

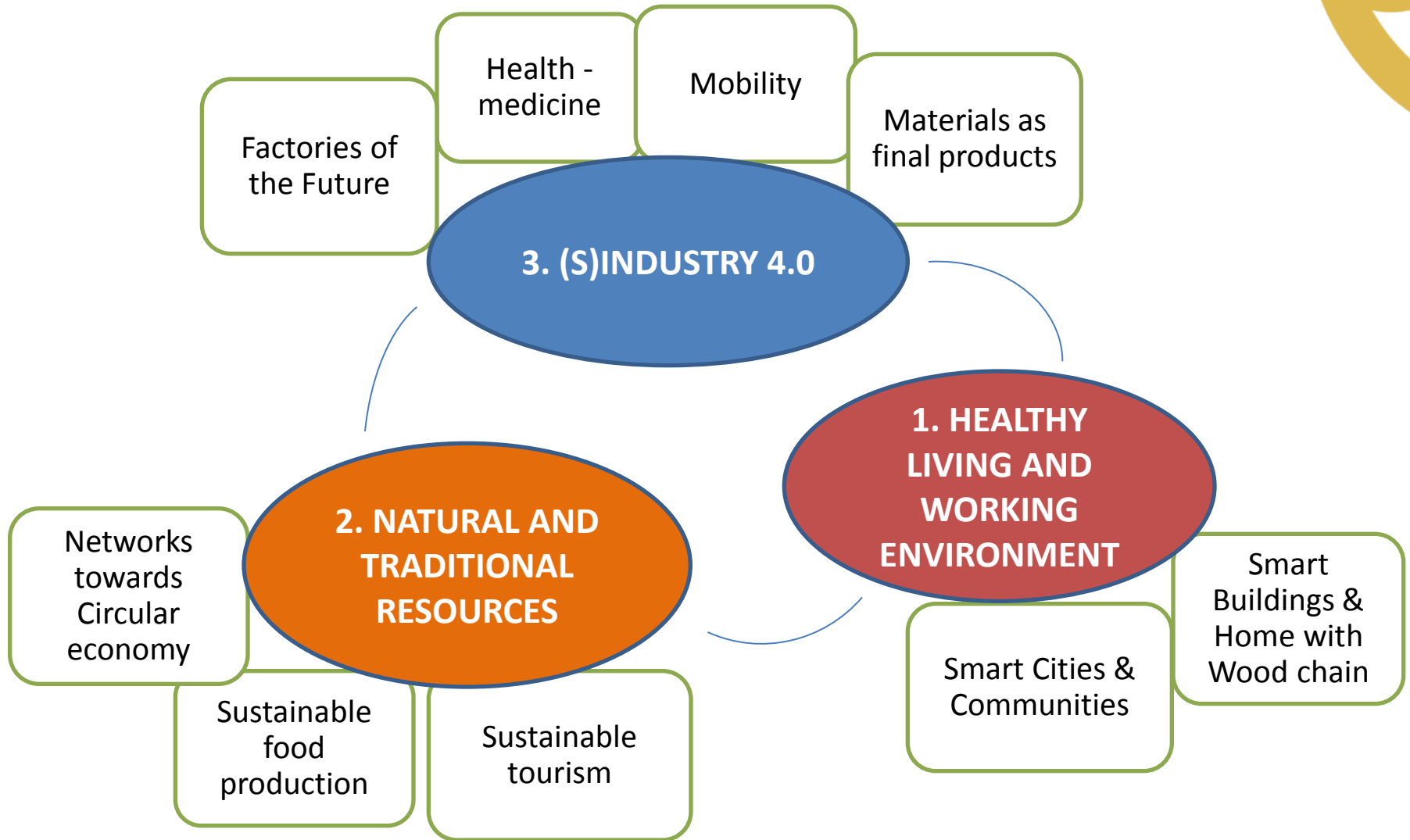
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**SI Ambition – from a follower to co-creator
of global trends in niche areas**

.... Through.....



**3 priorities
9 AREAS OF APPLICATION**



Horizontal / Cross-cutting technologies integrated into core priority domains to enhance convergence of technologies

- **Priority Area 1. Healthy living and working environment:**
- **DOMAIN 1.1. Smart Cities:**
 - integrates ICT
-
- **Priority Area 3. (S)Industry 4.0:**
- **DOMAIN 3.1. Smart factories integrates KETs**
 - nanotech,
 - robotics,
 - process control technologies,
 - photonics - including micro and nano electronic components).
-



Priority domains:

Each priority area of application is described by:

- Objectives (including quantification of % AV)
- Focus areas and
- Technologies
- Empirical bases and SI competitive advantage
- International dimension

I.E. NATURAL and TRADITIONAL sources for THE FUTURE

4 Sustainable food production

Focus areas and technologies

- Sustainable production and processing of food products into functional foods
- Technologies for sustainable agricultural production (livestock and plants)

Objectives

- promote sustainable production of high-quality food in relation to a business model that will integrate knowledge institutions with manufacturers and economic entities along the value chain
- establish an innovative and short supply chains for locally and organically produced foods with a guaranteed and recognised traceability from the field to the table
- ensure long-term sustainable conditions for the development of the varieties and farming practices adapted to Slovenian territory and to climate change

2023 objectives:

- establish at least 3 value chains which will provide a critical mass of consumption and which will be supported by long-term contractual partnership based on economic initiative
- raise value added per employee in companies by **20%**

Strategic partnerships – the nature of

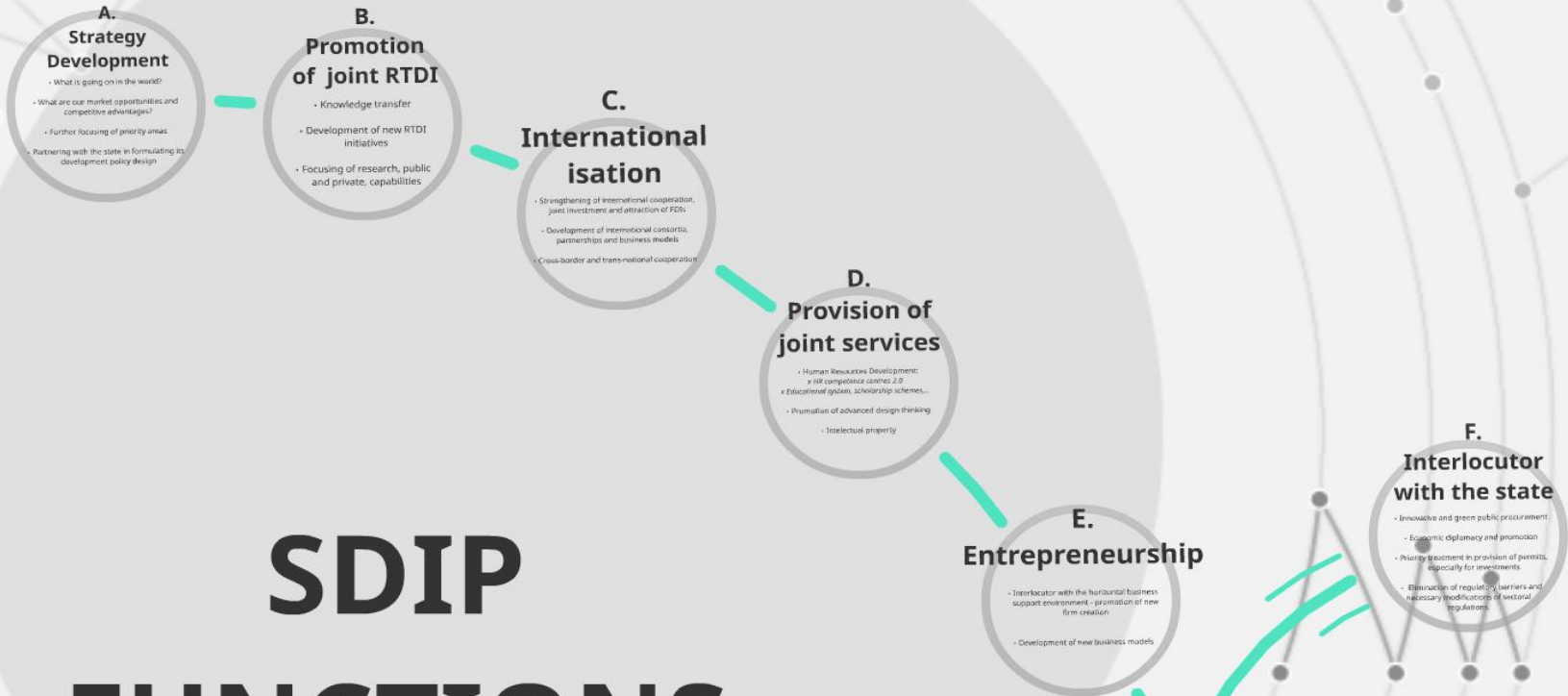
- Per policy domain ~ 9
- 30-60 stakeholders each providing funding (also in kind)
- Triple helix:
 - 5-10 large companies
 - 10-25 SMEs
 - Knowledge institutions
 - Government

Strategic partnerships -What do they do:

TBD

1. Joining RTDI initiatives towards more demanding, comprehensive and integrated products and services
2. Joint global trend analysis → technologies, value chains,...
3. Development of business models → balancing push and pull
4. Internationalisation (e.g. technology bridges, value chain development, FDIs) and international cooperation (e.g. Horizon 2020, COSME, ETC, international networks) + promotion
5. Knowledge transfer + promoting open innovation
6. Promoting joint specialised services (e.g. IPR, design thinking,...) and human resources development
7. Interlocutor with the state → innovative public procurement, adaptation of sectoral regulations, business diplomacy, priority access to licences

SDIP FUNCTIONS



A.
Strategy
Development

B.
Promotion
of joint RTDI

E.
Entrepreneurship

F.
Interlocutor
with the state

D.
Provision of
joint services

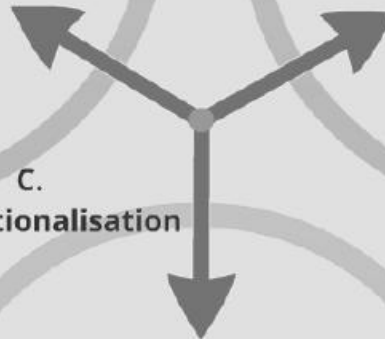
**MoE:
clustering**

MoL: Training

***Competence
Centres***

C.
Internationalisation

**MoE:
Internationalisation
*for SMEs***



International isation

- Strengthening of international cooperation, joint investment and attraction of FDIs
- Development of international consortia, partnerships and business models
- Cross-border and trans-national cooperation

IMPLEMENTATION - GOVERNANCE
COOPERATION AND
COLLABORATION

State Level

$\Sigma\Sigma$ (SIS & IOT & ...) =

National Innovation Platform

Quadruple helix

Consultative body for horizontal nationally important issues in relation with innovation such as:

- performance of the supportive environment for innovation and entrepreneurship,
- elimination of horizontal regulatory barriers,
- measures to promote innovation
- coordination of research and educational capacities within the government sector.

SP1

SP2

SP3

SP4

SP5

SP6

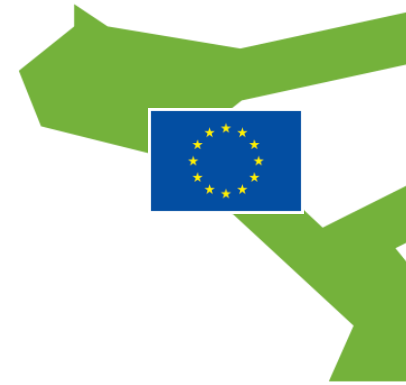
SP7

SP8

SP9

SP10

With what (**POLICY MIX**):



A.) NON-FINANCIAL SUPPORT:

- ✓ Innovative and green public procurement
- ✓ Tax relief
- ✓ Economic diplomacy and promotion
- ✓ Issuing permits and eliminating regulatory barriers
- ✓ Efficient justice administration

B.) FINANCIAL SUPPORT

		Total 2016-2018	Average – annually	%
RTDI		1.025.483.596	341.827.865	52,06
OP		552.957.004	184.319.001	28,07
National		472.526.592	157.508.864	23,99
Entrepreneurship		887.923.182	295.974.394	45,08
OP		710.923.182	236.974.394	36,09
National		177.000.000	59.000.000	8,99
Human Resources		56.234.436	18.744.812	2,86
TOTAL		1.969.641.214	656.547.071	100,00
TOTAL	EU	456.353.837	152.117.946	23,17
TOTAL	SLO	640.667.990	213.555.997	32,53
TOTAL	FIN	268.451.471	89.483.824	13,63
TOTAL	PRIVATE	604.167.917	201.389.306	30,67

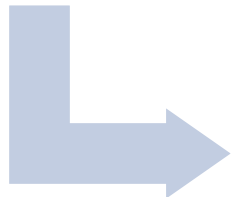
Complementarities with
Horizon 2020: (Teaming,
ERC, Twinning...)

Better utilisation and further
development of research
infrastructure

RTDI:
from research
to the market

1-3

Basic
science



PROOF OF
CONCEPT

3-6

Improvement of **international competitiveness and research excellence** to participate in value chains

→ International initiatives and programmes (EUREKA)



PROTOTYPE

6-9

Support to RDI processes:

- Smaller innovation projects
- SME Instr. Plus → projects
- Bigger RDI projects

→ Innovative Public Procurement →

MARKET

9+

Investment
Support -
revolving

Internationalisation

Implementation (I)

- RDI programmes and projects (Public call):
 - published - January 29,2016
 - first joint public call MESS and MEDT
 - as promised covers whole TRL from 3 – 9
 - eligible for programmes & projects on selected priorities (with exception of sustainable tourism)
 -

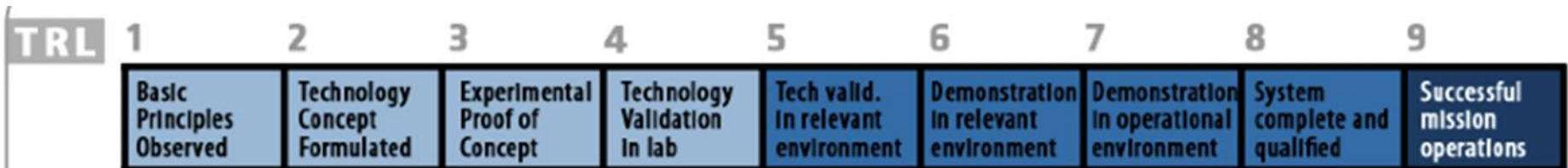
Implementation (II)

- Public call: **Research and Development Programmes (MESS)**
 - Available resources: 55 mio EUR
 - Max size of Programme: 6 mio EUR
 - Duration: up to 4 years
 - Partners: (i) min 3 Research Institutions and (ii) min 4 companies (out of which min 1 SME)
 - Eligible from **TRL 3 – 6**: Industrial Research (3-4), experimental development (5-6)

TRL	1	2	3	4	5	6	7	8	9
	Basic Principles Observed	Technology Concept Formulated	Experimental Proof of Concept	Technology Validation in lab	Tech valid. In relevant environment	Demonstration in relevant environment	Demonstration in operational environment	System complete and qualified	Successful mission operations

Implementation (III)

- Public call: **Research and Development Projects -MEDT**
 - Available resources: 12 mio EUR (out of 90mio)
 - Max size of Project: 0,5 mio EUR
 - Consortium or single development projects
 - Duration: up to 2 Years
 - Annual openings
 - Foreign companies **are eligible** to apply at MEDT call (at the time of first transaction a branch in Slovenia)
 - one of the envisaged calls of MEDT for SMEs, strengthening competitiveness
 - Eligible from **TRL 6 – 9**: from experimental development till commercialisation



Implementation: SDIP

- **SDIP:**

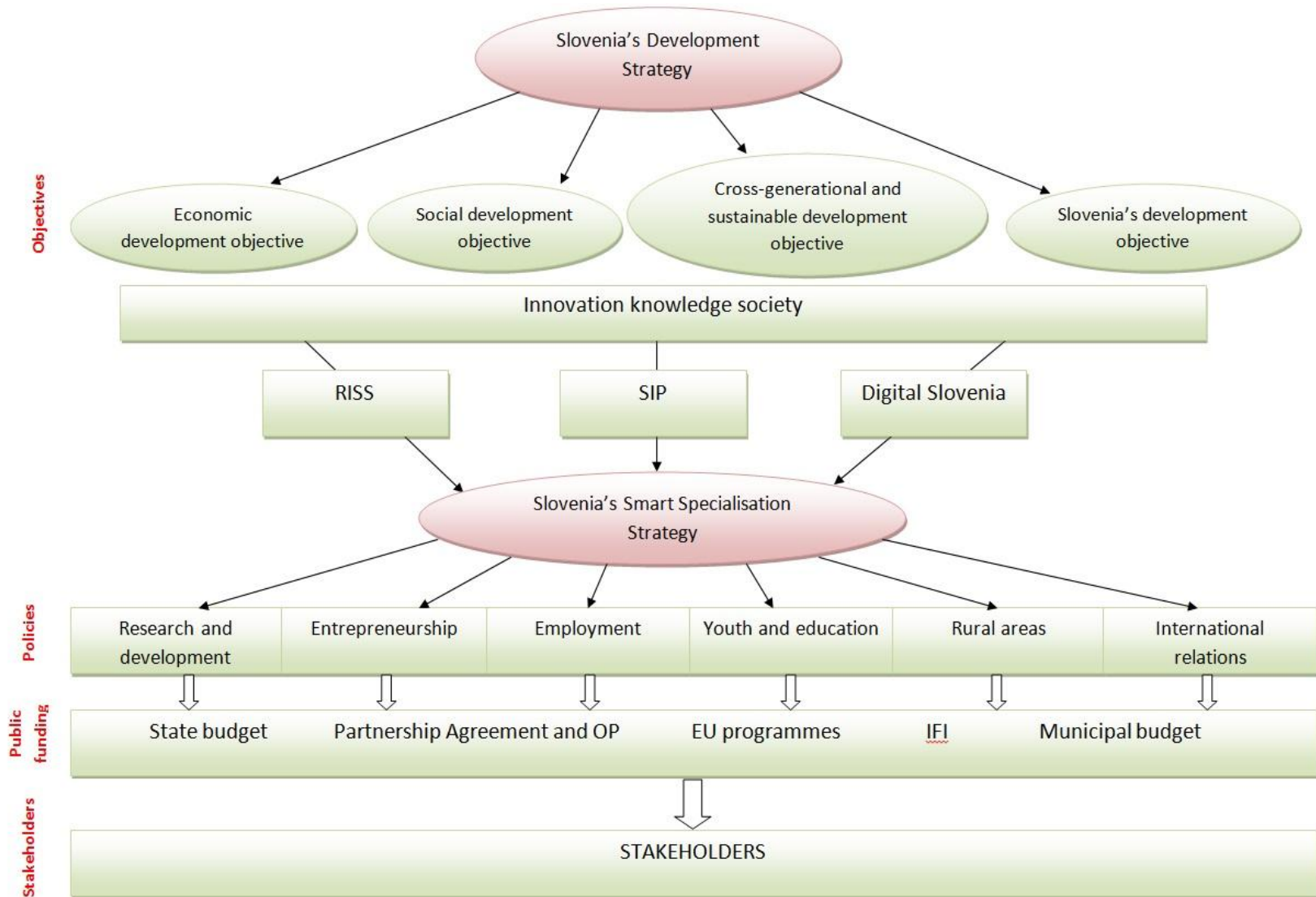
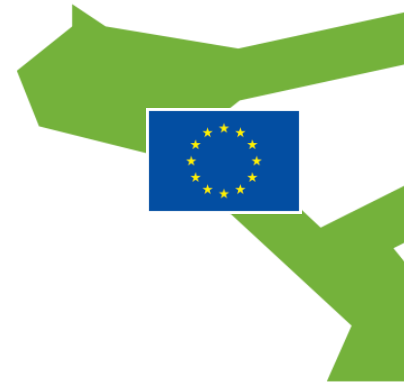
- Public call envisaged late september 2016
- First consultations with stakeholders done just after adoption of S4 – November 2015
- After stipulation of collaboration between stakeholders
- Aim: at the same time in 1 call 3 complementary areas: (i) functioning of SDIP, (ii) Competence Centres for HR and (iii) Internationalisation activities

Key ingredients of successful Entrepreneurial Discovery Process... ... SI experience



1. Understand (well) your **Context**
2. Clear & Convincing **Concept**
3. Proactive & Daring **Delivery**
4. Talk to people – **Communication & Cooperation**
5. **Leadership** & Politics
6. **Learn** from the others ... make shortcuts
7. Adapt **S3** to your needs → **S4**

7. Adapt **S3** to your needs → **S4**



I FEEL
SLOVENIA



THANK YOU

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