Evidence on Knowledge-intensive Industries in the Regional Innovation System of the Southern Great Plain

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Background and motivation

- Economic problem related to Hungary:
  - What are the drivers and boundaries for innovation
  - at the level of sectors and **less developed regions**?

- Sectoral and regional perspective of innovation performance and their interdependency less discussed and become relevant due to policy issues
- Need to map and analyze sectors as potential catalysts of regional economic development
  - **Knowledge-intensive sectors**
  - In regional **innovation systems**
  - with low innovation potential

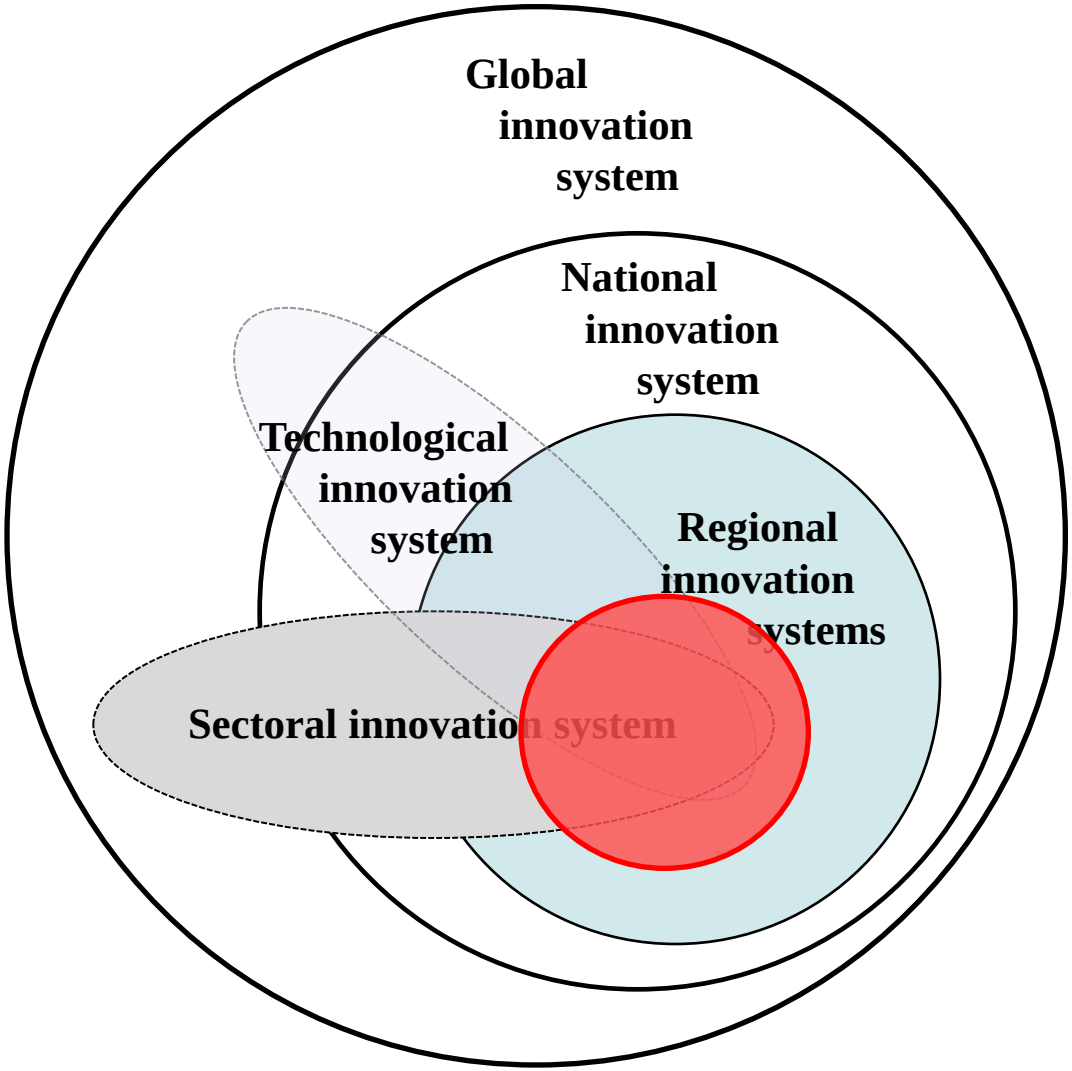
Structure of the presentation

1. **Theory – Interaction, interdepence of RIS and SIS**
2. **Regional economic conditions in LDRs (definition)**
3. **Evidence on the innovation activities of knowledge-intensive industries (questionnaire based survey)**

- **Research question:**

How innovation activities of knowledge-intensive industries can be characterized in the less developed NUTS2 region of Southern Great Plain in Hungary?

Theory - Interaction of innovation systems



Source: own construction based on Asheim – et al. (2011, 884)

Regional economic conditions in LDRs

Region is"*geographically-defined administratively-supported arrangement of innovative networks and institutions that interact heavily with innovative outputs of regional forms on a regular basis*"
(Cooke – Schienstock 2000, 273).

Source_	**Name, type:**
EC (Objective 1.)	less prosperous regions
Töddtling – Trippl (2005)	peripheral regions
Lagendijk – Lorentzen (2007)	non-core areas
Rosenfeld (2002)	less favoured regions
Asheim – Isaksen (2002)	- regional networked innovation system - territorially embedded regional innovation networks

Defining LDRs (synthetization)

Related to economic activities:

- dominance of small and medium-sized (SME) enterprises,
- low level of investment
- presence of traditional sectors and increasing role of knowledge-intensive sectors,
- low level of R&D activities and business services
- lack of networking and clustering efforts from a bottom-up perspective

Viewpoint of institutions and factors influencing innovation

- strong geographical, weak relational proximity among agents,
- lack of sources of qualified human capital,
- lack of knowledge and financial sources,
- like the low number of knowledge providers (university, research center, technology transfer institutions etc.).

Knowledge-intensive (and) innovative activities

		NACE Rev. 2.	Knowledge-intensive SMEs (n=400)		Innovative knowledge-intensive SMEs (n=127)	
			Number	%	Number	%
High-tech manufacturing industries		21	1	0,3	-	-
		26	12	3,0	4	2,7
Medium-high-tech manufacturing industries		20	7	1,8	3	2,00
		27	5	1,3	3	2,00
		28	21	5,3	12	8,1
		29	13	3,3	7	4,7
		30	2	0,5	1	0,7
All			61	15,5	30	20,2
Knowledge-intensive services	**High-tech knowledge-intensive services**	59	3	0,8	1	0,7
		60	1	0,3	1	0,7
		61	5	1,3	2	1,4
		62	18	4,5	8	5,5
		63	2	0,5	1	0,7
		72	27	6,8	15	10,1
	Knowledge-intensive market services	50	4	1,0	1	0,7
		51	2	0,5	1	0,7
		69	64	16,0	11	7,4
		70	19	4,8	4	2,7
		71	66	16,5	18	12,2
		73	10	2,5	7	4,7
		74	25	6,3	8	5,5
		78	3	0,8	2	1,4
		80	15	3,8	8	5,5
	Knowledge-intensive financial services	64	2	0,5	2	1,4
		65	3	0,8	-	-
		66	26	6,5	7	4,7
All			295	74,2	97	66,0
		All	**356**	**89,7**	**127**	**86,2**

Types of innovation (n=127)

Type of innovation activity	Yes, which is new to the market		Yes, which is new to the business		No	
	Number	%	Number	%	Number	%
Introduced new or significantly improved **product** (good) (n=126)	49	38,6	26	20,5	51	40,2
Introduction of new or significantly improved **service** (n=126)	38	29,9	36	28,3	52	40,9
Introduction of new or significantly improved **process** for producing or supplying goods or services (n=124)	32	25,2	27	21,3	65	51,2

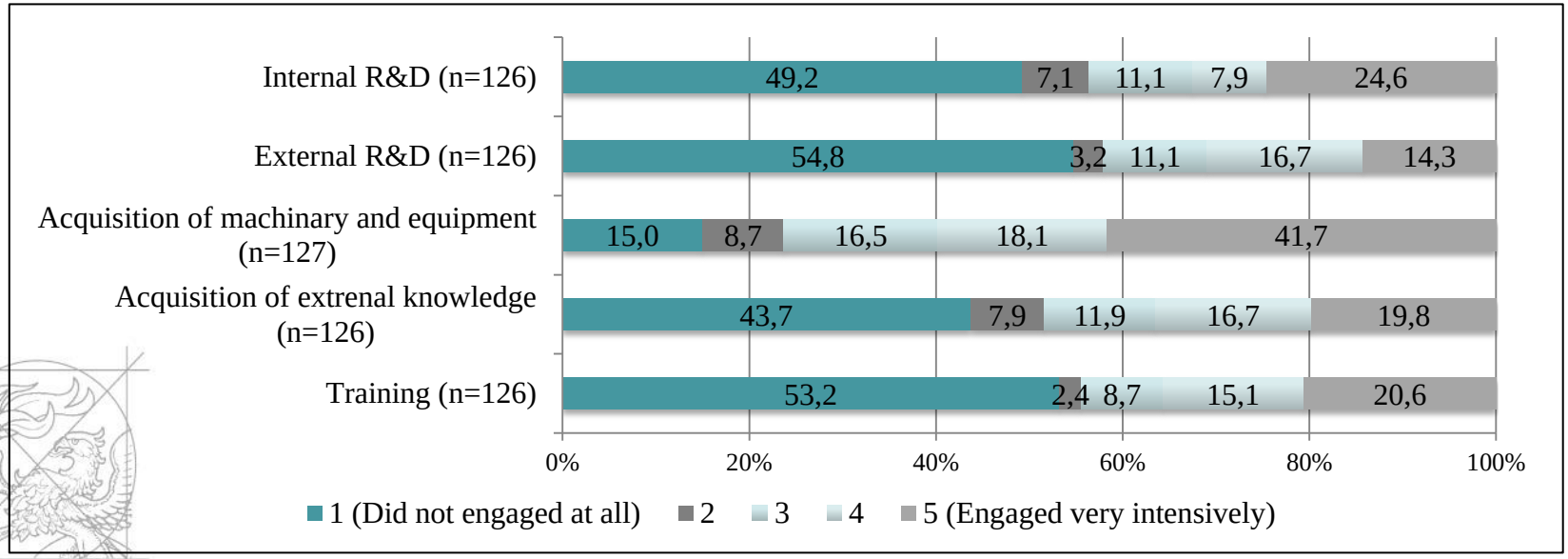
Types of innovation activities	Yes		No	
	Number	%	Number	%
Implementation of new or significantly changed **corporate strategy** (n=127)	36	28,3	91	71,7
Implementation of **new management techniques** within this business (e.g. new supplier technique - Just in Time system) (n=127)	31	24,4	96	75,6
Implementation of major changes to your **organization structure** (e.g. cross-site, teamwork) (127)	44	34,6	83	65,4
Implementation of changes to **marketing** concepts or strategies (n=127)	54	42,5	83	65,4

Objectives and barriers of innovation

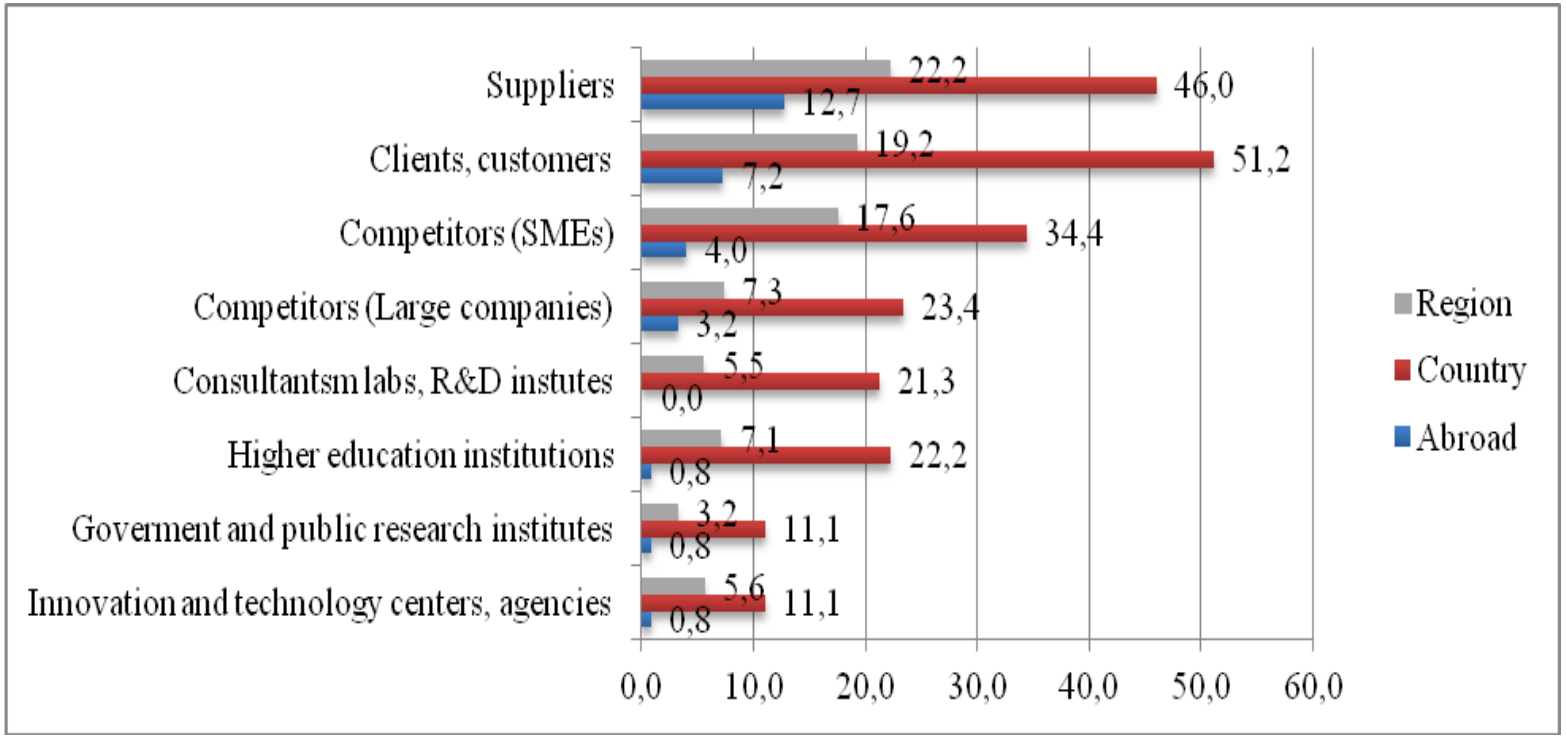
- **Most important objectives of innovation:**
  - Improving quality of goods or services
  - Increase range or goods or services
  - Increasing capacity, efficiency for producing goods or services
- **Most significant barriers:**
  - Constraints due to recent economic developments (e.g. recession)
  - Availability or lack of finance
  - Direct innovation costs too high

IPR and R&D

Form of intellectual property	Yes		No	
	Number	%	Number	%
did you apply for a patent? (n=127)	12	9,4	115	90,6
did you register an industrial design? (n=127)	4	3,1	123	96,9
did you register a trademark? (n=127)	7	5,5	120	94,5
did you produce intellectual products eligible for copyright? (n=126)	38	30,2	88	69,8



Geography of innovative partnership



- **Most important sources of information:**
  - Clients or customers
  - Suppliers of equipment, materials, services or software
  - Informal relations (family, friends, former colleagues etc.)
- **Clustering**: out of 400 enterprises 9,3% (37 cases) cluster member, 19 innovative

Conclusions

- Concept of SIS and RIS is used to examine innovation characteristics of knowledge-intensive firms in less developed regions
- Evidence on innovative knowledge-intensive industries in the Great Plain Region revealed some aspects, which appeared in the definition of less developed regions
  - Dominance of SMEs
  - Increased role of knowledge-intensive services
  - Low level of R&D
  - Lack of clustering
  - Lack of financial sources
  - Low number of relations with knowledge-providers
- Preliminary result → further analysis to reveal connection among factors

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Thank you for your attention!

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