The Swedish national innovation system and its relevance for the emergence of GINs

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   - Global generation of innovation
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1. Introducing GINs

- **Global**
  - Global: broad geographical spread North-South
  - Regional: limited geographical spread (e.g. Within Europe or between EU-USA)
- **Innovation**
  - Product, process; radical and incremental
- **Networks**
  - Global S&T collaboration;
  - Global sourcing of technology;
  - Global generation of innovation

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2. Overview

- Industrial structure
  - Handful large & high-tech multinational groups (10)
  - Handful top universities (10)

  Responsible for largest part of R&D performance and internationalization of Swedish NIS

- Highly specialiazed in high-tech industries and services (& very regionalized)
  - Clean-Tech – Stockholm/Uppsala
  - Automotive – Gothenburg
  - ICT – Stockholm
  - Material Science – Lund & Stockholm
  - Life Science – Lund (& South Sweden) & Stkhlm

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3. Is the Swedish NIS part of GINs?

- Global research collaboration
  - Most important partners are suppliers (78%) followed by clients (64%)
  - Geographically:

	Total innov	Sweden	Other Europe	USA	China and India	Other
Below 10 employees	40	94	63	30	18	22
10-49 employees	37	94	58	28	16	21
50-249 employees	43	96	69	29	20	23
More 250 employees	65	95	83	43	31	28

Percentage of firms that cooperate in innovation by size and location of the partner.
Source: Authors' own elaboration with CIS data (Eurostat, 2007)

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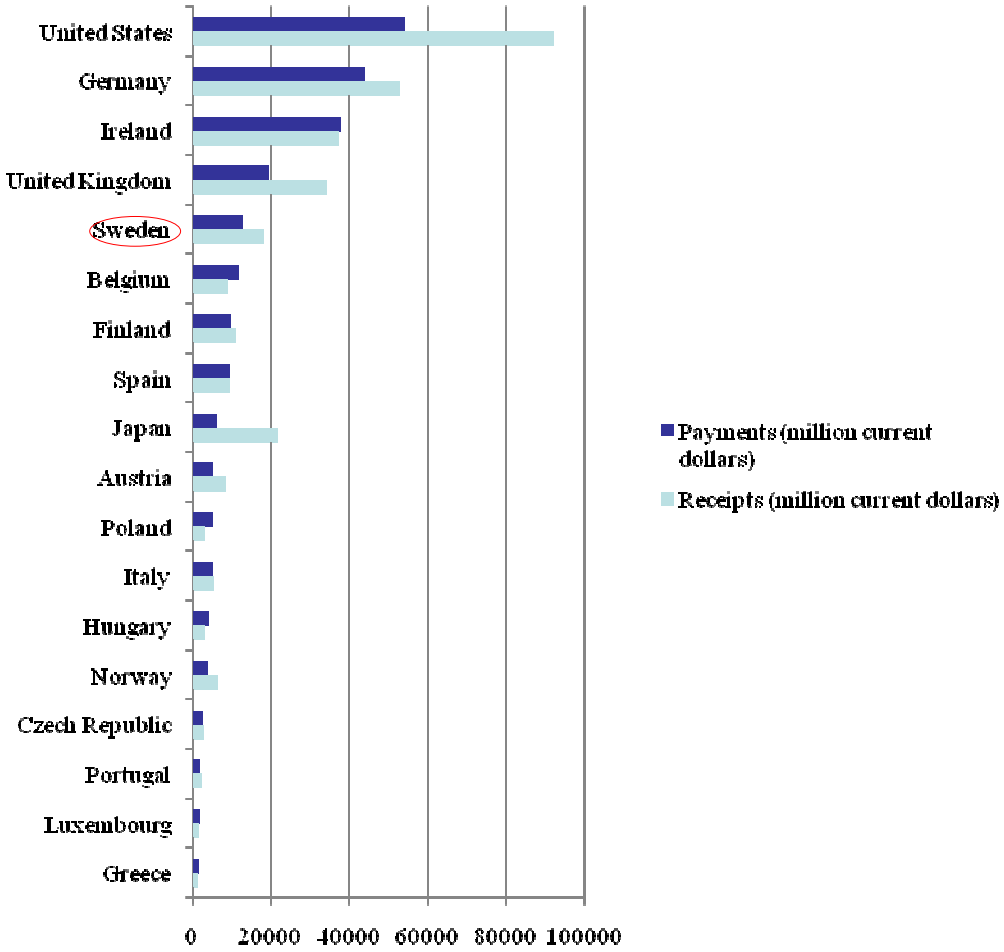
3. Is the Swedish NIS part of GINs?

- Global sourcing of technology



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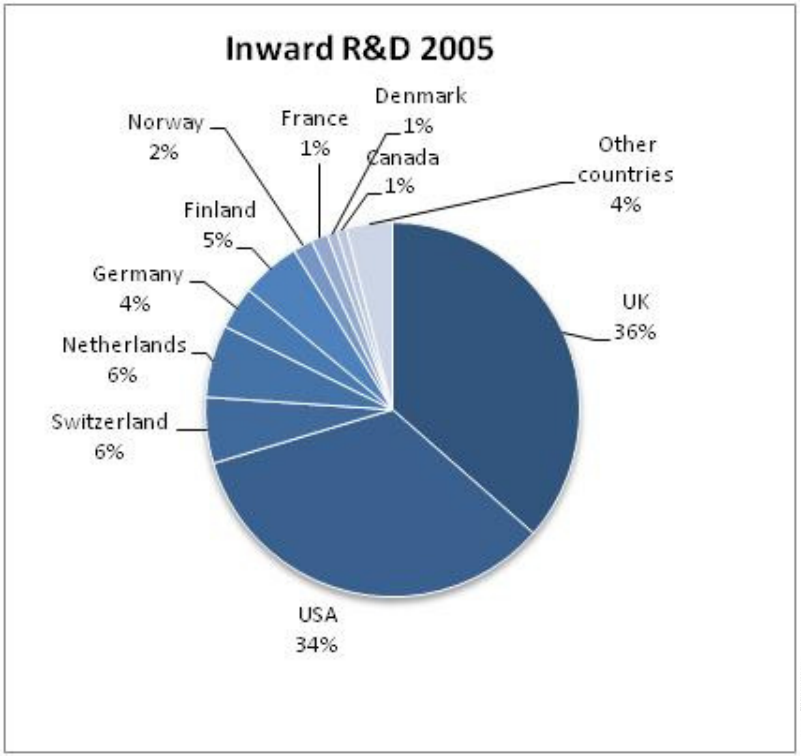
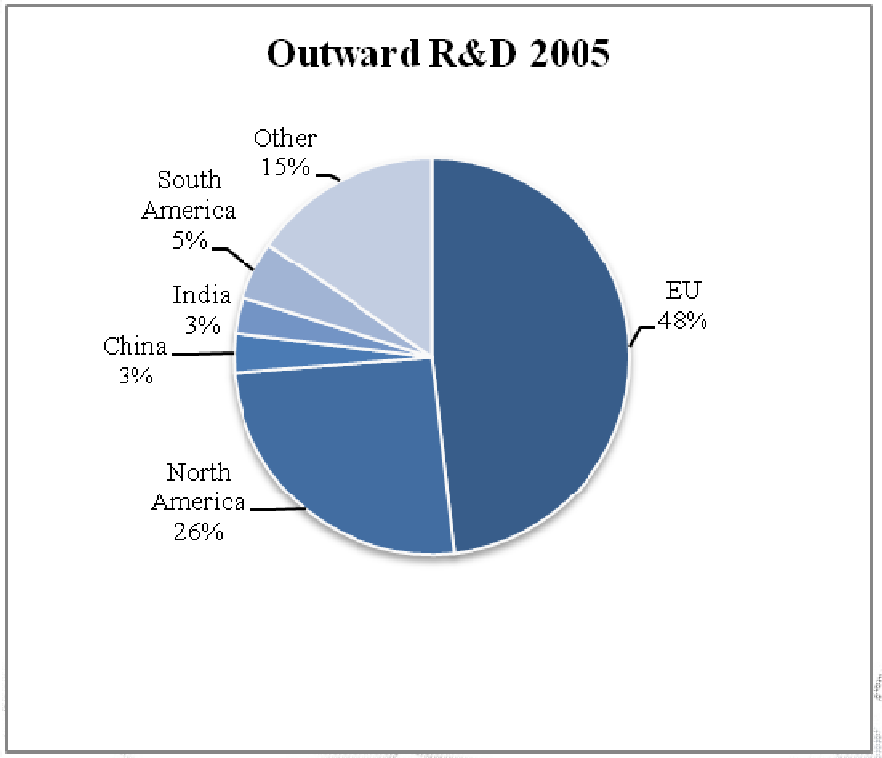
3. Is the Swedish NIS part of GINs?

- Global generation of innovations





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3. Is the Swedish NIS part of GINs?

- Swedish NIS highly internationalized
  - Global research collaboration
  - Global generation of innovations
- Geographical spread **still more regional than global**

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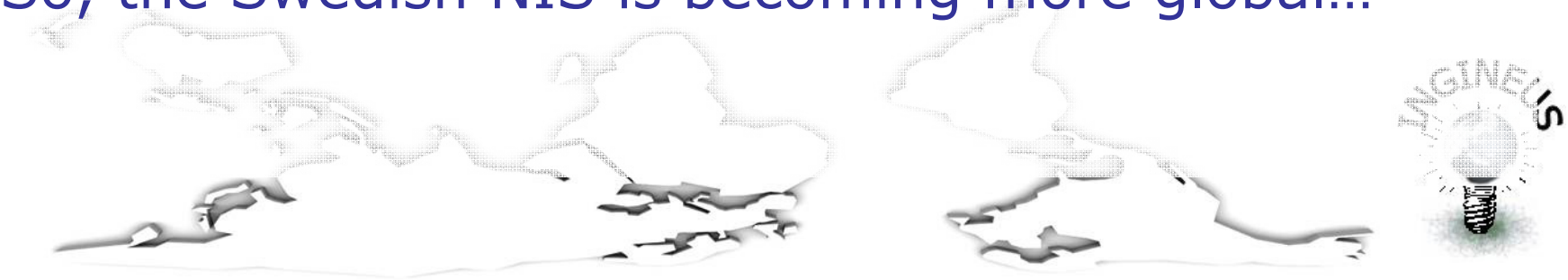
4. Trends & Challenges

- Percentage of students from CIBSs countries has increased dramatically in last decade
- Innovation collaboration & offshoring innovation to CIBSs by firms has increased
  - MNCs and
  - SMEs!! (20 % of innovative SMEs have collaboration with partners China & India)

So, the Swedish NIS is becoming more global…



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Number and percentage distribution of students in Tertiary education (2008)

Country of destination/Origin	Swedish students abroad-Foreign students in Sweden		Foreign students in Sweden	
	Number	%	Number	%
Nordic countries	2890	11,90	2714	8,69
Europe excl. Nordic countries	12273	50,55	11266	36,08
Africa	260	1,07	1314	4,21
South Africa	107	0,44	0	0,00
North and Central America	4621	19,03	1580	5,06
South America	406	1,67	385	1,23
Brazil	0	0,00	109	0,35
Asia	1789	7,37	7709	24,69
China	595	2,45	2253	7,22
India	0	0,00	866	2,77
Oceania	2038	8,39	455	1,46
TOTAL	24277	100,00	31224	100,00

Source: Table elaborated by authors with data from SNAHE (2010)

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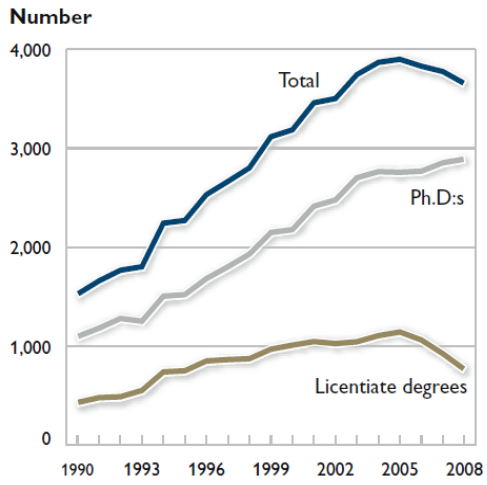
4. Challenges

- Will Swedish NIS continue to attract GINs?

GINs are attracted by accumulation of competences but...

1. Amount of students in tertiary education is decreasing
2. Inward R&D is decreasing
3. Competence to attract R&D intensive activities is increasing (large pools of qualified human capital in India or China)

Number of degrees awarded in tertiary education (1990-2008)



Source: SNAHE (2010)

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5. Policy recommendations

- Continue investing in world-class research and innovation capabilities

...beyond large MNCs

- Support of certain knowledge-intensive industries
- Facilitate mobility of qualified workers into Sweden
- And of international students

Thanks!
Comments & questions?

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