The Role of Regions Supporting the Emergence and Development of GINs: The Case of Beijing

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INGINEUS "Impact of Networks, Globalisation, and their INteraction with EU Strategies"
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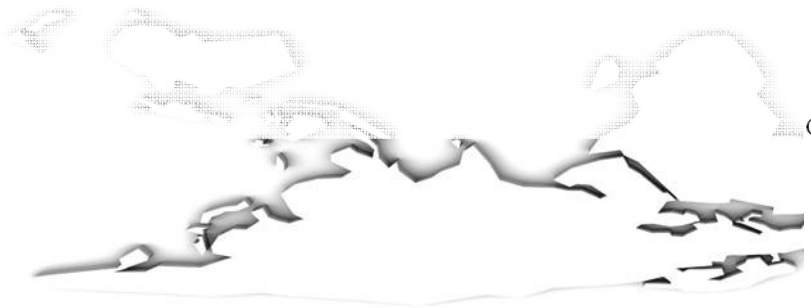
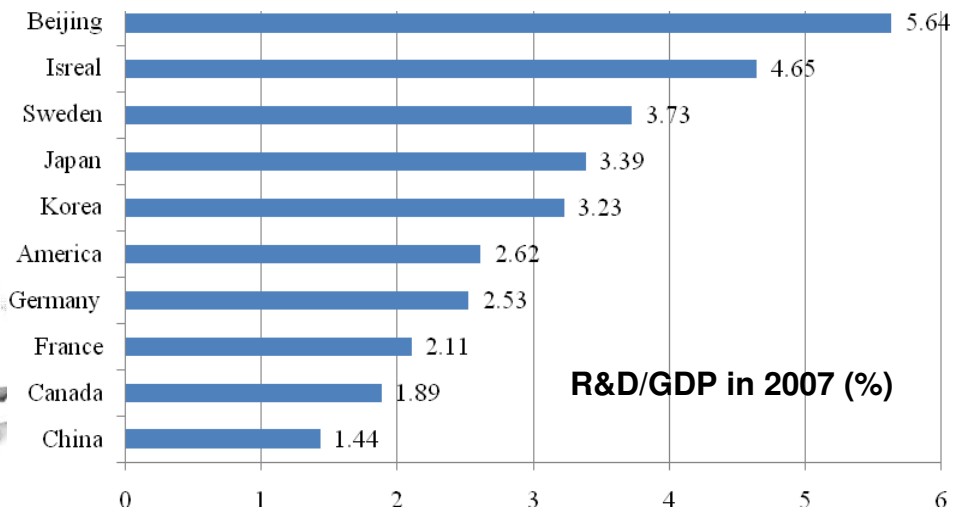
1. Introduction: the role of Beijing in GINs

- The economic, political, educational, research, and cultural center of China, advantages in becoming a hub in GINs
- The Chinese city most endowed with top-quality universities and research institutes
  - ICT: 1/3 computer and software, 1/2 intelligent system integration, 1/2 semiconductor professionals in China
- invested heavily in innovation activities, strong research infrastructures





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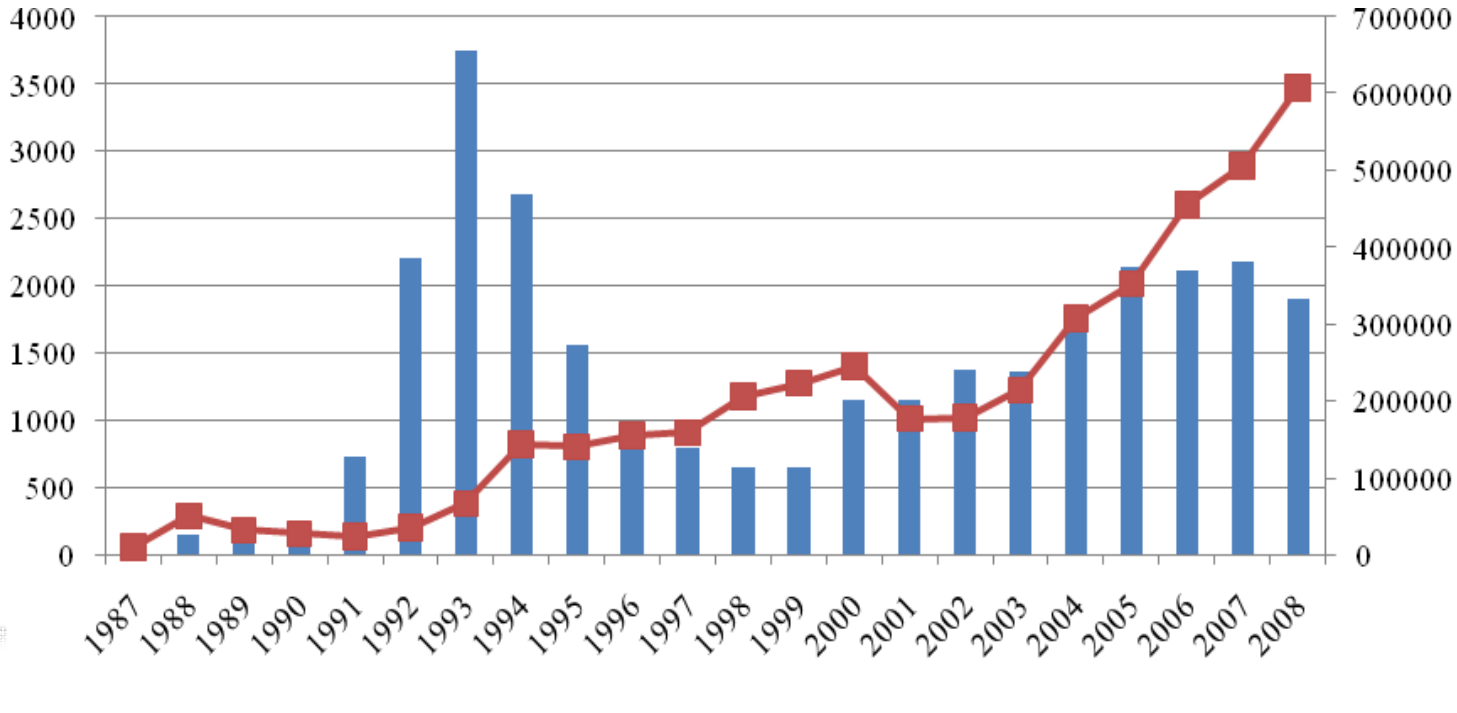
1. Introduction: the role of Beijing in GINs

- High-tech industries as pillar industries
  - industrial added value accounted for more than 20% of GDP, successful high-tech companies
- Three main clusters:
  - High-tech – Zhongguancun Science Park
  - Modern manufacturing - Beijing Economic and Technological Development Zone
  - Modern service – financial street and CBD
- A cluster with headquarters and R&D institutions of large multinationals
  - 30 global headquarters of "Fortune Top 500"
  - 278 R&D institutions established by multinationals

2. Brief history of RIS

- Evolution of FDI in Beijing:



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2. Brief history of RIS

FDI by Sectors of Beijing, 2008 (USD 10,000)

Sector	FDI projects		Actual Utilized FDI	
	Number	Percentage (%)	Value	Percentage (%)
Total	1897	100	608172	100
Manufacturing	105	5.54	150056	24.67
Leasing and Business Services	569	29.99	132541	21.79
Information Transmission, Computer Services and Software	317	16.71	105396	17.33
Real Estate	16	0.84	78787	12.95
Wholesale and Retail Trade	510	26.88	34677	5.70
Hotels and Catering Services	71	3.74	3357	0.55
Agriculture, Forestry, Animal Husbandry and Fishing	7	0.37	2032	0.33
Construction	7	0.37	1715	0.28
Others	295	15.55	99611	16.38

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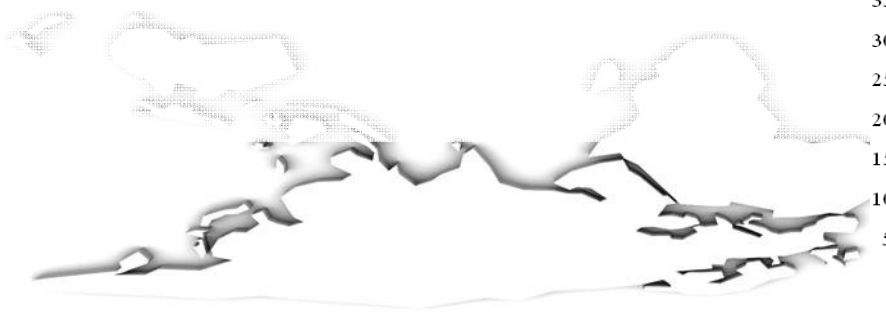
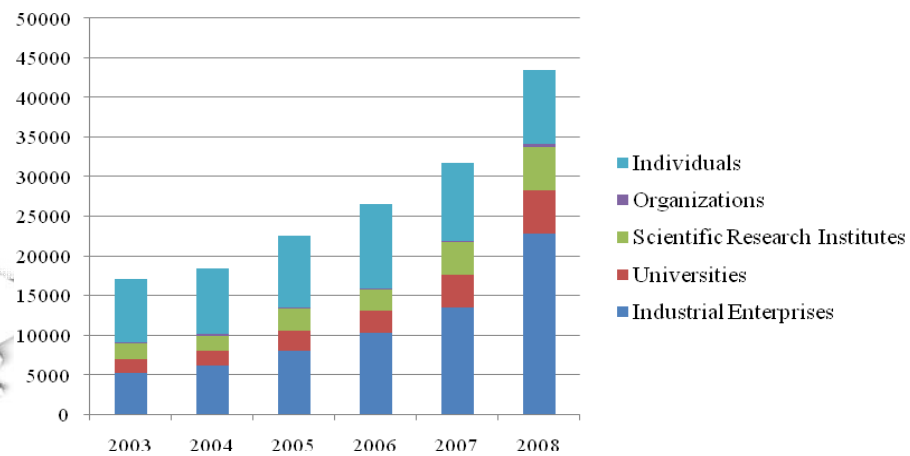
3. Composition of RIS

- 1. Enterprise system
  - primary 1.08%, secondary 25.68%, tertiary 73.25%
  - 293,746 registered firms
    - Dominant by small firms (90.97%)
    - Output value by industrial firms: domestic firms (58.19%), foreign firms (41.81%),but the proportion of new product output value of domestic firms (27.79%) is lower than foreign firms (32.13%)
    - Export: dominant by domestic firms (60%)
    - Active in patent application

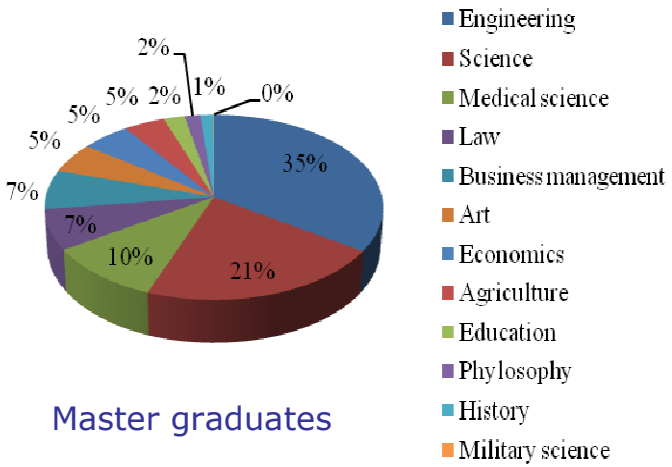




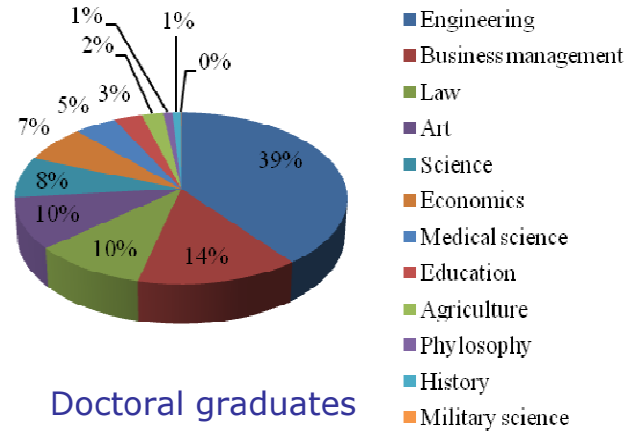
3. Composition of RIS

- 2. Educational and research infrastructure
  - Provider of senior talents

Year	Bachelor			Mater			Doctor		
	Beijing	China	Percentage	Beijing	China	Percentage	Beijing	China	Percentage
2004	72679	1465786	4.96%	23276	162051	14.36%	6273	27677	22.67%
2005	85109	1465786	5.81%	27381	162051	16.90%	7770	27677	28.07%
2006	91756	1726674	5.31%	36681	219655	16.70%	9433	36247	26.02%
2007	95052	1995944	4.76%	42101	270375	15.57%	10658	41464	25.70%
2008	102631	2256783	4.55%	44748	301066	14.86%	11298	43759	25.82%



Master graduates



Doctoral graduates

- R&D collaboration with multinationals

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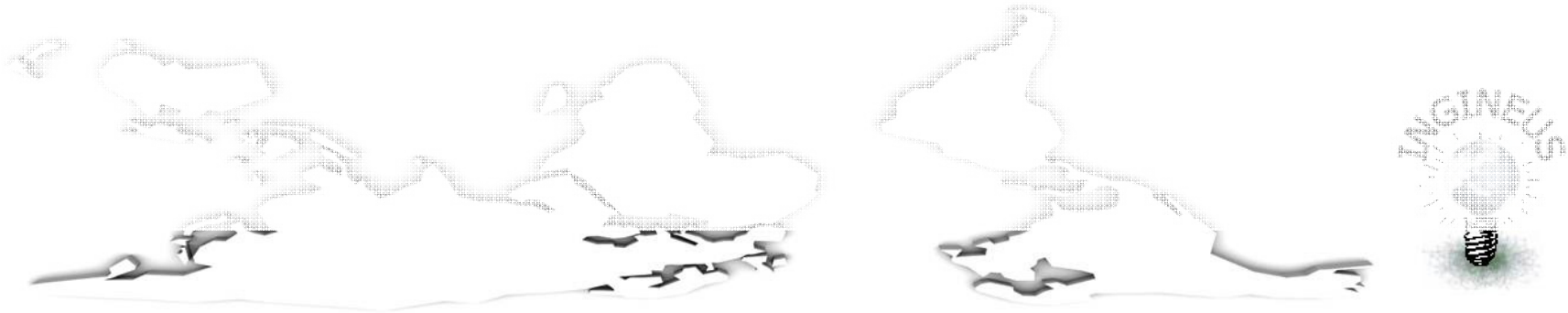
3. Composition of RIS

- 3. Government
  - Creating an innovation friendly business environment:
    - policies on patent protection, promotion of S&T intermediaries, construction of technology market
  - Preferential treatment to attract multinationals
    - taxation , talent policy
  - Indigenous innovation
    - public procurement, encouraging patent application and technology standard setting
  - Stimulating collaborations among innovation actors
    - establishment of industrial alliances



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3. Composition of RIS

- 4. Intermediate organizations
  - More than 9,000 intermediate organizations with 180,000 employees
  - incubators, technological innovation service centers, productivity promotion centers, technology transfer centers, technology markets, consulting services, human resources headhunters, and regional scientific societies.

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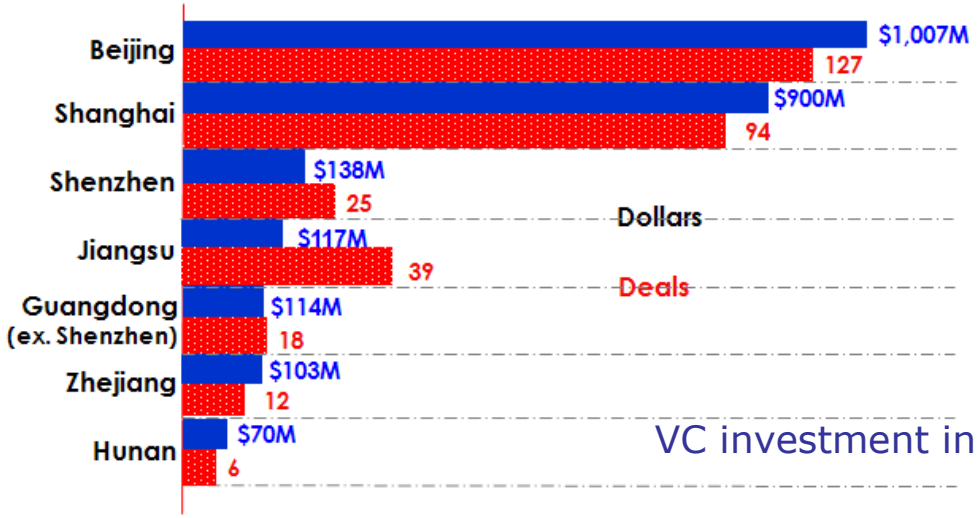
3. Composition of RIS

- 5. Innovation financing system
  - Venture capital
    - Most developed cities in VC
    - Three types of VC
      - Government VC firms
      - University VC firms
      - Corporate VC firms (more and more foreign VC firms)



VC investment in 2007

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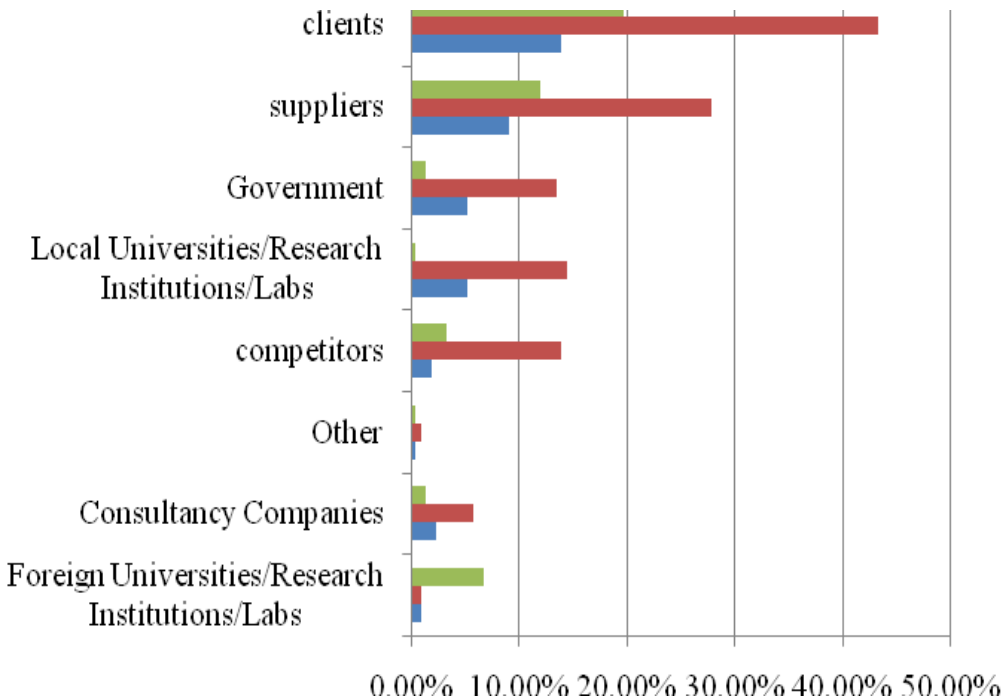
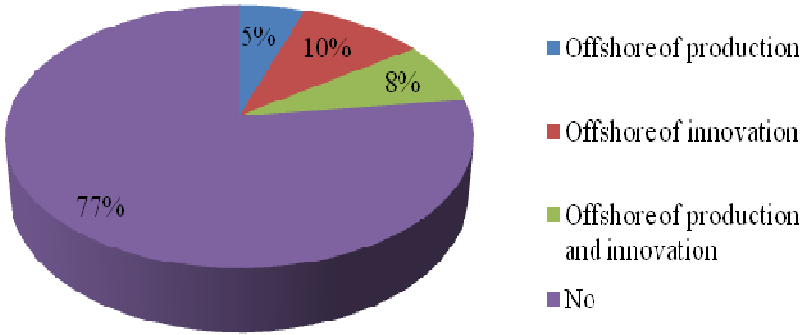
4. Functioning of RIS in GINs

- Attracting knowledge intensive activities
- Promoting local and international linkages

Geographic Distributions of Organizations Respondents Actively Collaborated with





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5. Challenges

- The R&D system of multinationals is still a closed one, so little linkages with RIS
  - From 2001-2006, 88.32% of the technology contract value sold by multinationals with R&D centers in Beijing flowed outside China, among which 99.84% is bought by their headquarters
  - Only 1.88% of the technology contract value flowed into Beijing, and 9.80% flowed into other provinces in China.
  - the technology contract value sold by multinationals with R&D centers in Beijing focused on electronic & information (76.87%) and modern manufacturing (10.51%)
- Competition for talents in key industries while so little spillover of core technology!

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6. Conclusion

- Beijing plays an increasingly important role in GINs
  - Privision of knowledge, qualified but low cost human capital, innovation firendly environment;
  - Efforts in attracting knowledge-intensive activities, and promoting local and international linkages
- Innovation in Beijing are deepening from development to research
- RIS facilitates the emergence and development of GINs
- Competiton for talents and market is a challenge for domestic firms