



GUIDELINES FOR INNOVATION POLICY: ITALIAN AND GERMAN CASES



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Innovation → driving force of economic growth
(Lisbon Council, 2000; Bottazzi and Peri, 2003)



Central role in policy definition



Crucial elements for Countries'
evolution (Morgan, 1997)

Policy → different forms / aims / effectiveness of
results (Hagedoorn, 1996)

In Italy → Disconnection school-university system - firms' world

INNOVATION PROBLEMS

Solved by:

- Modern innovation policies → Old strong linkage among knowledge spillovers / space / innovation

New mainstreams:

- collaborative relationships among local actors
- continuous labor force training
- involvement of institutions
 - local academic
 - firms/ SMEs



Good Practices (GP)

High Potentials (Ready *et al.*, 2010)

- High knowledge subjects → outperform their peer groups
- professionals in engineering technology / natural science
- talented people / skilled labor forces

- the companies' culture → sticking with firm's needs
- senior positions / leading roles in firms - local economies
- hold up TT processes → replace the governance systems lacking in RIS

▪ create → localized patterns of innovation, capabilities and technological growth (Howells 1996)



spatial concentration of GP

identification of 'innovation islands'
(Davelaar and Nijkamp, 1989; Simmie, 1998).

Innovation Policy Background

- '60: *knowledge-based economy* theories (Machlup, 1962)
- '70: OECD Countries ➡ knowledge, education, labor force training, R&D (Hagedoorn, 1996; Lundvall, Borràs, 1997)
- '80:
 - Connection 'knowledge/innovation' (Nelson, Winter, 1982; Morgan, 1997) / *technological paradigm* (Dosi, 1982; Freeman *et al.*, 1982)
 - **Innovations** = whole of "technological possibilities within the horizon of producers" (Schumpeter, 1934; Hagedoorn, 1996) ➡ linkage knowledge / technical changes (Heertje, 1988)
 - Neglected themes as firms' *low absorptive capacity* and *need of innovation support* (Tödtling, Trippl, 2005).
- '90:
 - Key role of knowledge / learning activities (Kotler, Armstrong, 1993; Stolper, 1994; David, Foray, 1995; Foray and Lundvall, 1996; Howells, 1996; Nelson, 1996; Cooke, 1998; Lundvall, 1999; Foray, 2000; Colombo *et al.*, 2006a)
 - Connection 'knowledge/learning/innovation' -> knowledge elements tightly inserted in economic theories
 - 'learning' was admit as the better solution to increase the Countries' competitiveness (Capello, 2007) -> *learning economies* (Lundvall, 1992)
 - '*knowledge and new technology based firms*' (NTBF) rose (Autio, 1997a,b., Morgan, 1997)

- **Small size industries** = important examples of **technical improvement** (OECD, 1996): **competitive advantages** thanks to the 'learning by using' approach (Lundvall, 1992; OECD, 1996; Lambooy, 2005; Popadiuk, Choo, 2006), mostly relying on **incremental, non-R&D based product innovation** (Morgan, 1997; Asheim, Coenen, 2005).



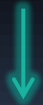
Today: Increased globalization / acceleration of innovation rates



EU / Central National governments



efforts to cope with larger challenges



Specific innovation policies (strong link knowledge / innovation – Schumpeter, 1934, 1939)

New growth theories:

- **knowledge spillovers** (Anselin *et al.*, 1997; Audretsch, Feldman, 1996; Jaffe *et al.*, 1993) / **economy** (Nonaka, Takeuchi, 1995)
- **cluster approach** (Porter, 1990, 1998; Steiner, 1998; Swann *et al.*, 1998; Enright, 2003)
- **R&D** New Ideas (Bottazzi, Peri, 2003) Centrality of R&D internally made (Griliches, 1979; Cohen, Levinthal, 1989, 1990; Crepon *et al.*, 1998; Novero, 2011)
- **Cognitive capabilities** of decision-makers are 'deficient' (Lambooy, 2005)
- **Public interventions** supporting firms / Countries' through **knowledge/ innovation relationship**
- **Innovation** = key for forefront of global economic, high-wage jobs, social equity (Lisbon Council, 2000)
- Public mechanisms of **knowledge dissemination**: top-down processes (Howells 1996, 2002; Iammarino 2005)
- **Innovative spillovers**, matching among firms, schools and research institutes to spread the knowledge (Griliches, 1979; Anselin *et al.*, 1997)



Public policies

- Network structures (Shankerman, 1981; Jaffe, 1986)

Industrial districts (Porter, 1998; Pyke *et al.*, 1990)

Technopoles
(Cooke, 2001 a,b)

Firms' clusters (Porter, 1990; Ache, 2002)

Technological districts (Antonelli, 1986a,b, 2000, 2001; Antonelli, Marchionatti, 1998; Antonelli, Calderini, 1999)

Innovation networks (Camagni, 1991; Grabher, 1993),

Innovative milieu (Lambooy, 1986, Aydalot and Keeble, 1988;

Crevoisier and Maillat, 1991; Ratti *et al.*, 1997).

- Co-operative relationships inside RIS (Jorde, Teece, 1990; Fritsch, Franke, 2004)
- Co-operative high-quality activities (Storper, Harrison, 1991; Harrison, 1992; Fritsch, Franke, 2004; Colombo *et al.*, 2006a)
- Sectorial and territorial specializations (Uyarra, 2010)

learning mechanisms at
local level (Lundvall, 1999)

High-quality training
processes of the local
intellectual workforce
(Oughton *et al.*, 2002)

HPs forging (Fritsch,
Franke, 2004) trigger off
many positive reaction
chains (Fritsch, Franke,
2004)

Spin-off firms (Tödtling, Trippel, 2005) /
TT mechanisms (Van Oort, 2003; Novero,
Rolfo, 2011)

E.U. theoretical guidelines



2011- 14: IDEA Project (Innovative Development of European Areas by Fostering transnational Knowledge Development)



Two empirical examples:

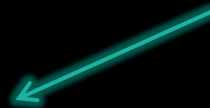
- Alessandria Region - Italy
- Chemnitz Region - Germany



- Italian agglomerations at NUTS 2 level (1998)
- Southeast of Piedmont region (North Italy)
- Centre of Italian industrial triangle “Turin-Milan-Genoa”
- Interconnection among several industrial areas
- Regional networked Innovation System - III Type (Asheim, Coenen classification, 2005)
- High score in Italian “Research Programs of National Relevance”

Innovative / traditional - districts
/ technological platforms

- excellences in firm / university collaborations
- sectorial specializations



- Agricultural / manufacturer products, wood works
- Mechanical and chemical goods → packaging and plastic productions
- Graphic and publishing industry
- Logistic / tertiary firms / Transport sectors
- Gold and jewellery Piedmont district
- Piemonte Orientale' University (Faculties of Law and of Political Science - Polytechnic of Turin)
- Research Centres supplying technological services

Chenmitz Region

- Urban district Free Federal State of Saxony
- Near homonymous river , international airport, efficient network of roads
- Innovation in East Germany → Patent system
- Trade / Industrial-technological / Engineering Center
- Technology-oriented start-up - SME around old Siemens
- Computer (IBM), motor-vehicles (Volkswagen), iron / steel (ThyessenKrupp) sectors
- Microsystem technology and RFID applications
- TT and R&D
- Attractive living environment, high salaries, skilled education → keep local intellectual resources (HPs) in the region

Problems

- international crisis,
- little dimension of local firms
- short-term credit / sustainability
- high disconnection university / firms
- low interest in innovation and high abilities by SME

} Competitiveness Gaps



Local governments and Research Centers of local universities started several initiatives oriented to support the local competitiveness and the HPs rising



Good Practices

Different (discrepant economic heritages of the two observed regions and educational systems) but Innovation by knowledge principle

Innovation processes strengthening the knowledge spreading in local contexts

Alessandria Good Practices

- Training courses, High education apprenticeship contracts, High training and apprenticeship masters



Project works, during the firm-training period, collaboration with industries of the area: scientific and technological topics

(sustainable mobility, advanced logistic, multimedia industries, airspace, agro-alimentary, life science, biotechnologies, nanotechnologies, new materials, alternative energies)



HPs' development:

Alessandria University,
Turin Polytechnic,
Confindustria Association
Proplast Consortium,
CTS (City of Technology,
and Science) Consortium,
Local Research Centers

Ph.D. qualifications
/specializations after
University degree / high
technical qualification /
increase HPs'
knowledge / foundation
of about 100 new firms
(10 spin-off firms)

FIxO Project (Training & Innovation for Employment): discover HPs, lower the period between university studies and work, realization of 'Italy 2020' strategic objectives, reduction of unemployment among the newly-graduates



Industrial Liaison Office ➡ 6 patents by departments of “Medicine and Medical Sciences”

Alessandria Consortium for the Development of the Scientific and Technological Culture: industries / trade associations / Alessandria University

“Alessandria 2011’ event:

- insertion of young in labor market;
- foundation of research laboratories,
- realization of seminars on work orientation,
- firms collaborations, purposive to Alessandria 2018 Strategic Plan : firms technological innovation, internalization, human capital training and the financial capital development.

2010: Tecnogate by Alessandria ConfAPI (Small Firms’ Confederation) increase the firms’ internal research and innovation

Proplast Consortium (205 members: 179 firms; 13 faculties; 10 trade associations and 3 public bodies), in collaboration with the Turin Polytechnic: diffusion of the local know-how and the increase of HPs’ opportunities

Bip Virtual Fair: Virtual career day allowing the meeting of newly graduated / the most important local and national firms

Germany Good Practices

to attract, to find, to bind, to develop and to support HPs

- Public institutions (Intermediary, Qualification or Policy Institutions),
- Industry networks
- Labor market bodies/Job Agencies
- Pilot R&D projects
- Career Services
- Initiatives sustaining students and unemployed people
- Technological sectors (computer manufacturing, electronics and optical products) and in sectors of electrical equipment, machineries and vehicles

Day of industrial culture

Night of science

Weeks of Open Companies

Girl's day

- Marketing activities (fairs, information days at university and visits of the companies)
- SIT fair - Fair for Industry and Technology in Saxony;
- IT-Alliance: co-operation, in recruitment activities, among the Technical University of Chemnitz and companies of the IT branch;
- Alliances of Mechanical Engineering, where projects/tasks/problems solved are presented;
- Website 'Chemnitz attracts!': advantages and possibilities for people working in the region and ones supporting corporations in finding HPs;
- Online job platform 'Chemnitz zieht an!' ('Chemnitz is booming') useful to look for skilled people;
- Job portal, offered by the Chemnitz city, showing and promoting Chemnitz' potential.
- Specific VERNETZUNG project ("to net") to support local innovation / competitiveness and increase HPs' knowledge.

Good Practices (GP)

GP 1

High training and apprenticeship masters, realized by the universities in collaboration with firms

ITALY:

- High education apprenticeship contracts,
- High training and apprenticeship masters
- FIxO Project

GP 2

Collaborations among technologically advanced firms and local universities in student's projects

ITALY / GERMANY:

R&D initiatives to improve the SMEs/HPs contacts and the students' entrepreneurial abilities

GP 3

Collaborations among triple helix actors in training courses and innovative transfer actions, firms/university networking experiences

ITALY / GERMANY:

Courses, training periods, meetings, seminars for work orientation and supports to spin-off firms, Career Services of Technical University. projects increasing firm / university connections

Good Practices (GP)

GP 4

Web site working for the development of human resources

GERMANY:
presenting strengths, advantages and appeal of the territory, for HPs.
Instruments to find HPs, facilitates the contacts companies / traineeships candidates

GP 5

Support to newly graduates in the research of work positions

ITALY / GERMANY:
FlxO Project and Alessandria 2011, Weeks of Open Companies, Career Services

GP 6

Collaborations 'Industries / Universities' to 'make' the right High Potentials

ITALY:
training courses of university, Confindustria and ProPlast Consortium focalized on HPs training.

GP 7

Public initiatives of promotion of the firms' production

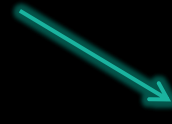
GERMANY:
local corporations with open doors to pupils, the girls learn about technical studies, exhibitions and lectures about firms' daily business internships/projects offered to students.

- Defined in conformity with “innovation by knowledge” principle
- Carried out by different actors: integration innovative / learning organizations, networks of public and private subjects (universities, academies, work associations, institutions for business development, training and working agencies, firms, SMEs)
- Stimulus of entrepreneurship among the academic staffs
- Harmonization of differences within the single regions in terms of knowledge, agreements and cooperation territory advantage
- AV of social and economic differences of each area
- Incentives for innovation (subsidies for private or public provision and use of public funds)
- Actors co-ordination in managing different market problems (Grilli, Mariotti, 2006),
- Support for creation of R&D networks, industry/university interfaces, bridging institutions (European Commission, 1993)
- Solution for market failure problems and firms ‘locked-in’ in technological paradigms



NO general “Best practice recipes” for network innovation policies or instruments (Lundvall, Borras, 1997), but some general lessons can be learnt:

- Initiatives developed at regional or local level the best frameworks in which collaborative relationships among the actors can be easily built.
- Collaborations between private and public bodies the cost /risk for individual organizations is very high (Lundvall, Borras, 1997)



Alessandria: more oriented towards HPs creation, focused on learning / training actions to develop HPs.



High attention to the culture diffusion and Improvement of scholastic system: it is not very advanced yet and it doesn't offer courses fitting with the firms' needs.

East-German: more oriented to increase the university / firms link, firms/students meeting.



Scholastic system is generally already efficient and German local schools are able to forge HPs. They need support in firms meeting.