

Lisbon Research and Policy Workshops
on
"Science, Technology and Social Change"

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*Real science, reliable knowledge and the complementarity of
"open science" and property knowledge*

In praise of a "useless" research

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The scenario



- ⌘ Neo-liberal policies which view science and technology as instruments of economic performance and competition
- ⌘ Privatisation of public knowledge
- ⌘ The danger to jeopardise the integrity of universities
- ⌘ The pendulum has gone too far

The benefits of basic research



- ⌘ The output of academic research activity (Salter, Martin):
 - increasing the stock of useful knowledge,
 - training skilled graduates,
 - creating new scientific instrumentation and methodologies,
 - forming networks and stimulating social interaction,
 - increasing the capacity for scientific and technological problem-solving,
 - creating new firms.
- ⌘ The benefits of basic research are often small, difficult to identify and measure, and mostly indirect. Public funded basic research should be viewed as a source of new ideas, opportunities, methods and, above all, people able to solve problems

The link between science and society



- ⌘ Is university really disconnected with society?
- ⌘ The patenting of European university professors: much more than it is believed
- ⌘ The partnership depends on both partners

The scientific output of CNR

Typology of output	2000	2001	2002
Editorial activities	211	224	217
Organisation of meetings and congresses	215	175	198
Organisation of courses, schools, seminars	935	649	750
Patent applications	77	90	76
Articles published in JRC journals	5.094	4.941	4.916
Articles published in international journals	944	929	909
Books published by foreign editors	496	461	438
Papers in proceedings of international congresses	2.262	2.386	2.433
Presentations to international conferences	3.930	3.627	3.934
Articles published in national journals	1.004	894	850
Books published by national editors	488	479	522
Papers in proceedings of national congresses	898	833	854
Presentations to national conferences	2.418	2.479	2.581
Working papers, technical reports, other publications	1.926	1.579	1.565
Data bases	144	136	162
Collaboration to journals and congresses	1.915	1.213	2.457
Teaching university courses	1.208	841	907
Teaching other courses	413	340	467
Dissertations prepared in labs	2.028	1.526	1.737
Ph.D. students	609	661	655
Fellowships	571	370	286

Government budget appropriations for R&D in selected OECD countries by socio-economic objective
Percentage share and expenditure in billion euro - 2000

Socio-economic objective	Germany	France	Italy	United Kingdom	Europe 15	Usa	Japan
Exploration and exploitation of the Earth	1,8	0,6	1,6	1,4	1,4	1,3	1,7
Infrastructure and general planning of land-use	1,6	0,7	0,3	1,8	1,5	2,0	3,7
Environment	3,4	1,8	2,5	2,6	2,7	0,7	0,8
Human health	3,4	5,6	6,8	15,2	6,3	22,8	3,9
Energy	3,5	5,1	4,5	0,5	3,4	1,4	18,1
Agriculture	2,5	2,5	2,1	4,1	3,3	2,2	3,5
Industry	12,3	6,4	15,5	0,6	9,9	0,5	6,8
Social structures and relationships	3,6	0,7	3,5	3,7	3,0	0,9	0,9
Space	4,5	11,0	8,7	2,5	5,9	10,5	5,6
Research financed from General University Fund	38,5	17,9	42,6	21,1	31,0	0,0	35,4
Non-oriented research	16,6	22,5	11,2	13,4	15,3	6,1	14,0
Other civil research	0,1	2,6	0,0	0,4	1,4	0,0	1,5
Defence	8,0	22,6	0,9	32,8	14,8	51,8	4,1
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Total (billion euro)	16,3	13,1	6,8	10,2	61,9	87,6	33,0

“The role of the universities in the Europe of knowledge” Communication



“The knowledge society depends for its growth on the production of new knowledge, its transmission through education and training, its dissemination through information and communication technologies, and on its use through new industrial processes or services. Universities are unique, in that they take part in all these processes, at their core, due to the key role they play in the three fields of: 1) research and exploitation of its results, thanks to industrial cooperation and spin-off; ii) education and training, in particular training of researchers; and iii) regional and local development, to which they can contribute significantly.”

“The role of the universities in the Europe of knowledge” Communication



“A major obstacle to better application of university research results is the way intellectual property issues are handled in Europe. In the USA, the “Bayh-Dole” Law has given organisations in which research is conducted using federal funds, particularly the universities, ownership of their results in order to encourage application of academic research results [...]. In addition, European universities do not have well-developed structures for managing research results [...]. Another contributory factor is the lack of familiarity of many university staff with the economic realities of research, particularly the managerial aspects and issues regarding intellectual property”

The objectives of the European policy



- ⌘ Contribute to sustain the increasing costs of university education and public research
- ⌘ Facilitate the rise of the share of GDP devoted to R&D

The negative effects of university patenting



- ⌘ Substitution effect between publishing and patenting
- ⌘ Threat teaching quality
- ⌘ Negative impact on the culture of open science
- ⌘ Diverting research resources from the exploration of fundamental long-term research questions to issues suited to intellectual property rights
- ⌘ Threat to future scientific investigation (Geuna, Nesta)

Patent returns are modest and concentrated



- ⌘ “It is a myth expecting that universities can get much money from their patenting and licensing activities ... it is likely that the majority of them keeps open technology transfer offices whose costs are higher than returns, whereas few benefit financial gains majority of universities’ transfer offices produce losses” (Nelson).
- ⌘ High concentration in the US in few universities in the number of patents.
- ⌘ “The winner takes” all scenario

In praise of a 'useless' research



- ⌘ The pendulum has swung too much toward the market
- ⌘ A general re-consideration of S&T in society
- ⌘ More resources to public research conducted in autonomy
- ⌘ Review the technology transfer offices
- ⌘ Some signals of re-equilibrium



Thank you!