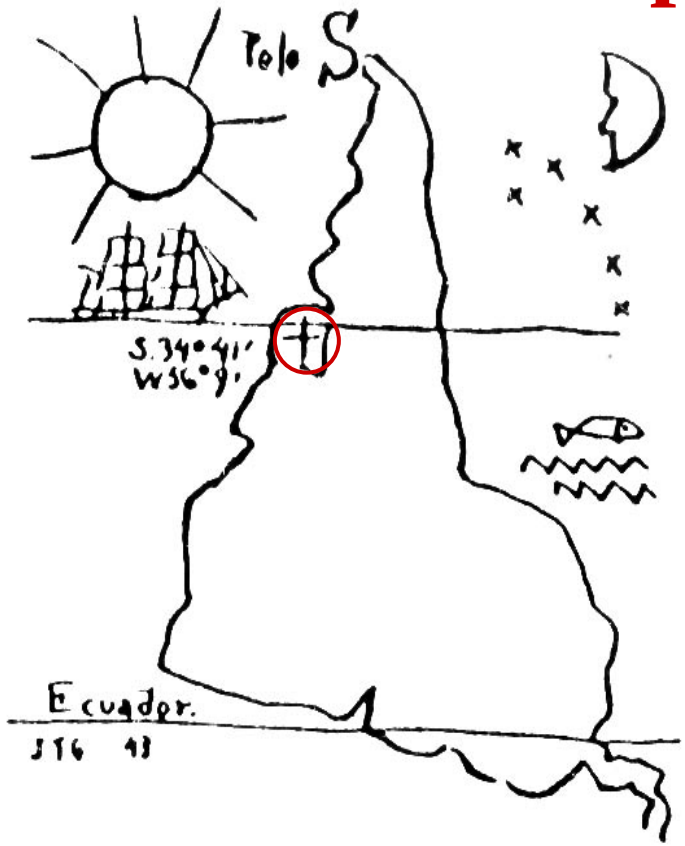
Uruguay: Higher Education, National System of Innovation and Economic Development in a Small Peripheral Country



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UniDev Workshop,
5th International Congress on Higher Education, Cuba, February 2006

I.- Telegraphic introduction to the Uruguayan context: A small peripheral country with comparatively high Human Development Index

- **XIX century: a well placed country in the "commodity lottery"**
- **Pioneer Welfare State, with emphasis on education**
- **Early industrialization and demographic transition**
- **On average, slow economic growth**
- **A great crisis, 1999-2003, and after: winning again through "re-primarization"?**

II.- Characterizing the NSI of Uruguay by means of “constructive modules” as a way to contextualize the role of higher education

1.- Socio-economic general dynamics

2.- Dominant trends in S&T demand and use

Proportion of business firms without university graduates in S&T careers, 2003

All industry	> **100** empl.	**20-100** empl.	< **20 empl.**
77.9	**22.5**	**63.2**	**87.4**

3.- Knowledge generation and training

- High institutional concentration of knowledge generation (>60% in the public university)
- Very high proportion of research devoted to life sciences (>40% of all university research groups)
- Small number of researchers

	Researchers/million	GERD/GDP	GERD/capita
Argentina	715	0,39	44,0
Chile	419	0,54	51,9
Uruguay	370	0,26	20,6
Venezuela	222	0,38	20,7
New Zealand	2.593	1,18	246,1
Denmark	4.822	2,51	777,6
Sweden	5.171	4,27	1082,5
Finland	7.431	3,46	905,2
Norway	4.442	1,67	612,2
Netherlands	2.826	1,89	536,6
Ireland	2.471	1,14	369,2
Portugal	1.842	0,93	170,2

4.- University-Productive Sector relations

5.- Role of knowledge and innovation in the competitive strategies of firms

Linkages with the NIS in the Uruguayan industry 2001-2003

Linkages related to	Firms that innovate (%)	Firms that do not innovate (%)
R&D	10,4	1,3
Other activities	61,6	24,4
Training	37,2	8,0
Financing	25,4	21,3

6.- Knowledge intensive firms and innovative circuits

Average percentage of qualified personnel in total occupation and exports of knowledge-based firms and their clients;

	Knowledge-based firms	Clients of knowledge-based firms
% of qualified personnel (2002)	39	15
% of total exports in the sample (2000)	8,5	91,5

7.- Public policy and institutional setting to support innovation

Provided functions	Non provided functions
Design and execution of policies	Industrial extensionism
Technical assistance, certification and control	Government technology procurement
Inter-entrepreneurial coordination; information	Commercialisation of research results
Basic and applied research	Effective incentives for innovation at firm level
Human resources formation and training	Specialised research centres for specific industrial sectors
Knowledge-based incubators (after 2003)	Support for linkages between industry and national technology suppliers

8.- International bargaining capacities

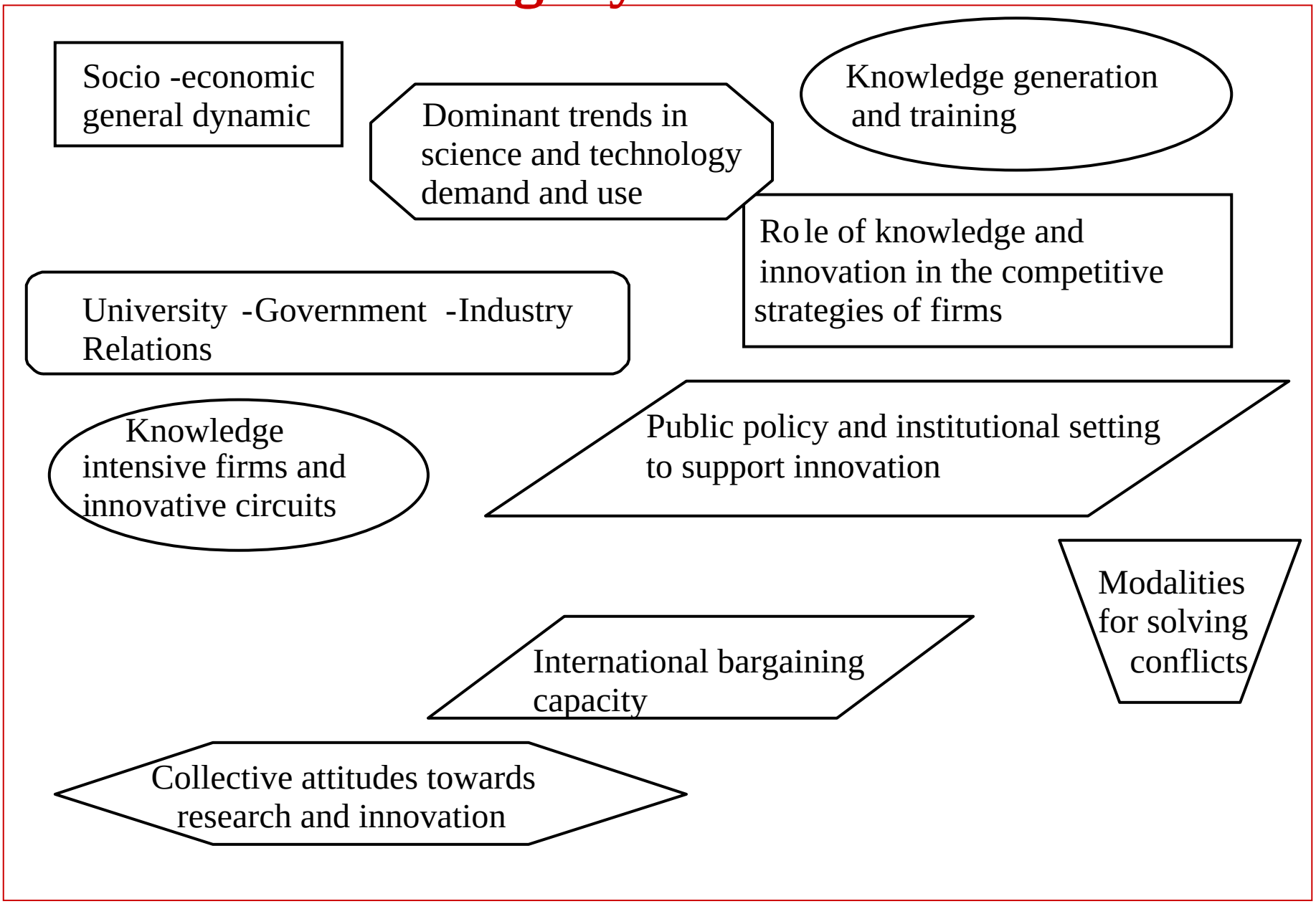
9.- Modalities for solving conflicts

10.- Collective attitudes towards research and innovation

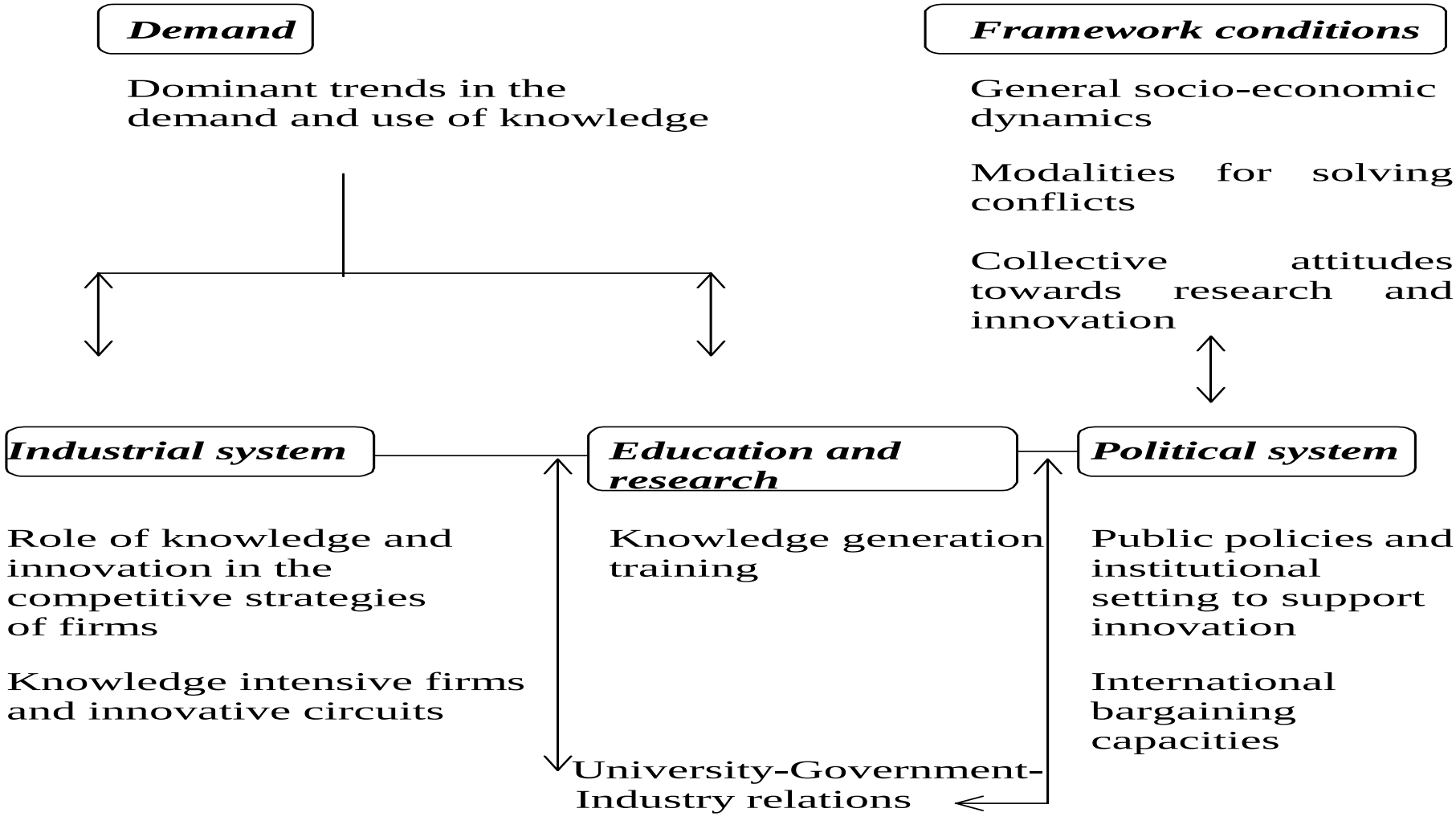
Opinions about the use of knowledge and the degree of innovativeness

The following institutions make a high use of knowledge	(%)	The following spaces exhibit a high capacity for innovation	(%)
Government	7,3	Culture	51,4
Sports	20,7	Associative forms	22,7
Justice	13,3	Technical-productive	15,4
University	53,3	Education	18,7
Business firms	31,1	Economy	10,7
		Institutional	8,0

The NSI of Uruguay: “constructive modules”



Inserting constructive modules in the Swedish model



III.- The Academic System in Uruguay

- **A mostly public system, with one dominant institution, the UR**
- **A typical *Latin American university***
- **Traditional weaknesses and strengths of UR**

  medium coverage; low percentage of graduation
  ethnicity inequality
  gender equality
  over 60% of students that work and come from the public secondary education

- **Trying to connect research with society**

IV.- On the current debate

- **Educational investment: from 3% (0,7%) of GDP to ...?; regulation of “external” money**
- **Salaries as a main issue**
- **Is free open Higher Education sustainable? *Massification***
- **The slow emergence of private HE**
- **Brain drain in a NSI where knowledge demand is weak**
- **To which social actors should the university be accountable to?**

V.- The research ahead

(inspired by a major concern about underdevelopment in the global but very asymmetric capitalist knowledge economy)

- **General approach: New Development and Developmental Universities, hoping to learn from the UniDev people.**

- **Key issues: (i) level of teaching, (ii) the evolution of the Humboldtian project, (iii) academy in problem solving, (iv) evaluation system.**

UniDev is a great opportunity for collective thinking, for building durable networking and, hopefully, for contributing to a better understanding of *unidiversity*, the different dynamics of change able to transform universities in key players in development processes