

Highly Integrated Programs in Engineering




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When speaking of joint and double degrees there is a great confusion of terminology.

Let us give two definitions just to agree on what we are speaking of.



We speak of **double (or dual) degree project** when each of the two Institutions involved awards its own (full fledged) degree to the candidate who fulfilled the prescribed requirements.

A **joint degree project** on the contrary leads to the awarding of a single degree issued by the Institutions involved.



The Double Degrees were born as **elite projects**.

A typical example of Double Degree is the one offered by T.I.M.E. Association (Top Industrial Managers for Europe) implemented since 1988.



T.I.M.E. Association today

53 top level Universities not only from Europe are members of the T.I.M.E. Association.

Almost **5000** Double Degrees at the Master level awarded in 25 years. More than **500** from Politecnico di Milano.



For more than 25 years T.I.M.E. maintained a rigorous **quality control** of the process for its double degrees.

For very many other double degrees this was not the case.



Nowadays we see almost every European Institution and very many non-European ones offering double and/or joint degrees.



At conferences and in articles or brochures you can see that when speaking of quality of internationalization of an Institution, very often two parameters are quoted:

- Number of joint/double degree agreements,
- Number of Joint/double degrees awarded.

Are these two parameters really meaningful?



Assessment is badly needed, together with feedback from the world external to the one of higher education.



Joint and double degree programmes are discussed at many conferences.

However, other stakeholders external to the world of higher education, like alumni and employers, are seldom involved in the process. Their opinions are quoted but often our knowledge is only anecdotal.

The risk of **self-referentiality** is very high.



Two ways out of the ambiguity are:

- A) Establishing “quality labels” with few and very transparent criteria.
- B) Working systematically on **assessment**, and **feedback**.



A) Establishing “quality labels” with few and very transparent criteria.

T.I.M.E. is already doing that.



The “**T.I.M.E. double master quality label certificate**” is awarded only to double graduates who:

- Spent at least three semesters at the host Institution.
- Got at least 360 ECTS credits by the two member Institutions without any double dipping. This means one year more of workload with respect to what is required to award only one degree.

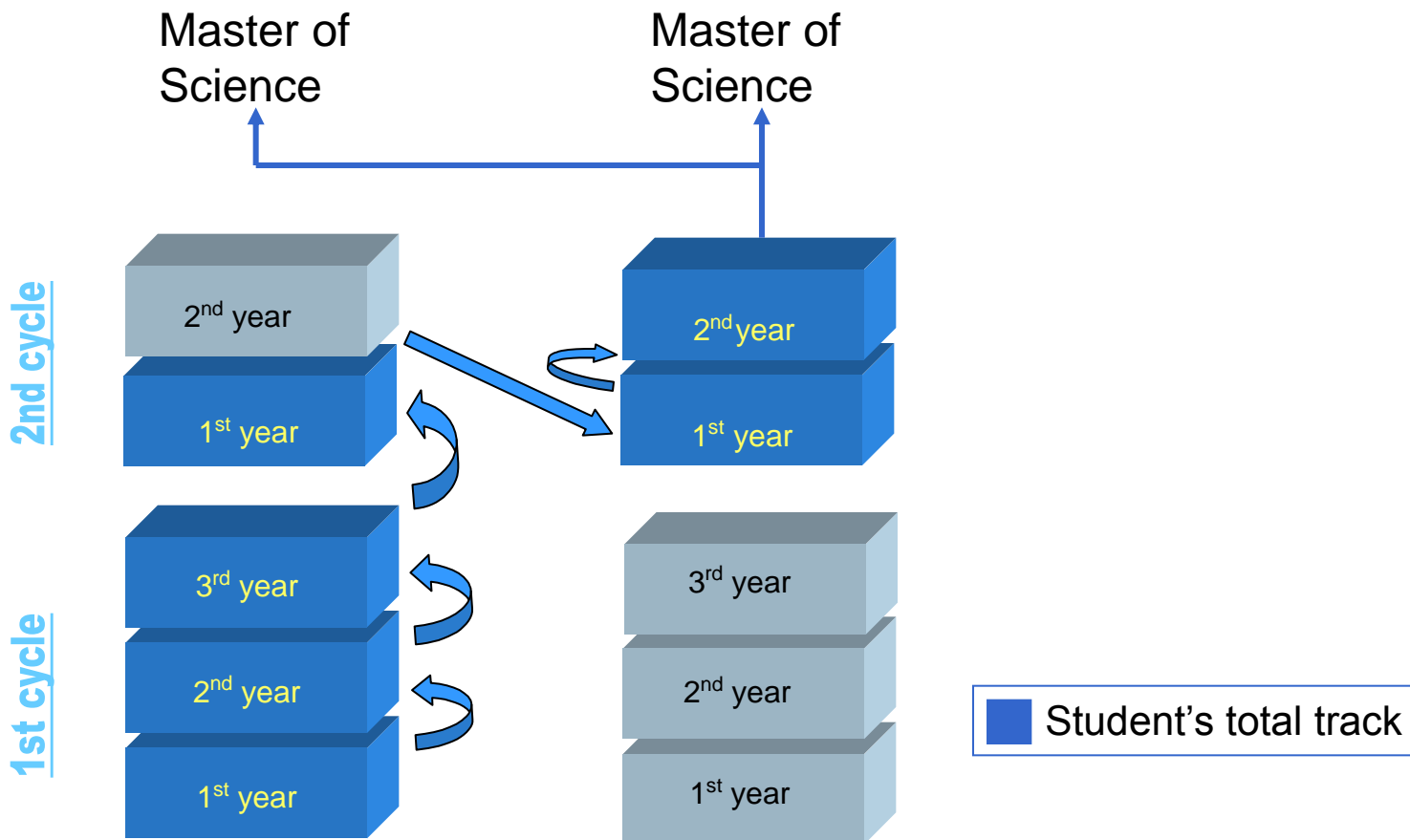


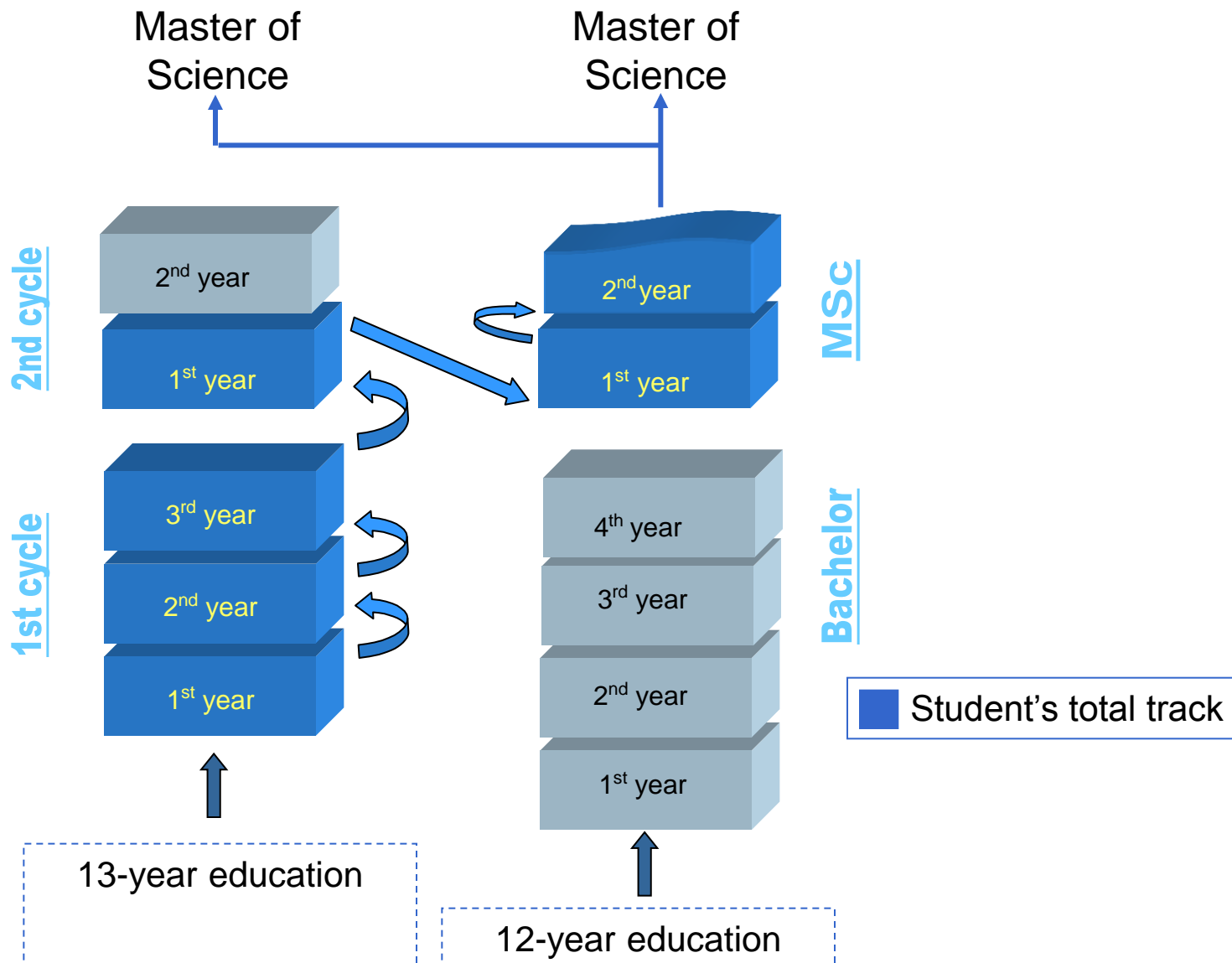
Let us see few examples of double degrees at the level of Master of Science



**Home
Institution**

**Host
Institution**

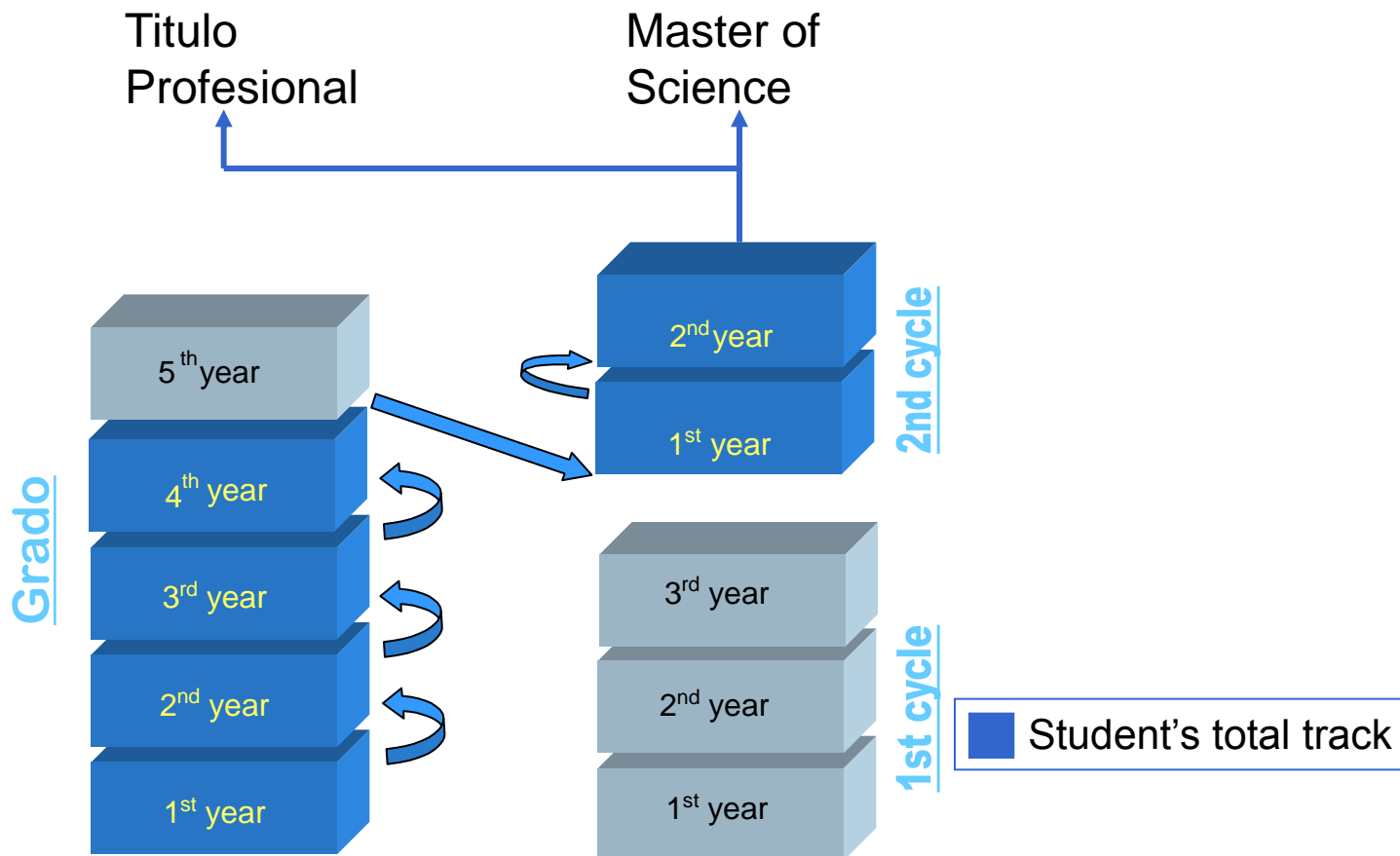






**South American
Home Institution**

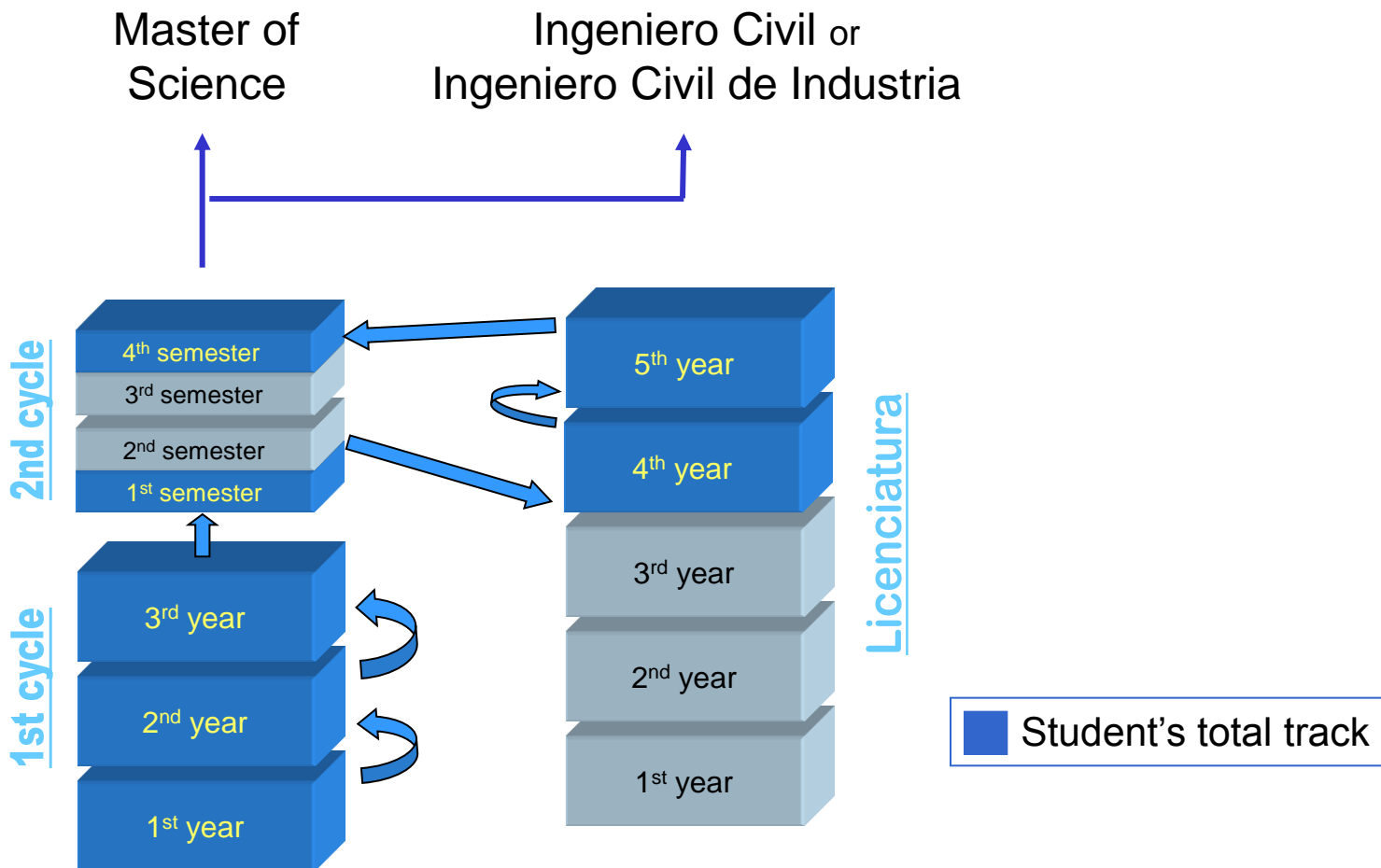
**Host
Institution**





**Home
Institution**

**South American
(e.g. Chilean)
Host Institution**





B) Working systematically on
assessment, and feedback.



In order to get systematic feedbacks, in the last years three projects have been launched:

- **EVALUATE-E**,

- **ADDE SALEM**

and

- **FAE**



EVALUATE-E

It is an ATLANTIS project (policy oriented measures) supported by FIPSE and EC/EACEA

Partner Institutions:

- Europe:
 - Politecnico di Milano, Italy (Leader),
 - TU Wien, Austria,
 - Lund University, Sweden
- U.S.A.:
 - Virginia Tech (Leader),
 - University of Kentucky



Bilateral Cooperation
with
Industrialised Countries



Systematic feedback on Double Degrees (mainly in engineering) between Europe and USA.



FAE

(Feedback from Alumni and Employers)

It is a project of the T.I.M.E. Association

- Politecnico di Milano (leader)
- Ecole Centrale Paris
- Ecole Centrale de Lille
- Lund University

Plus the other 49 T.I.M.E. partners all over the world



ADDE SALEM

**(A Double Degree in Europe,
South America Leadership and EMPLOYABILITY)**

It is an ERASMUS MUNDUS Action 3 project





South American Universities

Argentina

- Instituto Tecnológico de Buenos Aires
- Universidad Austral

Brazil

- Universidade Federal do Rio de Janeiro
- Universidade de São Paulo

Chile

- Pontificia Universidad Católica de Santiago de Chile
- Universidad Técnica Federico Santa María, Valparaíso

Colombia

- Universidad del Norte, Barranquilla
- Pontificia Universidad Javeriana, Bogotá



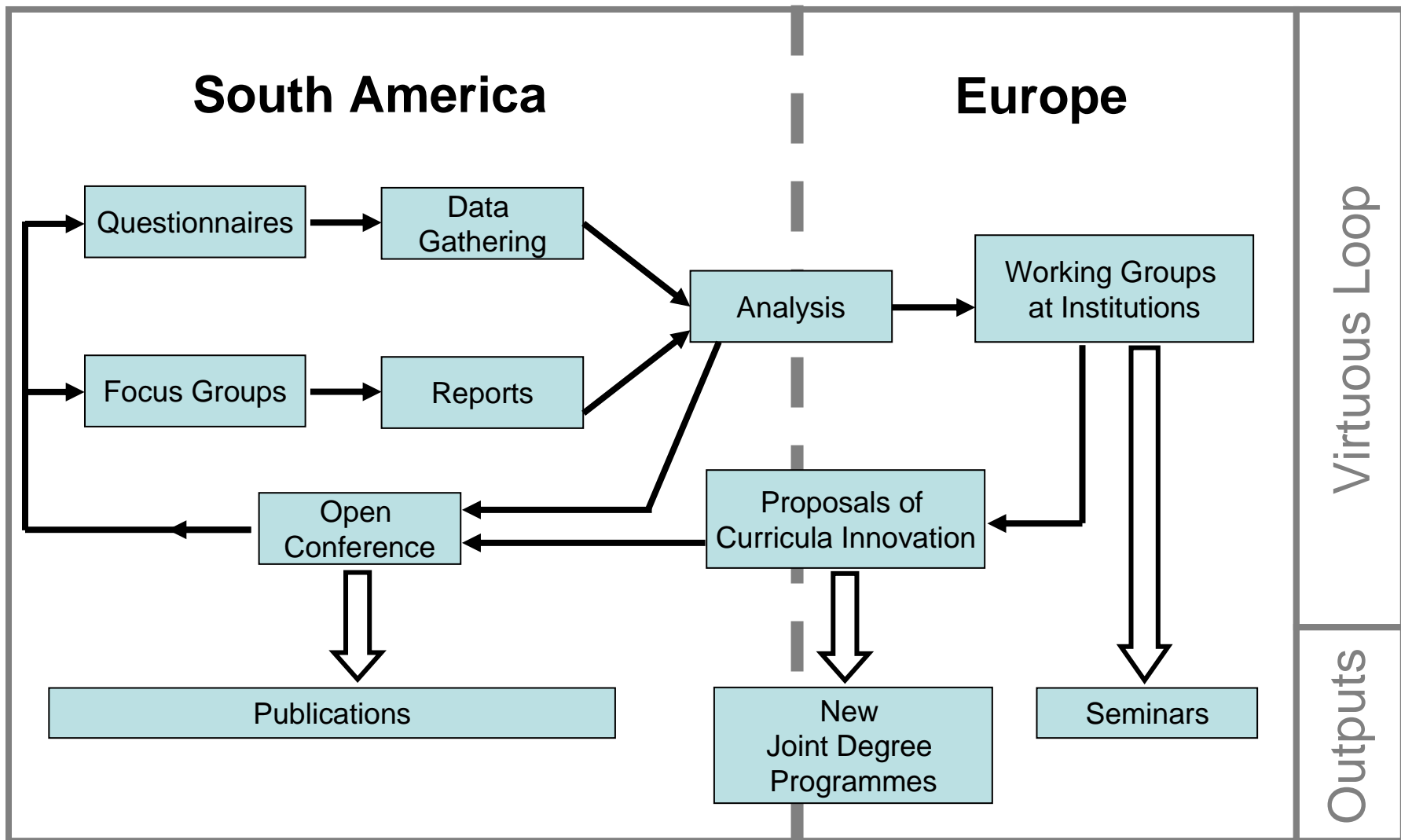
- Politecnico di Milano (leader)
- Lund University – Faculty of Engineering
- Universidad Politécnica de Madrid
- Instituto Superior Tecnico de Lisboa
- Ecole Centrale Paris
- Ecole Centrale de Lille
- Ecole Centrale de Nantes
- Budapest University of Technology and Economy



Enhancing attractiveness of highly integrated programmes with Europe **avoiding brain drain.**

Systematic studies of the needs of the South American job market and a feedback on designing new integrated programs (joint and double degrees).

- Survey questionnaires
- Working conferences
- Focus Groups
- Dissemination





Survey dimensions: Alumni and Employers

- ❑ Learning to know
 - ❑ Intellectual skills, technical expertise
- ❑ Learning to do
 - ❑ Formulate, plan and solve problems
 - ❑ Applied knowledge in different contexts
- ❑ Learning to live and work together
 - ❑ Leadership, teamwork, management of skilled people
 - ❑ Management of conflicts, culture sensitivity
 - ❑ Social responsibility
- ❑ Learning to be
 - ❑ Autonomy, self-learning, decision making
 - ❑ Balance personal life and career
 - ❑ Adaptation to new environments, proactivity
 - ❑ Critical thinking and self criticism



Aspects of DD studies

- Fields of work
- Motivation for engaging in DD studies
- Perceived risks with DD studies
- Extra study time
- Preferred continent to live and work
- Added-value in terms of skills and competences

- Current students: Expectations
- Alumni: Experience and added-value
- Employers: Requirements and gaps



Survey studies:

What opinions do they have?

Focus groups:

Why do they have these opinions?



5 sections

- A. Background data
- B. Motivation
- C. Language skills
- D. Career and employability
- E. Skills and competences



Motivation – rank of factors

What students expect from their DD	
1	Personal development.
2	Better career options.
3	New connections and networks.
4	Knowledge of new technologies, techniques or methods.
5	Reputation of host institution.
6	New perspectives on Europe
7	Change in personal situation.



Motivation – rank of factors

Why students expect from their DD		What students got from their DD
1	Personal development.	1
2	Better career options.	2
3	New connections and networks.	4
4	Knowledge of new technologies, techniques or methods.	3
5	Reputation of host institution.	6
6	New perspectives on Europe	4
7	Change in personal situation.	7



90% of the alumni indicate “extremely high improvement” in host country language skills

75% of the alumni indicate significant improvement in English language skills



Risks to employability (%)

	Students	Alumni	Employers
No risk	77	56	54
Low risk	18	33	9
Neutral	3	7	18
Risky	0	4	4
Very Risky	0	0	14



Acceptable extra study time for a DD (%)

	Students	Alumni	Employers
No extra time	7	2	11
1 semester	10	11	11
2 semesters	40	43	52
3 semesters	30	17	10
Other	11	26	16



Where to live and work

Live and work in Latin America

Students	58 %
Alumni	75 %

“ I want to work in my country.”

“I plan to live in Brazil in order to bring to my country the knowledge I have got. “

“I want to live in Brazil: There are more work opportunities.”

“In order to gain professional experience before aiming for higher positions in global companies. “



Skills and competences – ranking

Skill competence	Student expectations	Alumni perceived added-value	Importance for employers	Gaps today according to empl.
Work in international context	1	1		
Teamwork	2	4	1	
Respect for multiculturalism	3	2		
Communication skills	4	3	4	
Character traits			2	
Analytical reasoning			3	
Manage external factors				1
System design				2
Develop new technologies				3
Being autonomous				4



Conclusions

Motivation – Outcomes match expectations

Perceived risks – No clear picture, students are optimistic

Extra study time – 2 semesters is OK

Preferred continent – Country and macro-economic situation may be important

Skills and competences – Good match but no gap-filling



Very often employers do not know what we are speaking of, but they emphasize their interest in particular skills and ask to measure them.



It is work in progress and you are
invited to participate



Thank you very much
for your attention