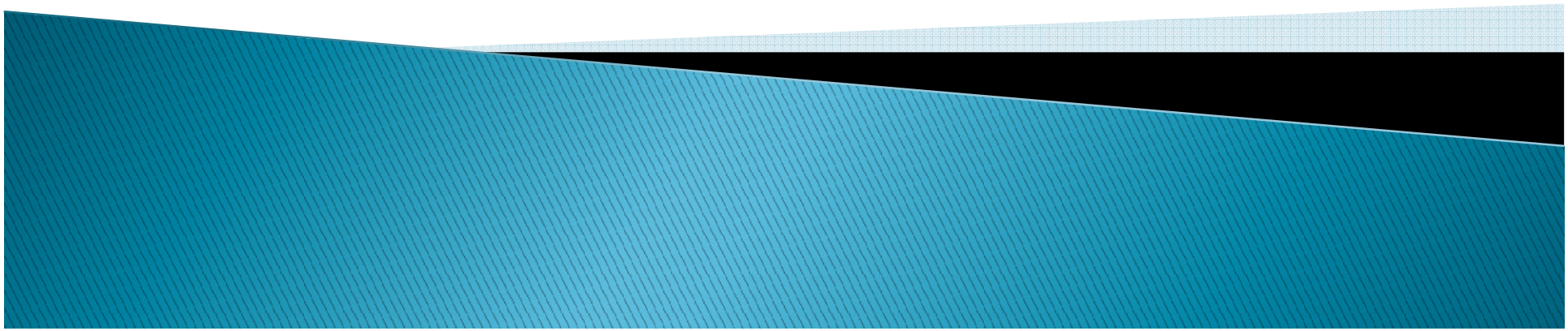
Case Study Spain:

Why Spanish accreditation of informatics degree programmes needs a European dimension

Javier Segovia and Frauke Muth, EQANIE, October 11th, 2010



Overview

1. Development of Informatics as a discipline in HE
2. Main Players
3. Standards and guidelines for informatics education in Spain
4. Quality assurance
5. Comparison with the Euro-Inf Framework Standards and Accreditation Criteria

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Before 2005

- Presumption: Spanish informatics community considers itself closer to engineering than to science.
- Official catalogue of degrees
  - one degree per profession
  - Field of ICT divided in informatics and telecommunications

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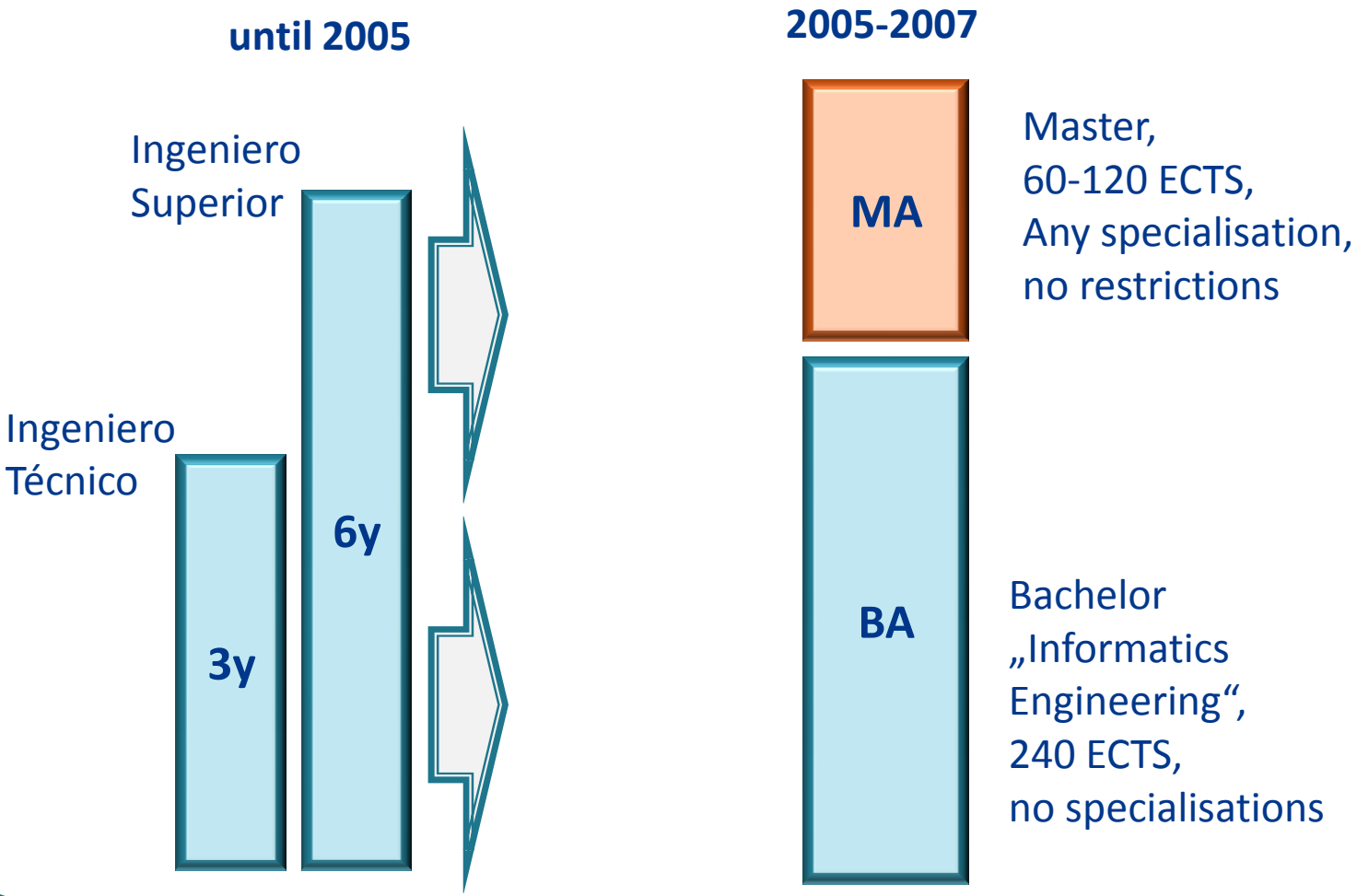
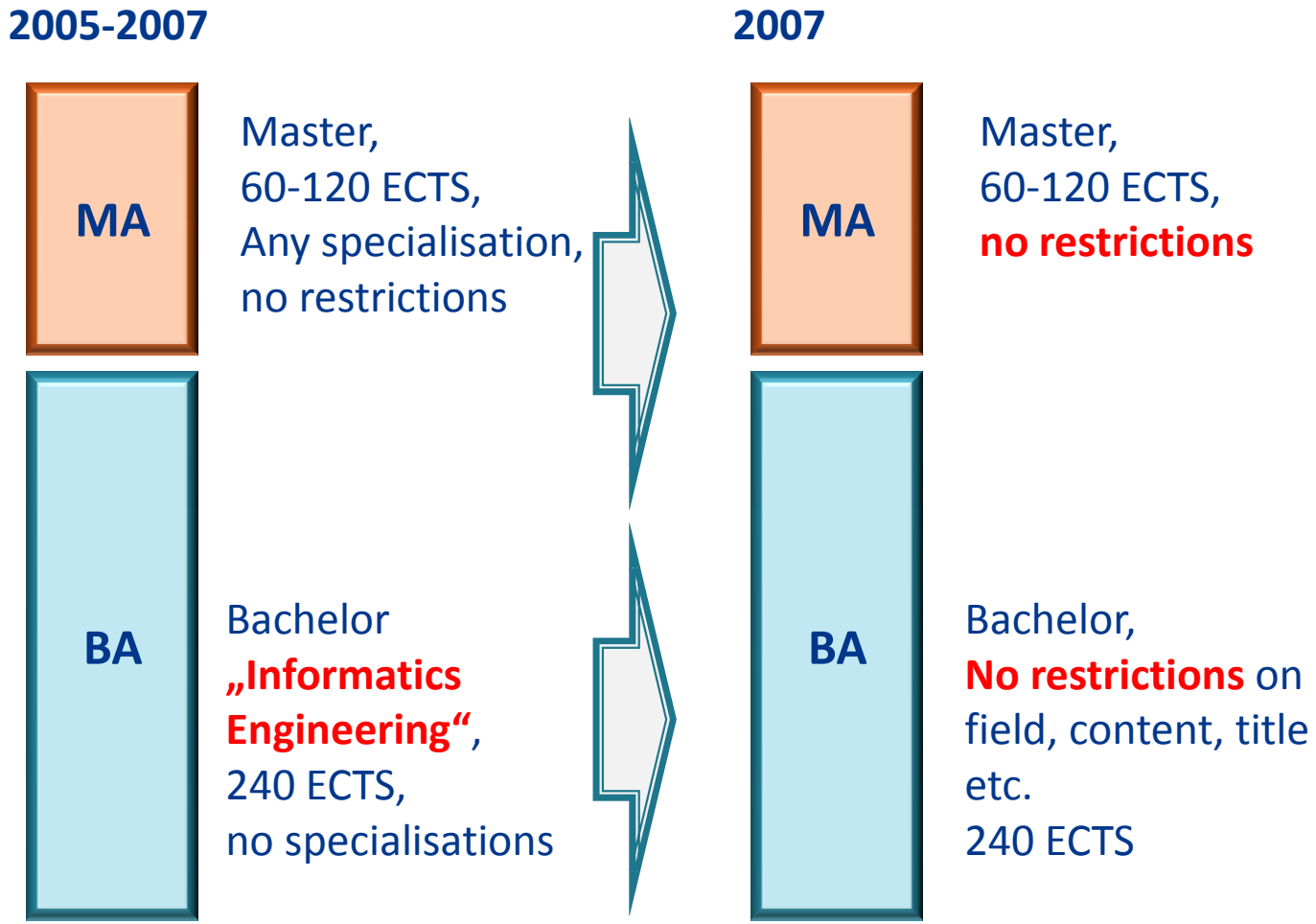
Degree structure



Degree structure



Degree structure

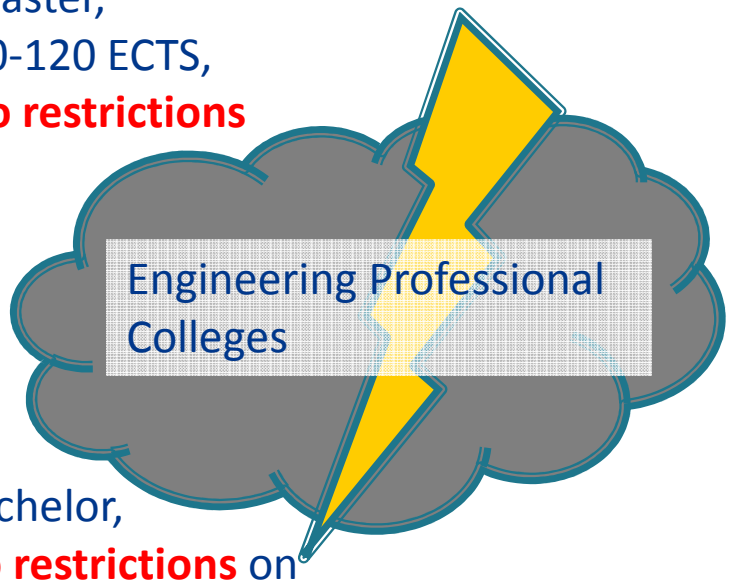
2007

MA

Master,
60-120 ECTS,
no restrictions

BA

Bachelor,
No restrictions on field, content, title etc.
240 ECTS



MA

BA

Engineering catalogue of degrees

- Electrical engineering
- Power engineering
- Civil engineering
- Etc.

Contents

- Mathematics
- Statics
- Electrical circuits
- Etc.

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Degree structure

Gov.

MA

BA

Engineering catalogue of degrees

- Electrical engineering
- Power engineering
- Civil engineering
- Etc.

Contents

- Mathematics
- Statics
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- Etc.

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Degree structure

„Non-engineering-related“ informatics

MA

Master,
60-120 ECTS,
no restrictions

BA

Bachelor,
No restrictions on field, content, title etc.
240 ECTS

„Engineering-related“ informatics

MA

BA

Engineering catalogue of degrees

- Electrical engineering
- Power engineering
- Civil engineering

Informatics Engineering

- Etc.

Contents

- Mathematics
- Statics
- Electrical circuits
- Etc.

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Degree structure

„Non-engineering-related“ informatics

MA

Master,
60-120 ECTS,
no restrictions

BA

Bachelor,
No restrictions on field, content, title etc.
240 ECTS

„Engineering-related“ informatics

MA

1 degree
„Ingeniero en informática“=Master,
60-120 ECTS

BA

5 specialisations
„Ingeniero técnico en informática“=Bachelor,
240 ECTS

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Degree structure

„Non-engineering-related“ informatics

BA in Mathematics and Informatics

CTS,
no restrictions

MA in Artificial Intelligence

BA

Bachelor,
No restrictions on field, content, title

MA in Software Engineering

„Engineering-related“ informatics

Bachelor of Engineering in Information Systems

Master,

BA

5 specialisat

Informatics Engineer in Software Engineering

Bachelor Informatics Engineer

a“=Bachelor,

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Main Players

- **Government**
  - at national level Ministry of Education
    - Adoption of QA standards and criteria at national level
  - at regional level:
    - Provision of the major part of the university-financing
    - Adoption of regulations complementing the NQF

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Main Players

- **CODDI**
  - Conference of heads of all faculties/schools/departments offering courses leading to degrees in informatics
  - Representing 79 University Computing Centers belonging to 62 universities

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Main Players

- **Council for University Coordination** (until 2007)
  - main responsible of the Bologna implementation in Spain
  - chaired by Minister of Science and Education
  - further composed of
    - the council of rectors
    - Representatives of HE-departments in the regional governments and
    - 21 representatives from academic, scientific, cultural, professional, economic and social life

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Main Players

- **Council for University Coordination**
  - Working group: Engineering and Architecture (covering Informatics too)
    - CODDI represented with two members

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Main Players

- **ANECA**, National Agency for Quality Assessment and Accreditation
  - Initial accreditation of a new degree: assesses if a degree related to informatics engineering follows the recommendations.
  - Passes on its recommendation to the Council of Universities
  - In general: evaluation and (re-)accreditation of programmes leading to the award of recognised degrees nationwide
  - (regional QA-agencies with other responsibilities)

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Standards and Guidelines for Informatics HE

- Elaboration of a set of recommendations by CODDI, submission to Ministry
- Amendments /Modifications by a technical commission set up by the Ministry
- Adoption by the Ministry
- Entry into force 2009

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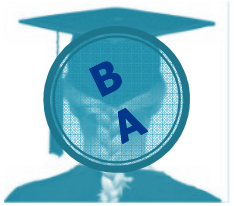
Standards and Guidelines for Informatics HE

- **Bachelor**: Statements of expected learning outcomes at programme level
- Additional requirements:
  - 240 ECTS credits
  - Minimum LO to be attained at module level in the following categories
    - dedicated to the fundamentals (60 cp);
    - informatics analysis, design, implementation (48 cp)
    - Thesis (12 cp)
    - Diploma Supplement???



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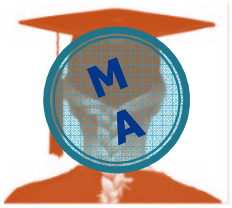
Standards and Guidelines for Informatics HE

- **Master:** Statements of expected learning outcomes at programme level
- Additional requirements:
  - Not exceeding 120 ECTS
  - Admission prerequisites (Bachelor in Inf.Eng.)
  - Diploma Supplement
  - Minimum LO to be attained at module level in the following categories
    - leadership/management capacities (12 cp);
    - informatics professional LO (48 cp)
    - Thesis (6-30 cp)



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Standards and Guidelines for Informatics HE

- **Impact**:
  - Recommendations treated as requirements by the government
  - Professional colleges only admit graduates who have degrees following the recommendations
  - Most faculties offer two Masters – one professional, one research

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Quality Assurance - internal

Minimum level

- **By law, each programme must have**
  - a person/unit responsible for QA of the programme
- **and procedures**
  - for assessing and improving the quality of teaching
  - to ensure the quality of external training and mobility programmes
  - to analyse graduates' entry in the labour market and their satisfaction with the education received
  - to analyse the satisfaction of the different stakeholders (students, teachers, etc.).

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Quality Assurance - external

- Programme accreditation
- Peer review
  - Academia, QA experts from industry
- Validity of accreditation: 6 years
- Costs for the HEI: n.a.

Stages of External QA

1. Ex-ante accreditation
   - Since 2007
   - Valid for 6 years
2. Follow-up Procedure
   - Monitoring
   - “By unobtrusive means”
3. Ex-Post (or: re-accreditation)
   - The first round yet to come
   - ALO are mapped against ILO

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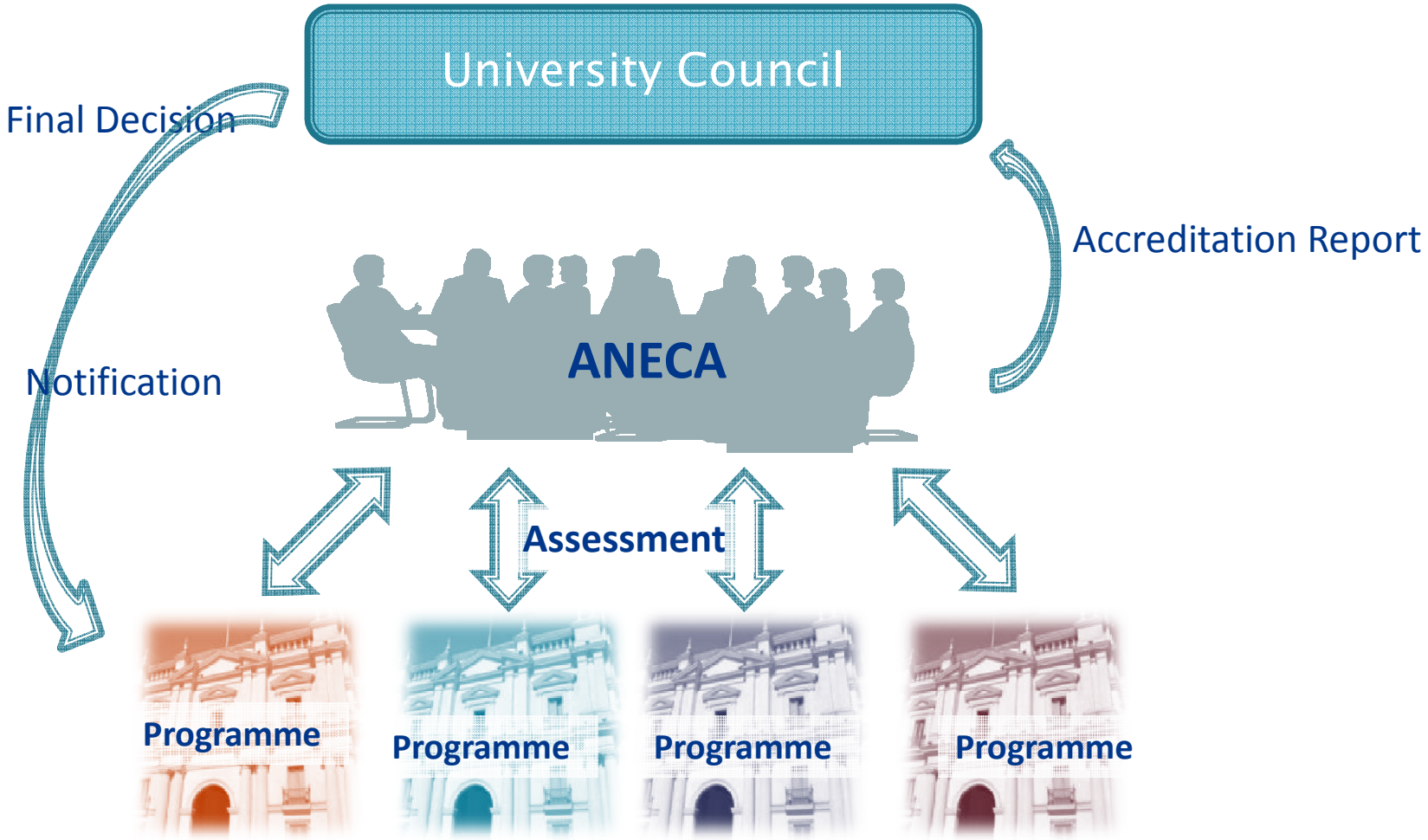
Ex-Ante Accreditation



STAGE 1 Ex-ante accreditation

BACHELORS

Knowledge area	Negative	%	Positive	%	Total
Arts and Humanities	5	1,3%	374	98,7%	379
Sciences	4	1,8%	216	98,2%	220
Health	16	4,7%	321	95,3%	337
Social Sciences and Law	48	5,7%	798	94,3%	846
Engineering and Architecture	26	4,0%	632	96,0%	658
Global	99	4,1%	2341	95,9%	2440

MASTERS

Knowledge area	Negative	%	Positive	%	Total
Arts and Humanities	25	6,2%	380	93,8%	405
Sciences	19	5,6%	323	94,4%	342
Health	17	4,4%	367	95,6%	384
Social Sciences and Law	70	7,3%	888	92,7%	958
Engineering and Architecture	24	4,5%	508	95,5%	532
Global	155	5,9%	2466	94,1%	2621

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Learning Outcomes in Spanish HE

- Since 2007 curriculum design in Spain has to be oriented at learning outcomes
- National Report Bologna Process 2009:

c) How many HEIs have described their programmes in terms of learning outcomes?

All HEIs ☐ Most HEIs ☒ Some HEIs ☐ No HEIs ☐

d) Are student assessments at HEIs designed to measure the achievement of the intended learning outcomes (based on published criteria) applied in a consistent way?

All HEIs ☐ Most HEIs ☐ Some HEIs ☒ No HEIs ☐

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Conclusion

- Spanish informatics is split, but could be united via the Euro-Inf Framework
- **Challenge**:
  - „Fait accompli“ of the current system – end of terms in 4-8 years

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Thank you!!