

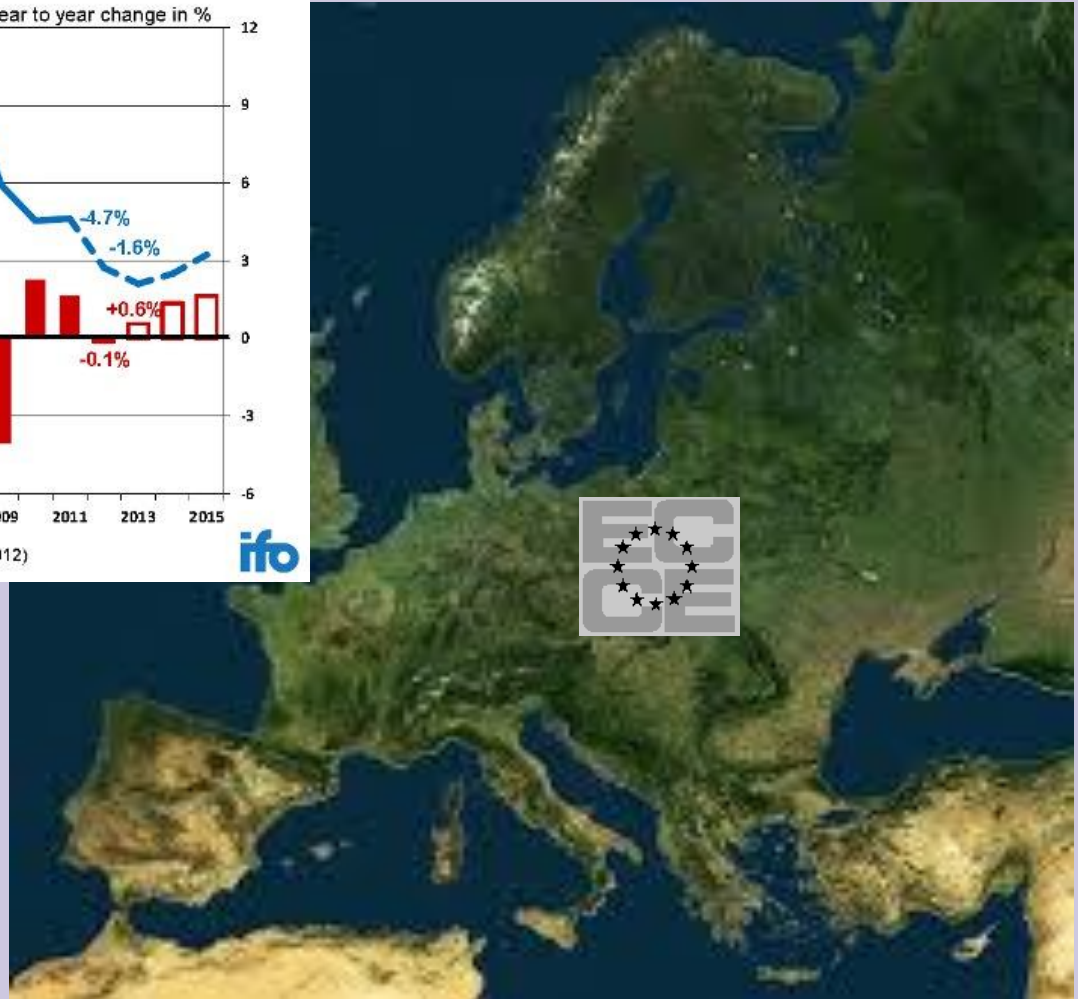
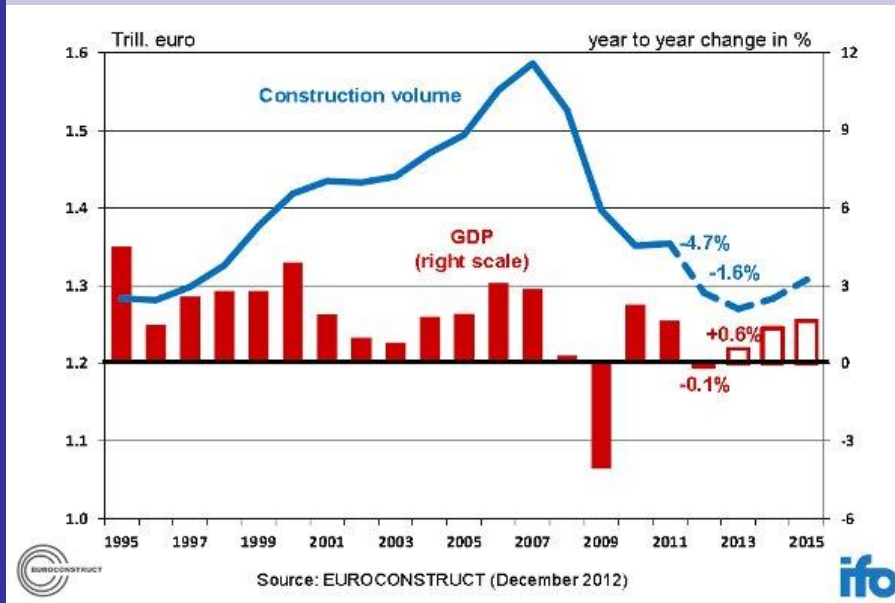
ENGINEERING CHALLENGES FOR A FUTURE EUROPE

FERNANDO BRANCO





ENGINEERING CHALLENGES FOR A FUTURE EUROPE



- EUROPEAN COUNCIL OF CIVIL ENGINEERS



IF PUBLIC INVESTMENT STOPS



COUNTRY ECONOMY DECREASES



PRIVATE INVESTMENT REDUCES

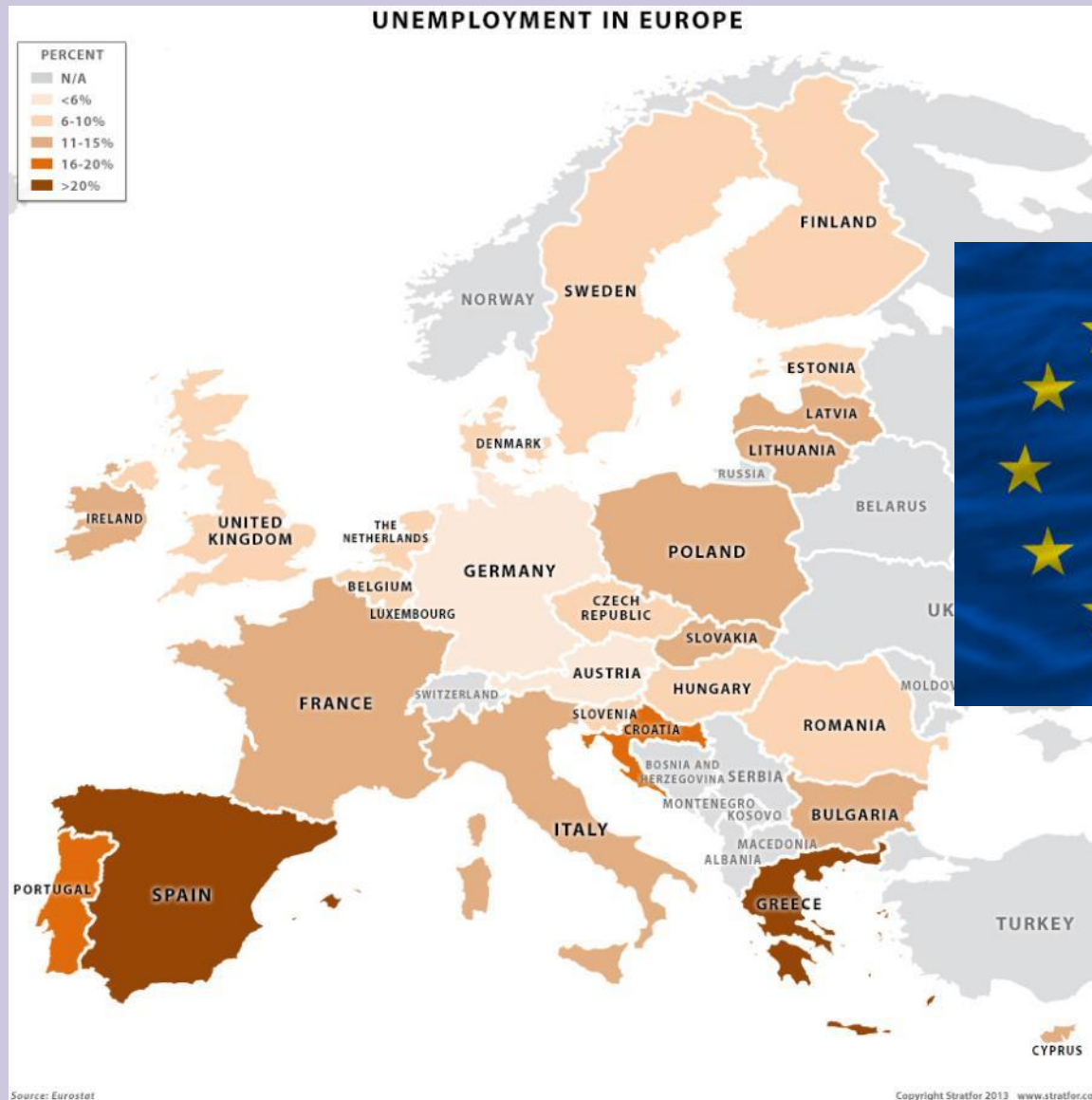


**CRISIS IN
CIVIL ENGINEERING**



HIGH UNEMPLOYMENT

ENGINEERING CHALLENGES FOR A FUTURE EUROPE



**TO HAVE A DEVELOPED
CONSTRUCTION SECTOR
WE NEED “3I”**

-“I”NVESTMENT

-“I”NOVATION

-“I”NTERNATIONALIZATION

CRISIS SOLUTION A

FIRST “I”

“I”NVESTMENT

ENGINEERING CHALLENGES FOR A FUTURE EUROPE

EUROPEAN COUNCIL OF CIVIL ENGINEERS



**PUBLIC
INVESTMENT**

**.BRIDGES
.ROADS
.HOSPITALS**

ENGINEERING CHALLENGES FOR A FUTURE EUROPE

EUROPEAN COUNCIL OF CIVIL ENGINEERS



**PRIVATE
INVESTMENT**

**.BUILDINGS
.FACTORIES
.OFFICES**

ENGINEERING CHALLENGES FOR A FUTURE EUROPE

EUROPEAN COUNCIL OF CIVIL ENGINEERS



**PUBLIC - PRIVATE
INVESTMENT**

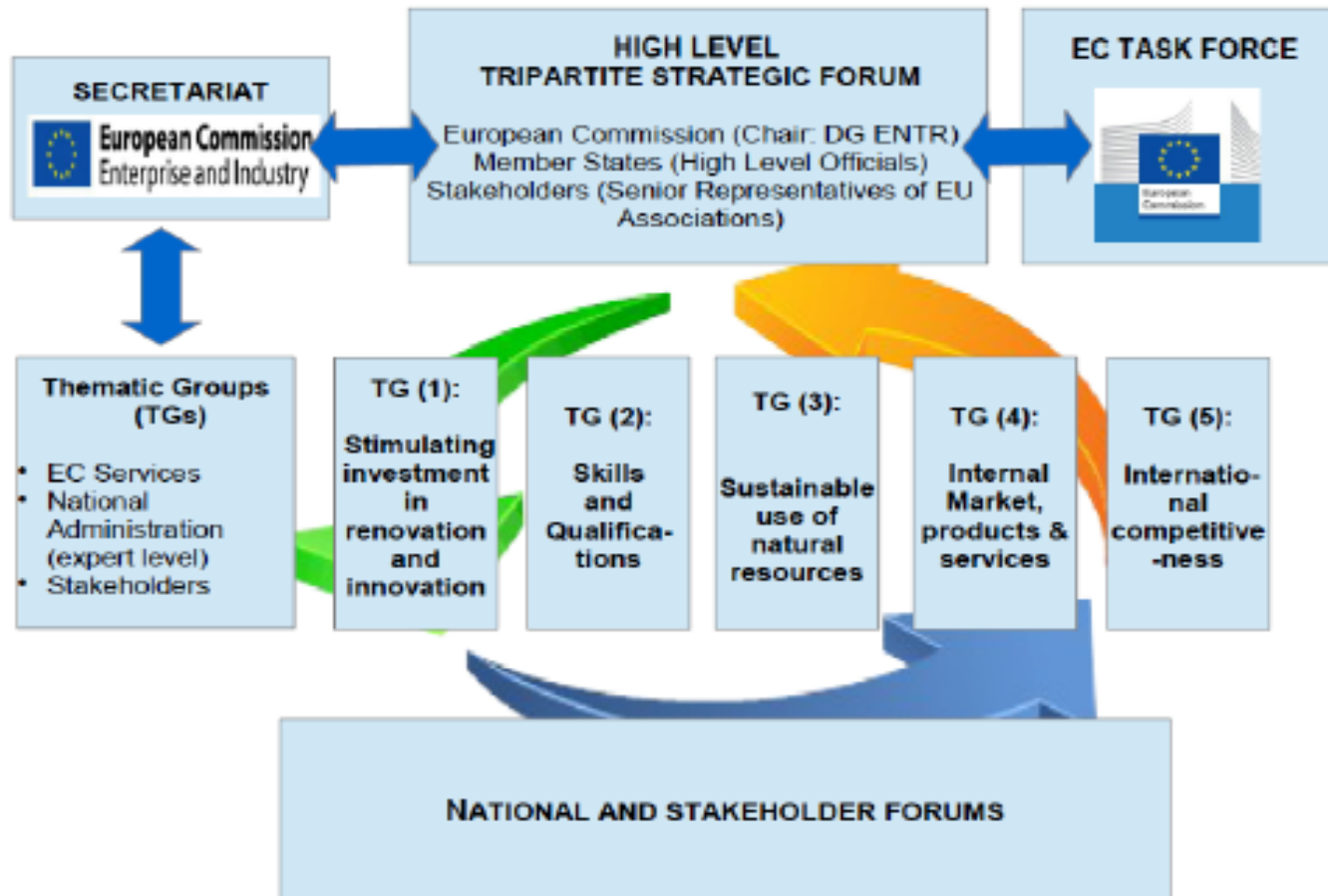
**.BRIDGES
.ROADS
.HOSPITALS**



EU INVESTMENTS

WHAT IS DOING BRUSSELS?

ENGINEERING CHALLENGES FOR A FUTURE EUROPE



ECCE MEMBER OF EU HIGH LEVEL STRATEGIC FORUM FOR CONSTRUCTION



Thematic Group 1 Stimulating Investment in Building Renovation, Innovation and Infrastructure

I. BUILDING RENOVATION

Energy consumption reduction till 2050

- a) Energy renovation towards an energy labelling;**
- b) Implementation of monitoring systems;**
- c) Education programs for energy reduction behaviours.**

Energy rehabilitation and the seisms:

- It is nonsense to make energy rehabilitation
in a structural unsafe building;**

**Thematic Group 1
Stimulating Investment in
Building Renovation, Innovation and Infrastructures**

II. NEW INFRASTRUCTURES

Trans-European Energy Infrastructure

Energy consumption will increase 100% till 2100;

**Thematic Group 1
Stimulating Investment in
Building Renovation, Innovation and Infrastructures**

II. NEW INFRASTRUCTURES

Trans-European road and railway links

Each European will travel more than

11.000km per year till 2100;

Thematic Group 1 Stimulating Investment in Building Renovation, Innovation and Infrastructures

II. NEW INFRASTRUCTURES

- Transports in sustainable European cities;**
- Intermodal transportation systems;**

**Europeans living in cities will increase from
40% to 70% till 2100;**

**Thematic Group 1
Stimulating Investment in
Building Renovation, Innovation and Infrastructures**

II. NEW INFRASTRUCTURES

**Coastal protection for ocean
changes due climatic changes**

**Increase of 3° in temperature will lead to
increase in 1m ocean level and bigger waves
till 2100;**

**Thematic Group 1
Stimulating Investment in
Building Renovation, Innovation and Infrastructures**

III. EXISTING INFRASTRUCTURES

Management of Infrastructures

- a) reduced costs of maintenance**
- b) reduced need for substitution of infrastructures**

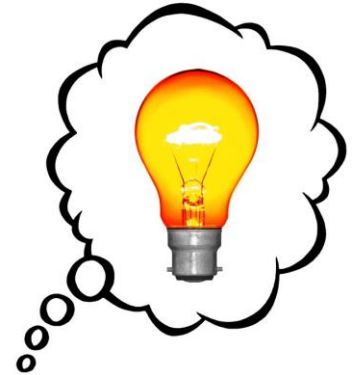
CRISIS SOLUTION B

THE SECOND “I”

“I”NOVATION



**-NEW BUSINESS
NEEDS INOVATION**



**-TO BE COMPETITIVE NEEDS
SPECIALIZATION**

**BE BETTER AND DIFFERENT
FROM THE OTHERS!**



**LEADING
EUROPEAN SOLUTIONS**



New materials





Near-zero energy houses



SUN

WIND



ENGINEERING CHALLENGES FOR A FUTURE EUROPE

CONSTRUCTION SUSTAINABILITY



Management of maintenance



BUILD FOR 120 YEARS!

**Thematic Group 1
Stimulating Investment in
Building Renovation, Innovation and Infrastructures**

I. INNOVATION

Implementation of Lifecycle Analysis

To implement lifecycle analysis:

- a) Each material/component has a degradation cycle previously studied**
- b) Increase quality procedures in products**

ENGINEERING CHALLENGES FOR A FUTURE EUROPE



THE MAIN TARGET

CONNECTION

INDUSTRY - UNIVERSITIES



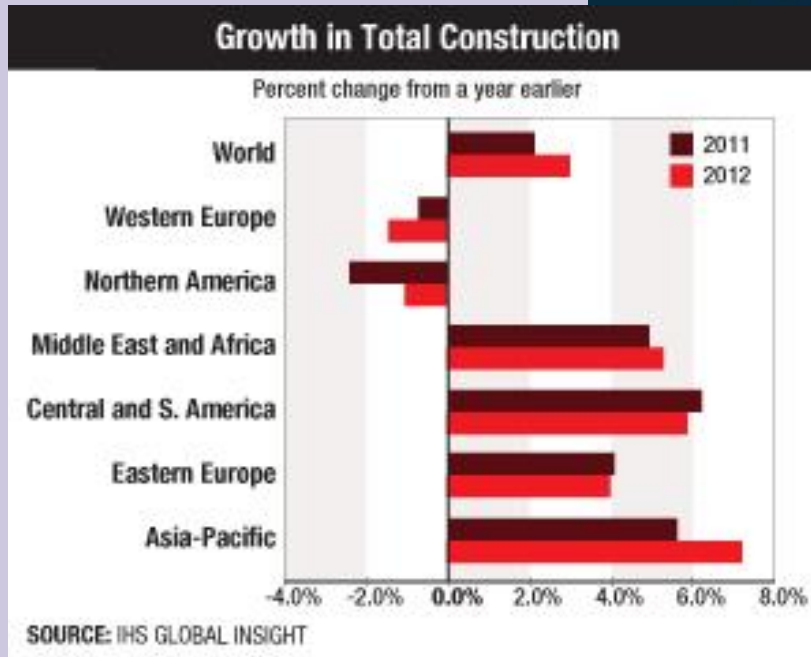
CRISIS SOLUTION C

THE THIRD “I”

**“I”NTERNATIONALIZATION
(AND MOBILITY)**

COMPANIES LOOK FOR MARKETS WITH HIGH PUBLIC INVESTMENTS!





ECONOMY IN THE WORLD



- EUROPEAN COUNCIL OF CIVIL ENGINEERS

EUROPE IS ALSO A UGE MARKET



THE MAIN PROBLEM: MOBILITY OF ENGINEERS





ECCE WORK

INTERNATIONALIZATION AND MOBILITY OF CIVIL ENG. IN EUROPE

1. WHAT IS A CIVIL ENGINEER IN EUROPE ?

WHAT IS A CIVIL ENGINEER ?

IN EUROPE WE SEE:

- VARIOUS TYPES OF ACADEMIC DEGREES (3, 4, 5, 6 YEARS)**
- VARIOUS TYPES OF FORMATION (WIDE AND NARROW)**
- VARIOUS TYPES OF CONDITIONS TO BE PROFESSIONAL**
- VARIOUS TYPES OF PROFESSIONAL ASSOCIATIONS**

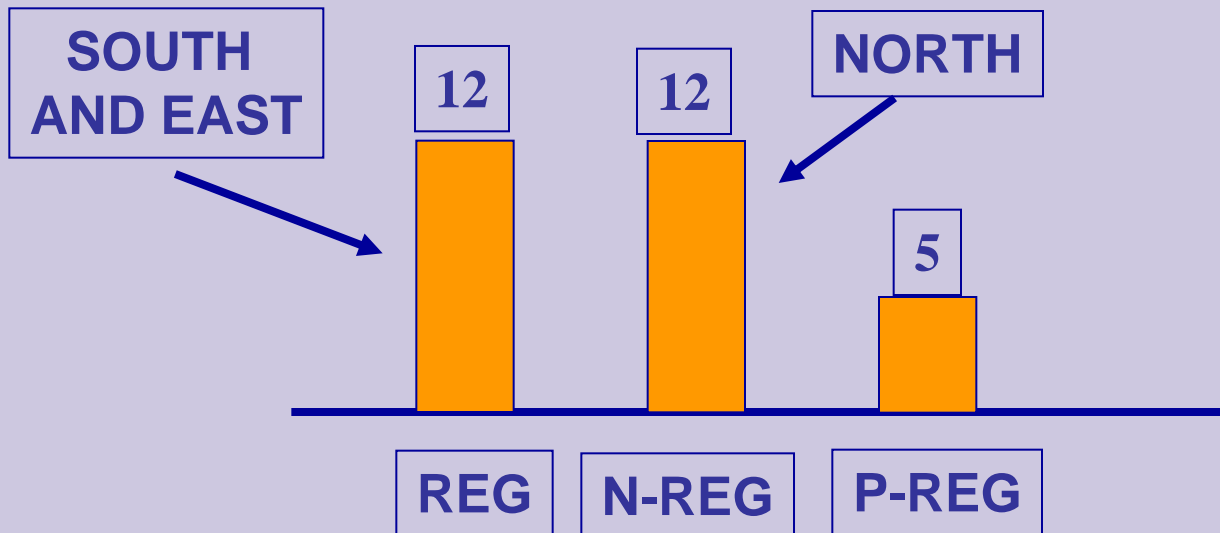
TO BE CIVIL ENGINEER IN EUROPE

TYPICAL SITUATIONS:

- REGULATED PROFESSION**
- NON REGULATED PROFESSION**
- PARTIAL REGULATED PROFESSION**



CIVIL ENGINEERING IN EUROPEAN COUNTRIES



2. WHAT ARE THE PROBLEMS TO BE ENGINEER IN A FOREIGN COUNTRY ?

1. LANGUAGE

**2. ETHICS, TECHNICAL AND
ADMINISTRATIVE REGULATIONS**

3. PROFESSIONAL RECOGNITION

3. PROFESSIONAL MOBILITY

THE REVISION OF

EU DIRECTIVE ON MOBILITY

3.1 TEMPORARY MOBILITY

Temporary Mobility – ECCE considers that mobility through the concept of temporary mobility is useful for Civil Engineers.

Nevertheless it is frequently difficult to define the meaning of “temporary” as a construction work may vary from few months to some years.

So ECCE suggests that this type of mobility is associated to “temporary” and/or “to a specific work limited in time”.

TO BE DEFINED BY EACH COUNTRY

3.2 PARTIAL ACCESS

Compensation measures could be avoided awarding the” **partial access**”

Some countries (usually with regulated profession) **included already** this concept in the Directive

Allows a **quicker recognition** for situations where the civil engineer has a **specialized academic education**

IT IS ACCEPTED

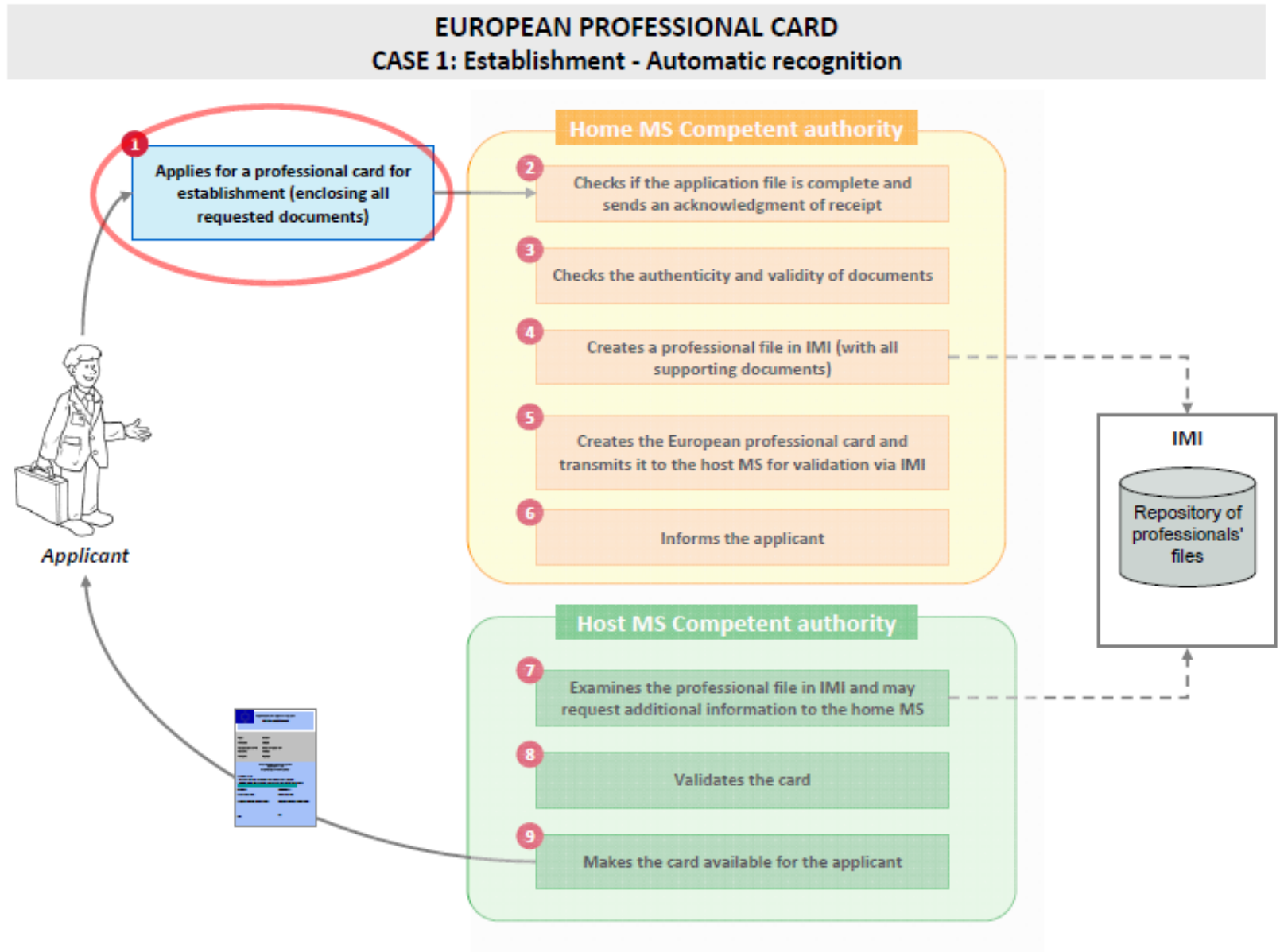
3.3 PROFESSIONAL CARD

Professional Card – ECCE thinks that the concept of this card associated to a **electronic certificate of the engineer curriculum** may be useful.

This concept increases **transparency and confidence**, but it does **not allow automatic recognition**

The electronic data base should be controlled by the chamber to which the engineer originally belongs;

**IT IS PROPOSED WITHIN THE IMI
(Internal Market Information System)**



ENGINEERING CHALLENGES FOR A FUTURE EUROPE

**BUT FOR ALL THIS, WE NEED
CIVIL ENGINEERING STUDENTS !**



... BECAUSE THEY WILL BUILD OUR FUTURE



When I
grow up, 
I'm gonna be a 
civil engineer 