The ECSEL Challenge

Andrea Cuomo

Chairman
Governing Board of ECSEL JU

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Next Generation Challenges

- IoT: from sensing to the Cloud. Many different sensors, huge amount of data, fast response

- Autonomous electric vehicles

- Industry 4.0

- Smart Grids and Infrastructure Integration

- Healthcare: sensing, devices, data integration and management

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And we need Alliances
Watson – a Workload Optimized System

- 90 x IBM Power 750[1] servers

- 2880 POWER7 cores

- POWER7 3.55 GHz chip

- 500 GB per sec on-chip bandwidth

- 10 Gb Ethernet network

- 15 Terabytes of memory

- 20 Terabytes of disk, clustered

- Can operate at 80 Teraflops

- Scales out with and searches vast amounts of unstructured information

- Linux based

[1] Note that the Power 750 featuring POWER7 is a commercially available server that runs AIX, IBM i and Linux and has been in market since Feb 2010
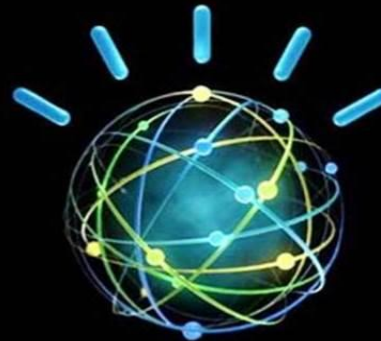
This means Watson…

- Operates at 80 teraflops. The human brain is estimated to have a processing power of 100 teraflops (100 trillion operations per second).

- Has the equivalent in memory (RAM) that the Library of Congress adds in books and media over a 4 month period

- Can process 200 million times more instructions per second than the Space Shuttle's computers.

- Parses within 3 seconds the equivalent of the number of books on a 700 yard long book shelf…and pick out the relevant information, and create an answer.

Cognitive Computing: IBM Watson

An Example...

Bob Dylan + IBM Watson

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Risks and Opportunities

- Europe has missed the 4G wireless terminal.
  The risk is to see China driven 5G Infrastructure

- In automotive Tesla electric), Google (autonomous)
  and Toyota (hydrogen) are leading the future.

- Europe has dropped out of the deep submicron race.

- Europe is out of the Computing World. And what
  about Cloud?

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Risks and Opportunities

- Europe has a strong leadership in Industry 4.0

- In automotive Europe is the leading force.

- Europe has a strong Electromic Healthcare business.

- Europe is leading in Smart Grids and Renewables.

- IoT is happening in Europe before anywhere else in the World.
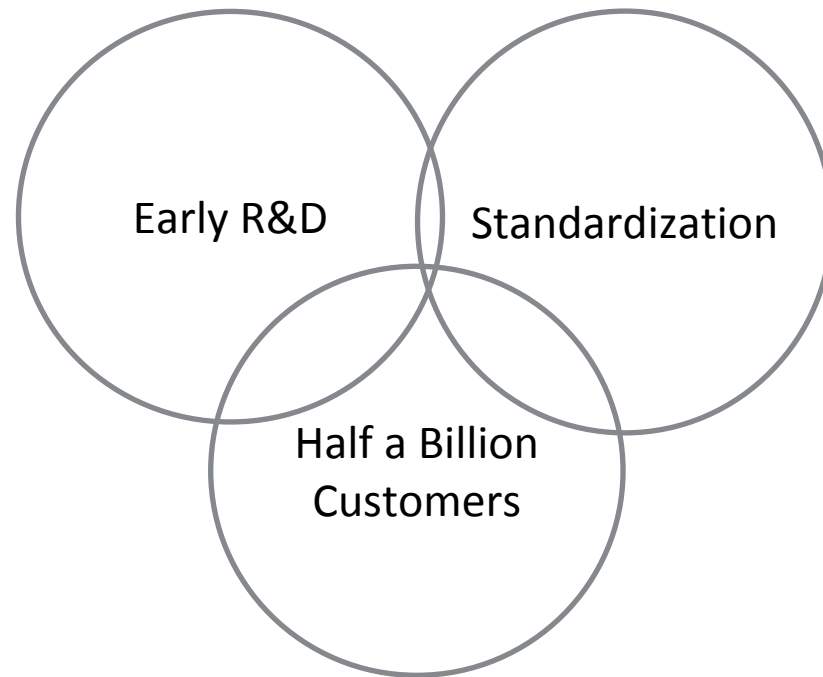
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Risks and Opportunities

- Europe has 500M+ customers

- So far Europe has been slow in developing and standardizing visionary solutions

- Seldom have Public Authorities and Industry cooperated
  to develop technology while setting standards.
  The famous exception, GSM, was a great success!

- These discontinuitites can be a huge opportunity if well played, or huge risks if Europe does not unite and cooperate!

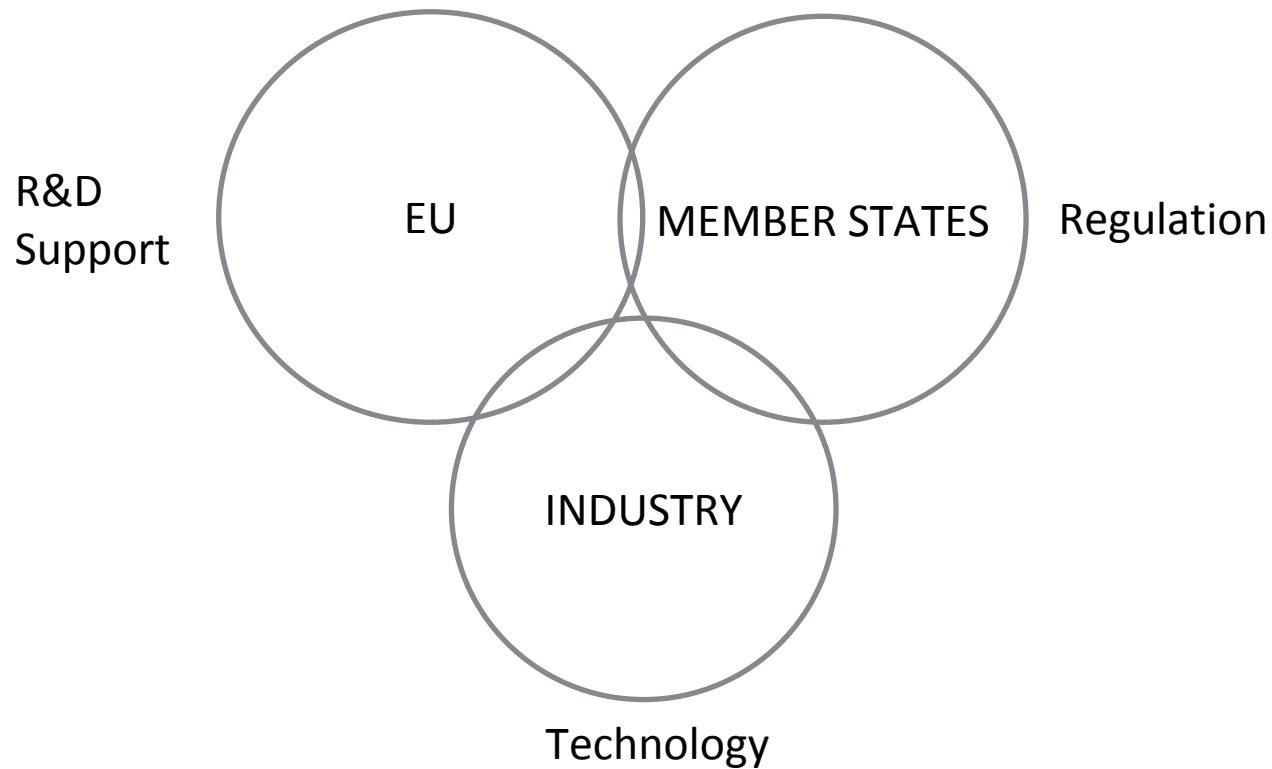**ECSEL JU**

The road to success

Early R&D

Standardization

Half a Billion Customers

ALL IN SYNC!

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The road to success

R&D
Support

EU

MEMBER STATES

Regulation

INDUSTRY

Technology

THIS IS THE ECSEL ECOSYSTEM!

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Flagship Projects

- Few, ideally one per area (Energy, Healthcare, Industry 4.0, Internet of Things, Transpostation)

- Comprehensive and Realistic, able to establish Standards, to create **full** ecosystems down to Components, and to go to Market. Should include Field Tests.

- Targeting the Leading Edge of Technology.

- With Active Participation of the Public Authorities (Regulation and Standardization Teams).

- Most ECSEL Funded Programs should fit into them.

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A comprehensive approach

EU, PA, Industry

FLAGSHIP PROGRAMME

Regulation

SYSTEMS

SUBSYSTEMS

Industry

COMPONENTS

ECSEL Programmes and calls

MANUFACTURING EQUIPMENTS

WE NEED TO MASTER ALL THE CRITICAL STEPS IN THE WHOLE VALUE CHAIN

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Lessons Learnt

- **Speed** is of utmost importance. While we discuss and negotiate, others build standards de facto and impose them in the market.

- **Ecosystems** are essential. If we miss one key part, in any level of the value chain, the whole program will flop.

- **Real Leaders, Great Vision and Deep Cooperation** to drive the process, making sure results are consumer driven and and quickly deployable.

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Steps to Implementation

- Have a Vision, Share the vision, Create Expectations

- Identify the key enabling Technologies at each level of the Project and insert them in the call for proposals.

- Setup great teams to succeed

- Create Support at Top level in each Partecipating Organization, Company or Public Authority

- Get it done!

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Thank you!

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