

NNI/OECD Metrics Workshop

Electronics breakout session
Results of March 27 discussions

What impacts are already occurring?

- Cost per transistor dramatically reduced
- \$300 billion in semiconductor industry revenues in 2011
- Quality of life, communication, education, change of culture, etc.
- Improving/preserving market share
- Return on investment
- Improvements in productivity, product life cycle time
- Use in other fields, e.g., medical, robotics, energy, etc.
- Regional impacts through well organized public/private partnerships

Main European initiatives for promotion of Nanoelectronics



*Bringing together people with ideas
to set the R&D agenda
for nanoelectronics in Europe*



AENEAS mission is to represent R&D performers in the Joint Technology Initiative in the field of Nanoelectronics and to adopt and continue the activities of the European Technology Platform **ENIAC**. *INL is member of the AENEAS association*



*A PUBLIC-PRIVATE PARTNERSHIP IN NANOELECTRONICS
STRENGTHENING EUROPEAN COMPETITIVENESS AND SUSTAINABILITY*

The ENIAC Joint Undertaking (JU) is a public-private partnership focusing on nanoelectronics that brings together Member/Associated States, the European Commission, and AENEAS (an association representing European R&D actors in this field).

European figures in the electronics sector.

Europe is losing market share in the area of Integrated Devices Manufacturers:

-40% market share in 5 years (2006-2010)

-11.6% in average per year

There is a pessimistic view for European Integrated Device Manufacturers

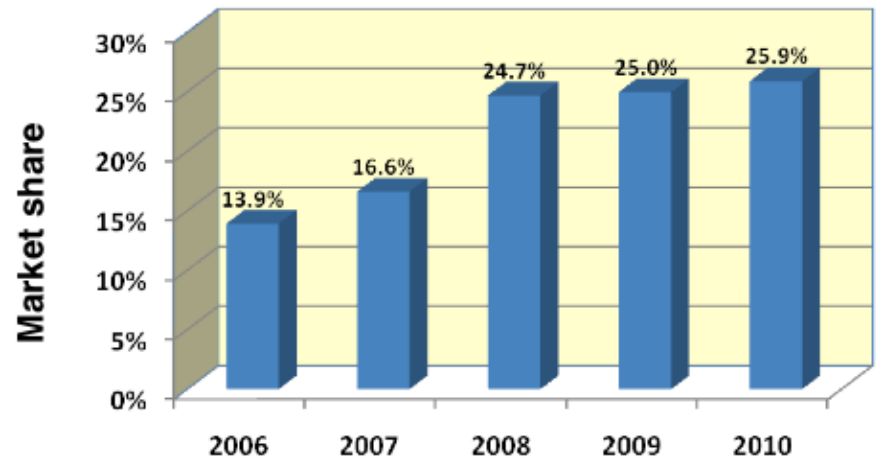


But Europe is doing a good job in the Semiconductor Equipment Manufacturers market:

Exceeding \$10B in 2010

Compound Annual Growth Rate: > +15%

Important increase of market share



Fabless companies and *Foundries* are also losing market share and competitiveness against Asian and American rivals

Public/private Development Impact, CNSE



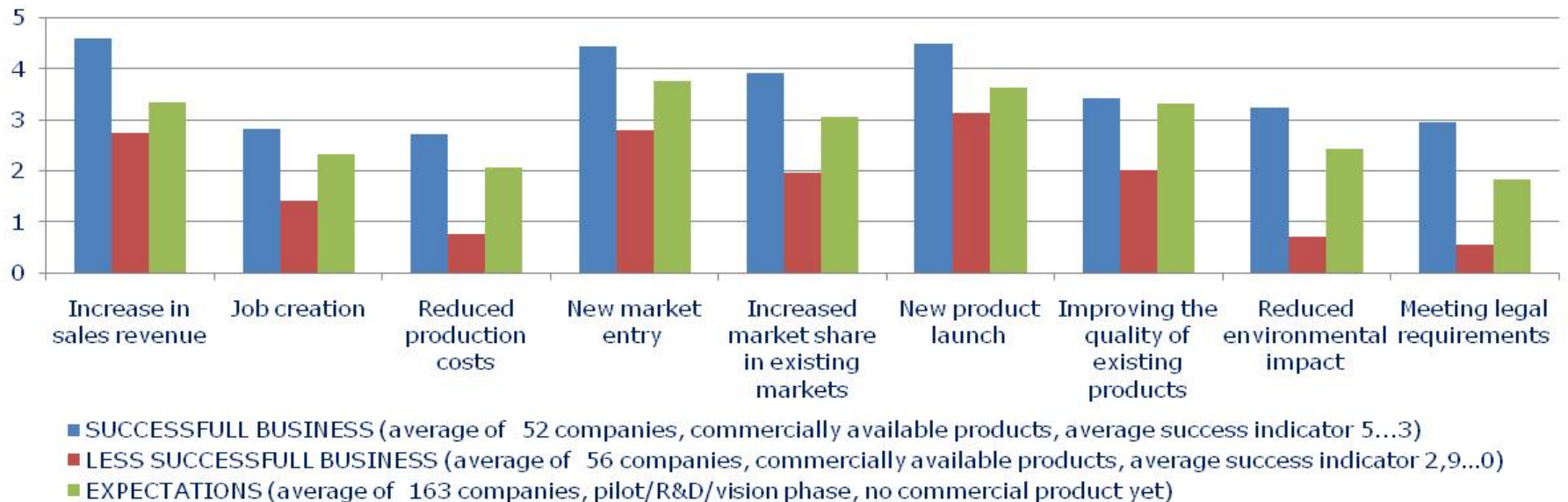
- **300+ industry partners including electronics, energy, defense & biohealth**
- **\$14 B investments since 2001 and over 2700 R&D jobs currently on site (projected increase to 3700 R&D jobs by 2014)**
- **Since 2001: 12,500 jobs created/retained; \$1B wages; \$28B investment**
- **Projected by 2015: 25,000 jobs created/retained; \$2.25B wages**

The success indicators – the effect of nano in business?

The effect of nanotech is high in

- o New product launch (according to 62% of the 278 companies)

The effect of nanotech in business? 5 = high, 3 = medium, 1 = low, 0 = no effect/I don't know



What are highest priority impacts expected in 5 years?

- Shorten development time
- Lowering specific investment, entrepreneurial ecosystem and culture
- Educational impact
- Regional partnerships
- Region-specific impacts (i.e., Europe vs. Asia vs. U.S.)

What type of metrics most appropriate to assess high priority impacts?

How will metrics shift as
nanotechnology evolves?

Unique challenges to assessing economic impact in this sector?