Europe, a world leader in Nanotechnologies, Biomaterials and Micro-Nano-Electronics for Healthcare

Nicolas Gouze,
General Secretary of ETP Nanomedicine
Trends & paradigm shifts in Healthcare

- Demographic change, Ageing
- Changes in Lifestyle
- Importance of Wellbeing
- Increasing costs constraints
- Data handling and security
- Smart everywhere, mobility

- from re-active towards preventive strategies
- from symptomatic treatments towards complete cure
- from blockbusters towards personalised approaches
- from conventional pipelines towards new sources for innovation
- increased patients empowerment
- increased need for secure data
Contribution of KETs

- Earlier & better diagnostics, PoC
- Targeted therapeutic strategies
- Functionalised materials & scaffolds for cell therapies
- Innovative Medical Devices
- Advanced Therapy Medicinal products
Why makes nanoscale the difference?

1. Same scale as biological mechanisms
2. Few degrees of freedom allowing self-assembling
3. Faster and more often chemical reactions due to the bigger surface-to-volume ratio and the dominance of thermal motion
4. Ability to cross barriers

Nanomedicine provides high resolution analytical tools for a better diagnosis, better understanding and better therapeutic strategies to correct the cause of diseases at the molecular level where it originates.
Nanomedicine contribution to Challenges in Healthcare

Innovative nano and biomaterials approaches for:

* Cancer
* Atherosclerosis
* Alzheimer
* Diabetes
* Arthritis
* Ophthalmology
* Impairments
* Infectious and inflammatory diseases
* ...
* 700+ nanomed & biomaterials companies in EU

* **But only 20 nanodrugs** approved in the EU
  (40 in the US)

* 650 Mio € invested in FP7
  * 180 nano- and biomaterial-related projects
  * 400 industrial partners

* 122 products in clinical development (57% in oncology / 14% in phases II/III et III)*

* Bionest study 2014
Current limitations for SMEs and Academia

- Poor alignment of R&D projects with large industry
- Lack of / access to European infrastructures
- Limited experience on industrial product development
- Limited knowledge about regulation and reimbursement
- Difficult access to large companies and investors
- Long and costly process
US big deals in nanomed in 2012-14

> 1 Billion US$
# Need to improve Translation

## Nanomedicine

### Research concept
- Idea
- Research
- PoC

### Pre-clinical development
- Pre-clinical & manufacturing validation

### Early clinical development
- Clinical PI / Pilot

### Late clinical development
- Clinical registration phases (II & III)

### Market development
- Market

### TRL
- 1
- 2
- 3
- 4-5
- 6
- 7
- 8
- 9
an **Industry-Driven Initiative**

Nanotechnologies, Biomaterials and Micro-Nano-Electronics for Healthcare

Drive translation by

* managing the communication between all stakeholders of the **healthcare value chain**
* identifying and prioritizing **industry relevant R&D topics**
* setting-up and managing new SME based supply chains for healthcare industries
Specific objectives

**Support translational research**
- identifying and supporting the most promising projects
- improving trans-disciplinary and sectorial collaboration
- Providing access to infrastructures, services, regulations, manufacture

**Leverage public & private investments**
- Mobilizing and ensuring synergies between different public funding sources
- Inviting industry and private investors
- Building partnership on corporate Responsible Research and Innovation

**Enable socio-economic benefits**
- Educating and training workforce in research and SMEs
- Involving clinicians & patients
- Coordinating communication on benefits and risks
- Outreach to communities
Stakeholders

- **European Commission**
  - DG RTD
    - KETs, Health, INFRA, JRC
  - DG CNECT
  - DG ENTREPRISE
  - DG REGIO
  - DG SANCO
    - Eur. Medicine Agency

- **Industry**
  - EFPIA, EUCOMED, COCIR
  - Companies
    - SMEs, Large companies

- **Academia**

- **Clinicians**

- **Member States, Regions**
Impacts

Industry
* Streamlined industrial healthcare value chain
  * Proper ecosystem for SMEs and spin-offs
  * Industry compatible SMEs and R&D projects
  * Optimized financing
* Accelerated translation and market introduction

Competitiveness
* Sustainable growth and jobs
* Attract large companies back to Europe
* Counteract competitive pressure from Asia and the USA

Healthcare
* Improved healthcare and the quality of life of patients
What happens if there is **no IDI**?

- Good projects will be **insufficiently** supported and **funded** to reach clinical trials
  - Still too many demonstrators would remain on the shelves
  - SMEs wouldn’t bear the clinical development costs and would stop business

- **Interest** of large companies and investors will **decrease**
  - Large industry relocates to more industry affine regions in the world
  - Europe loses job, brains, innovation
  - Healthcare systems would depend on non European industries
Next steps

- Feedback expected from NMPB Programme Committee
- Further discussions with DG RTD
- ETPN consultation of SMEs and industry
- Consultation with Member States and Regions
- Full proposal by end March or April 2015
Thank you for your attention

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