Embedding "Science and Society" within Nanotechnologies' Development

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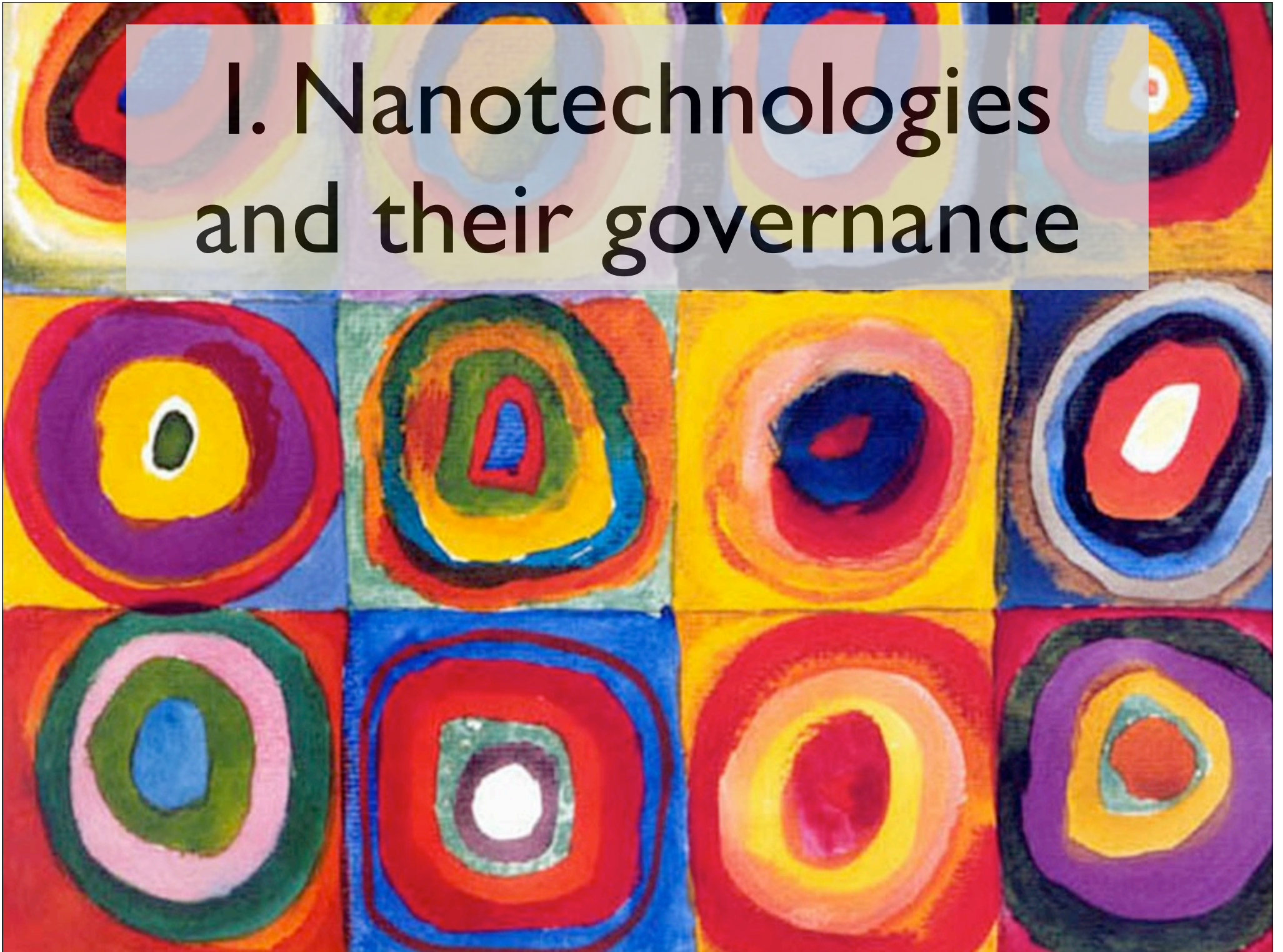http://thoreau.be

Layout

- Introduction and biographic elements

- Nanotechnologies and their governance

- Responsible innovation

- R.I. in practice, in public policies (so far)

Introduction

- PhD in social and political science

- Public policies with nanotechnologies

- STIR (R. I.) - NNI

- Fieldwork from Jan., 2010 to Feb., 2011

I. Nanotechnologies and their governance

Heterogeneity

textile

agriculture (novel foods)

electronics

- Heterogeneity of applications
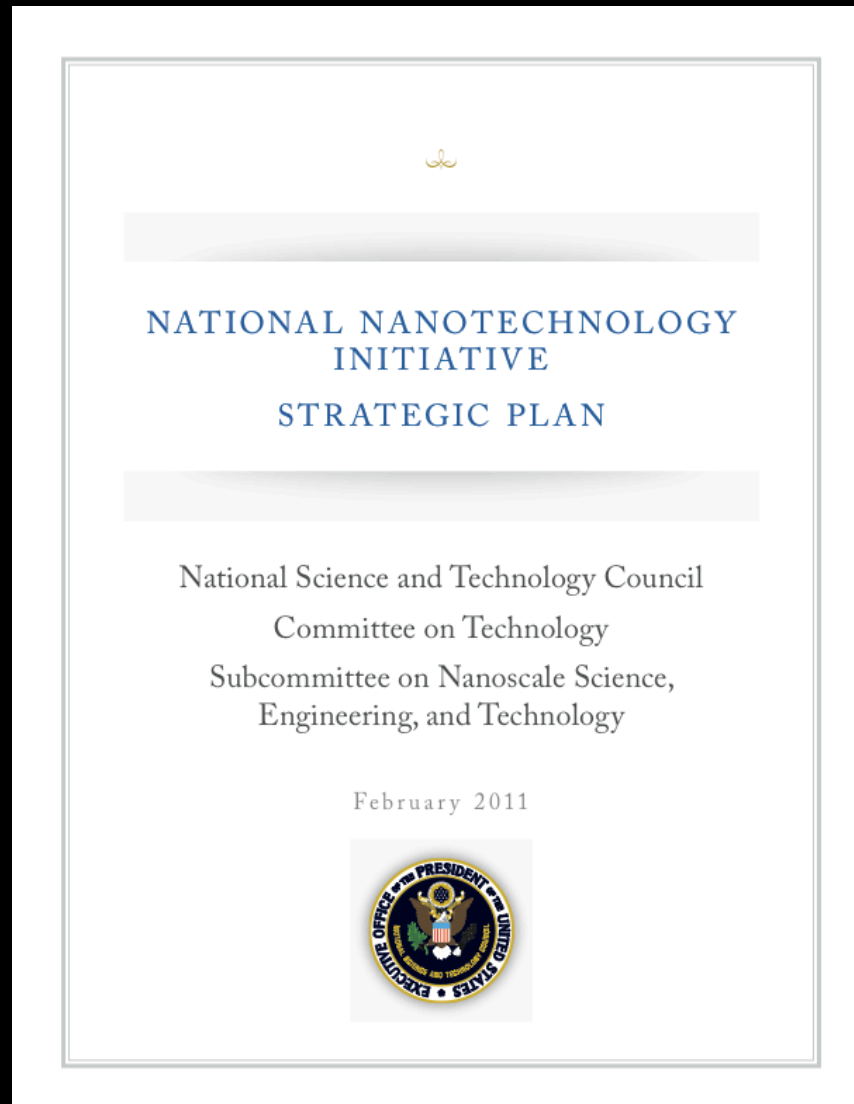- Could potentially spread to every industrial sector

health care

Energy production and storage

But a political project first and forehand

THE NATIONAL NANOTECHNOLOGY INITIATIVE

Research and Development Leading to a Revolution in Technology and Industry

Supplement to the President's FY 2011 Budget

EUROPEAN COMMISSION

Community research

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN PARLIAMENT AND THE ECONOMIC AND SOCIAL COMMITTEE

Nanosciences and nanotechnologies:
An action plan for Europe 2005-2009

COMMUNICATION

In 2011...

NATIONAL NANOTECHNOLOGY
INITIATIVE

STRATEGIC PLAN

National Science and Technology Council
Committee on Technology
Subcommittee on Nanoscale Science,
Engineering, and Technology

February 2011

Funding

USA
A decade of funding
14 billions $

2011
1,8 billions $

EU
approx. 1,3 billions €
+ MS = approx. 3 billions €

Bureaucracy?

It's about innovation policies

It's about a knowledge economy

global competition

funding race

The need for governance

- Stressed by public policies, as regards with nanotechnologies, from the very beginning

- "Governance" usually taken-as-granted

- Refer to regimes of regulation
  (as opposed to hard, top-down and/or command-and-control approaches)

Regulation?

- Regulation is the sustained and focused attempt to alter the behaviour of others according to defined standards or purposes with the intention of producing a broadly identified outcome or outcomes, which may involve mechanisms of standard-setting, information-gathering and behaviour-modification (Black 2002, p.19).
referred to in Bowman & Van Calster, 2010

- F. Ost: a flexible and evolutionary management of an undefined set of data looking for some kind of balance

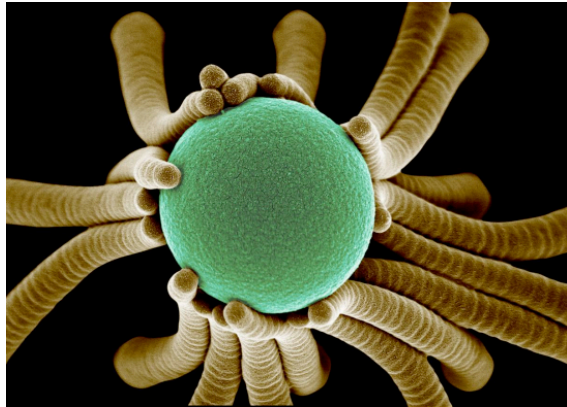# Resonance with *Science in Society* Programmes
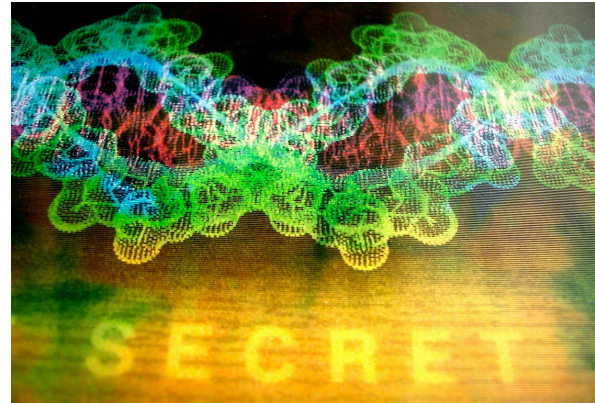
SCIENCE IN SOCIETY PROGRAMME: HIGHLIGHTS

- Developed over technological controversies (GMOs, etc.)

- Promote a participatory and inclusive approach

- Funding 2009: 31,8 million €

55

SCIENCE IN SOCIETY

A whole bunch of issues with nanotechnologies
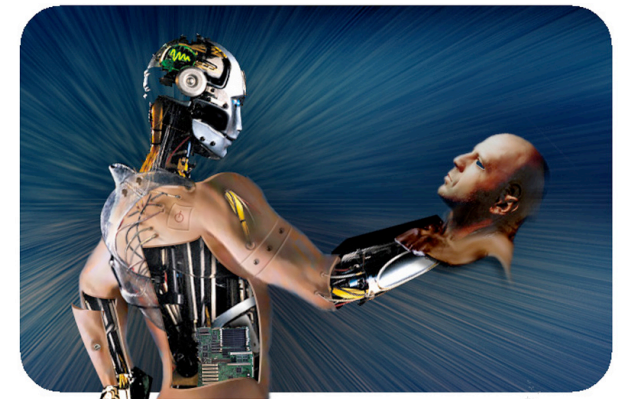

Health Threats

Control Technologies

Medical accessibility

BioNano technologies in Agrifood

Deshumanisation

A classical typology

HES (Health, Environment and Safety)   +/- 5-6 %

+ ELSA (Ethical, Legal and Social aspects)   +/- 1-2 %

_____

= « societal » dimensions of nanotechnologies

Two nanotechnologies' specificities

- Nanotechnologies explicitly support a societal project: a transhumanist agenda (USA), and inclusion through economic growth (EU)
  (Laurent, 2010)

- Parallel to the emergence on the R.I. discourse

- Make the case for « integration »

II. Responsible Innovation

Responsible innovation?

Nanotechnology must be developed in a safe and responsible manner. Ethical principles must be adhered to and potential health, safety or environmental risks scientifically studied, also in order to prepare for possible regulation. Societal impacts need to be examined and taken into account. Dialogue with the public is essential to focus attention on issues of real concern rather than "science fiction" scenarios.

European Commission, 2004

unprecedentedly open and engaging process. The collective goals and specific objectives articulated in the Strategic Plan will support world-class interdisciplinary nanotechnology research, sustain and expand critical infrastructure, train and inspire the next generation of scientists and engineers, and support responsible development and transfer of nanotechnology into commercial applications to benefit the Nation's economy and the American people.

Coming to terms with R.I.

- Status? Slogan? Tautology? Oxymoron? ... The issue of (un)definition

- Not legally enforced (so far)

- What about "responsibility" though?

- Mostly translated in soft law tools: fits the 'regulation' definition

Soft Law?

ETHICS REVIEW

When applying for funding under the Seventh Framework Programme (FP7), researchers must identify ethical issues inherent in their research and explain how these will be addressed. Project proposals that touch on sensitive issues are subjected to a stringent process known as the Ethics Review. In 2009, the Governance and Ethics Unit of the Science, Economy and Society Directorate launched a number of initiatives designed to improve this process and make addressing ethical issues easier for researchers, reviewers and European Commission staff alike.

Code of Conduct (2008)

- … for '**responsible**' nanoscience and nanotechnologies

- Science in Society programme: 1,2 million €

- process-based (not and end in itself nor a means)

- '*invites all stakeholders to act responsibly*'

- '*is voluntary*'

- '*offers a set of general principles and guidelines*'

III. R. I. in practice

Integration

- A specificity of nanotechnologies

- On the agenda for social sciences
  Barben & al., 2008

- An add-on to foresight and public engagement

- Tentative definition *Transdisciplinary collaboration that aims to integrate the societal dimensions of new and emerging technologies straight within R&D processes*

- Theory *Trading zones and Interactional Expertise Galison 1997; Collins & Evans 2002; Gorman, al. 2004*

# How to make integration work?

- **Midstream modulation**

- A decision protocol

- Observe, reflect, document

- Start from actual technical practices

Contextes flamand & wallon

- À brides abattues vs. ronger son frein

- Dynamiques conjoncturelles (inversion)
  wallonisering vs redéploiement?

- Les centres de recherche vs. les académies

- Point commun: l'estompement des frontières organisationnelles
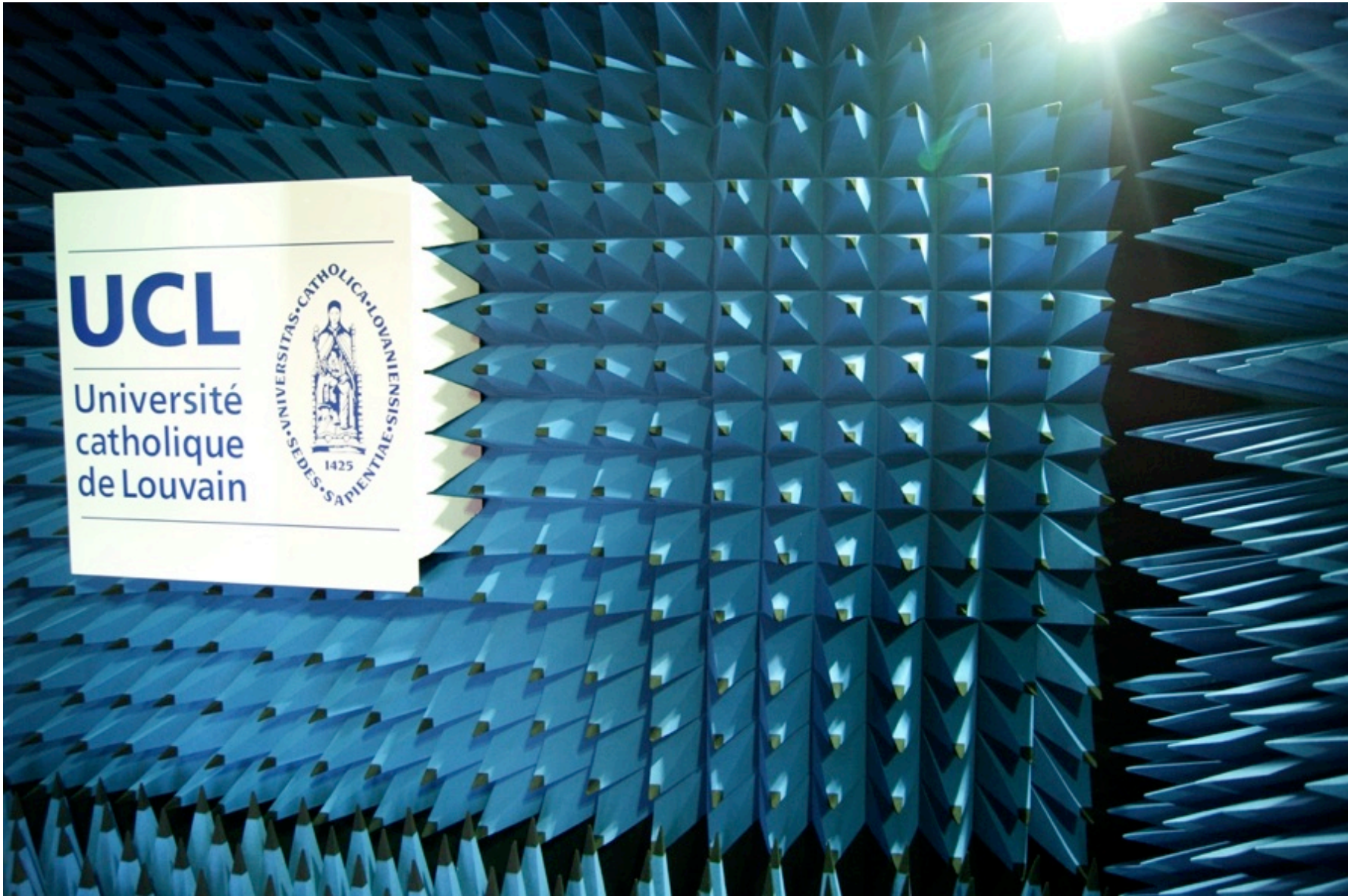
Conclusion

- Nanotechnologies are political from scratch

- Public policies aim at governing them

- The regime of regulation pursued so far is based on voluntariness

- A typical example is the CoC

- The specificity of nanotechnologies is the approach of 'integration'