



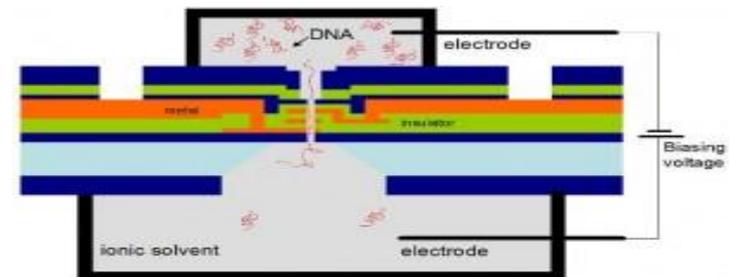
CONSEIL GENERAL
DE L'INDUSTRIE, DE L'ENERGIE ET DES TECHNOLOGIES

Government Use of Documentary Nanotechnology Standards: OECD WPN elements; Implementation in France

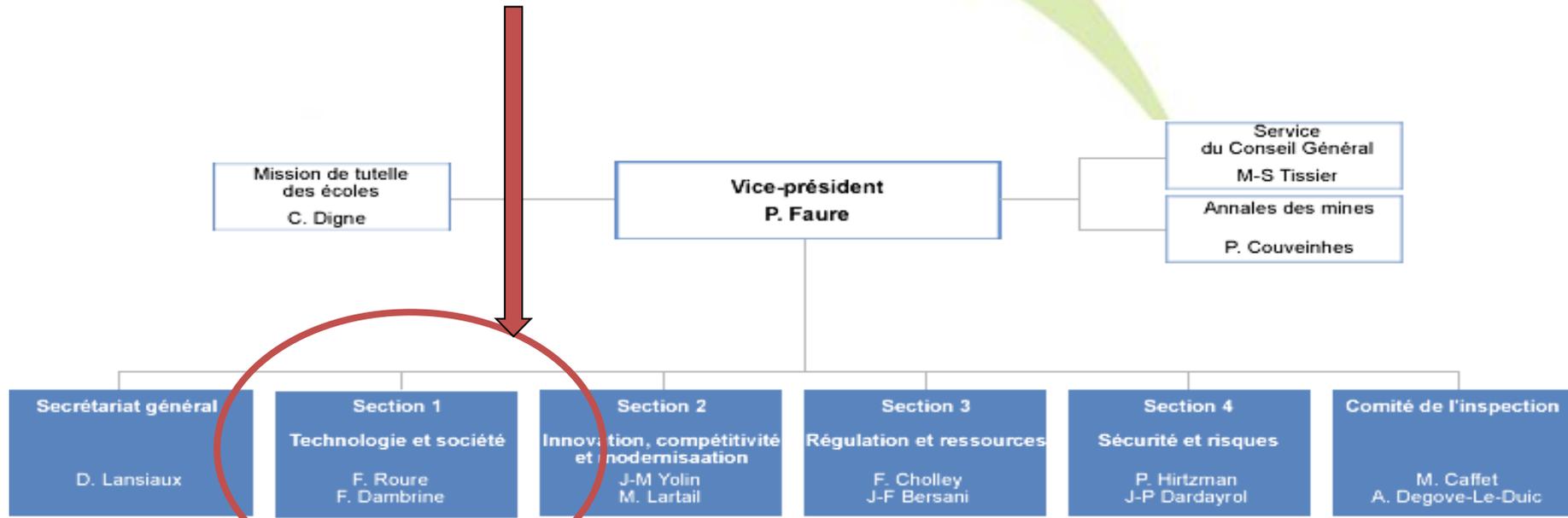
International Workshop on Challenges to Increased Use of
Documentary Nanotechnology Standards

Washington DC, 13th of December, 2011

Dr. Françoise Roure, Chair, Committee on « Technologies and Society »



The French Minister in charge of Economy is the President of the French High Council for Industry, Energy and Technologies (CGIET)



Mise à jour janvier 2011

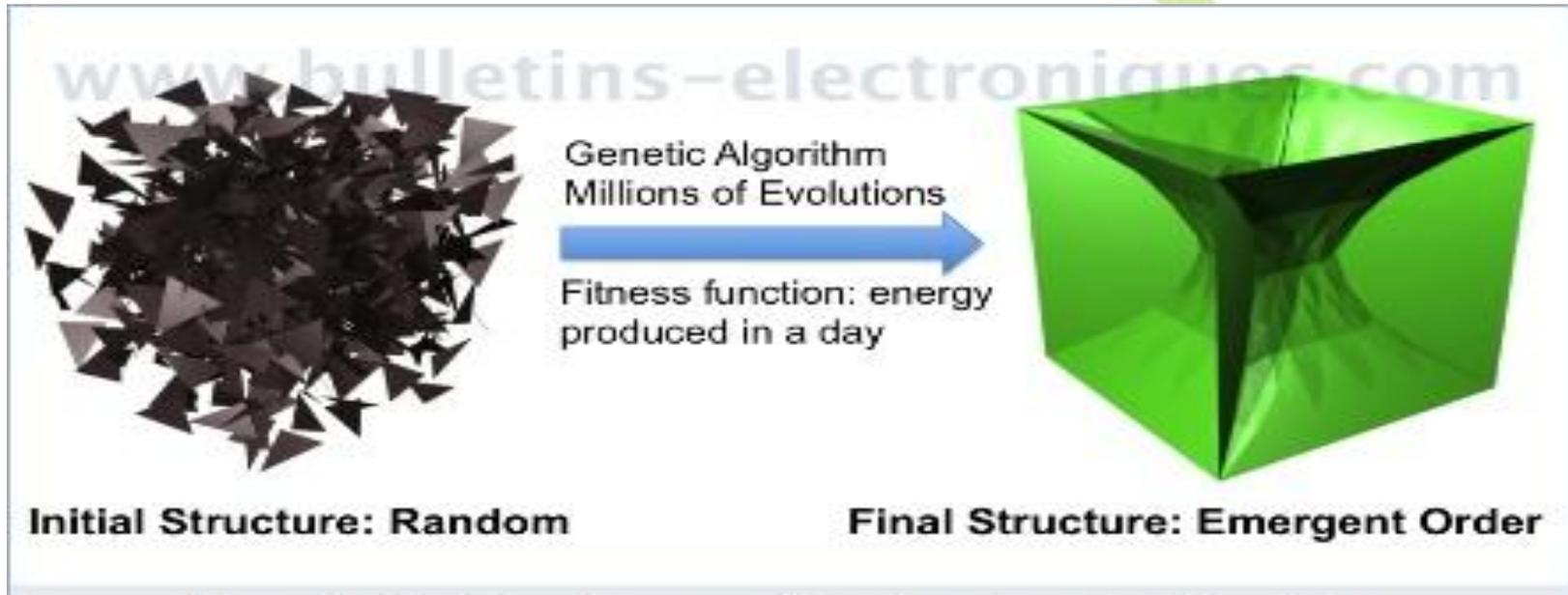
1. OECD WPN elements

- ❖ The OECD is an intergovernmental institution
- ❖ Its Committee for Science and Technology Policy (CSTP) has created a Working Party on Nanotechnology (WPN) in 2007 (*The WPMN is a part of the OECD Chemical Committee*)
- ❖ The mandate of WPN runs until 2014.12.31
- ❖ The term « nanotechnology » is a simplification as it covers, in the WPN mandate, wide and diverse, heterogeneous arenas:
 - Materials at the nanoscale with a working definition based on ISO TC 229 standardized term for nanomaterial
 - Processes relevant at the nanoscale
 - Nanoscience as well as Nanotechnologies in all areas (physics, chemistry, biotech...)
 - Software and data related to the nanoscale, nano-informatics
 - Every possible « *nano-enabled* » product (this one defined by IEC...)

OECD WPN and WPB synergies 2011-2014

- ❖ The OECD WPN has entered a stage where increasing synergies will be developed in cooperation with the OECD Working Party on Biotechnology
 - with two first areas of common interest under a wider and generic « Converging Technologies » umbrella
 - **Nano-medicine** (products and processes) and the convergence nano-bio at large
 - **Synthetic Biology** with three levels of deployment
 - ❑ Reproducing nature with synthetic, molecular and nanoscale elements with atomic precision
 - ❑ Creating artefacts from natural nanometer scale « biobricks »
 - ❑ « Life from scratch »
- An ISO TC on Biotechnology has not yet been established (under consideration, cf.ISO dedicated Geneva meeting Oct. 2011) . **Ex. of needs** : « nano-sequencing »?

Need: integrated, standardized nano and bio-informatics for simulation , innovation, green growth purpose



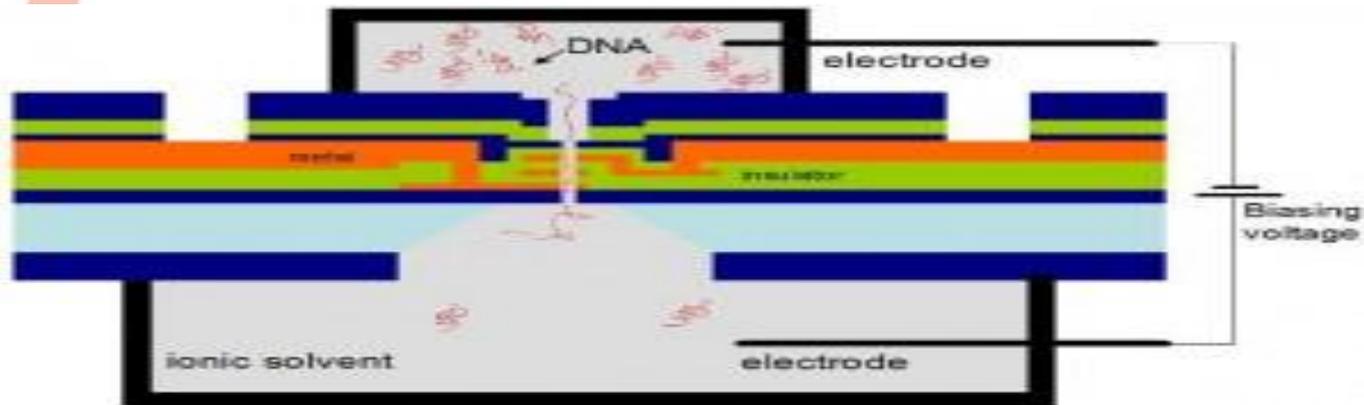
How an initial structure with surfaces orientated at random, each of them being a flat solar cell, moves to a 3D structure by energy optimization, in one day. The software mimics mechanisms of biological evolution

OECD WPN, RIHR and NEST synergies

- ❖ OECD/CSTP/WPN expands its area to the economic and business environment to enable responsible, safe and sustainable development of the markets (with social utility and ethical, legal and societal requirements).
 - There is a need to clarify, measure and quantify a set of indicators, beyond the « publications and patents » traditional ones
 - Indicators for Human Resources and Skills, Statistics on research, innovation, production and trade (both national and international) are required and valued.
- ❖ **Indicators built on standardized definitions would strengthen trust, accelerate delivery, facilitate benchmarking and help lower potential non tariff barriers**
 - **Towards standardized , sci-tech based , economic, industrial and HR indicators?**

A Standardized approach to Skills and Certifications for Converging technologies at the nanoscale ?

schematics-of-the-dna-transistor-300x174



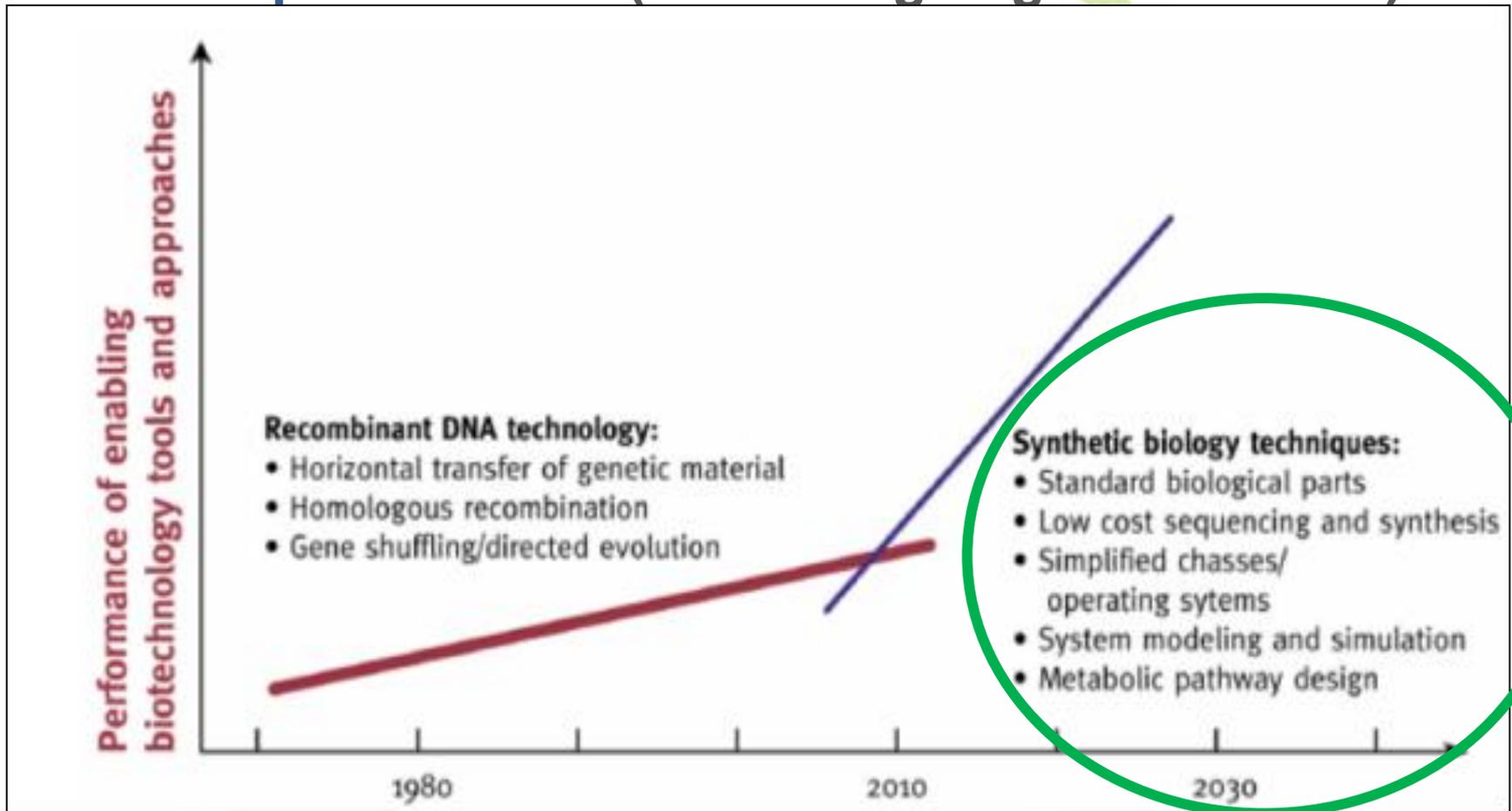
The central question of Content of Databases for the nanoscale (1)

- ❖ From OECD WPN perspective, a Workshop dedicated to International cooperation in the field of nanosciences concluded to the interest for governments to access and benefit from a well **curated database defining and organizing fundamental knowledge on nanomaterials in a universal and sustainable way** : i.e Standardized.
- ❖ **Needs:**
 - **Metrology for standardized characterization** of relevant scientific indicators and parameters of nanomaterials for EHS monitoring purpose: precompetitive, common interest, open for cooperation.
 - **Ontology and nano-relevant informatics** whatever the origin of the advanced material at the nanoscale (bio/non bio; natural/synthetic)
- ❖ Content on the properties and timescale for nano - building bricks must be accessible to all in order
 - to deliver in due time to the market innovative products,
 - lowering the production costs and
 - ensuring a safe (by process/by design) life cycle of nano-enabled products

Thinking ahead of the Curve: Integrated Nano-database(s) (2)

- ❖ ISO Concept Database as a set of vocabulary allowing many standardized definition for one term
 - has a limited, well focused goal;
 - is not designed to meet the expectations of a unified ontology scientific database for nanomaterials providing the superstructure of a meta-database
- ❖ We have learned that Scientific, Multidisciplinary Ontological Challenges expand beyond the scope and means of standards bodies' best efforts to develop consensus on an agreed set of definitions
- ❖ **An international integrated database for nanoscience and nanotechnology is still a missing tool for governments**
 - Until it is built, curated and operated, regulatory uncertainties will stay at a high level of definition as well as of implementation: risk of diverging frameworks...
 - Perspective with the High Council for Science (ICSU-Scientific Unions).
 - **An international consensus on standardized core terms provides a good basis for the future Database**
 - Would allow the creation of value on commercial, special purpose, databanks.

Converging standard bio and nano « parts » for Hybrid, Heterogeneous systems: Taking into account the Syn. Bio. Community needs for a safe and ethical development: NOW (OECD ongoing discussions)



2. News from French Regulations and Positions on nanomaterials and standards (1)

- ❖ The proposed regulation on a mandatory declaration required by law n°2010-788 of 2010-07-12, is compatible with the European recommendation for the definition of nanomaterials. It includes a definition of a substance in the nanoparticulate state based this EU/EC recommendation (subject to review).
 - The regulation (one decree and its detailed application under public online consultation until 2012-02-28
 - Comments to be sent to Consultation-decret-chimie@developpement-durable.gouv.fr
- ❖ Nano-labelling and Nano-Responsible CEN Standards Initiative supported by the French AFNOR and French Government.
- ❖ In the future, perspective of a *harmonized mandatory declaration* at EU level, and beyond, **framed according to/in reference to a common, standardized, knowledge architecture** (cf. integrated database mentioned here before) ?

(2)

❖ The French Government nanotechnology policy supports:

- An inter-governmental consensus within OECD on **the safe development of nanotechnologies and life cycle management**
- The OECD efforts to develop a full, statistically relevant approach of **Nano-Economics** (PoW 2012)
- The participation in international efforts on research on **Nanometrology** (Club « nanométrie » created in 2011)
- International cooperation for a scientifically based **ontology** and database for the nanoscale fundamental « bricks »
- **Standardization of terminology and indicators** relevant for the safe and secure development of nano-objects, nano-materials and nano-processes . In particular the ISO « Nanomanufacturing » and « Nanocellulose » ISO TC 229 perspectives
- **SMEs and consumers participation in international standardization bodies** including at CEN level
- **Cooperation between standardization bodies for the nanoscale**



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Thank you for your attention

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