This session is titled: Risk regulation to support technological innovation

We will have two presentations

Richard Meads, European Risk Forum
"Innovation and the Regulation of Risk"

Dirk Pilat, OECD, Directorate for Science, Technology and Industry
"OECD Work on Innovation and Risk Regulation"

These will be followed by some panel discussion and Q&A.
But first…

…I'd like to begin the session with a few very brief remarks about innovation and the need for flexible and adaptive risk management and risk governance.
Flexible Regulation and Technological Innovation:
Be sure you actually want what you ask for.

M. Granger Morgan
Chair, IRGC S&TC and
Prof., Engineering and Public Policy
Carnegie Mellon University
Pittsburgh, PA 15213
+1-412-268-2672
granger.morgan@andrew.cmu.edu
Anyone who has spent…

…time talking with folks in regulated industries (which today is pretty much *all* industries) has heard vigorous complaints about the inflexibility of many regulations.

While regulations generally provide protection to health, safety and the environment, it is also true that:

- Inflexible regulations often are a serious impediment to innovation.
- Existing regulations end up costing more than they should to achieve the desired outcome.
Two approaches:

**Design standards:**
For example, detailed specifications of how many ceiling sprinkler heads must be installed and how the system must work.

**Performance standards:**
For example, specification that with a stated probability all building residents must be able to evacuate a building before a fire becomes life threatening.

Performance standards allow greater innovation and flexibility but demonstrating that they have been met can be challenging.

Using a supercomputer to assess fire protection performance standards

Carnegie Mellon University
CARNEGIE INSTITUTE OF TECHNOLOGY

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

TITLE: The Role of Uncertainty in Improving Fire Protection Regulation

PRESENTED BY: Kathy A. Notarianni

ACCEPTED BY THE DEPARTMENT OF: Engineering and Public Policy

http://fire.nist.gov/bfrlpubs/fire00/PDF/f00125.pdf
The need to include learning

In many cases, when it first becomes necessary to address, a hazard we don't know enough about it to establish a definitive regulation.

In such cases, regulators (on both sides of the Atlantic) tend to exercise precaution.

BUT…as more is learned, it is often the case that the regulation should be revisited and revised.

Regulatory agencies are often reluctant to do this, and regulated parties may also not want it done because they don't want change.
To assure that this does happen...

...regulations should come with a time limit, after which they must be revisited.

EXAMPLE: Standards for criteria air pollutants under the U.S. Clean Air Act must be reviewed every five years.

A few years ago my colleagues and I undertook a major study to develop a U.S. regulatory framework for deep geological sequestration of carbon dioxide (CCS).
We proposed a process...

...to have a standing committee of the NRC systematically gather information on CCS experience all around the world, and then have EPA revisit and revise the standard as needed every eight years.
When we vetted this...

...with an industry group, they expressed great alarm:

"We need certainty, don't change things on us over time."

It was not until we clarified that what we were proposing was to modify the basic regulatory framework, *not* previously issued operating licenses, (unless those involved a major risk) that they decided that the proposed adaptive approach would be OK.

**Bottom line:** Learning and adapting regulation over time is good, but it needs to be done in a way that provides some certainty to investors and operators.