

Public engagement with science and technology in Ireland: outline, case studies and critique

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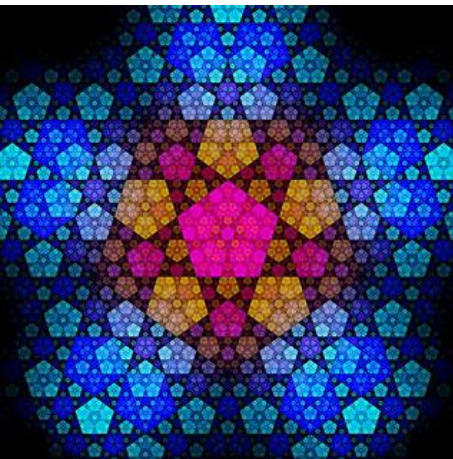
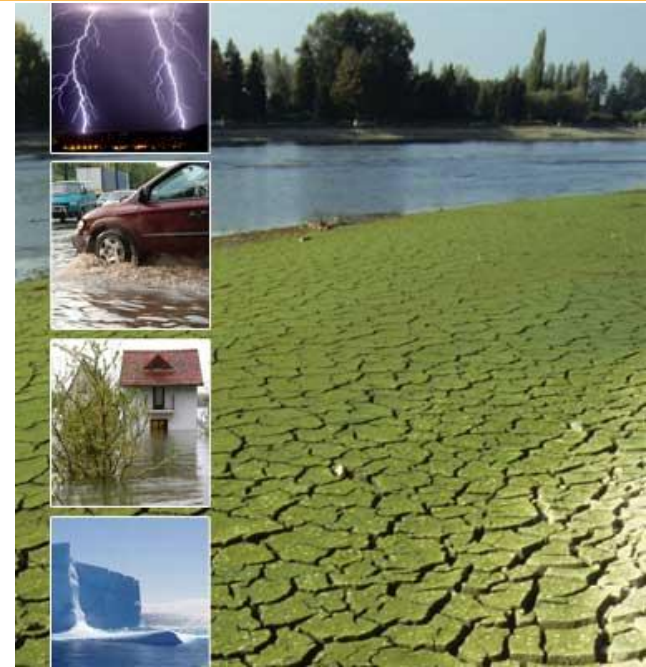


Public engagement: we often talk to ourselves or speak to the converted.....

(‘We’ being we in science, science policy and science communication communities)

Image source: Geoff Brumfiel *Nature* Vol 458 No.19 March 2009, pp274-277

- Grand challenges
- Appreciation of science as culture





Gender in science eg TWIST, INTEGER FP7 projects

Science education eg ESTABLISH, Fibonacci FP7 projects

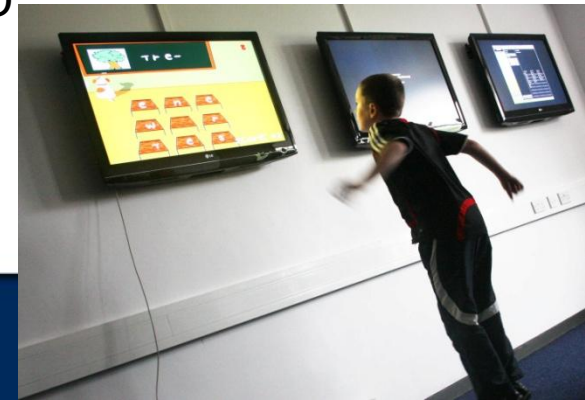


Science communication eg Esconet, STUDIOLAB FP7 project



SFI's Centres for Science, Engineering & Technology (CSETs)

- Alimentary Pharmabiotic Centre (APC), UCC
- Biomedical Diagnostics Institute (BDI), DCU
- Centre for Next Generation Localisation (CNGL), DCU
- Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), TCD
- Centre for Telecommunications Value-Chain Research (CTVR), TCD
- CLARITY: The Centre for Sensor Web Technologies, UCD
- Digital Enterprise Research Institute (DERI), NUIG
- LERO: The Irish Software Engineering Research Centre, UL
- Systems Biology Ireland (SBI), UCD





SCIENCE **GALLERY**



About the trip

Science Communication Bus

Six young, [Irish Science Ambassadors](#) will travel across Europe this summer on a specially commissioned *science communications bus*. The bus will visit a number of European cities to promote *Dublin City of Science 2012*. This will include a five day visit to Turin, the 2010 European City of Science, to coincide with the city's science celebrations which take place from 2nd – 7th July.

Chosen for their gift and passion for science communication, the [Science Ambassadors](#) will visit a number of centres of scientific interest in each city and will report on their experiences using social media tools such as [Twitter](#), blogging and [YouTube](#). Their aim will be to convey to other young people the excitement of science and the international opportunities it opens up, as they report on their experiences, first hand. The bus will be a fully equipped media centre with a satellite broadband connection to enable them to upload material in near real-time.



THE PEOPLE ON THE BUS



CATEGORIES

News (29)
Photos (3)
Video (2)

PLACES

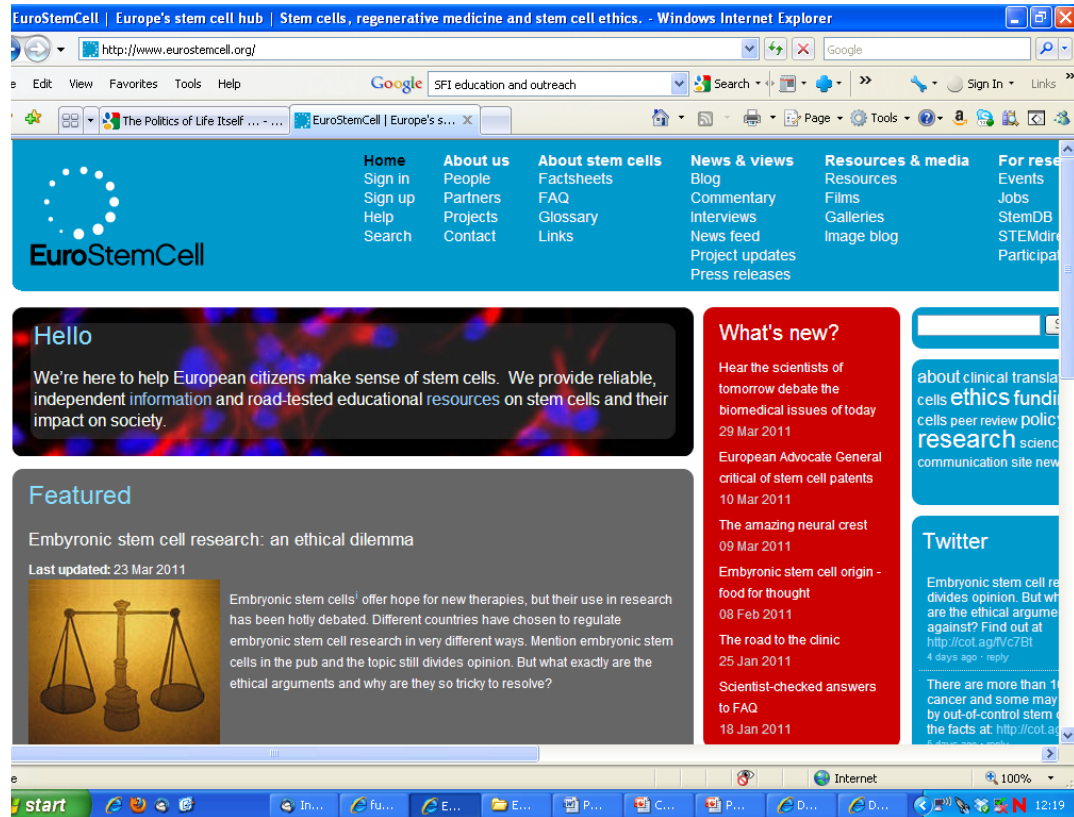
Amsterdam (4)
Barcelona (1)
Brussels (3)
Dublin (1)
Liverpool (6)
Turin (8)

TAGS

As T... ..

- Nano Week
- Engineers' Week
- Maths week

- Euro Stem Cell
- Debating Science Issues



“For upstream issues, where high levels of uncertainty exist, there may be particular benefits to opening up the risk characterisation process to a wide range of differing perspectives (Funtowicz and Ravetz 1992; Stirling 2004). The aim here is to avoid an overly narrow framing of the problem, through giving consideration to as full a range of impacts as possible, including potential ‘shocks and surprises’, many of which may not, initially at least, be open to formal quantitative analysis.”

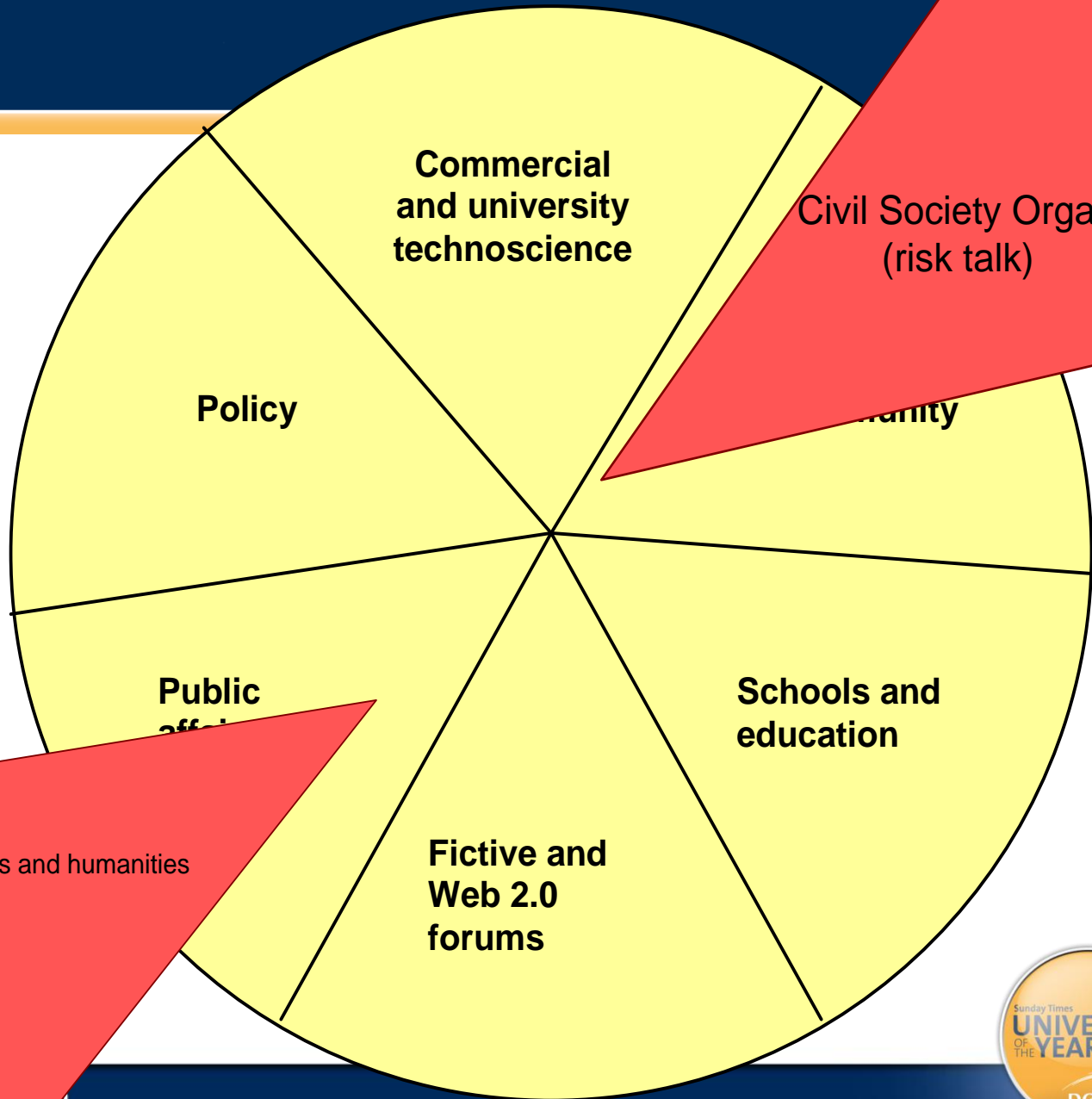
Royal Society and the Royal Academy of Engineering. 2004. Nanoscience and nanotechnologies: opportunities and uncertainties

Define what nanotechnology means to various Irish publics (including nanoscientists) by mapping local knowledges of nanotechnology and potential environment-health implications

Pilot public engagement activities

Pádraig Murphy .2010 Nanotechnology: public engagement with health, environmental and social issues Report for the EPA STRIVE-funded project: 2007-FS-EH-1-M5 STRIVE Report 61 - <http://www.epa.ie/downloads/pubs/research/health/name,30531,en.htm>

Irish discourse sites of nanotech



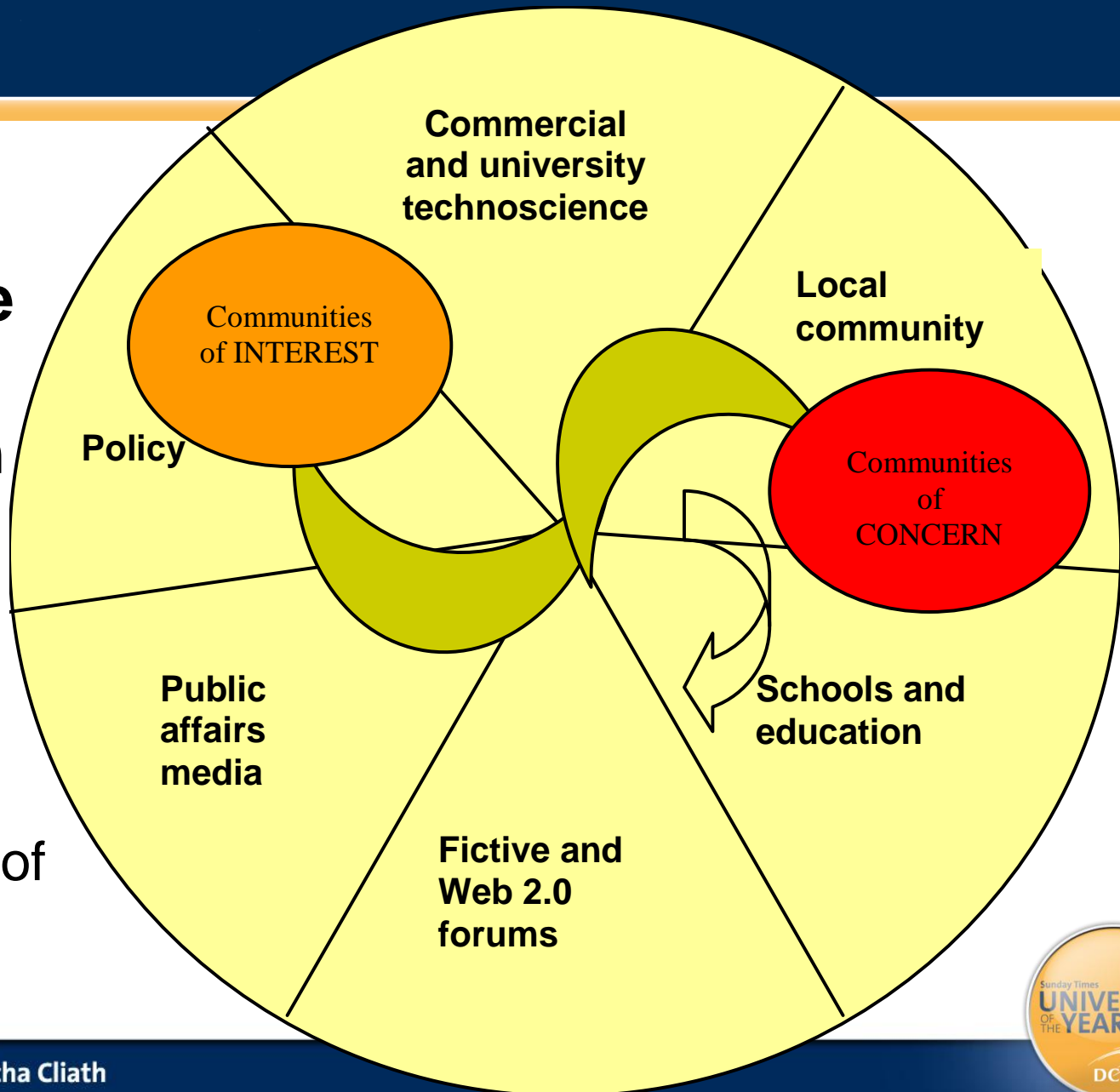
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(with potential for public engagement)



Irish discourse sites of nanotech



(simple binary categorisation of community engagement)

Engaging with Schools and Young People:

- Model 1: supporting secondary education

Engaging with 'Interested', 'Active', or 'Concerned' Communities:

- Model 2: Science Gallery installation with supporting online forum
- Model 3: Café scientifique
- Model 4: Focus group with open invitation participants

Engaging with 'New Participants' in Nanotechnology Discussions

- Model 5: Focus groups with pre-existing group participants
- Model 6: Citizens' or community jury
- Model 7: Informal community group interactions



ABOUT ■ LINKS ■ TRAILER



YOUR SCIENCE, YOUR SAY: NANOTECHNOLOGY

Four nanotechnology researchers talk about their work, and you leave a video response, saying which project you think has the most potential for benefit and risk.

Responses will help inform Environment Protection Agency policy.

For more info, [click here](#).

POLL

Which research do you think poses the highest potential BENEFIT?

- Pharmacogenetics - Paul Galvin
- Semiconducting Nanowires - Dorothee Almecija
- Amyloid Fibrils - Anika Mostaert
- Porous Polymer Films - Ronan Daly

[View Results](#)
PollDaddy.com

vote

TWITTER UPDATES

European Respiratory Journal publishes new study questioning nanoparticle safety <http://www.nature.com/news/2009/090819/full/460937a.html> 13 days ago

Nanowerk: new EU and US project on regulating nano towards effectiveness and convergence <http://bit.ly/kzkfF> 22 days ago

Nanowerk News report: "Carbon nanoparticles toxic to older fruit flies, not to young" <http://bit.ly/FyTfE> 23 days ago

ScienceDaily 6/8/09: All-in-1 Nanoparticle 'Swiss Army Knife' For

COMMENTS

Toni

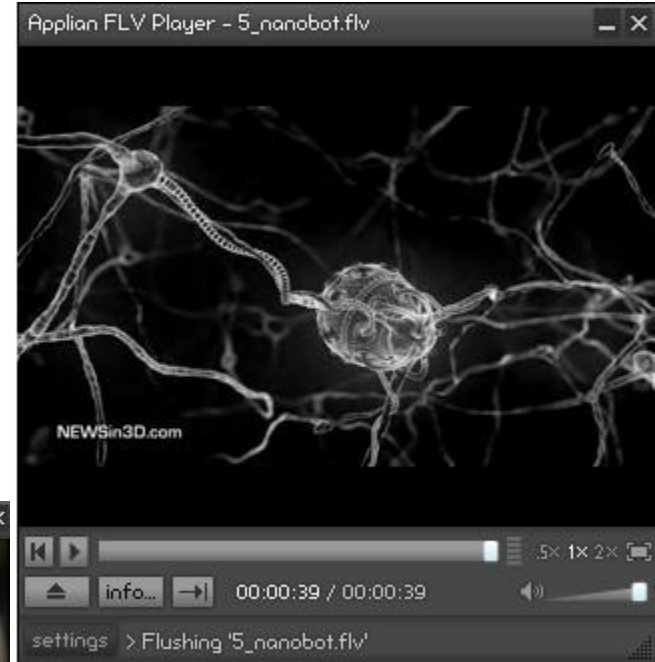
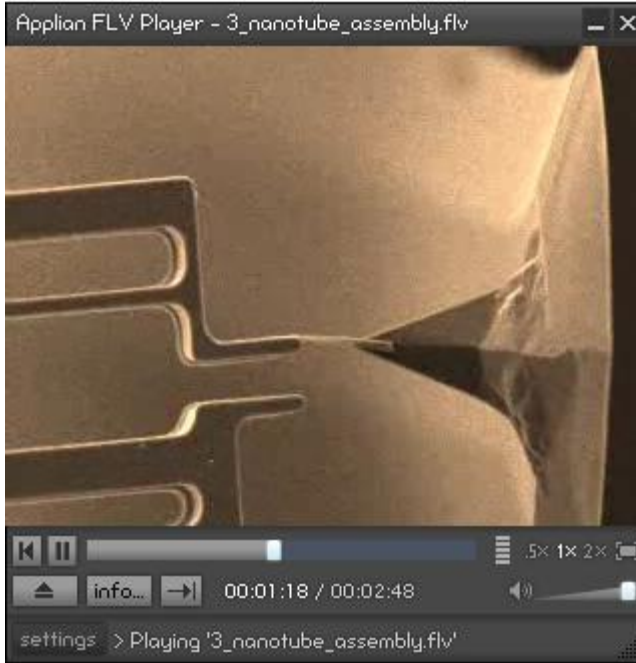
05/08/09 16:20

I definitely think that more fundamental nanotech research will probably have more impact, and eventual benefit than research that is already near to an application. Because fundamental research will (eventually) disperse to many other countries before it is applied, and it will potentially facilitate many patents, though not for the original researcher.

Lenita T.

29/07/09 18:35

Paul's video clip impressed me most. In developing countries this



Point	Action
1	Identify the context
2	Be clear about your objective(s)
3	Identify the participants
4	Plan the process
5	Select the activity
6	Identify the organisers
7	Know your goals/ recognise success
8	Learn and adapt

Murphy (2010) -The elements of good practice for nanotechnology public engagement as suggested initially by Gavelin et al. (2007) and developed by Rob Doubleday for the OECD Working Party on Nanotechnology (OECD Directorate for Science, Technology and Industry Committee for Science and Technological Policy, 2008):

Deliberative – *Emphasising mutual learning and dialogue;*

Emphasis on Dialogue

Inclusive – *Involving a wide range of citizens and groups whose views would not otherwise have a direct bearing on policy deliberation;*

Range of Participation

Substantive – *With topics that deal with issues related to technical questions, and appropriate to exchange;*

Depth of Issue/Topic Engagement

Consequential – *Making a material difference to the governance of nanotechnology.*

Impact

Table 6.1. An application of the OECD/Doubleday nanotechnology public engagement criteria in this STRIVE study for evaluating *Nanotalk* activities in this project (Gavelin et al., 2007; OECD Directorate for Science, Technology and Industry Committee for Science and Technological Policy, 2008).

Public Engagement Model	Emphasis on dialogue	Range of participation	Depth of issue or topic engagement	Impact
(i) Schools support	Medium	Narrow-Medium	Low	Medium-High
(ii) Science centre/public installation and web forum support	High	Narrow-Medium	Medium	Medium
(iii) Cafés scientifiques	Medium	Medium	Medium-High	Medium
(iv) Open invitation focus group	High	Narrow-Medium	High	Low
(v) Pre-existing focus group	High	Narrow-Medium	High	Low
(vi) Community/citizens' jury	High	Narrow-Medium-Broad*	High	Medium
(vii) Informal community meetings	High	Narrow-Medium-Broad*	Low	Low-Medium

* The range of participation was narrow for this project, but has the potential to be much broader, depending on objectives, effective publicity, organisation etc.

- Point of entry for public awareness/ public engagement – **‘imagining a world’**
- The more involved public engagement activities require **media presence** and **momentum** for success
- **Business / innovation actors** most prominent in discourse

- At this stage of public consciousness about nanotechnology, the ‘social’ concerns are on a par with ‘health’ or ‘environmental’ concerns in discussions (**safety**)
- ‘Social’ or ‘ethics’ are broad terms - can be decoded as **knowledge equity** (who knows, who owns?), **technology governance** (who gains, how to address this?) and **identity** (what will, or can, we be?) – issues of power and trust
- The technical, didactic explanations of nanotechnology reduces risk in discourse; when nanotechnology has to be explained, scientific detail is more likely used, with **low levels of risk talk** (↑ consensus)

- Debates on reproductive technologies divisive, global ‘culture wars’, localised in US, also Ireland and other Catholic countries
- Rarely looked at from the perspective of young people’s visions of the future, within sites of a progressive, critical education
- Young people, in common with adults, ‘frame’ and ‘position’ themselves in a discursive universe about highly technical, technoscientific matters of concern, framed for future life politics, future generations –and young people– should be included with adults in these debates



- need to ‘filter’ many spheres of public forums and governance, risk society/life politics into education;
- the classroom is a good place to start life politics

- A dialectic of *science for grand challenges* and *science for values* can be applied by Ireland, once known as ‘the island of saints and scholars’
- Many scientific discourse sites can engage and be engaged in myriad ways and using different practices, different modes of communication
- Emerging technologies are about co-construction and dialogue; distrust easy consensus, all too common in Ireland until now – responsible innovation requires workable solutions through engagement, not always consensus