

**Workshop 11-A:  
Nano-dialogues: the experiences  
from researcher-civil society dialogues  
in PERARES**

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# Programme

- Web-based civil society – researcher dialogues in general
  - Introduction: Web-based civil society – researcher dialogues: Henk & Lotte
  - Experiences from nano-dialogues up till now: Lotte, Henk, Padraig, Nicola
  - Planning of future web-based dialogues
- Governance of nanotechnology and the role of different types of dialogues
  - Introduction to governance of nanotechnology: Michael
  - Experiences with different types of dialogues about nanotechnology before and within PERARES
  - Pro's and con's to influencing society through discussions about nanotechnology

# Themes in PERARES nano-dialogues

- *Renewable energy and nanotechnology (Padraig)*
- *Cancer and nanotechnology (Mercy)*
- *Ambient Intelligence in healthcare (Lotte)*
- *Environmental life cycle analysis of applications of nano-particles (Henk)*
- *Food, nanotechnology and labelling (Rob)*
  
- Assessment of experiences so far
  - Interactivity
  - Involvement of heterogeneous actors (scientists, industrialists, CSOs, research policymakers?)
  - Articulation of views, dilemma's, expectations and research themes by each participant

# Lessons for other web-based dialogues

- What are the lessons learnt for the planning and management of web-based dialogues between civil society and researchers?
- What are the necessary resources in terms of time, knowledge, network relations, legitimacy etc.?
- Overall conclusions in review of earlier experiences:
  - Large-scale dialogues can be done
  - Dialogues take up people's time
  - The internet is a tool that requires wise and careful use
  - Broader geographical spread could reduce the quality of deliberation

# **Introduction to governance of nanotechnology**

# Many societal areas addressed with nanotechnologies

- A. Nanotechnologies are enabling technologies  
=> **claimed to be useful in almost all areas of the society**  
=> **challenging many social areas**
- B. Research and development of nanotechnologies is a highly competitive area  
=> **big funds to compete for**
- C. Increased focus of universities on spin-off companies, patents etc.  
=> **confidentiality maybe a hindrance to public insight and scrutiny into the research**

# Hypes and hopes

- Nanoresearchers may feel they have to promise fast societal benefits from the research  
*(Norwegian Research Council)*

## Hope => hype?

- Some nanoresearchers afraid of public dialogue  
.....Others interested  
.....To avoid the same critique as with genetic modification in food and agriculture

# Co-shaping of technology and society (1)

- Few would probably disagree in the development and use of new systems of small sensors combining ICT and nanotechnology
- **However....**
  - NGO's and researchers would object if the sensors are used to change focus away **from** pro-active prevention of pollution at the source **to** clean-up when sensors report problems
- **If** we should believe nanosensors should solve the pollution problem....
  - ...the lack of data should have been the reason for previous pollution.....

# Co-shaping of technology and society (2)

- Not a linear development from *need* to *research* to *innovation* to *application*
- Not good or bad properties of technologies per se
- **What agenda(s) are built around a technology by who?**

# Our experiences with nano-dialogues

- How is the openness and relevance of researcher-civil society dialogues, which can be created nationally and internationally within the nanotechnology area?
- What are the experiences with shaping of research questions and research activities based on such dialogues?
- *Some of our experiences from different types of nano-dialogues:*
  - *face-to-face workshops (Henk, Lotte, Padraig)*
  - *face-to-face interviews (Mercy and Michael)*

# Pro's and con's to societal influence through nanotechnology

- The conditions for addressing issues of societal relevance and legitimacy of
  - Problems: *Fighting bacteria?*
  - Nano-based solutions - compared to other ways of solving the same problem: *Improving 'hygiene' with nanosilver in household equipment?*

# OILFRESH (1)

- Problems addressed
  - French fries too fat
  - Heating too long
  - Oil disposal frequency

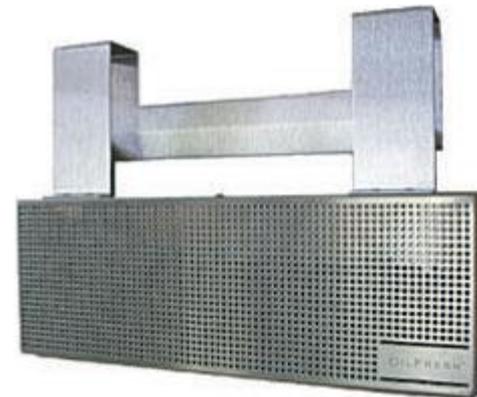
- Product

The OilFresh device is already in use in a number of individual restaurants.

**Future clients:** large fast-food chains such as KFC, McDonald's, and Burger King.

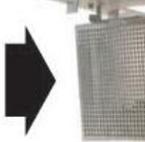
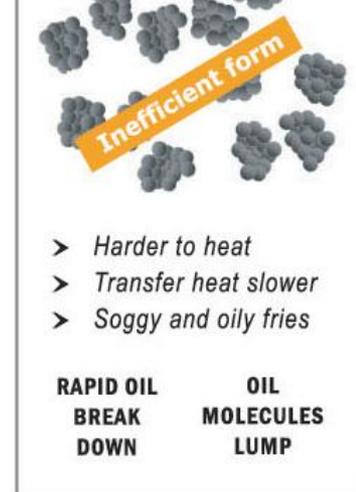
- Advantages

- Cut oil cost to half
- Reduces cooking time & temperature
- Gives healthier & better tasting fries



# OILFRESH (2)

- The OilFresh catalyst system is based on nanotechnology.
- Nanoceramic catalytic pellets are fused together to create a huge surface area on the catalyst surface.
- Extends the fry life of oils by reducing oxidative degradation



## However, t

- De-cluster  
form, impr  
that enabl  
lower temp
- Prevents o  
resulting i  
byproducts

*Students at  
Nanotechnology  
and society  
course, DTU,  
Jan 2008*

# Sociology of technology: Script and description

- **Script:** A kind of knowledge claim that lays out a program of action 'the designer' (un-)consciously assume will be followed
  - *A manuscript for the role of the technology*
- **De-scriptio:** the accept / resistance / modification of the inscribed to the script
  - *Is nano frying oil used for promoting healthy fried food?*
  - *Can consumers manage not to eat more fried food?*

# Sociology of technology: Enrollment and translation

- How actors *enroll* other actors or non-humans into positions that suit their purposes
- How problems are *translated* to enable a solution with a certain technology
  - *Fight bacterial problems with nano silver*
  - *Fight obesity with nano enhanced frying oil*

# Should we fight bacteria?



WA90FA

top loader washing  
machine

“The Silver Nano Health System is a comprehensive system developed by Samsung to improve your quality of life by **eliminating bacteria** from the places that count most.....Just as a dirty washer never truly cleans clothes... Samsung has found a solution in the **safety of silver**, ionizing silver into ions for an effective coating that lets your home appliances remain remarkably free of bacteria and odors. ”