

# **Where are the killer applications for Microfluidics?**

Kevin Yallup (TFI)

Mike Hawes (Syrris)

George Adamson (TFI)



## Objectives for Today

- Introduce the MANCEF roadmapping activity
  - Present some of the interesting findings from the microfluidics roadmap
  - Give a perspective from a company commercialising microfluidics
  - Stimulate debate among the audience
-

## Agenda

- Introduction
    - Kevin Yallup, TFI
  - Microfluidics in Life Sciences and Chemistry
    - George Adamson, TFI
  - Automated Microflow Chemistry
    - Mike Hawes, Syrris
  - Other Application Areas
    - Kevin Yallup, TFI
  - Open Discussion
    - Everybody
-

# Virtual Housekeeping

- A quick tour of Interwise
    - 1 person can speak at a time (hold <ctrl> to speak)
  - Questions:
    - At the end of each presentation
    - During the Open Discussion event
    - Please raise your hand (emoticons)
    - Send a note to Kalyan Sarma who will co-ordinate questions at end of each presentations
  - File, exit to leave
  - You can record this event, it is also being recorded on the server
-

## The MANCEF Roadmap

- The Micro- and Nanotechnology Commercialisation and Education Foundation (MANCEF) publishes the Micro-Nano Roadmap
- Living Document, 6 years in development, in its second edition
- Already covers a wide range of MNT topics (e.g. Optical MEMS, RF MEMS, foundries)
- Focussed on helping industrialists, investors and researchers understand the commercial opportunities in MNT
  
- Microfluidics chapter is a global effort to produce a document that will be of value to the whole MNT community...
  
- Today's session reports on the findings to date but...
  - ...It's still a work in progress
  - ...Further inputs to roadmap will be appreciated

# Overview of Microfluidics



- Fluidic devices where 1 or more critical component has dimension  $< 100\mu\text{m}$
  - Microfluidics can be subdivided in 3 ways
    - **By manufacturing technology** – e.g. DRIE, hot embossing etc. These are already well covered in MANCEF Roadmap 2<sup>nd</sup> Edition
    - **By components** – e.g. channels, valves, pumps. These are reviewed in the roadmap
    - **By applications** – The roadmap will look at a number areas and develop a vision for how microfluidics will develop in these areas
    - **What are**
      - ❖ Drivers
      - ❖ Barriers, Competing technologies, Technical, market, other
      - ❖ Opportunities
-

## Application Areas

- **Life Sciences**
  - **Environment and Monitoring**
    - *Hazardous substances*
    - **Pathogens**
    - **Security and Defence**
  - **Medical diagnostics**
  - *Medical Devices*
  - **Drug Discovery and Development**
  - **Chemical (including Industrial)**
  - **Inkjet Printing and Dispensing**
  - **Food, Beverage and Personal Care**
  - **Instrumentation and Sensors**
  - *Power Systems – fuel cells*
  - *ICT*
-