

ESFRI
European Strategy Forum
on Research Infrastructures

European Roadmap for Research Infrastructures

Professor John Wood
Chairman of ESFRI and CEO, CCLRC
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Some Examples of Large Scale Research Infrastructures

- Many are multi-disciplinary in their user base - not focused on just the basic physical sciences
- Neutrons and light sources are used for many applications - engineering structures, environmental monitoring, structural biology, archaeology
- Creating massive data sets and require excellent computer simulations to help in interpretation of outcomes as they become more complex

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Synchrotron Radiation: SRS, ESRF, diamond, 4GLS

SRS

ESRF

diamond

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Rutherford Appleton Laboratory

A World Centre for Condensed Matter Research

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CCLRC Technology

ISIS

efficient large solid angle detectors...

...fast electronics

e-technologies (e-science) detectors & advanced data acquisition

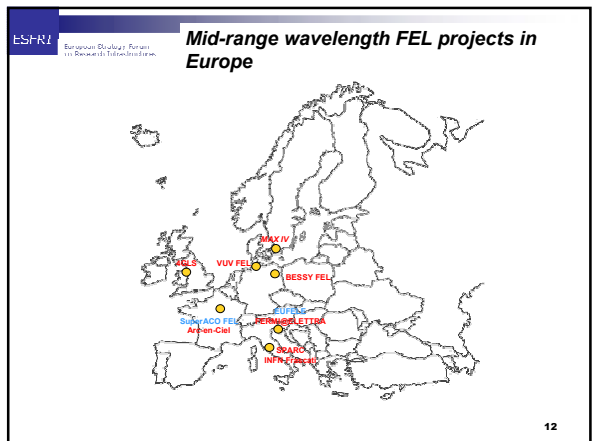
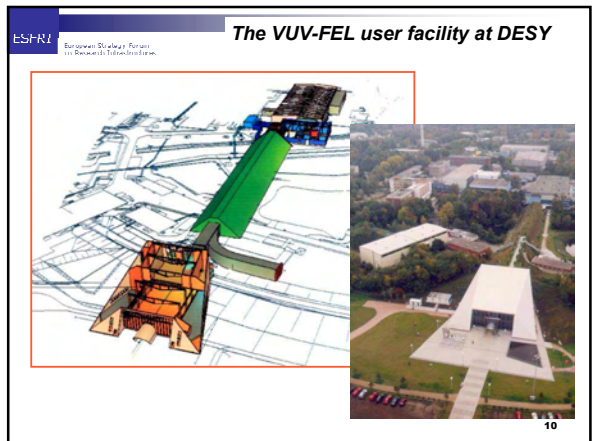
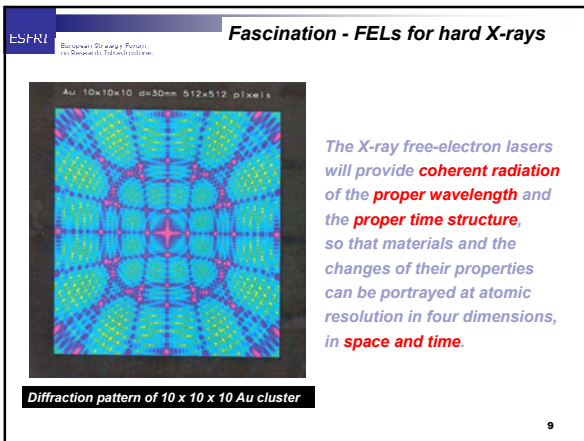
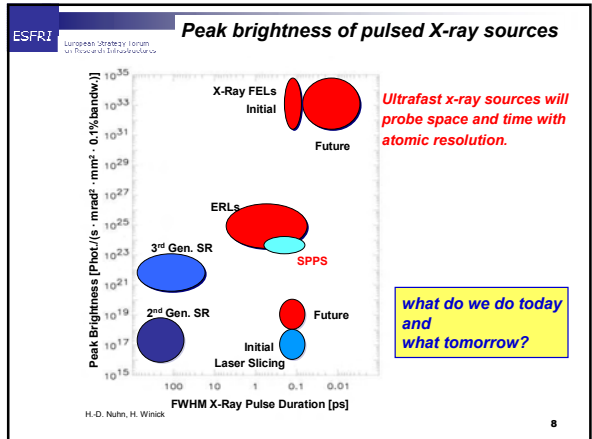
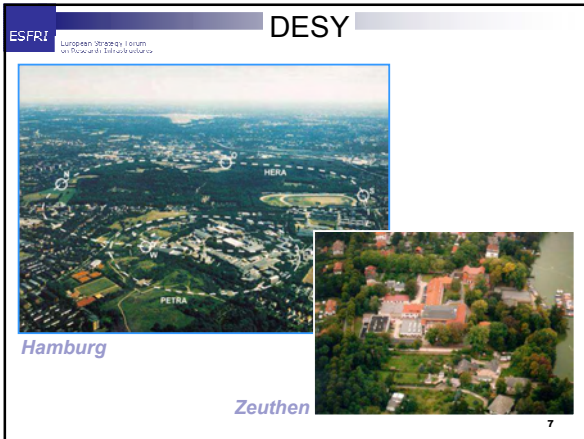
- bringing the central facilities into the universities
- unique synergy within CCLRC

4 orders of magnitude in 30 years

NEUTRON MOORE'S LAW

Neutron powder diffraction data rates (1950-2010) (4 orders of magnitude gain with ILL/ISIS alone)

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Microelectronics Support Centre

More than 600 Institutions from 43 countries close to Europe

Logos of partner institutions: ALTERA, SYNOPSYS, CoWare, ARM, Mentor Graphics, MIMASAT, Translogic, XTAG, TANNER EDA, COVENTOR, Suphronicity, XILINX, cadence, and others.

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one-north, Singapore

The Site

Map labels include: Clementi, Singapore Polytechnic, Warren Golf Course, United World College, NUS, NUI, Science Park 1, Science Park 2, RJC, Glim Motu, Holland Village, EW21 Marina Vista, Commonwealth, EW20 Commonwealth, Queenstown, and Science Park 2.

MRT lines shown: Circle Line MRT (To Harbour), Circle Line MRT (To Harbour Front Entertainment Centre), and East Line MRT (To City Centre).

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What is ESFRI?

- European Strategy Forum on Research Infrastructures (ESFRI)
- Launched in April 2002
- Brings together representatives of the 25 EU Member States and 7 Associated States, appointed by Research Ministers, and one representative of the European Commission (EC)

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ESFRI European Strategy Forum on Research Infrastructures

ESFRI's role and ambitions

- To jointly reflect on the development of strategic *policies* for pan-European Research Infrastructures;
- To prepare a European *Roadmap* (with regular updates as different areas mature);
- To act as an *incubator* for RI projects with pan-European interest ... but it is not a decision making body

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Objectives of European Roadmap

- Identification of new research infrastructures or major upgrades which correspond to the *needs* of European research communities
- Tool for decision makers, preventing over-provision of facilities in particular areas
- Providing a focus for long term budgetary *planning* by funding actors

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Research Infrastructures definition

- "*Facilities*", "*resources*" or "*services*" that are needed by the scientific community for development of *leading-edge research*, as well as for transmission, exchanges and preservation of *knowledge*;
- are generally characterized by large investments (for the given domain) and long project lead-times with associated needs for *long-term* support

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Criteria for entering the Roadmap

Scientific Case:

- Must be a major infrastructure for that particular scientific community (uniqueness)
- Must be a multi-user facility of great scientific interest (future needs)
- Must be of pan-European interest

Maturity of Concept:

- Must be technologically + financially feasible

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Further decision making criteria

- Potential contribution to *socio-economic* objectives (sustainable development); Impact on human capacity and training
- Estimated construction, operating and decommissioning *costs* (multi-annual plan)
- Appropriate *management* structure and mechanisms for Member States to join at the start or during operation

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The approach

- All *opportunities* should be identified although different communities are at different stages of maturity
- ESFRI, in its incubator role, will *not prioritise nor decide on location* (negotiations and decisions about plans and location will take place later, outside ESFRI)

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Working method

- *Clear timetable*: ESFRI aims to publish first roadmap early Autumn 2006
- ESFRI is advised by 3 *Roadmap Working Groups (RWG)* that cover:
 - Physical Sciences and Engineering (PSE)
 - Biological and Medical Sciences (BMS)
 - Social Sciences and Humanities (SSH)
- Consideration of *cross-cutting issues* and close contacts with *e-IRG*

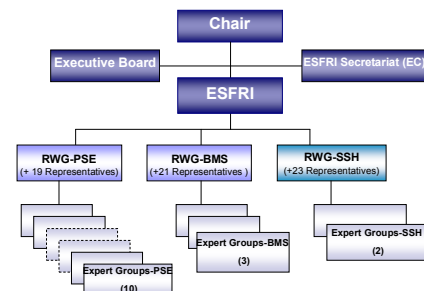
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Working method (continued)

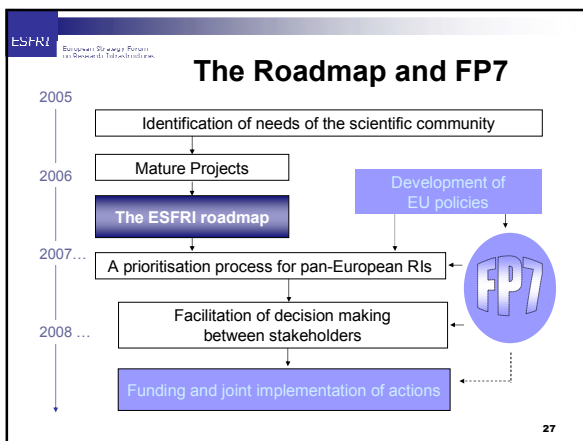
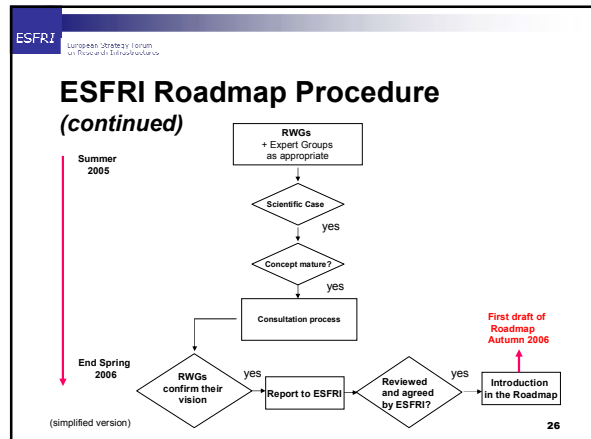
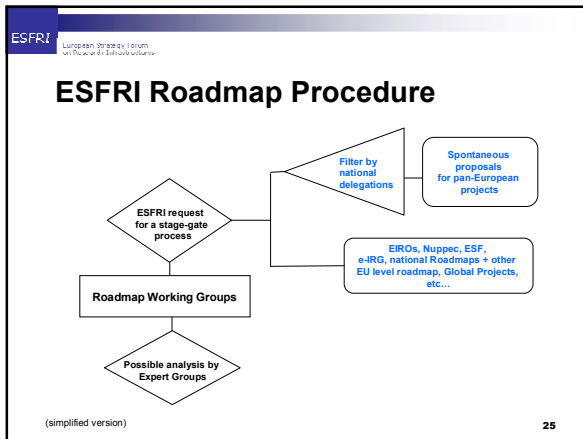
- Objectives of Roadmap Working Groups
 - Assess current national roadmaps (e.g. UK, Germany) and other analyses (e.g. from ETPs)
 - Identify gaps and create Expert Groups if necessary
 - Follow stage gate guidelines to produce evidence and advice for new Infrastructures
 - Report to ESFRI by early summer 2006

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Operational Structure



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- ## Other Issues
- Capacity building - people and culture
 - Balancing investment across Europe
 - Common management frameworks
 - Developing socio-economic metrics
 - Integrating training
 - Addressing key skill shortages
 - Interactions with new candidate and peripheral countries
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- ESFRI European Strategy Forum for Research Infrastructures
- ## Research Infrastructures Conference
- 6-7 December 2005, Nottingham, UK
 - Key note talks:
 - International Roadmaps & Plans ; Capacity Building in Europe
 - Parallel Sessions :
 - Users Needs in : Physics, Engineering, Biomedical, IT, Information Infrastructures, Clinical, Environmental Sciences, Social sciences, Humanities (cultural heritage)
 - Policy and management issues : Better co-ordination, optimising financing, optimising usage.
 - Large International Projects : ITER, International Linear Collider
 - Invitation only
 - Web-site: www.nottingham.ac.uk/ecriuk/
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- ESFRI European Strategy Forum for Research Infrastructures
- ## Useful links
- Research Infrastructures on CORDIS (FP6)
 - <http://www.cordis.lu/infrastructures/>
 - <http://www.cordis.lu/ist/rn/>
 - ESFRI (European Strategy Forum for Research Infrastructures)
 - <http://www.cordis.lu/esfri/>
 - <http://www.e-irg.com>
 - EIB (European Investment Bank)
 - <http://www.eib.org>
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