



E u r o p e a n
A s s o c i a t i o n o f N a t i o n a l
R e s e a r c h
F a c i l i t i e s
O p e n t o I n t e r n a t i o n a l A c c e s s

The European Association of National Research Facilities **ERF** open to International Access

Albrecht Wagner
Chair, ERF
ECRI 2007
Session 2c – The European Integration



- National Research Facilities (open to international access) are a backbone of European Research Infrastructure
- They have a long tradition
- They complement the International Organisations
- In order to be even more effective they have formed an Association, ERF



ERF Associates

Associates are nationally funded laboratories:

offering and supporting international open access to facilities and programs

carrying out research in the physical, materials and life sciences

providing large scientific research infrastructure

developing and providing innovative experimental technologies and their applications



ERF Objectives

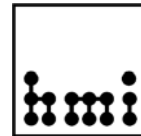
- Coordinate development and open access of forefront multidisciplinary facilities for European research
- Develop mechanisms and best practice for the international provision of large-scale research facilities
- Act as single voice with decision-makers
- Facilitate the availability of resources for large-scale research facilities by cooperation among Associates and through the initiation of specific joint initiatives or consortia
- Act as a central contact point for information concerning the development of a European infrastructures roadmap, through specific links to the ESFRI and its working groups



European
Association of National
Research
Facilities
Open to International Access

ERF Research Facilities – founding members

- STFC (UK)
- DESY (GER)
- ELETTRA (IT)
- FOM, Rijnhuizen (NL)
- GANIL (FR)
- GSI (GER)
- HMI (GER)
- Laserlab Europe/MBI (EC)
- MAX-Lab (SWE)
- PSI (CH)
- SOLEIL (FR)





ERF characteristics

- **Attracting** the best scientists and bringing together researchers from university and industry so effecting knowledge circulation
 - serving at present **> 13 000 users** (world-wide) including an estimated 20% connected directly or indirectly to industry
 - **strong multidisciplinary interaction** of **scientific research** and **high technology** instrumentation and engineering
 - ERF is preconfigured to provide a KIC (Knowledge Innovation Community) in a future **EIT** providing research, innovation and (higher) education
-



E u r o p e a n
A s s o c i a t i o n o f N a t i o n a l
R e s e a r c h
F a c i l i t i e s
O p e n t o I n t e r n a t i o n a l A c c e s s

ERF characteristics

- Several **decades of experience** in designing and constructing innovative and complex research instruments enabling new opportunities for groundbreaking research
- Proven **track record** of managing large facilities, coordinating resources and building global cooperation
- Providing **advanced training** of scientists and engineers
- Key element of **European Research Area**



ERF – associated facilities

Research center	Location	employees	annual users	Budget (M€)	Research topics/facilities
BESSY	GER	188	1300	22	sr
STFC	UK	1809	~4000	230	ac, las, neu, mu, sr
DESY	GER	1560	3000 total	165	ac, sr, pp
Elettra	IT	245	840		sr
EuroMagNet	NL/EU		>200		High magnetic fields
FOM Rijnhuizen	NL	150		15	las, THz FEL, fusion
GANIL	FR	240	700	33	ac, np, heavy ion beams
GSI	GER	1050	1250	77	ion beam, np
HMI	GER	760	230	65	neu, sr, solar
Laserlab Europe (MBI)	GER/EU		> 500		las, non-linear optics
Max-lab	SWE	80	700	11	ac, sr, np
PSI	CH	1200	1000	173	ac, bio, sr, mu, neu, np, pp
Soleil	FR	310		44	sr

ac - accelerator physics
las - laser physics
neu - neutrons
mu - muons
sr - research with synchrotron radiation
np - nuclear physics
pp - particle physics

new members:
BESSY



EuroMagNet





European
Association of National
Research
Facilities
Open to International Access

Example DESY



DESY is Member of the



Mission: Development, construction, operation and scientific exploitation of accelerators

Provide access for national and international users

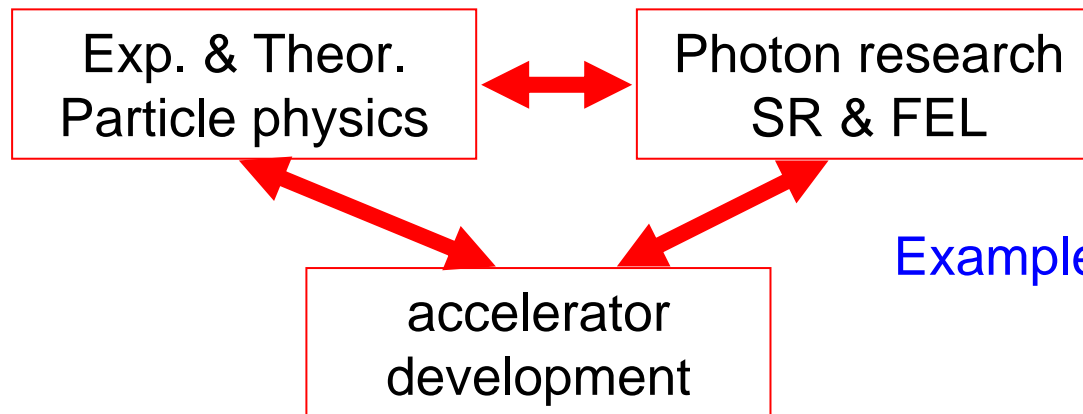
Internationally used, nationally funded Research Institute

Base-Budget:	170 MEuro (2005)
Staff:	1560 FTE in Hamburg and Zeuthen
Users:	3000 (1500 from abroad) from 45 nations
	920 in particle physics, 2100 in photon science

Example DESY

DESY active in three areas of basic science and high tech :

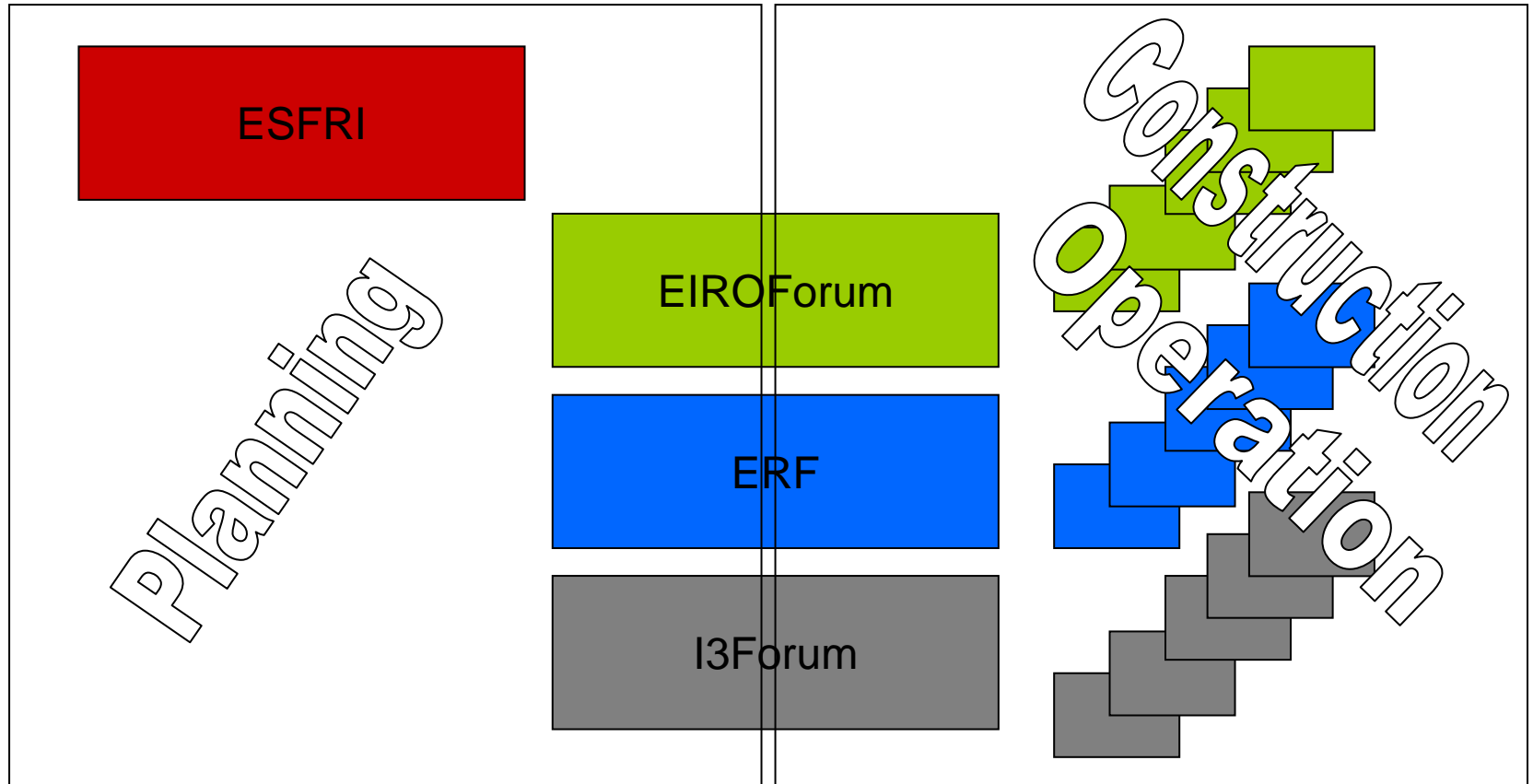
- Particle physics,
 - Research with X-rays (synchrotron radiation)
 - Accelerator development and operation (16 km).
- These topics stimulate each other



Example: LC <-> XFEL



ERF Relationships





Where to go?

- **A. Schavan:** “Basic research is room for vision, room for risk, room for the best and room for talents”
- We can provide for all this, but we need **stronger European backup** to realize visions & concepts
- FP7 ‘**Capacity**’ programme aims at optimizing the use and development of top-class RIs
- **Missing elements** are European organizational frameworks & processes (either legal, political or administrative) that help to facilitate the emergence and operation of RIs and that mobilize funding



Observations

- For the last 20 years **no new European** (intergovernmental) **facility** has been built
- At present 2 such facilities are being discussed, and **one has just been launched**
- The **seeds** for these two European facilities were ERF Associates
- Big facilities can't be built and operated by **one** nation alone
- Need to **develop models** which combine national interests with support from European partners
- ERF might provide help in this process



Comments on ESFRI

- Put ESFRI Roadmap in **global** context
- Try to put in **timeline** for **technical feasibility** with **cost profile** for each phase of each facility
- When considering new facilities, **operations of existing and new facilities** should be taken into account in a coherent way to maximise benefit to the research community
- What will the future attitude be towards nationally funded RI?



Comments on ESFRI

- ESFRI should look into a way **how to move** more from overview **to establishing strategic importance** for European research
- **Initial preparation** of a facility could come from national initiatives, **European community** could play more intense role in the **construction and operation**, as a way to provide access for all European scientists
- Funding the construction is one thing, paying for the operation another. **We need solutions for BOTH.**



RI and ERC

- Unique research infrastructure creates completely new research opportunities
- A large portion of research that is carried out at RIs is bottom-up, curiosity-driven and pioneering science done by excellent researchers with great ideas
- This kind of science is to be part of FP7 IDEAS program funded under the auspices of ERC
- Link IDEAS/ERC to RIs: encourage ERC to create special funds for accessing RIs for top-class research
- Bundling efforts to maximize scientific output



Conclusions

- ERF is a backbone of European infrastructure
- National facilities need to be complemented by international ones
- The ESFRI process has generated both awareness concerning the importance of RI and a long wish list
- How to make projects happen?
- How to set priorities?
- How to pay their operation?