



# LEAPS

League of European  
Accelerator-based  
Photon Sources

## Proposing a European Partnership in HORIZON EUROPE

Helmut Dosch  
Chair of LEAPS

**ICRI 2018** - 4<sup>th</sup> International Conference on Research Infrastructures  
VIENNA, Austria  
Sep 12-14, 2018

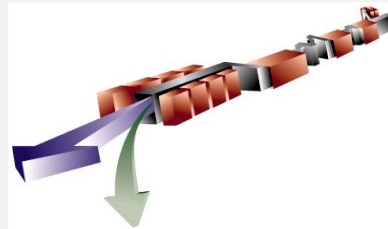


# LEAPS

League of European  
Accelerator-based  
Photon Sources

A very advanced community  
devising a transformative level of  
cooperation, coordination and integration for  
boosting science and innovation in Europe

## European Synchrotron Radiation and FEL Facilities



are joining forces  
to master  
the challenges of the next decades



„A lot in mind - A lot behind“

## ■ Pushing scientific excellence

Serving and integrating **25.000** users  
from all scientific disciplines



## ■ Pushing technology limits

Storage Rings as Ultimate Microscopes:  
**Breakthrough HMBA Technology**

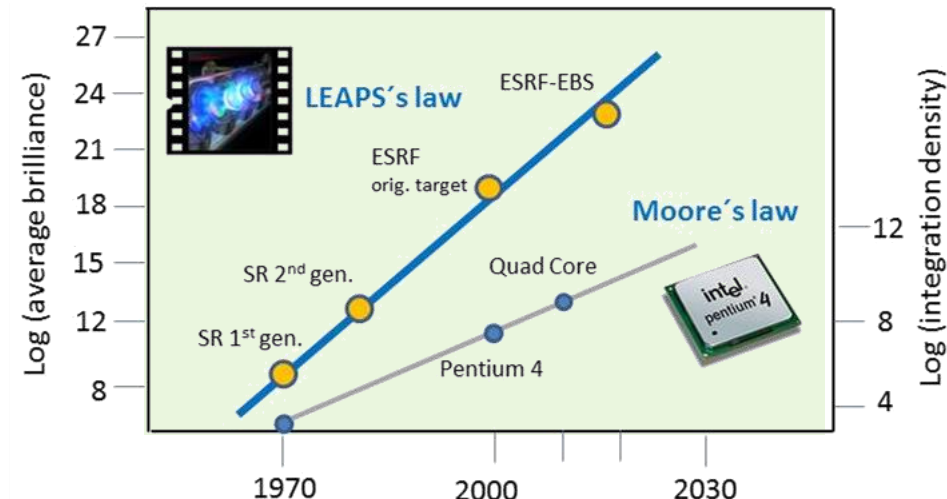
Free Electron Lasers as High Speed Cameras  
**Merging Laser Tech with X-ray Tech**

Over **23.000** unique articles published in peer  
reviewed journals in the last **5** Years

**5** Nobel Prices linked to LEAPS facilities

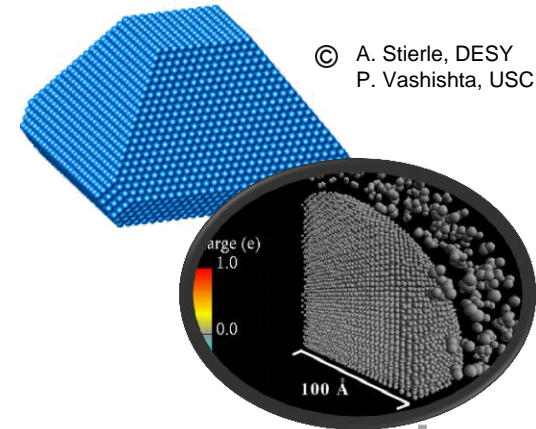
In 2016 more than **500.000** hours of beamtime

More than **200** operational Beamlines



## 21<sup>st</sup> Century - Era of Complexity

- **Answers to the Grand Challenges** require
  - new materials solutions
  - advanced analytical technologies for researcher and industry
    - smart transformation of LEAPS labs into nextGen facilities
- European Synchrotron and FEL facilities must develop a **sustainable RI ecosystem**
  - advanced technologies - state-of-the-art user infrastructure
  - mobility among researchers
  - training of future managers
  - coping with data challenge
  - partnerships with industry
  - integrate emerging communities



## Facility Roadmap

- Upgrades („4<sup>th</sup> Gen“)
- new facilities

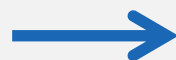
## Technology Roadmap

- nextGen Detectors
- Advanced optics
- future Data management  
**LEAPS - EOSC**
- nextGen accelerators

Joining efforts and  
sharing resources

**National – European**

„a good business plan“



### Coordination

#### Availability

- state-of-the-art analysis  
for academia & industry

#### Standardisation

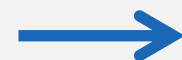
- environments
- data formats
- access

#### Integration I

- High-Tech Industry

#### Integration II

- emerging communities
- strategic partners



### Specialisation

#### Complementary solutions

- for high-end applications

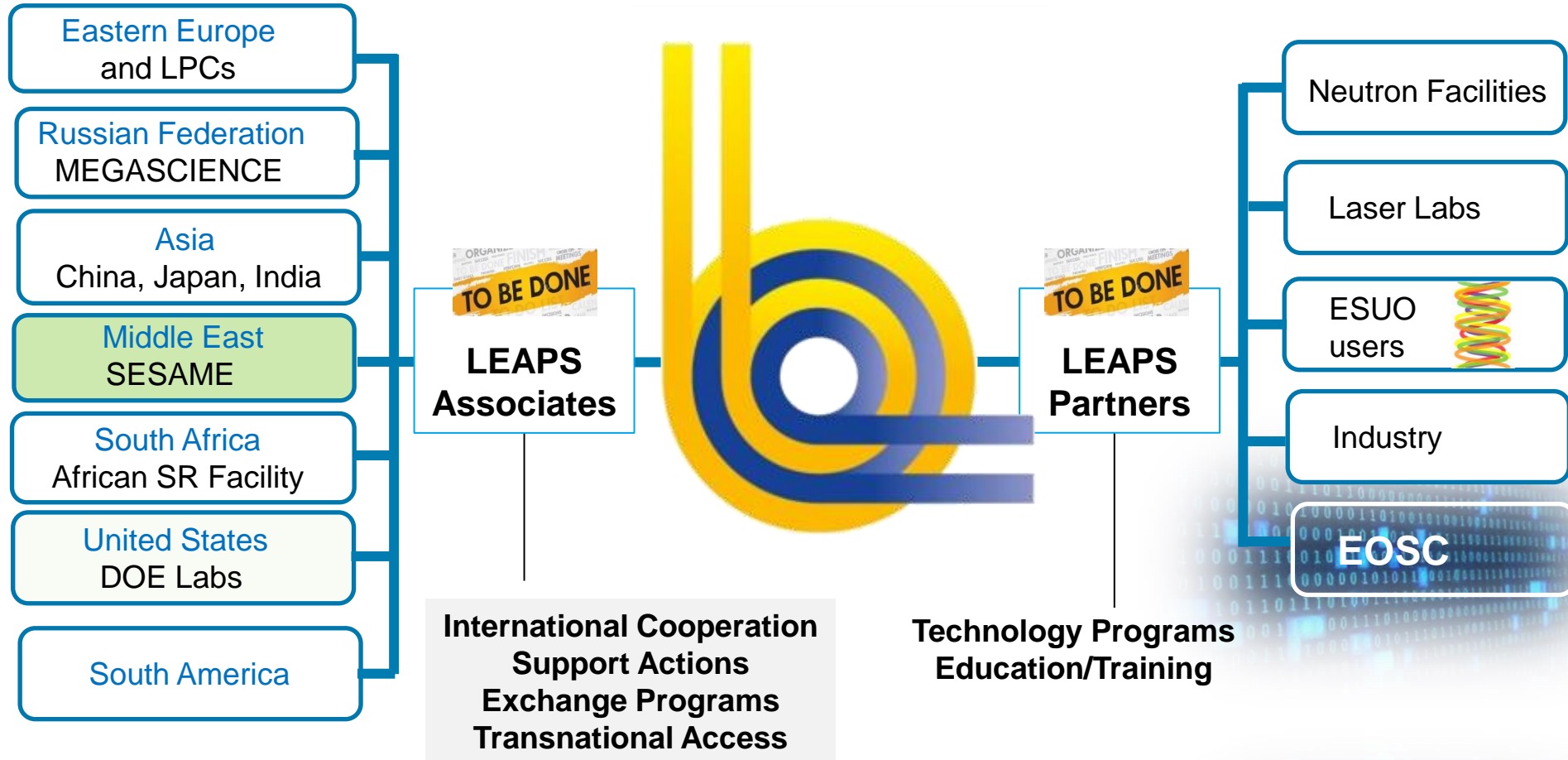
#### Specialized consortia

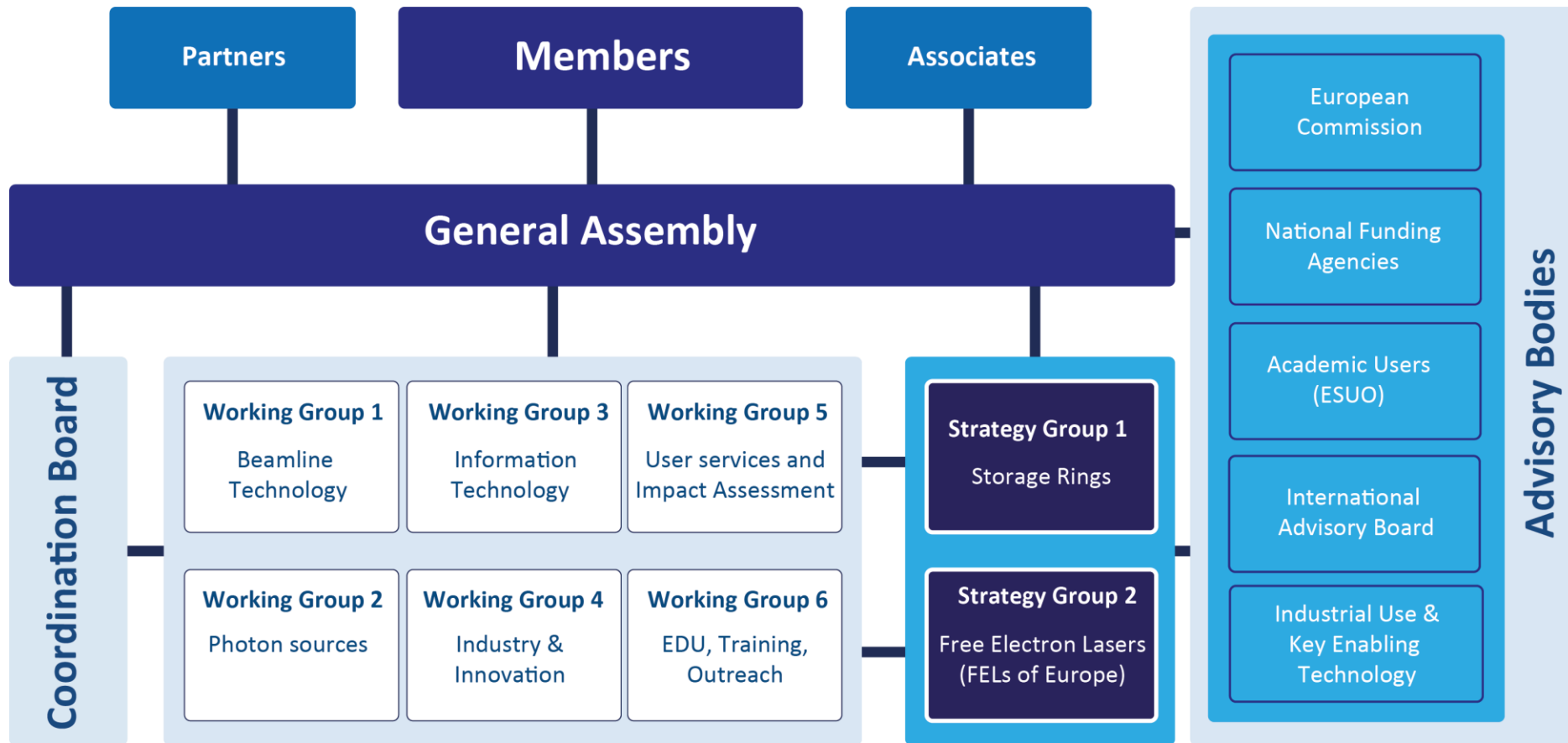
- technology developments
- advanced detectors
- Novel optics
- data management systems  
nextgen accelerators
- training and education  
scientists, engineers  
future leaders
- mobility programs



# Integration

“New strategic partnerships in Europe and beyond”





## European Partnership



## HE Mission Support

### Facility Roadmaps

transforming European X-ray landscape



#### Pillar 1 Open Science

Research  
Infrastructures

European  
Research Council

Marie  
Sklodowska-Curie  
actions

### Competence Programs

integrating 25.000 researchers and emerging communities



#### Pillar 2 Global Challenges Industrial Competitiveness

Clusters

- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and Natural Resources

Joint Research  
Centre

### Technology Roadmaps

integrating European industry



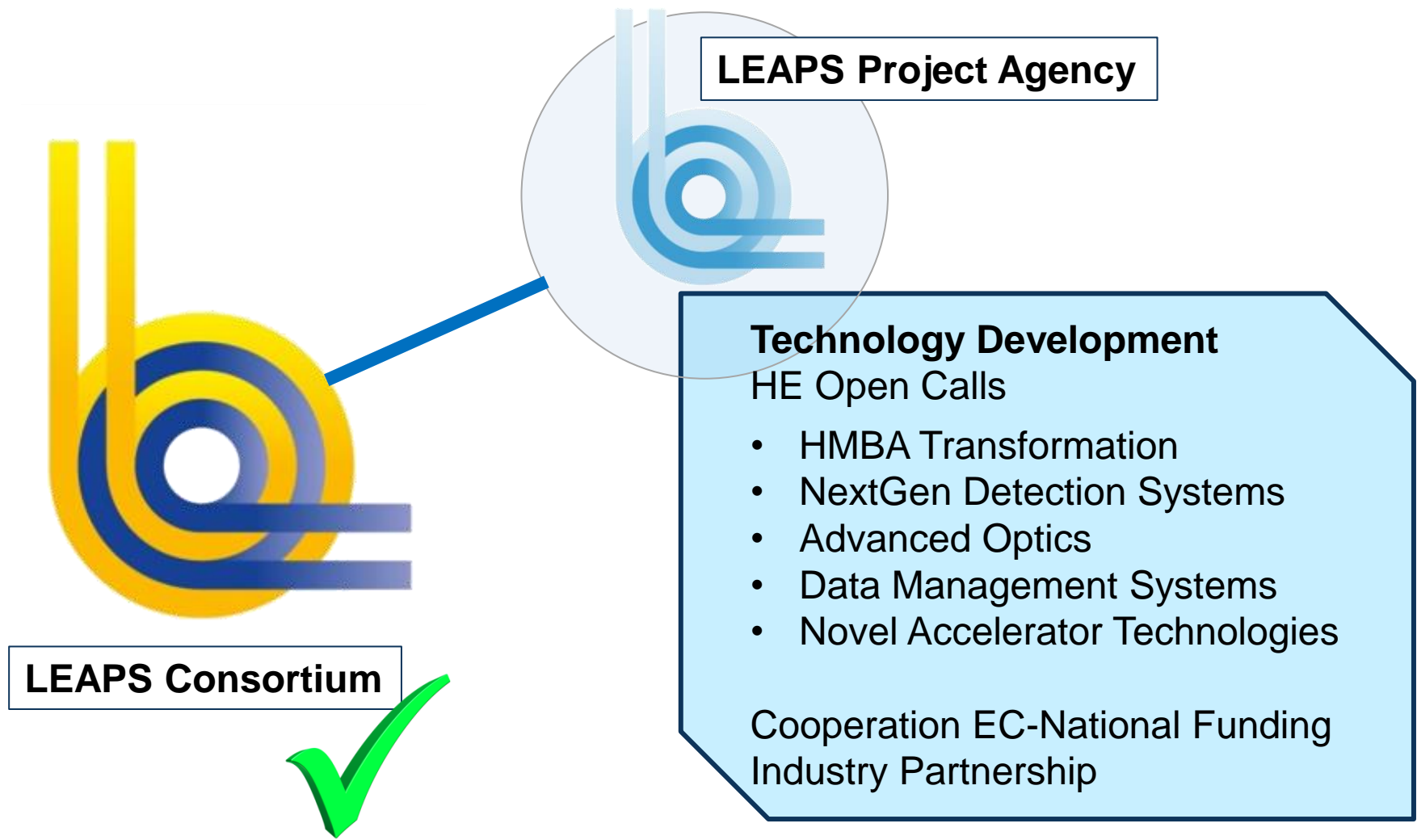
#### Pillar 3 Open Innovation

European  
Innovation Council

European Institute  
of Innovation and  
Technology

European  
innovation  
ecosystem





## A new vision for Europe

LEAPS will be the world's most advanced science consortium

- boosting **science and innovation** in Europe
  - devising **robust roadmaps** for the further development of European RIS
  - offering **one voice for advice** to European and national decision makers
  - enabling **new ways of cooperation** with industry
  - **sharing expertise and resources** for technology developments (incl. EOSC)
  - **integrating LPC's** in the development of state-of-the-art technologies
  - offering a new **platform for the education** of the next generations of scientists and engineers
- **providing the maximum return on the substantial investments made**

# A future European Landscape A new European Partnership

