

ESS control system

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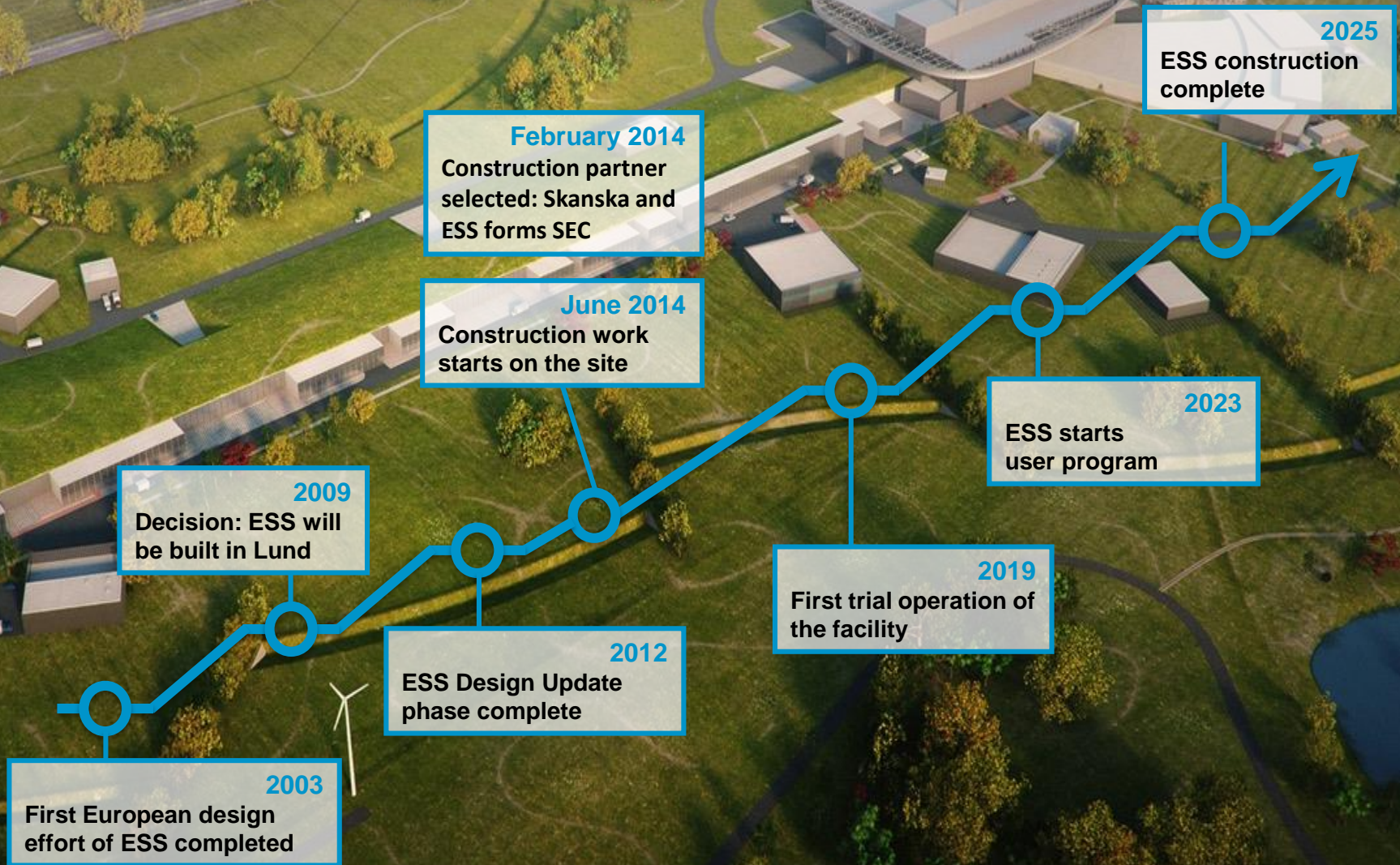
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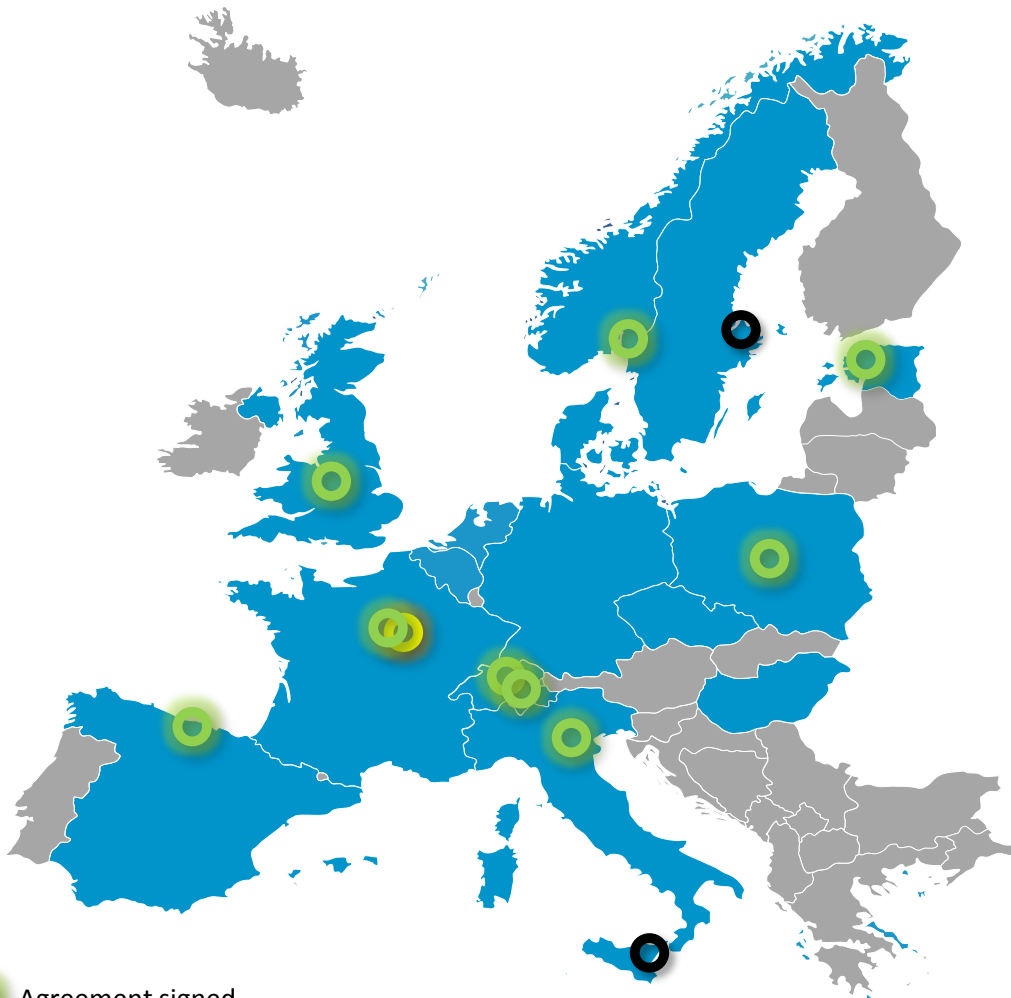
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Road to realizing the world's leading facility for research using neutrons















ICS In-kind partners



-  Agreement signed
-  Agreement waiting for signature
-  Collaboration/other agreement

Partner institutes

-  CEA, France
-  CNRS/IPNO, France
-  ESS Bilbao, Spain
-  IFE, Norway
-  INFN Catania, Italy
-  INFN Legnaro, Italy
-  PSI, Switzerland
-  STFC Daresbury, UK
-  Tallinn Technical University, Estonia
-  University of Łódź, Poland
-  Uppsala University, Sweden
-  ZHAW, Switzerland

The ESS integrated control system

- The ESS facility is a large and complex machine with very much and diverse equipment that needs to work in synchronization and with well-known configurations
- The Integrated Control System Division (ICS division) is responsible for the control systems within the ESS facility including controls for
 - **Accelerator**
 - **Target**
 - **Neutron Scattering Systems**
 - **Conventional Facilities**
- In addition, the control system makes it suitable for implementing
 - **Machine Protection System**
 - **Personnel Safety System**
- To build a distributed control system of this size is a major undertaking



ESS/ICS challenges

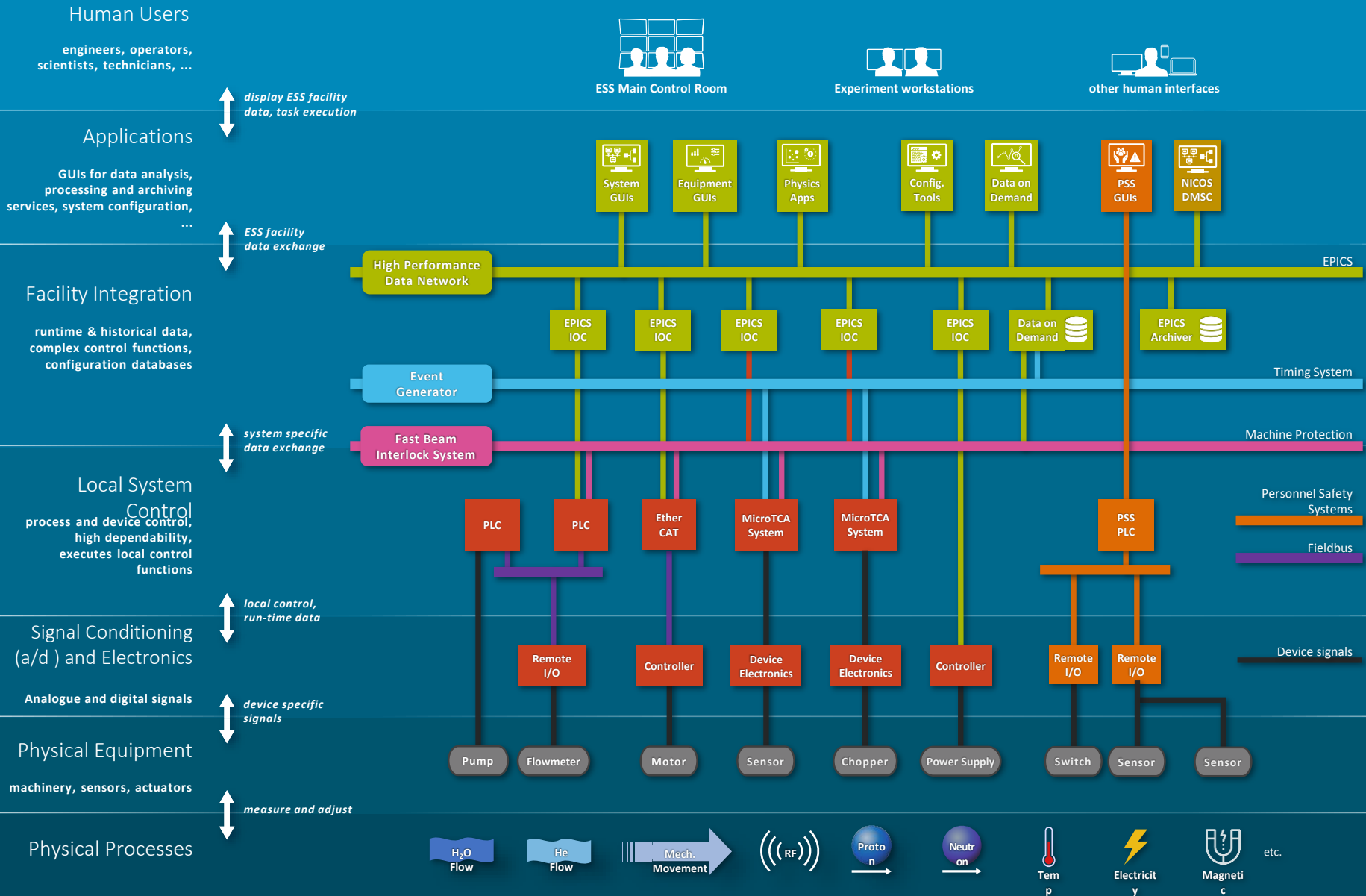
- The ESS control system complexity is very high
 - About 1 600 000 “process values”
 - Ambitious approach to automation of control system configuration
- Facility availability goals are very high
 - ICS plays a key role for the availability of the facility - 95% availability
 - High performance and availability requirements on equipment used
- Some new approaches will be implemented at ESS/ICS
 - Full scale deployment of EPICS 7
 - ESS is committed to contributing to the EPICS community
 - Full scale deployment of MicroTCA.4
 - ESS is involved in a public procurement for innovation initiative

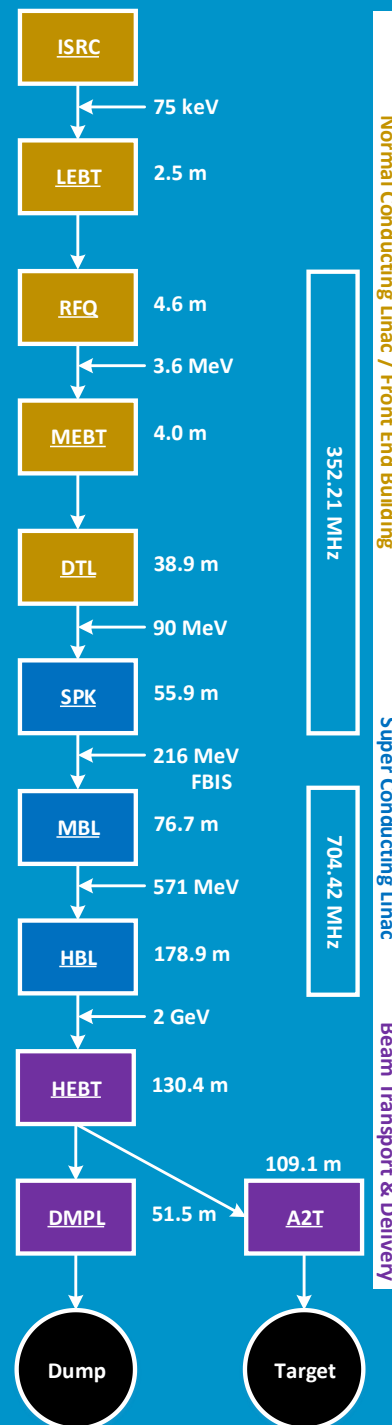
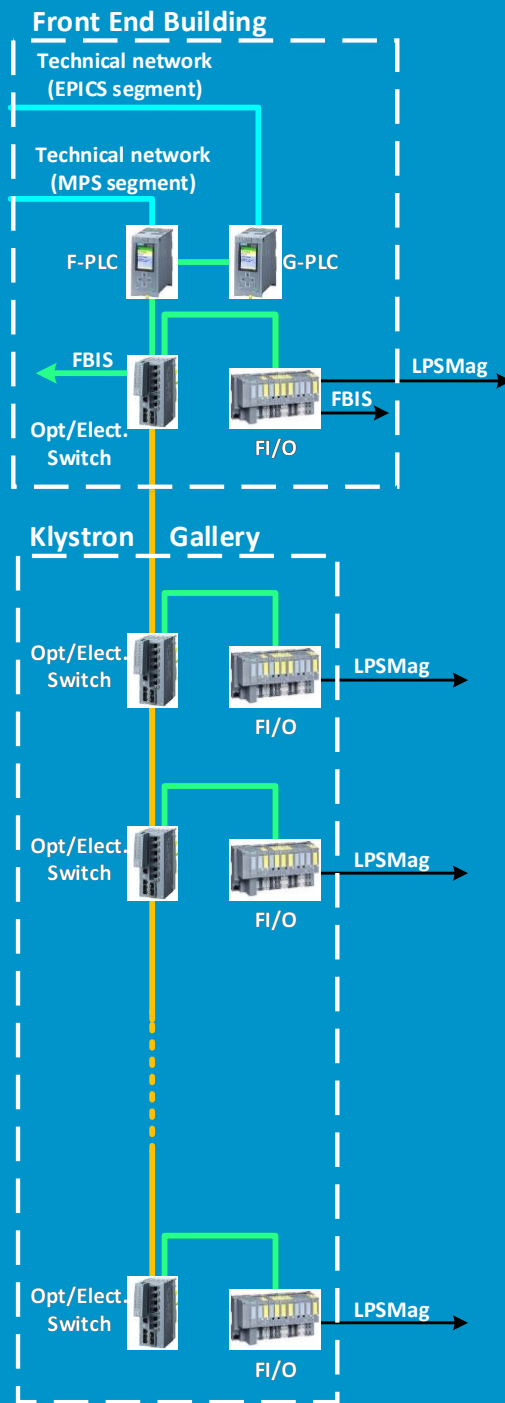


Working together



Layer Architecture of the ESS Control System





ICS vision and mission statements

- ICS vision statement

ESS operated efficiently, reliably and safely, with a control system that everyone loves

- ICS mission

The ICS division shall provide and maintain world-class and cost-efficient control, protection and safety systems and services for the ESS facility.

The division shall develop competence and innovative solutions that can be shared in the community through open processes