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# General Assembly Innovation and Industry WP04

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# Overview of WP

- Propagate and implement an ESS Innovation Strategy by
  - Engaging industrial users
  - Establishing an internal innovation culture
  - Exploring the potential of the Industrial Liaison Officers network
- Partners involved in the WP
  - European Spallation Source - ESS (lead)
  - Technische Universität München - TUM
  - Paul Scherrer Institute - PSI
- Timeline covered
  - January, 2019 - today



# Elements of WP4

## WP4.1 Implementing the ESS Innovation Strategy

- ESS Organisation Analysis
  - Innovation Culture
  - Current innovation activities

## WP4.2 Evolving the ESS ILO Network

- First interactive ILO workshop in Budapest (MS3)
- ILO questionnaire
- Planned follow-up interactive ILO Workshop Feb 19-20 in Catania (MS6)

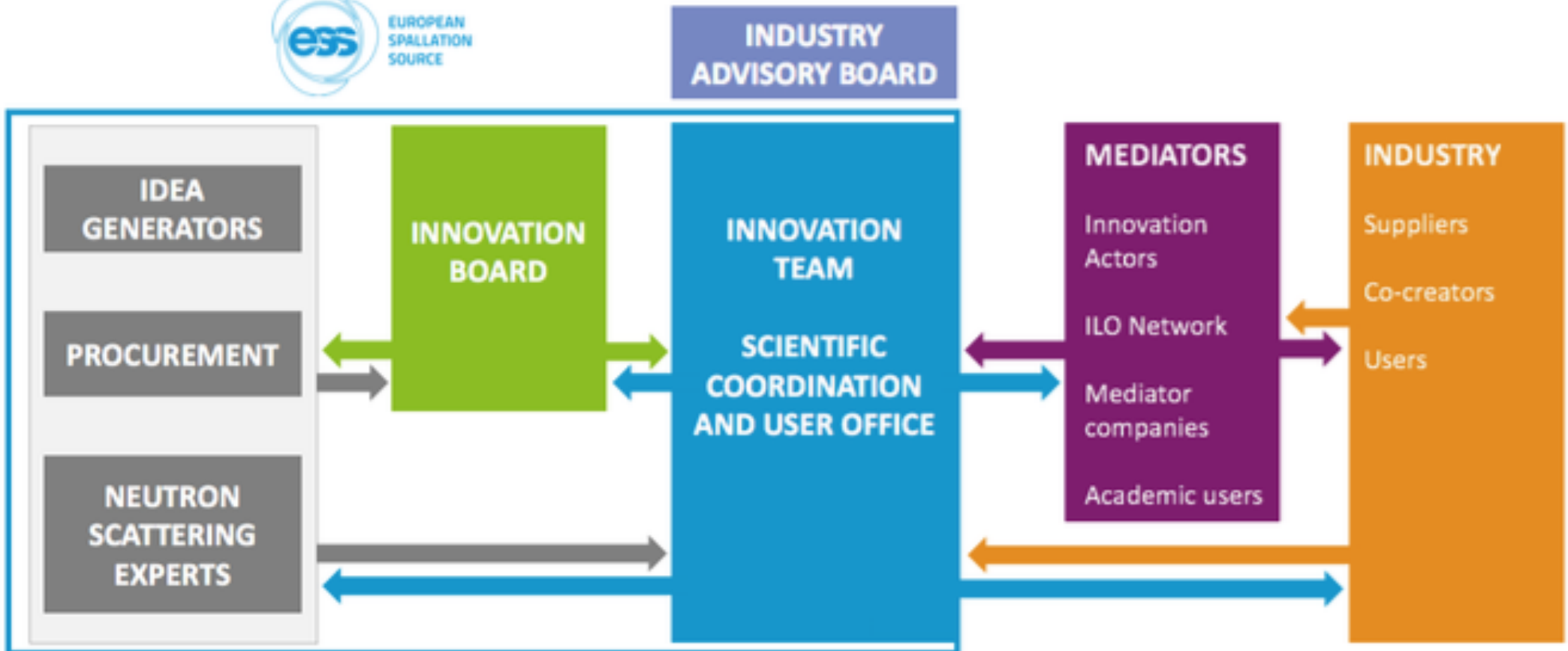
## WP4.3 Preparing for industrial users

- Industry Advisory Board (MS5)



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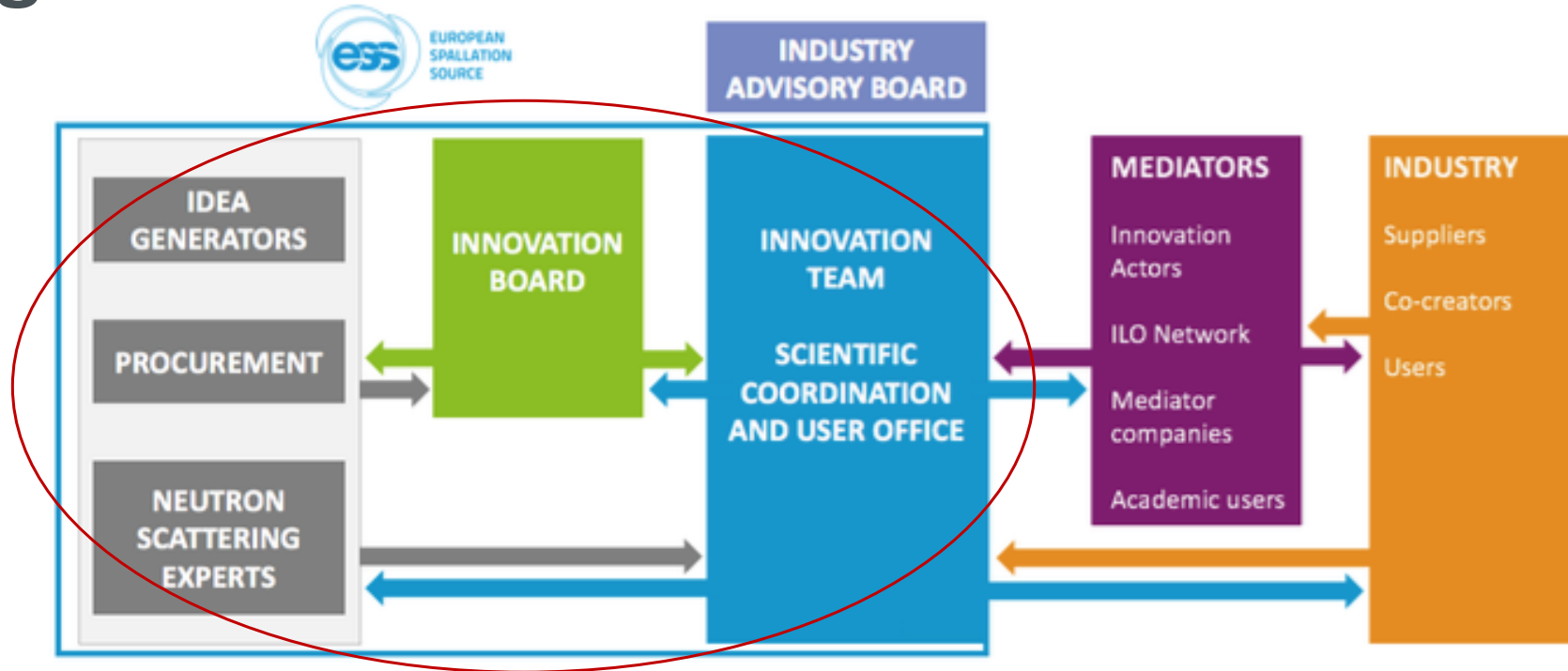
# BrightnESS reference model





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# BrightnESS reference model



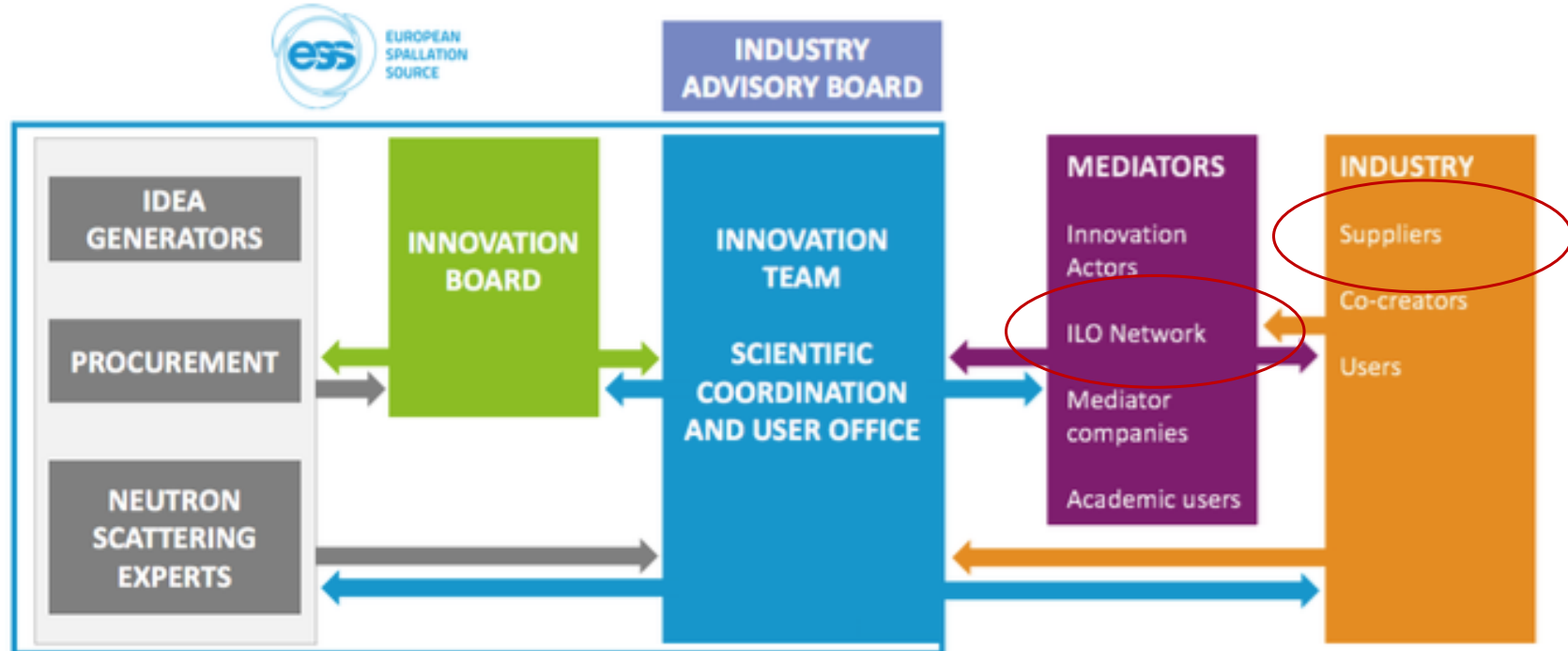
## WP4.1 Implementing the ESS Innovation Strategy



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# BrightnESS reference model

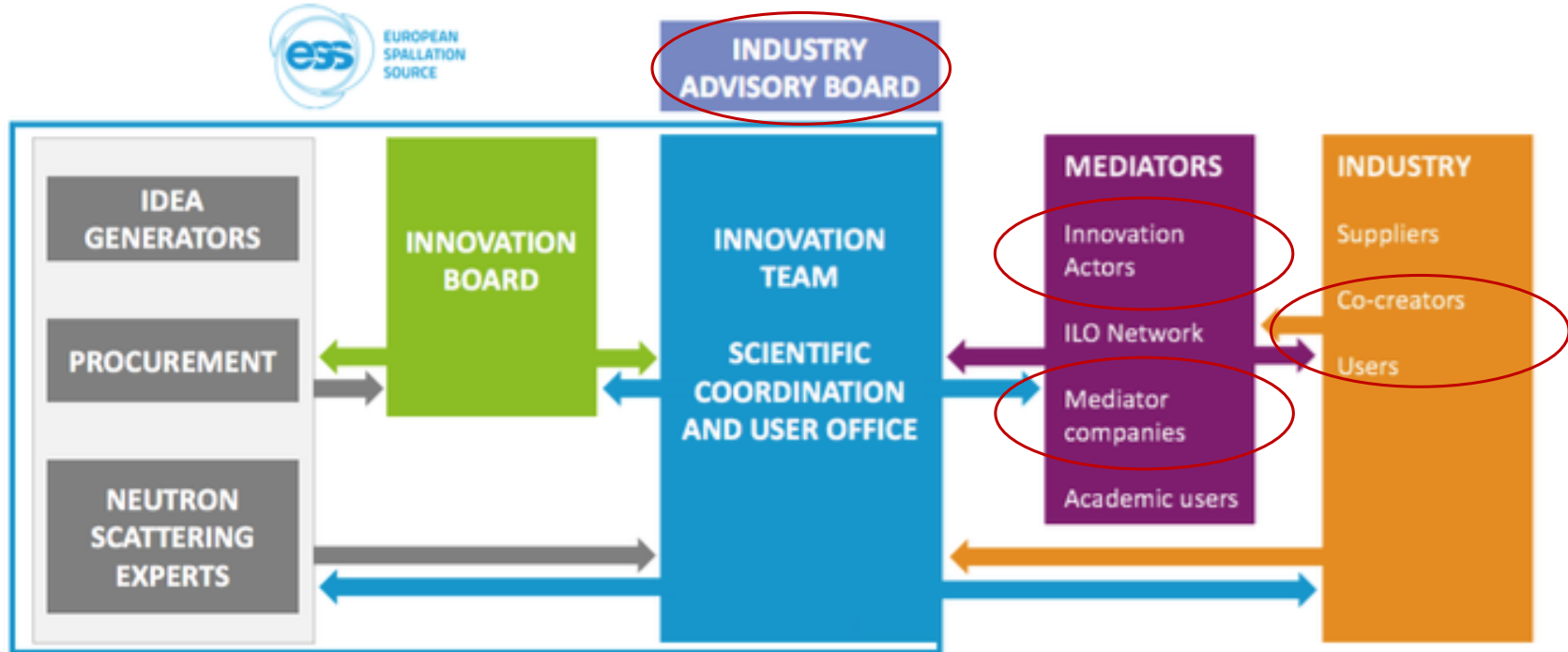


## WP4.2 Evolving the ESS ILO Network



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# BrightnESS reference model



## WP4.3 Preparing for industrial users



# WP4.1 Implementing the ESS Innovation Strategy

- Three focus areas:

- Innovation harvesting of existing innovations

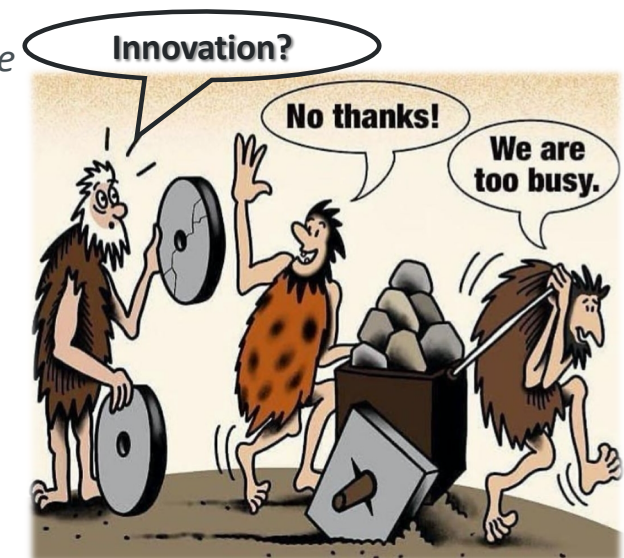
*Different innovations in the organisation will be captured and described to create awareness and promote recognition. Communicating these examples internally and externally will legitimise innovation and by focusing on both the innovation value and the individual(s)*

- Promote Open Innovation at ESS

*Establishing collaboration and relationships with world leading science within selected areas will attract industry and create societal value. In return, results shall help ESS secure the best and least risky path to going forward*

- Establishing a commercial ESS technological transfer platform

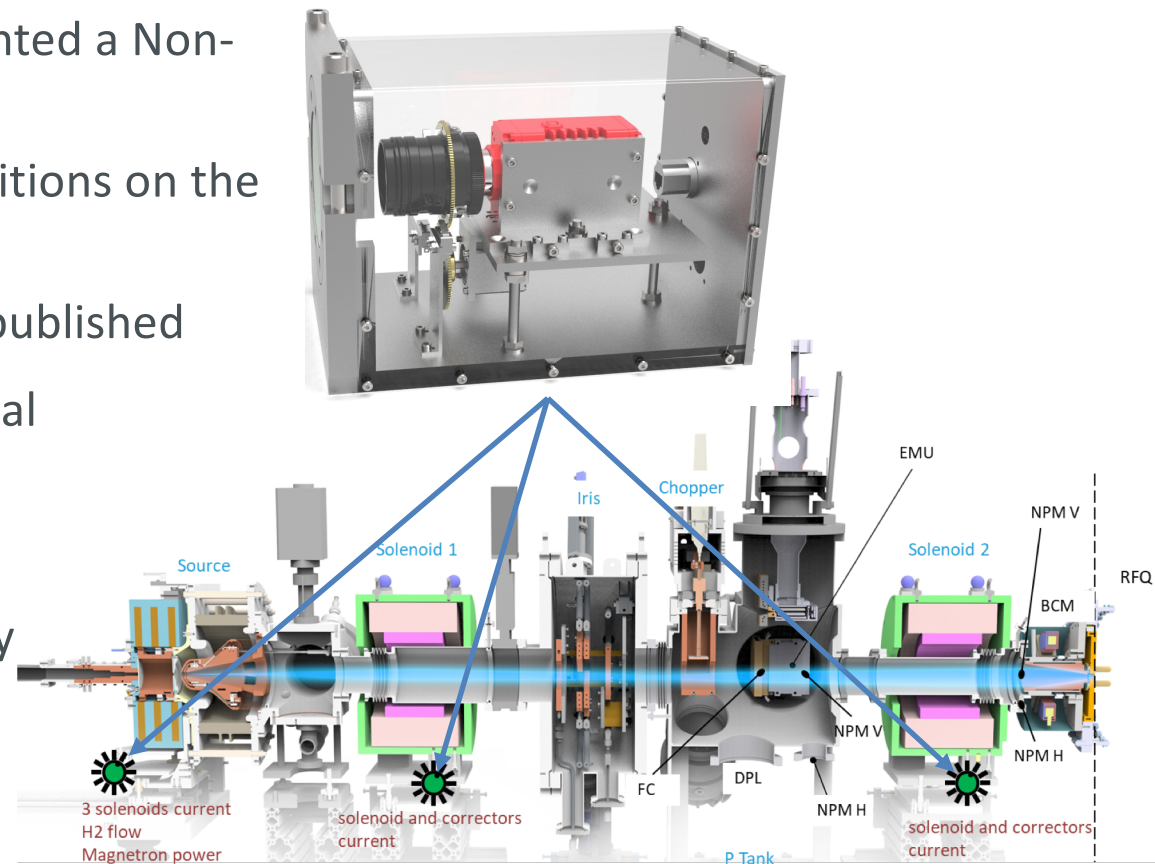
*ESS can benefit from legitimising and promoting innovation and entrepreneurship. Many of the ESS innovation activities are cutting-edge solutions that can potentially create value in companies, public institutions and society in general*



# WP4.1 Implementing the ESS Innovation Strategy

## Harvesting example

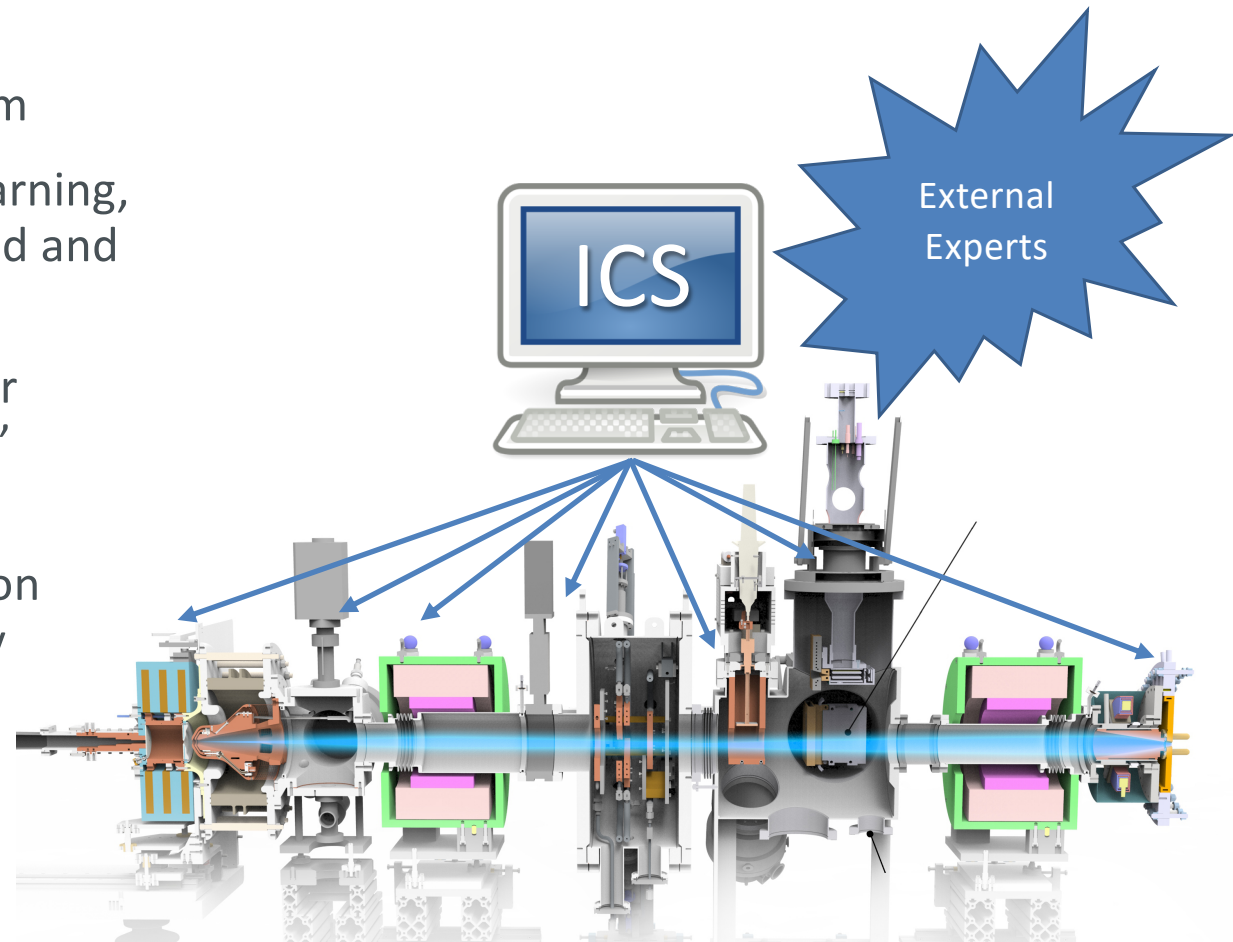
- A Beam Diagnostics Physicist has invented a Non-invasive Profile Monitor (NPM)
- It will be installed on three crucial positions on the beam to optimise beam focus
- The scientific development has been published
- A French company wish to initiate serial production
- IP shall secure ESS lifelong support
- De-risk through larger user community



# WP4.1 Implementing the ESS Innovation Strategy

## Open Innovation example

- Complex Integrated Control System
- Artificial Intelligence, Machine Learning, Deep Learning need to be accessed and implemented as much as possible
- ESS act as user and “Living Lab” for international experts in “Sandbox” projects
- First iteration: Alarms processing on collaboration with Lund University







## WP4.2 Evolving the ESS ILO Network

- Following the initial project workshop, the ILO network met in Budapest to define areas of common interest and to set priorities
- The network expressed their desire to update ESS' procurement rules and receive more detailed information. ESS has been working hard to meet expectations
- For the next meeting in Catania, the innovation potential is in the spotlight and various sessions are planned to engage with the network
- As preparation, an innovation questionnaire has been circulated and the results have been used to scope the workshop
- Based on the discussions, the Evolvement Potential of the ESS ILO Network report (D4.1) can be prepared for delivery



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## WP4.3 Preparing for industrial users

As the industrial use of ESS is still some years out in the future, BrightnESS2 can help us to learn from the experience of others:

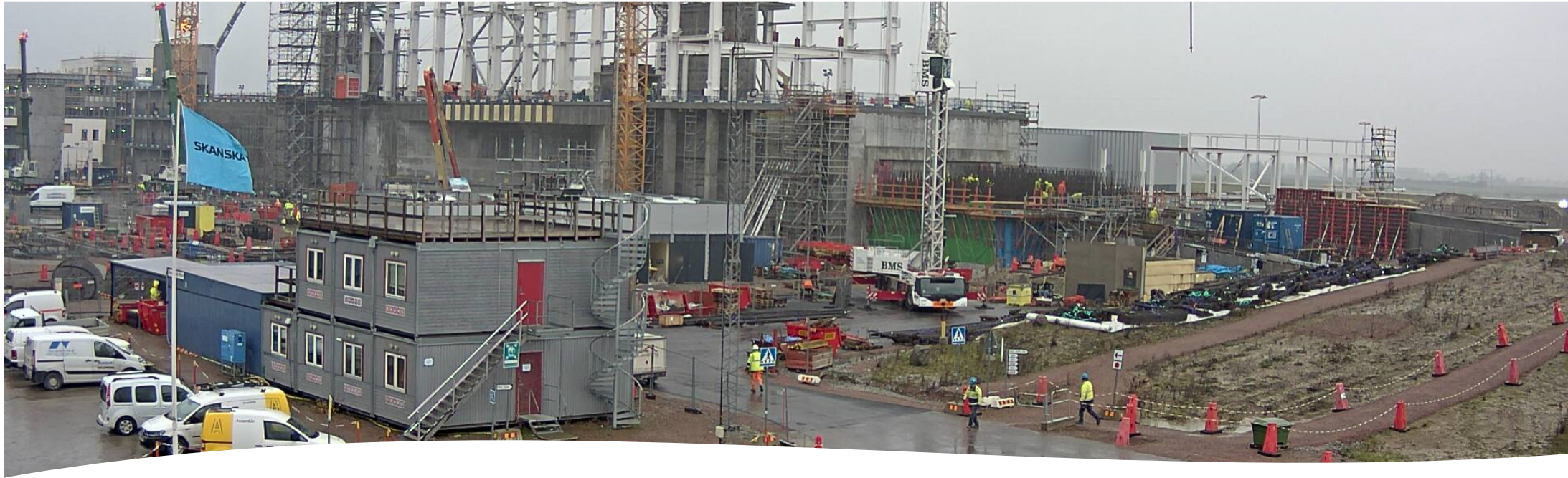
***Facilities, EU projects, Mediator companies, Universities, etc.***

A very strong team of experienced persons has accepted to be on the first ESS Industrial Advisory Board (MS5):

Name	Organisation	Department
Caroline Boudou	ILL	Industrial Liason Group
David Christian Mannes	SINQ (PSI)	Laboratory for Neutron Scattering and Imaging
Elizabeth Shotton	Diamond Light Source	Industrial Liason Group
Michael Preuss	University of Manchester	Materials Performance Center
Pavel Strunz	UJF	Neutron Physics Department
Tomas Lundqvist	RISE	Large Scale Research Infrastructures







## Activities and results

- All WP results and activities have been achieved and carried out
- ESS is a large and complex construction project where things change daily
- This can mean delays or change in scope in deliverables and milestones

**Flexibility in a highly dynamic environment is key!**



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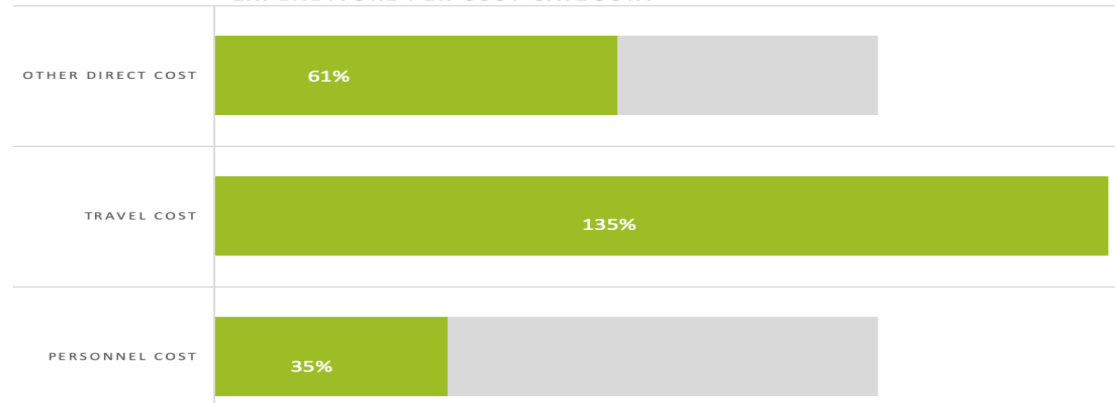
# Costs

Overall Spending (M1- M12)



WP4

EXPENDITURE PER COST CATEGORY



- The overspend on travel cost has to do with the initial efforts on attending meetings and workshops to align and scope the project
- The underspend on personnel and other direct costs are related to the challenge to allocate appropriate resources to the bespoke work package
- With the current plan and attention, the spending will align closer to budget





Recurring activity on innovation culture in general and on the three focus areas in particular: Innovation Harvesting, Open Innovation and technology transfer

2020 Deliverables		
Code	Title	Due Date (In Months)
D4.1	Evolution potential of the ESS ILO Network	June 2020 (M18)
D4.2	Strategic roadmap for technological upgrades of ESS	June 2020 (M18)

2020 Milestones		
Code	Title	Due Date (In Months)
MS05	Establishment of the external Industry Advisory Board	January 2020 (M13) ✓
MS06	Follow-up interactive ILO workshop	March 2020 (M15)
MS07	Establishment of an internal Innovation Board at ESS	March 2020 (M15)
MS17	Presentation of the ESS Access Policy to the Council	December 2020 (M24)

### Risk factors:

- Technological upgrades still uncertain
- Diversity of views on Evolution Potential of the ESS ILO Network

