

BrightnESS² Project Kick-off Meeting

Rome, 15th January 2019



Forum Romanum



BrightnESS²

Bringing Together a Neutron Ecosystem for Sustainable Science with ESS

WP2: A strategy to deliver neutrons for Europe and beyond

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Co-leads Christiane Alba-Simionesco (ENSA), Mark Johnson (ILL)



brightness² WP2: A strategy to deliver neutrons for Europe and beyond

Objectives

- **2.1: Establishing a common roadmap and implementation strategy for future neutron capability** in terms of the instrumentation available at neutron facilities and their partners, while taking into consideration global perspectives
- **2.2: Defining and reporting the needs of the user communities** in terms of new neutron-based methods in alignment with the ESS facility capabilities. Regular updates will be provided when needed
- **2.3: Exploring and implementing new ways of working for the most efficient usage of neutrons** through two pilots, an experimentally-validated Neutron Quality Label for residual stress, and strengthened soft matter and life sciences with deuterated samples, respectively



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Significant overlap with LENS

BrightnESS² helps providing resources for LENS
(LENS core group meeting yesterday)



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From 2016
ESFRI
Report:

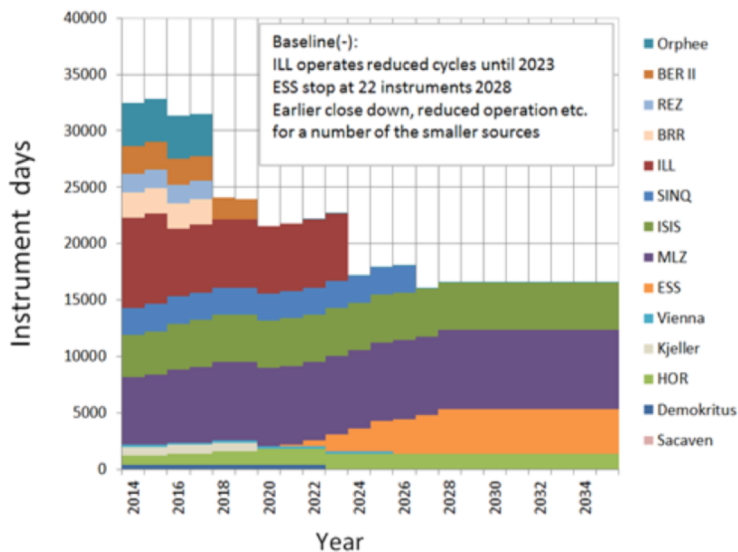


Figure 11. The predicted delivery of instrument beam-days in the Degraded Baseline Scenario.

Pessimistic scenario: ILL operates at reduced output until 2023, ESS with 22 instruments beyond 2028. Earlier closer and/reduced operations for a number of medium power sources



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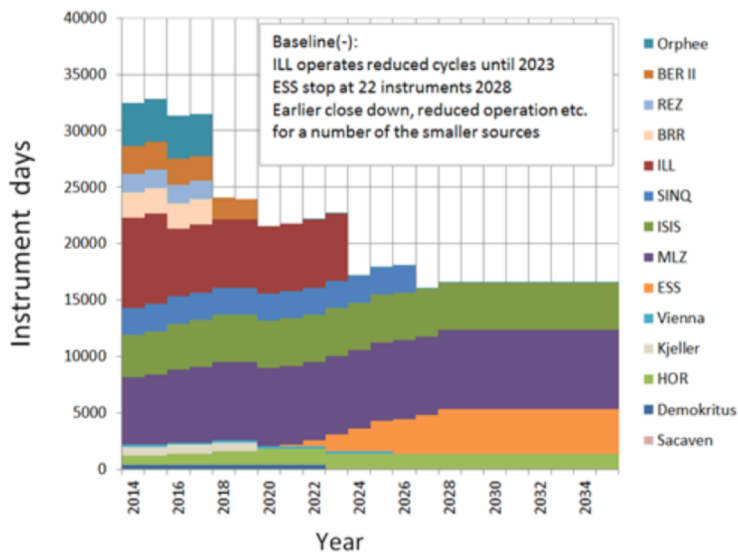


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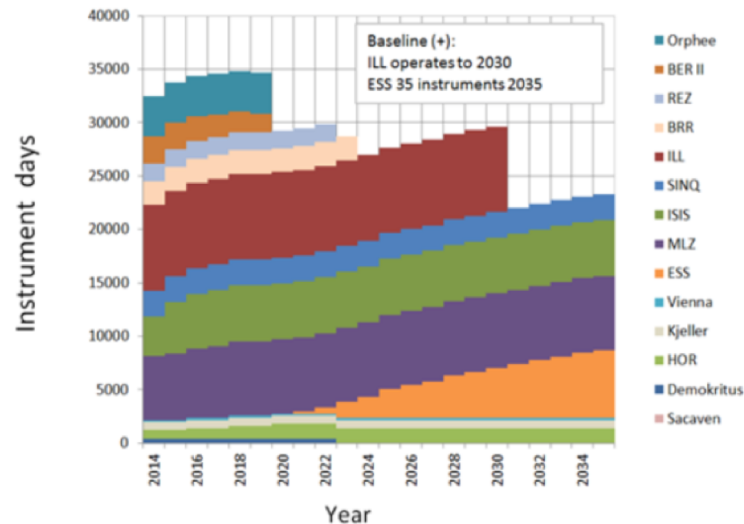


Figure 12. The predicted delivery of instrument beam days in the Enhanced Baseline Scenario

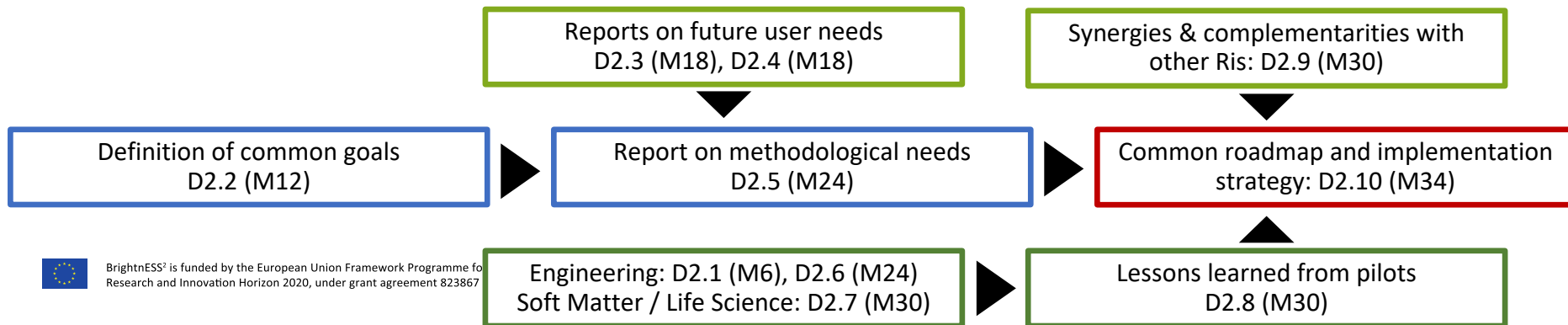
Optimistic scenario: ILL operates until 2030, ESS with **35** instruments beyond 2035.



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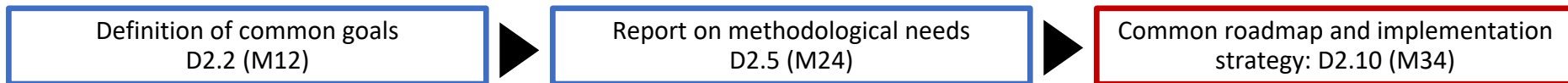
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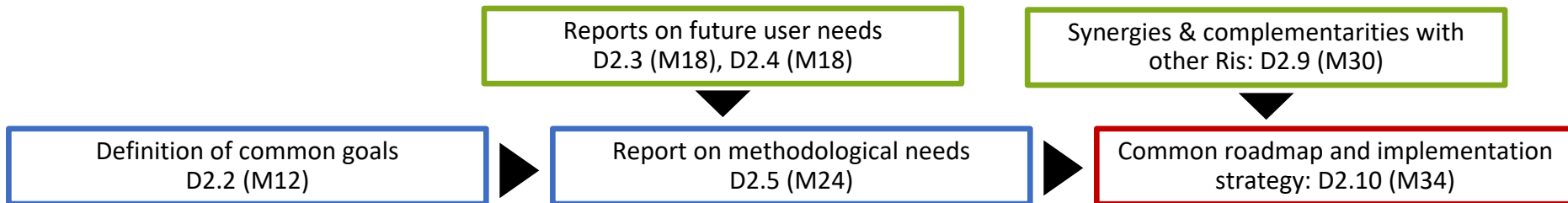
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- **2.1: Establishing a common roadmap and implementation strategy for future neutron capability** in terms of the instrumentation available at neutron facilities and their partners, while taking into consideration global perspectives
- **Partners (Staff Efforts):** ESS, TUM, FZJ, ILL, STFC, PSI, NCBJ, Wigner-RCP (6PM each)
- **Observers (Without Staff Efforts):** *iThemba, NESCA, TU Wien*
- **Deliverables (Time):**
 - D2.2 Intermediate report on definition of common goals (M12)
 - D2.5 Intermediate report on methodological needs (M24)
 - D2.10 Common roadmap and implementation strategy (M34)



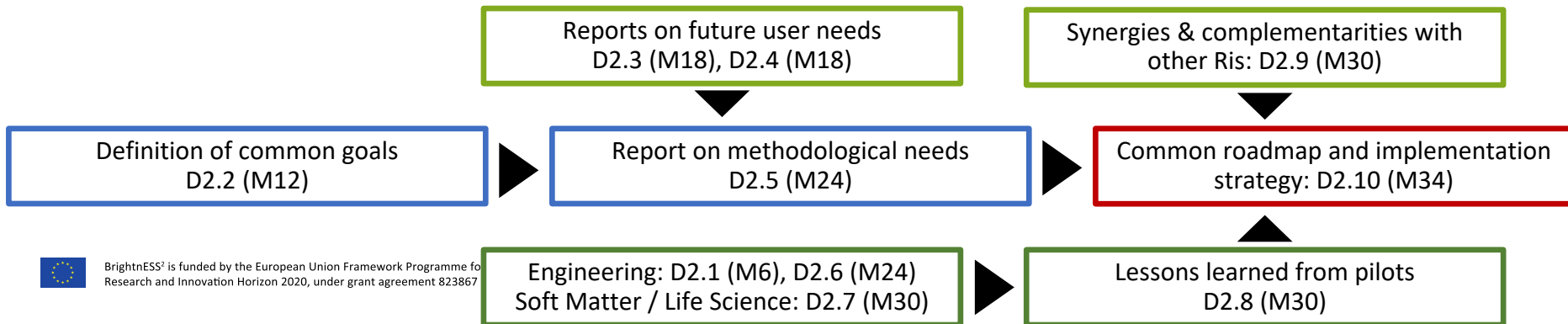
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- **2.2: Defining and reporting the needs of the user communities** in terms of new neutron-based methods in alignment with the ESS facility capabilities. Regular updates will be provided when needed
- **Partners (Staff Efforts):** ENSA (18PM), iThemba (6PM), NESCA (6PM)
- **Observers (Without Staff Efforts):** *TU Wien*
- **Deliverables (Time):**
 - D2.3 Report on future European user needs (M18)
 - D2.4 Report on future South African user needs (M18)
 - D2.9 Report on synergies with other RIs: complementary methods (M34)



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- **2.3: Exploring and implementing new ways of working** for efficient neutron usage through two pilots
 - an experimentally-validated Neutron Quality Label for residual stress
 - strengthened soft matter and life sciences with deuterated samples
- **Partners (Staff Efforts):** ILL (10PM), TUM (3PM), STFC (3PM) ESS (10PM), STFC (3PM)
- **Observers (Without Staff Efforts):** NESCA --
- **Deliverables (Time):**
 - D2.1 Preliminary report on Engineering: calibration protocol (M06)
 - D2.6 Final report on Engineering: results from experiments with industrial partners and QA applied (M24)
 - D2.7 Report on deuteration: experimental results (M30)
 - D2.8 Report on lessons learned from engineering and deuteration pilot (M30)

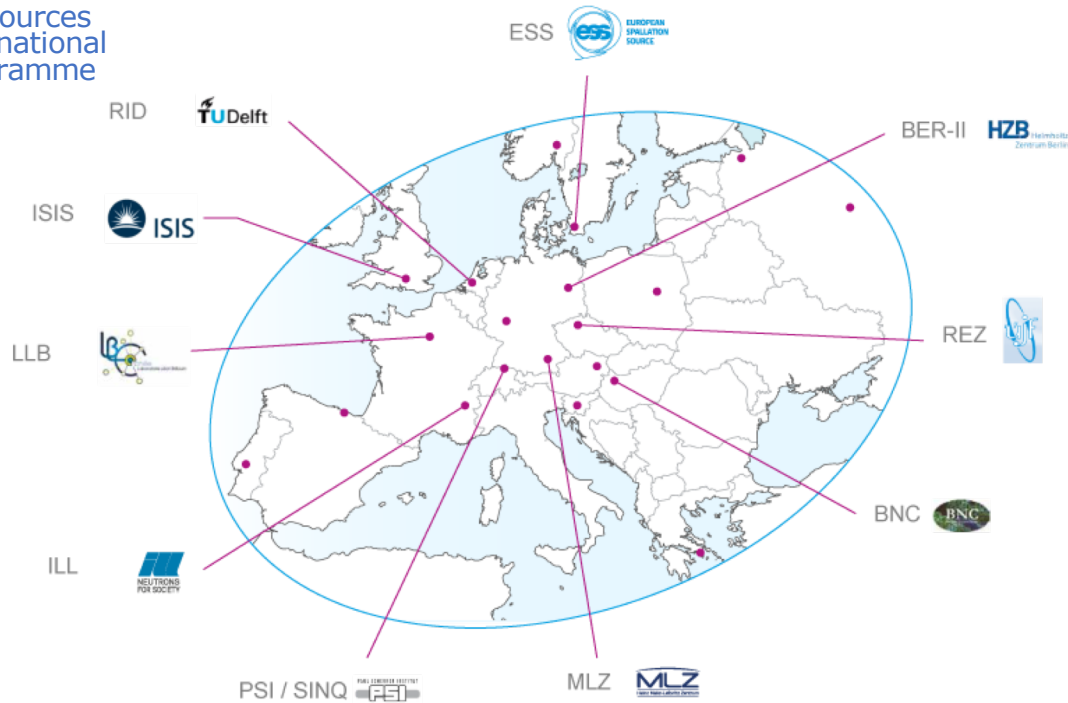




LEAGUE OF ADVANCED
EUROPEAN NEUTRON
SOURCES

(Prospective) Partners in LENS

Neutron sources
with international
user programme



Pushing LENS forward

brightness²



**Towards a
bright
future for
research using
neutrons**

brightness²



Collaboration



ENSA, Nesca, IThemba, TU Wien, NCBJ

WP 1 Coordination and Management

WP 2 Strategy

- 2.1 Facility Roadmap
- 2.2 User Community Needs
- 2.3 Pilots Engineering / Life Science

WP 3 ESS In-Kind Model

WP 4 Industry

- 4.1 ESS Innovation Strategy
- 4.2 ILO Network
- 4.3 Industrial Users

WP 5 Outreach, Communication, Dissemination

- 5.1 Stakeholder Engagement
- 5.2 ESS Member Internationalisation
- 5.3 Socio – Economic Impact KPIs
- 5.4 BrightnESS – 2 dissemination



Science & Technology
Facilities Council



TU Delft, IFE, NPI, ...

Partners

ENSA, Nesca, IThemba, TU Wien, NCBJ

WP 1

Coordination and Management

WP 2

Strategy

2.1 Facility Roadmap

2.2 User Community Needs

2.3 Pilots Engineering / Life Science

WP 3

ESS In-Kind Model

WP 4

Industry

4.1 ESS Innovation Strategy

4.2 ILO Network

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WP 5

Outreach, Communication, Dissemination

5.1 Stakeholder Engagement

5.2 ESS Member Internationalisation

5.3 Socio – Economic Impact KPIs

5.4 BrightnESS – 2 dissemination

(ESS, ILL)

(ENSA)

(ILL, ESS)

(ESS, TUM)

(ESS, GEM)

LENS chair and coordination secretary

Neutron Strategy:

Promotion, Communication,
Impact, New Sources (WG 1)

Neutron Usage and Innovation:

Education, User Organisation,
Industry (WG 2)

Technological Developments:

Operation, Standards (WG 3)

Data:

Data Management, Analysis
(WG 4)

DRAFT from LENS
core team meeting
14.01.2019



Summary

- **A neutron strategy for Europe will be the key output from WP2**
- **WP2 provides the resources for thorough work including systematic input from the user community**
- **This strategy should help to tackle the upcoming challenges due to the changing neutron landscape in Europe**
- **BrightnESS will provide key input for LENS**

