BrightnESS

Building a Research Infrastructure and Synergies for Highest Scientific Impact on ESS

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Deliverable Report:
D1.6: 3rd Agenda and Minutes of Yearly General Assembly

1 Project Deliverable Information Sheet

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	Approved by:	BrightnESS Steering Board

3 List of General Assembly Representatives present at the meeting[1]

Organisation	Name
BNC Winger	**Laszlo Rosta (Mandated)**
CEA	**Pascal Debu (Mandated)**
CERN	**Burkhard Schmidt**
Danish Technological Institute	**Nikolaj Zangenberg**
DTU	**Arne Jensen (Mandated)**
Elettra Sincrotrone Trieste	**Carlos Reis (Mandated)**
ESS Bilbao	**Mario Pérez**
European Spallation Source ERIC	**John Womersley**
Forschungszentrum Jülich	**Andreas Wischnewski**
IEAP CTU in Prague	**Stanislav Pospisil**
Institut Laue-Langevin	**Jiri Kulda (Mandated)**
Instituto Nazionale di Fiscia Nucleare	**Paolo Mereu (Mandated)**
Lund University	**Nicholai Mauritzson (Mandated)**
Mittuniversitetet	**Richard Hall-Wilton (Mandated)**
Paul Scherrer Institut	**Christof Niedermayer (Mandated)**
Reactor Institute Delft, TU Delft	**Rik Linssen**
STFC	**Philippa Kingston (Mandated)**
University of Copenhagen	**Stig Skelboe (Mandated)**

[1] A signed participation list is available in Annex 8-1. Only official (or mandated) GA Representatives took part in the discussions and voting.

4 Contents

5 Executive Summary of the BrightnESS 3rd General Assembly Meeting

The third and final BrightnESS General Assembly (GA) meeting was held in the Stevin Room at the Royal Flemish Academy in Brussels on 21 June 2018. The Academy also hosted the BrightnESS project's Closing Conference the following day, with more than 130 participants.
The GA meeting gave a good opportunity for the General Assembly representatives to check the status of the BrightnESS project, what has been completed during the last year of the project, and what is yet to be fulfilled. It was also an occasion to set the way forward for the final three months of the project, as the General Assembly has the responsibility of monitoring the project implementation and determining the strategy and direction of the project.

Ute Gunsenheimer, the ESS Head of External Relations & EU Projects, and Anne-Charlotte Joubert, the BrightnESS Project Coordinator, welcomed the GA members and representatives. Following a 'tour de table,' John Womersley, ESS' Director General, took the stage to present the status of the ESS project, as well as to thank the BrightnESS project stakeholders for their contribution.

The meeting proceeded with presentations from each work package (WP) leader regarding the status of their WP as of June 2018, as well as what lays ahead for each of them:

- Anne-Charlotte Joubert provided a thorough overview of WP1 – "BrightnESS Project Management & Overall Project Progress in Its Second Year";
- Carlo Bocchetta presented WP2 – "Strengthening the In-Kind Contributions and Coordination";
- Ute Gunsenheimer described the progress of WP3 – "Organisational Innovation";
- Richard Hall-Wilton went into the details of WP4 – "Innovation of Key Neutronic Technologies: Detectors and Moderators";
- Tobias Richter discussed the status of WP5 – "Real-time Management of ESS Data";
- Ute Gunsenheimer and Juliette Forneris reported on the progress of WP6 – "Collaboration, Communication, and Dissemination."

The presentations given by the Work Package Leaders are part of the minutes.

Each of the presentations were followed by a Q&A session to provide the audience with the opportunity to ask clarifying questions and to discuss matters further. This deliverable presents the conclusions of the GA Representatives on behalf of their institutes.

The meeting was concluded with the General Assembly Representatives voting unanimously in favour of a prepared statement affirming that they approve of the technical and financial progress of the project for its second year.

6 General Assembly Meeting Agenda

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AGENDA

BrightnESS General Assembly meeting
Palace of the Academies, Brussels
21st June 2018

Meeting venue: Palace of the Academies - (Rue Ducale 1, 1000 Brussels, Belgium)
Meeting room: The Stevin Room
Lunch & coffee break room: Galerie de Marbre

Time	Subject	Presenter(s)
12:00 – 13:00	Registration and welcome lunch	
13:00 – 13:05	Welcome & agenda of the meeting	Ute Gunsenheimer & Anne-Charlotte Joubert
13:05 – 13:30	Overall development status of ESS Q&A	John Womersley
13:30 – 14:00	Overall update of the Project Status, incl. budget Q&A	Anne-Charlotte Joubert
14:00– 14:45	WP2: Strengthening the In-Kind Contribution Coordination - Main activities - Main achievements for ESS and for partners - Past risks & solutions, identified risks and approaches - Remaining activities before the end of the project - Sustainability of the WP after the end of the project Q&A	Carlo Bocchetta
14:45 – 15:15	WP3: Organisational Innovation - Idem Q&A	Ute Gunsenheimer
15:15 – 15:45	Coffee break	
15:45 – 16:15	WP4: Innovation of Key Neutronic Technologies: Detectors and Moderators - Idem Q&A	Richard Hall-Wilton
16:15– 16:45	WP5: Real-time Management of ESS Data - Idem Q&A	Tobias Richter
16:45 – 17:15	WP6: Collaboration, Communication and Dissemination - Idem Q&A	Ute Gunsenheimer / Juliette Forneris
17:15 – 17:20	GA statement	Anne-Charlotte Joubert
17:20 – 17:30	GA meeting conclusions & wrap-up	John Womersley

***Social activities*:**

19:30	Dinner – Kwint *Mont des Arts 1, 1000 Bruxelles, Belgium*

BrightnESS is funded by the European Union's Framework Programme for Research and Innovation Horizon 2020, under grant agreement 676548

7 General Assembly Meeting Minutes

7.1 Introduction and order of events

The General Assembly meeting was held in Brussels on 21 June. It started with registration of the participants, and a sandwich lunch for the attending representatives.

The meeting finished with a networking dinner at Kwint Restaurant, which also marked the start of the BrightnESS Closing Conference the following day. The conference, with more than 130 participants held in Throne room at the Royal Flemish Academy, showcased the success of the BrightnESS project and its achievements towards delivering ESS.

7.2 Welcome and overall development status of ESS

Ute Gunsenheimer and Anne-Charlotte Joubert welcomed the GA members to the third BrightnESS GA meeting. A 'tour de table' of the participants followed. Anne-Charlotte Joubert continued by recapitulating that the aim of the meeting was to present the project's technical, financial, and administrative status at the end of its third and final year.

John Womersley presented the current status of the ESS project and how the BrightnESS work packages fit into the larger picture of the ESS project's achievements. He continued by stating that the beginning of the Initial Operations Phase is on track and that the first expected science user will be in 2023. While presenting pictures of the Accelerator and Klystron Gallery John explained that ESS uses superconducting technology and that the ESS, in terms of electrical power, will be the most powerful proton accelerator in the world. Proceeding with the status of the target as well as the 15 instruments in construction, he also mentioned that the radiological protection requirements were made stronger and that the design of the target had to be reengineered but that there would be no delay on the initial science from ESS. John further announced that BrightnESS have been supporting visits of 5810 individuals since the last GA meeting on 5 September 2017. A highlight of the groups visiting ESS was the visit of the UN Security Council (UNSC), which ESS with the help of BrightnESS were very proud to host. He also mentioned that the UNSC were pleased to see an example of an international collaboration delivering something as tangible as a world-class scientific facility. John finished his presentation by thanking all of the partners for their contribution and hard work, saying he hoped for continuing fruitful partnerships beyond the end of the BrightnESS project.

7.3 Work Package 1: Overall Update of the Project Status in Relation to ESS Construction

BrightnESS Coordination Team: Anne-Charlotte Joubert, BrightnESS Coordinator

Activities within Work Package 1

Anne-Charlotte gave an overview of the project from July 2017 until June 2018. She recalled that in September 2017 the project was under-reporting by 12%, compared to a linear approach. This resulted in a re-designing of the work plan during autumn 2017 in order to reinforce the project activities and maximise the use and efficiency of the budget. This work was done together with the Work Package Leaders (WPLs), and based on the inputs and forecast provided by each of the project partners. The implementation of the work plan changes began in the first quarter of 2018.

She continued by stating that the continuous activities of the work package had been divided into four different subgroups: 'Monitoring Technical Progress and Resources,' 'Individual Support,' 'Communication & Management,' and 'Flexibility & Pro-activity.'

Anne-Charlotte highlighted the importance of the monthly Steering Board Meetings (StBs) to follow up and assess the progress of the project, as well as its risks. She also described how her team is in close contact with the partners, members of the GA, and the EC Project Officer, Mina Koleva, for updates, questions, and advice. A timeline of the project was then presented, showing the achievements of the project per year in terms of deliverables and milestones. Anne-Charlotte explained that there had been delays in the submission of deliverables or achieving milestones, but that these delays had not affected the proper implementation of the project or the achievements of the project objectives. As at the end of June 2018, 22 deliverables and 37 milestones had been completed while 14 deliverables and three milestones remained to be completed before 31 August 2018.

As the end of the project is approaching, Anne-Charlotte underlined the importance of collecting all the information for the upcoming Final Report, and how the partners' support will be essential. A template for the reporting is available to the partners on Indico, and will be sent electronically to all members and representatives of the GA. The template will help to collect information such as the exploitation of the project results, sustainability, impact, etc. The deadline for receiving inputs is 31 July in order to have everything ready for the deadline of the Final Report, 31 October. The individual contributions to be submitted are around 10 pages.

Anne-Charlotte also informed the audience that Project Officer Mina Koleva had requested a final review meeting, which will take place in Brussels, 18 September 2018. All WPLs are required to attend the review, where they will present the accomplishments and impact of their respective work packages. A draft of the 2nd Technical Report will have to be submitted by 4 September to Mina Koleva, who is aware of the short timeframe for producing the report, and will take this into consideration. In total, there will be three auditors attending the review together with the Project Officer: Frederick Henry Hurd, Jennifer Craig, and Karl Tichmann – where only Dr. Tichmann is previously known to us from the midterm review meeting last September 2017. The new reviewers have expertise in In-Kind, and financial issues, respectively, which makes these two very important areas on which to focus.

Concerning Task 1.5 'Socio-Economic Impact', Anne-Charlotte informed that it has been subcontracted to the Grenoble School of Management (GEM). The milestone, 'Data collection trial completed and data analysed' (MS42), was completed on 17 May 2018 as part of the task. The 'Report on Methodology and Criteria for Socio-Economic Impact Assessment of ESS During Construction and Operations' (deliverable D1.7) is due by the end of the project, and a first draft is being finalised. Vincent Mangematin, the task responsible from GEM, will provide detailed information during his presentation at the Closing Conference on 22 June.

Overall financial status after the second year

The financial status covers the period from September 2015 to March 2018, as Q1 2018 is the last reported financial period available. The overall financial status presents an underspending of 7 percentage points compared to the 86% spending we should have reported in March 2018 (M31), taking a linear approach. But Anne-Charlotte also reminded everyone that the gap

between the actuals reported and a linear approach had reduced by 5 points since the last GA, which is a good indicator considering the recent implementation of the new work plan. Looking at the overall status of the respective work packages, WP3 and WP4 have reported more person-months than initially planned. This is explained by different factors, including 'Senior' employees leaving on parental leave and being replaced by more 'Junior' employees, or because of reporting salaries lower than were initially planned. Anne-Charlotte, however, added that the global status of the effort committed thus far is at 94%, which is promising for the remaining months of the project, although there may be minor deviations. As for the personnel costs, she stated that some partners commit more person-months and spend less, and vice versa, but that she monitors the situation regularly with the concerned partners in order to keep track of their status.

Moving on to the global status of the 'Other Direct Costs' and 'Travel Costs' categories, Anne-Charlotte emphasised that as of March 2018, 79% of the planned travel costs had been spent. She insisted on the importance of providing justifications for the travel costs reported, and their necessity for the implementation of the action. Indeed, during the Mid-term Review meeting in September 2017, the EC Project Officer had commented that travel costs were high.

Project financial cost monitoring also includes the monitoring of the financial forecast per partner. This helps the coordination team and the WPLs have a better understanding of the financial status of the project, taking into consideration costs for upcoming activities. Therefore, Anne-Charlotte explained that taking the forecast into consideration, there should be a 5% over-reporting at the end of the project. This should not be an issue, but partners were reminded that they will have to cover the additional amounts. Anne-Charlotte also insisted that each partner ensure that all the costs related to the implementation of the project are reported, and that no costs related to project activities will be considered eligible after 31 August 2018.

Finishing her presentation, Anne-Charlotte made it clear that the project is on track and that there are very few delays thus far. The focus for the last months is the preparation of the upcoming reports, and to make sure that all costs are reported for BrightnESS.

Q&A

Nikolaj Zangenberg *(DTI): The number of contracts above EUR250k looks quite low. There might be an error in the reporting of this KPI.*

Anne-Charlotte: Indeed, this will need to be cross-checked.

Nikolaj Zangenberg (DTI): What will you do with the 10 pages of hand-ins? Will they be submitted to the Commission?

Anne-Charlotte: The main purpose of the hand-ins is to collect information for the final report, however they can be included as an annex to the final report.

7.4 Work Package 2: Strengthening the In-Kind Contribution coordination – *Carlo Bocchetta, Work Package 2 Leader*

Carlo Bocchetta started his presentation by reminding that the purpose of the work package is to strengthen coordination of In-Kind Contributions (IKC), according to the ESS IKC-process and to minimise as well as mitigate risks. He then followed by presenting an IKC context describing the In-Kind planning year by year and presenting the partners and the main agreements.

Carlo went on to state that there is a total of seven deliverables to be submitted for the work package; four have already been accepted, two are submitted, and one remains to be completed by the end of the project. As for the milestones, all are completed.

The presentation continued with the breakdown of achievements per task.

- Task2.1: Risk assessment and set-up of resources needed

Carlo reminded the GA members and representatives that this task focuses on the preparation of project implementation, as well as the training of resources. He continued explaining that many training events, as well as meetings took place this year to really convey all the important information to the partners. One of this year's big events was the 'CE Marking for IKC' which had its root in the decision made by the ESS that all equipment should be compliant with CE marking. The event was assisted by experts brought in to explain what compliance with this requirement meant.

- Task2.2: Development, implementation, and maintenance of the IKC management tool

Carlo explained the development of XRM+ and how it has established a centralised platform for IKC management coordination. Carlo reminded the audience that the XRM-project was initially foreseen to be contracted externally, but then it was decided to approach the European Commission and ask if it would be possible to let one of the partners do it. Elettra was the partner proposed and was further on given three tasks, which were all reported at the previous GA. Carlo continued stating that some changes had been made since last September due to the fact that the process to move the programme to ESS servers was not as straightforward as planned.

Carlo showed the pictures of how the XRM+ platform looks and how it can be used. For instance, it can automatically generate reports, contact lists, etc., and is a very useful tool for Field Coordinators.

- Task2.3: IKC Best Practice Exchange and Collaboration Meetings

The 3rd IKC workshop, 'Detailing the European Spallation Source In-Kind Installations: Organization, Plans and Support', (as well as the 3rd milestone) on IKC Best Practice was completed 19-20 June in Lund, with over 100 attendees including experts from CERN, ESRF, FERMI and DESY. There were six talks and ample time for discussions. Carlo carried on by

informed that there will be a 4th workshop in Lund on 5 July on 'VAT Exposure related to ESS Installations in Sweden', with an estimated 30 attendees with financial backgrounds.

- Task2.4: IKC Network of Regional Hubs and QA/QC Coordination

Carlo discussed the work of the Field Coordinators and their importance for the completion of the project. At present, around 30 Field Coordinators are actively working on BrightnESS, to enhance communication channels and reinforce quality and best practices by facilitating the flow of critical information between the partners. Individual countries have different levels of maturity when it comes to IKC; some are more advanced in their tasks than others and the areas of competence are different. These differences are reflected in the activities that have taken place within the hubs.

Before concluding his presentation, Carlo briefly discussed the financial status of the work package. At present, looking at the overall status there is an underspending, however, he informed the GA members and representatives that accounts at Elettra remained to the closed for the 3rd and 4th Best Practice workshops for in this reporting period.

Q&A

There were no questions asked to Carlo about the presentation.

7.5 Work Package 3: Organisational Innovation – *Ute Gunsenheimer, Interim Work Package 3 Leader*

Ute Gunsenheimer presented Work Package 3 that she took over when the previous WPL Allen Weeks left for new commitments at the Extreme Light Infrastructure DC. The work package is divided into three different tasks, which were all presented in turn-taking as she continued.

- Task3.1: ERIC implementation

Although ESS is now an ERIC, new challenges are discovered every day. During the second period of the project, ESS has tried to assess and resolve them together with the European Commission. Deliverable 3.1, 'ERIC Risk and Opportunity Plan', addressed many of these challenges which touched upon subjects such as procurement, VAT taxations, international staffing profile and accounting of In-Kind contributions. The deliverable has been completed and was complimented by the Commission. Ute further explained that when ESS became an ERIC, it created its own procurement rules that are very robust and that have stood in court when challenged. This is one of the ESS best practices that can be shared with other ERICs. One challenge that will have to be faced in the future is the VAT on IKC; in most countries there have been ways of working around it, but still it is an issue that needs to be addressed.

Regarding the deliverables status, deliverable 3.5 is due at the end of the project and will address the challenge ESS is now facing with having two host countries; as the DMSC staff is employed in Denmark, but the organisation functions as a Swedish entity, there have been problems

integrating staff into the Danish social security system. Ute underlined that this is an issue that BrightnESS wishes to raise with the European Commission.

• Task3.2: Technology transfer office

Ute mentioned that the task is implemented together with DTU and supported by ESP Central. She continued by presenting the ESS Management System, which closely relates to the completed Deliverable 3.2 'Determine an Innovation Strategy and Policy'. The first part of the deliverable was the innovation policy, that was already accepted back in 2017, and the second part consists of recommendations for an innovation strategy, with the ambition of being a conformable foundation to support ESS at every stage of its process. She added that ESS Management further endorses an open innovation, underlining cooperation rather than competition. An Innovation Strategy Conference called 'Establishing and Maintaining an Innovation Framework' was held on 11 October 2017, hosting around 60 participants who used the forum to share experiences with other facilities on how they established their innovation framework. Ute declared that there will be a 1st Innovation Challenge at ESS in August to test the framework developed. All ESS staff have been invited to contribute submitting their ideas, which will be assessed by a funding agency that will award the winning idea.

• Task3.3: Capacity Building of Public Procurement of Innovation for Partner Labs

Ute described how Luis Ortega from the ESS procurement team has been the driving force behind this task. She went on to present the Micro-TCA.4 case, which is the standard technology for high speed data acquisition and explained how there is still room for development and improvement in terms of innovation. One of the final slides of the presentation was dedicated to the market consultation that took place in April 2018, where 15 companies from the sector participated in the discussion of how to improve the Micro-TCA.4 case and the risks with updating it. The related deliverables are currently pending as Luis is still working on them.

Looking at the financial status of the work package, it is the smallest of the technical ones in BrightnESS, and has currently spent 67% of its budget. However, it a 100% spending of the budget is expected by the end of the project based on knowledge of planned activites as well as costs that weren't accounted for in this reporting period.

Ute then presented the upcoming deadlines, as well as what lays ahead for the work package. She assured that all of the pending deadlines would be met by the end of the project.

Q&A

As part of the comments, Ute ensured that there is a plan to make sure that all deliverables will be completed on time. Indeed, an additional StB meeting is planned on 21 August to review and approve all final deliverables.

7.6 Work Package 4: Innovation of Key Neutronic Technologies: Detectors and Moderators –

Richard Hall-Wilton, Work Package 4 Leader

Richard Hall-Wilton started his presentation by exemplifying what brighter neutron neutron source will be able to contribute with, as well as the technical challenges that the increased neutron flux represents. He then continued presenting the status of deliverables and milestones, where 12 out of 15 deliverables are completed and only 2 milestones remain to be fulfilled. Regarding the KPIs, there have been 23 publications that have acknowledged BrightnESS which is a significant number. Seven open source software packages have been developed and released during the course of the project, benefiting the neutron detector community as a whole. Additionally, the other KPIs have exceeded the planned numbers, showing the high impact of the project. Working in a collaborative fashion, and making the results as open as possible adds to the impact from the project, and is vital in achieving long term sustainability.

Richard further stated that the tasks were designed to address the challenges of the instruments and the detectors, and have considerably benefited specific ESS instruments presently under construction.

The aim of this work package was technological risk reduction for key neutronic technologies, to enable a smooth start for scientific output from ESS. This was done by taking promising concepts and validating and realising these technologies – i.e. moving the novel technologies from TRL levels 3-5 to 8-9. The results show that the risk associated with implementing these key technologies as been shifted from “very high” to “normal”- i.e. the risk levels for detector and moderator technologies are the same as for the other technologies needed at ESS. BrightnESS provided a unique framework of collaboration with partners with advanced skills in the technologies needed for ESS detector and moderator developments.

- <u>Task4.1: The Resolution Challenge</u>

There were 2 aspects to this task: creating a demonstrator detector for the NMX instrument and looking at the potential of ultra-high position resolution detectors.
For the demonstrator detector for the NMX instrument, at the time of the GA this was nearing completion. This shows that the engineering and integration to make such a detector for the NMX instrument is feasible. Additionally, as part of the task, the development the VMM front end electronics chip has been integrated into a data acquisition system, which is important for the detector electronics at ESS.
Much work within this task in the past year has been dedicated to look into what can be done with ultra-high position resolution, where there is a lot of potential to push down the resolution. Silicon pixel detectors with very high resolution, utilising convertor layers for the neutrons have been shown to show excellent results. This is a very promising future direction.

- Task4.2: The Intensity Frontier

The main focus of this task over the past year has been the demonstrator detector, which has been tested in realistic scientific conditions on the CRISP reflectometry at ISIS, UK. The results here were beyond expectations, showing both excellent technical and scientific performance. There have been 2 publications on the demonstrator tests, one showing the technical performance, the other the performance with scientific samples. This technology is ready to be implemented on 2 ESS instruments: ESTIA and FREIA.

- Task4.3: Realising Large Area Detectors

For the previous GA, the demonstrator on the CNCS instrument at SNS showed that the technology was ready for implementation for cold neutron chopper spectrometer instruments. Since then, the task has focussed on 2 aspects: an optimised design for thermal chopper spectrometers; and detailed engineering aspects to turn this into an engineered well-proven design to build for instruments.

This involves many aspects such as determining the size of grids to be used for the design, the details of the pressure vessels needed for operation in vacuum, how services are implemented, and construction methods. This culminated in a demonstrator detector for the SEQUOIA instrument at the SNS, which was nearing completion at the time of the GA. This technology is in an advanced stage of design for 2 ESS instruments: CSPEC and TREX.

- Task4.4: Detector Realisation

There are three aspects to this task, all of which cut across all instruments and detector technologies.

The first is testing, where the Source Testing Facility provides neutrons in Lund for testing detector technologies. All detectors developed at ESS extensively use this facility. This facility also pushes the boundaries on testing with neutron sources.

Secondly, the simulation tools developed as part of this task allows detailed thermal neutron detector simulations of the instruments using GEANT4 for the first time. This will have a long-term impact in terms of being able to improve detectors using detailed simulations.

Lastly, this task developed an integrated plan for the detector readout, and since then has made sure that prototype hardware exists for all parts of this detector readout. Additionally, BrightnESS allowed close links with WP5 on data, which has means that, as a sum of the two work packages, there is a data acquisition path defined for ESS, which is remarkable for this stage of the project.

- Task4.5: Moderator testing and development beamline

There are two aspects here. Firstly, ESS has developed an advanced low dimensional moderator. This task has allowed aspects of its engineering and implementation to be designed and understood. By considering the implementation of such a moderator in the BNC reactor, engineering aspects relevant to ESS have been taken into account. This is an important part of risk reduction for such a moderator at ESS.

Additionally, the planned test beamline for diagnosing and understanding the low dimensional moderator is part of this task. Such a beamline has been put together at the BNC facility, and its

functionality and usefulness has been shown in detail. Many of these components will be made available for the ESS test beamline and shipped to ESS for installation. This test beamline will be vital for early commissioning of ESS, and provide an important diagnostic tool in the long run.

Financial status

The overall status of the work package seems reasonable, but Richard really underlined that as the end of the project is approaching, it is very important to closely monitor the details.

Q&A

John Womersley (ESS): How is it looking with applications outside of the EU?
Richard: We receive a lot of interest in testing, evaluating and even provision of the detectors, but it's important to remember that we need to balance the requests with the immediate needs of the construction of ESS.

Comment by Lazlo Rosta (BNC): Low dimensional moderator technology has a great resonance outside of ESS. It is clear that it will bring a very important impact to ESS, but also beyond the organisation. This is a new paradigm in neutron science and there are very good outcomes in this work package in the detectors and the test beamline.

Comment by Stanislav Pospisil (IEAP CTU): High-resolution detectors have a potential in high-resolution imaging. In case of time-of-flight, it provides a possibility to tune sensibility for neutron resonances; there is big potential for application.

7.7 Work Package 5: Real-Time Management of ESS Data – Tobias Richter, Work Package 5 Leader

Tobias Richter started his presentation by briefly giving on overview of the work package and what is aimed to be achieved in its 3 different tasks.

- <u>Task5.1: Creating a standard neutron event data stream for different detector types</u>

A modular framework for event formation is in place, that consists of central components, common to all detector types, which host specific algorithms adapted to converting the low-level signals of one detector type to standard events. A toolbox has been developed in order to classify different algorithms and define which of them are good. Tobias followed up by stating that since last year there have been improvements to the clustering algorithm for Gd-GEM. A visualization tool has also been implemented to take data from the streaming give access to low level information for commissioning. This tool has been used successfully in practice in a number of experiments at test facilities.

- <u>Task5.2: Creating a standard method for streaming meta-data for fast applied fields</u>

According to Tobias task 5.2 is the only task that at the time of this GA has outstanding work to be done to confirm the solution developed meets the requirements. The hardware for ADC conversion and timestamping is nearly identical to the standard detector readout system, which

makes it sustainable for ESS. A number of hardware units is available and has been installed recently. Tobias was confident that within the next couple of weeks, these units as well as the software to drive them, could be tested together and demonstrate successful metadata sampling with the rate and accuracy needed.

- Task5.3: Software to aggregate and make available the neutron data and sample meta-data

Since the last GA a lot of effort has been devoted to code quality. Unit and system testing have been extended and improved. WP5 also ran a number of code review sessions to refine the designs and abstractions in the code as well as to spread knowledge about the code across all partners. This, together with the parallel documentation campaign, should help adoption of the aggregation project by partners and third-parties. In addition, Tobias reported about successful test of the whole infrastructure at the V20 beamline at HZB and that recent scalability tests showed that the projected ESS data rates and volumes could be dealt with.

Financial status

Regarding the financial status, Tobias explained how 90% of the budget has been spent and that the majority of those costs are personnel costs. He is expecting 100% of the budget to be used by the end of the project.

He concluded his presentation by thanking everyone that has been involved in the work and achievements of the work package, as well as stating that they will be able to meet all of their performance goals.

Q&A

There were no questions about the work package.

7.8 Work Package 6: Collaboration, Communication, and Dissemination – *Ute Gunsenheimer, co-Work Package 6 Leader (Tasks 6.1 - 6.3), Juliette Forneris, co-Work Package 6 Leader (Task 6.4)*

Ute Gunsenheimer described how work package 6 is a collaboration between ESS and DTI since two work packages were merged at the time of the proposal. Ute is in charge of tasks 6.1 to 6.3, and Juliette Forneris is in charge of task 6.4.

- Task6.1: Collaboration Building and Outreach

Ute explained that the survey 'Neutron Users in Europe: Facility-Based Insights and Scientific Trends' has just been finalised and a printed version have been distributed to each participant, and that it would also be available at the closing conference the following day. If partners wanted specific pages related to their work printed, this would be possible to arrange. She continued explaining the accomplishments of the regional hubs and the activities they focused on: the overall purpose of the regional hubs has been networking and outreach activities. In the North-West hub focus has been more aimed towards industry collaboration. The central hub focused on community outreach and organised a joint event on the Industry day held in Paris at the

beginning of June. The Iberia hub focused on lobbying activities to secure ESS membership, the Gallia hub played an active role in the Big Science Business Forum, the Southeast hub focused on communication outreach and academic-industrial workshop, and finally the Nordic-Baltic hub focused on industrial access and stakeholder outreach.

Ute then mentioned the number of visits to ESS and explained that there had been almost 6,000 visits since the last GA took place in September 2017.

- Task6.2: Enlargement Membership

When the transition to an ERIC was completed, ESS had 11 founding members and four founding observers. In 2016, the UK became a member and in 2018 Spain did the same. Ute continued by saying that a new member policy was approved by the Council in December 2017 and that the purpose of this policy is to describe the criteria, process, provide guidelines, and identify potential new members. An important part of it is also to establish a possibility for long-term collaboration with countries outside the European Research Area. She also explained how there are four different types of categories: Members, Observers, Associates, and Guests.

- Task6.3: ILO Network

The ILO Network is now part of the daily routine at ESS. Ute described that there will be an ILO meeting the following week where the main topics of discussion will be how to improve collaboration and further explore the possibilities of involving ILOs in innovation activities. The Big Science Business Forum was an initiative by the Danish government with the aim to present Big Science as one single market, and ESS was one out of nine co-organisers.

- Task6.4: Overall Project Communication and Dissemination

Juliette talked about the newsletter that is being sent out to a total of 194 subscribers, focusing on the progress of the project. She continued by saying that after the Closing Conference the focus would shift more towards the impact of the work packages. As for the website, there is a new section covering IKC best practices and information about ESS IKC partners and processes. The scientific articles produced during BrightnESS are all posted on the website, as well as on OpenAIRE and the EC Portal.

Ute concluded the presentation by describing a few hub-activities coming up, among them the visit of the South African delegation.

Financial Status

Regarding the financial status, 72% of the budget has been spent, but there will be more upcoming costs before the end of the project. There are also two deliverables still to be completed.

Q&A

Comment by John Womersley (ESS): It is important to understand that the aim of recruiting new member countries is overambitious during the construction phase, since it is a rather unattractive deal for new Member States. This is due to the fact that there is little to offer new members since the In-Kind shares have already been divided among the initial member countries. The deal was more lucrative if you (your country) had entered at the beginning of the project.

7.9 GA conclusions

John Womersley concluded the 3rd and final GA meeting. He thanked all the partners for their contribution and hoped that they were all proud of their hard work and what has been achieved together during the time of the project. He highlighted the remaining work to be done by the end of August, as well as the completion of the goals and the importance of the collaboration with all the partners. The sustainability of the project and its continuation were highlighted as final remarks.

Anne-Charlotte then took over by opening the floor for questions and comments by the GA members and representatives on what has been taking place, and will take place in the final period of the project. The General Assembly Representatives then voted unanimously in favour of the following statement:

"*Brussels, 21 June 2018 – The General Assembly of the H2020 BrightnESS project, in its annual meeting, has taken note of the presentations by the BrightnESS Steering Board and approves the technical and financial progress realised during its second year of operation.*"

Anne-Charlotte followed this up by thanking all participants for an interesting and fruitful meeting, as well as for their contribution and hard work within the BrightnESS project.

8 Annex

All presentations can be found on the event Indico page:
https://indico.esss.lu.se/event/1003/timetable/

Password: BRIGHTNESSGA2018