FLAG-ERA II
Deliverable D10.1
Best practices and recommendations about the integration of nationally and regionally funded research in the Flagships

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Description of content		This deliverable reports on the integration of the FLAG-ERA funded projects to the Graphene Flagship and to the HBP.		
Publishable abstract		This deliverable analyses the mechanism and outcome of the association of the FLAG-ERA funded projects to the Flagships.		
Keywords		Partnering projects; Graphene Flagship partnering division; HBP partnering projects		

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1 Introduction

This report was prepared in the frame of the Workpackage 10 of FLAG-ERA II dedicated to transversal coordination for additional activities. It relates on the Flagship integration model and its outcome for the activities funded by the FLAG-ERA members.

Given that the FLAG-ERA activities in relation with the association to the Flagships are spread over FLAG-ERA II and FLAG-ERA III projects, the deliverable will relate on projects and activities performed under both grant agreements.

The association process was discussed in detail with the Flagships while FLAG-ERA II was starting. The work of defining the procedure was performed in collaboration with the European Commission, DG-CONECT, the FLAG-ERA Graphene and HBP Liaison groups, and the FLAG-ERA coordinator.

With the SCOPE CSA project that has run between 1 Jan. 2017 – 31 March 2020, the Partnering Projects and associated members have benefited from additional support (i.e., dissemination and communication, as well as financial support) to get involved with core project members. Even with the end of SCOPE, this support is being continued in Core3.

The FLAG-ERA funded projects were the seed to the development of the Partnering Projects for the Flagship.

This document will present some evolution put in place by FLAG-ERA in order to better prepare the association of funded projects, some information about the specificities of association with the Graphene Flagship in the one hand and the HBP in the other hand, and finally interesting interaction between partnering projects and the Flagships will be exemplified by some FLAG-ERA projects.

2 FLAG-ERA role toward the partnering mechanism and projects

Preparing the association / FLAG-ERA calls partnering proposals

In order to ease and accelerate the association to the Flagships of newly funded FLAG-ERA projects, partnering proposals forms were developed in the frame of the Graphene and HBP liaison groups. The use of these forms did start with the JTC 2019, and pursued. The applicants to the FLAG-ERA calls had to fill up and submit this form together with their scientific document.

In the form (see annex 1) they had to indicate the status of each partner involved, the expected interaction with the Flagship and the targeted workpackage to which they expected to get associated, as well as the link and discussion, initiated, or not, with Flagship core members.

The information on the partners status in the form was very useful for FLAG-ERA and for the applicants. Indeed, the eligibility criteria for the FLAG-ERA calls were slightly different if a partner was belonging to the Flagship core project (https://www.flagera.eu/# : “Eligibility: Either three partners requesting funding from three different participating countries; or two partners requesting funding from two different participating countries and a partner from another country securing its own funding as a Flagship Core Project partner.”).

This form was meant to ease the association to the Flagship but also to enable starting the exchange between applicants and Flagship members already before the selection phase.

The form was maintained for JTC 2021 despite a 1 step process of evaluation. In that case, the forms enabled a synthetic transmission of the data to the Flagship after the selection in order for them to initiate the association of the newly funded projects.

While associating / Ethical check of the FLAG-ERA funded projects

From JTC 2019 on, an ethical check of the projects funded by FLAG-ERA was necessary. Following the recommendations of the European Commission, a support document for a self-evaluation by the projects was shared.

However, if these self-evaluations were checked by the FLAG-ERA coordination, the strong ethical boards of the Flagships would have been of great help in case an issue would have popped up.

After association / FLAG-ERA workshops

All FLAG-ERA workshops organized with the projects, Kick-Off or follow-up, were prepared and run in tight collaboration with the Flagships. There, Flagship representatives did always participate, not only for introducing general information but also for scientific interactions with the projects.

This collaboration did intensify all along the FLAG-ERA projects. The attendance of workpackage leaders and/or co-leaders enabled projects already interacting with the Flagships to meet with their colleagues and proceed discussing, but more importantly it was the mean for projects not interacting with the Flagship, to meet the Flagship researchers and to initiate discussions.

3 Association mechanism with the Flagships for Partnering Projects

Support from SCOPE

Only some general information, in relation to the association of the FLAG-ERA projects, are related in the following paragraphs. More information regarding the association mechanism to both the Graphene Flagship and the HBP, as well as regarding the partnering projects were reported by the SCOPE CSA and can be found in annex 2.

At this stage, the role and support of the SCOPE CSA must be stressed. It did strongly support the partnering projects, from the FLAG-ERA calls but not only, in making their interactions with the Flagships easier and more efficient through the support provided. The extend of this support and its range are reported in the reports in annex 2.

Graphene Flagship Partnering projects

The association mechanism with the Graphene Flagship did not change since it was put in place in 2016 (Core1 phase of the Graphene Flagship), when the first FLAG-ERA JTC 2015 projects were associated to the Graphene Flagship. For the sake of simplification, the association required the signature of a Memorandum of Understanding (MoU) between the FLAG-ERA JTC project coordinator and the Work Package Leader of the Graphene Flagship to which the project was associated. To be noted that this MoU is a non-legally binding document and, for more in-depth collaborations, some of the Associated Members involved in the FLAG-ERA projects may have signed Non-Disclosure Agreements (NDAs) with the Graphene Core Project partners.

All FLAG-Era funded projects were invited for becoming Graphene flagship partnering projects. Only for 1 project, from JTC 2015, the association process was not finalised as the Memorandum of Understanding was not signed by both sides.

In order to maximize the range of influence of the Graphene Flagship and broaden its community, further networking activity was performed in the frame of FLAG-ERA. As reported in the other FLAG-ERA II deliverable D6.6 (International collaboration funding opportunities for the Graphene Flagship) some projects funded in the frame of other programmes/initiatives were contacted by FLAG-ERA members, with the assent of the Flagship, in order to invite them to become Graphene Flagship partnering projects, following the same mechanism and allowing the same advantages. This networking activity driven by FLAG-ERA was enabled by the fact that most of the FLAG-Era members are also members of other initiatives and by the tight and good relationship existing between the ERA-nets. As a result of this activity, three M-Era-Net projects contacted by FLAG-ERA got associated to the Graphene Flagship as Partnering Projects.

HBP Partnering projects

In the case of association to the HBP some evolution occurred with time to improve the mechanism.

At the start of FLAG-ERA all partnering project partners were expected to become Associated Members. As we found over the years this provided to be a challenge for large consortia. Apart from the time factor of getting every partner to complete signatory work in time, it also raised the question why consortium partners that were not interacting with HBP or using EBRAINS services would need to become Associated Members. As a result HBP partnering division has modified the association mechanisms. For consortia wishing to become Partnering Projects it was required that the Coordinator signs the Partnering Project MoU and becomes an Associated Member if not an HBP consortium partner. Other partners can become Associated Members if they request so in their Partnering Project applications, and the Partnering Project Coordinator requests the future Associate Members to sign am Accession Form. Besides, all partners of the Partnering Project (Coordinator or other institutions) must sign a Confidentiality Terms and Conditions document if they are not an HBP Core Partner. Work requiring other forms of contractual frameworks to move the dialogue forward (*eg* NDA, SLA) are undertaken by PP Members and HBP partners and not the HBP Partnering team or the Partnering Project coordinator.

In a similar manner as for the Graphene Flagship, networking of other projects with the HBP was organized by FLAG-ERA, In order to maximize the range of influence of the HBP and broaden its community. As reported in the other FLAG-ERA II deliverable D7.6 (International collaboration funding opportunities for the HBP) some projects funded in the frame of other projects were contacted by FLAG-ERA members, with the assent of the Flagship, in order to invite them to become HBP partnering projects, following the same mechanism and allowing the same advantages. This networking activity driven by FLAG-ERA was enabled by the fact that most of the FLAG-ERA members are also members of other initiatives and by the tight and good relationship existing between the ERA-nets.

4 Interaction between the FLAG-ERA partnering projects and the Graphene Flagship

To appreciate the following comments, it is important to remind that the project reports reviewers are the former scientific evaluation panel members of the corresponding call and are no Flagship members.

In the case of JTC 2015 (as reported in our deliverables D9.3 and D9.4 dedicated to the JTC 2015 final reports and reviews and to the JTC 2015 assessment respectively), all projects that were indicated as "outstanding" by the reviewers, did collaborate with the Graphene Flagship Core Project WPs, whereas the few projects quoted as disappointing proved not having interacted with the Graphene Flagship.

An equivalent reviewing round is being performed for the JTC 2017 final reports.

Among the FLAG-ERA partnering projects, we chose to showcase 2 of these for their interesting results and their fruitful collaboration with the Graphene Flagship:

NU-TEGRAM, a JTC 2015 Partnering Project, associated to the Graphene Flagship WP6 Sensors. This project fostered some research collaborations on porous membranes for gas sensing, exchange of some devices. The collaboration resulted in joint publications (among others: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7695699/ and https://arxiv.org/abs/2001.09509), mainly between the coordinator (University of Duisburg, Germany: Associated Member) and a core project partner from TU Delft (WP6 Leader).
Interestingly, NU-TEGRAM consortium was composed only of Associated Members organisations at the time of their association; therefore, it shows that collaborations can emerge even in the absence of core project partner in the partnering projects consortium.

CO2-DETECT, a JTC 2017 Partnering Project, associated as well to WP6 Sensors: fostered some research activities and joint publications on graphene CO2 and gas sensors, mainly between the project coordinator (KTH : Associated Member) and WP6. CO2-DETECT consortium is composed of 2 Associated Members and 2 Core project organisations, out of which one with an investigator directly involved in the core project activities and one with a new investigator.

Remarkably also, the coordinator of the H2O JTC 2017 project was, for more than half a year, the Partnering Division leader and his mandate ended due to the integration of his organisation into the Graphene Flagship Core Project consortium as a full beneficiary

5 Interaction between the FLAG-ERA partnering projects and the HBP

In the case of JTC 2015 (as reported in our deliverables D9.3 and D9.4 dedicated to the JTC 2015 final reports and reviews and to the JTC 2015 assessment respectively), among the 2 projects tagged as "outstanding", one had active collaboration with the HBP. Besides, the only project that was evaluated as weak, did demonstrate no interaction with the HBP. And notably, the only project that is not associated to the HBP over the years, a JTC 2017 project, is a project for which the reviewers did notify concerns regarding its progress.

Among the FLAG-ERA partnering projects, we chose to showcase 2 of these for their interesting results and their fruitful collaboration with the HBP:

Champmouse a JTC 2015 Partnering Project, is a good example of a PP leveraging tools which may be considered foundational for their own advanced research. The project is using optogenetics to determine brain regions essential for performing a behavioral task in a mouse experiment. While their work predates the creation of EBRAINS, their usage of the EBRAINS atlas has resulted in some of the features of the new atlasing APIs.

Domino a JTC 2019 Partnering Project, is an example of choice of a PP in that performed a research overlapping with the interest of HBP researchers, and had fruitful discussions with developers which resulted in services being more accessible to researchers. While the project is still running, it appears that the release of data they gathered on the EBRAINS Data and Knowledge Service is in preparation. This project exemplifies well where the community is presently, in the process of adopting working with RI services.

Remarkably also the Partnering Projects representative was some years a partner of the CANON JTC 2015 project.

6 Conclusion

As a summary, the procedures of the FLAG-ERA projects did evolve from one call to the other in order to facilitate the association of the projects funded.

The support of SCOPE CSA contributed to an efficient interaction between the partnering projects and the researchers from the Flagships.

And while the projects were/are running, the FLAG-ERA workshops are interesting tools for maintaining the relationship, when existing, but even more, these workshops are offering additional opportunities for the partnering projects to interact directly with the Flagship members and for them to be remembered of advantages they can find in this association.

At the light of the work done by SCOPE, by the Flagships partnering divisions and by FLAG-ERA, it appears that continuing with this networking activity is an important ingredient for both supporting the development of the Flagships activities but also in supporting the partners funded by the FLAG-ERA national and regional funding organizations.

Annex 1 (Partnering Proposals)

FLAG-ERA JTC 2017
Graphene Flagship Partnership Proposal

For any proposal submitted to the FLAG-ERA JTC 2017 on the Graphene topic, the present form must also be filled in by the coordinator and submitted on the FLAG-ERA submission web site (submission.flagera.eu). It should not exceed 3 pages. Any page beyond this limit will be disregarded. The present explanations can be removed.

For projects recommended for funding, the applicants will be invited to proceed with the association with the Graphene Flagship using an extended form similar to the one available on their web site (cf. section on Partnering Projects) and designed to easily reuse the information provided in the present form.

Project identification	
Title	
Acronym	
Project coordinator	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	

Interactions with the Flagship Core Project
Expected added value for the project to join the Graphene Flagship as a Partnering Project
Contribution to the Graphene Flagship objectives, complementarity with the Graphene Flagship Core Project
Foreseen interactions and organisation to facilitate alignment and information flow between the project and the Graphene Flagship Core Project

Graphene Flagship Core Project Work Package(s) with which interactions are foreseen

FLAG-ERA JTC 2017
Human Brain Project (HBP) Flagship Partnership Proposal

For any proposal submitted to the FLAG-ERA JTC 2017 on the HBP topic, the present form must also be filled in by the coordinator and submitted on the FLAG-ERA submission web site (submission.flagera.eu). It should not exceed 4 pages. Any page beyond this limit will be disregarded. The present explanations can be removed.

For projects recommended for funding, the applicants will be invited to proceed with the association with the HBP using the procedure and forms available on their web site (cf. section on Partnering Projects), and reusing information provided in the present form and in the main FLAG-ERA proposal.

Project identification	
Title	
Acronym	
Project coordinator	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	
Ethics Rapporteur Note: Activities conducted in a PP need to comply with the Ethics Compliance and other Ethics Management processes of the HBP as described on the Ethics Management website. This includes the nomination of an Ethics Rapporteur, responding to the ethics compliance survey and, where applicable, the submission of any ethics approvals and related documents.	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	

Interactions with the Flagship Core Project
Expected added value for the project to join the HBP Flagship as a Partnering Project

Contribution to the HBP Flagship objectives, complementarity with the HBP Flagship Core Project
Foreseen interactions and organisation to facilitate alignment and information flow between the Partnering Project and the HBP Flagship Core Project
HBP Flagship Core Project Subproject(s) with which interactions are foreseen

Co-funded by
the European Union

FLAG-ERA JTC 2019

Graphene Flagship Partnering Project Application

This form must be filled in and submitted for each step of the evaluation along with the main proposal description document. It is expected to be prepared in concertation with Flagship members, (whether they are partners of the proposed project or not).

For applicants invited to submit a full proposal in the second step of the evaluation, the present Flagship Partnering proposal may be updated. However, changes, if any, should be described and be duly justified below.

Coordinators of projects recommended for funding will be able to reuse this form as is in order to proceed with the association with the Graphene Flagship.

For the evaluation 2nd step only: Changes with respect to the pre-proposal, if any

Project identification	
Title	
Acronym	
Start date	
Duration *(in months)*	
Project coordinator	
First and last name	
Email	
Affiliation *(Organisation/ Institute, Laboratory, Department, etc.)*	
Country	
Project summary	

Interactions with the Flagship Core Project
Expected added value for the project to join the Graphene Flagship as a Partnering Project
Contribution to the Graphene Flagship objectives, complementarity with the Graphene Flagship Core Project
Foreseen interactions and organisation to facilitate alignment and information flow between the project and the Graphene Flagship Core Project
Graphene Flagship Core Project Work Package(s) with which interactions are foreseen

List of all institutions involved in the project. Please tick the appropriate box

- **A- Applies to become new Associated Member**
- **B- Core 1 Project partner with new/additional research group/institute**
- **C- Existing Core 1 Project partner and Principal Investigator**
- **D- Does not wish to become Associated Member**

*Please **mark with "X"** only one option under A, B, C or D. Note that, if one institution is already partner of the Core Project (option B and C), then it cannot become a new Associated Member. Use additional fields as needed.*

Approved PPs and AM are expected to be listed on the Graphene Flagship webpages (name of project and institutions), please indicate if you agree with this:				YES/NO
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name and email				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Contact person / Principal Investigator name and email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				

Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D

Funding information	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	

Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	

FLAG-ERA JTC 2019
Human Brain Project (HBP) Flagship Partnering Proposal

This form must be filled in and submitted for each step of the evaluation along with the main proposal description document. It is expected to be prepared in concertation with Flagship members, (whether they are partners of the proposed project or not). Once submitted, unless the applicant opt out of this possibility, this form is forwarded to Flagship representatives listed on the call page in order to get feedback. This feedback is provided to the applicant via the Joint Call Secretariat. Direct contacts with these Flagship representatives are welcome at any time.

For applicants invited to submit a full proposal in the second step of the evaluation, the present Flagship Partnering proposal may be updated. However, changes, if any, should be described and be duly justified below.

Coordinators of projects recommended for funding will be able to reuse this form as is in order to proceed with the association with the HBP. Note that organisations that are not yet member of the HBP Flagship will have to submit an additional document for becoming Associated Member, to be found on the HBP web site (section on Partnering Projects).

For the evaluation 2nd step only: Changes with respect to the pre-proposal, if any

Project identification	
Title	
Acronym	
Start date	
Duration *(in months)*	
Project coordinator	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	
Ethics Rapporteur Note: Activities conducted in a PP need to comply with the Ethics Compliance and other Ethics Management processes of the HBP as described on the Ethics Management website. This includes	

the nomination of an Ethics Rapporteur, responding to the ethics compliance survey and, where applicable, the submission of any ethics approvals and related documents.	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	
Project summary	

Interactions with the Flagship Core Project
Expected added value for the project to join the HBP Flagship as a Partnering Project
Contribution to the HBP Flagship objectives, complementarity with the HBP Flagship Core Project
Foreseen interactions and organisation to facilitate alignment and information flow between the Partnering Project and the HBP Flagship Core Project
HBP Flagship Core Project Subproject(s) with which interactions are foreseen

List of all institutions involved in the project. Please tick the appropriate box:

- **A- Applies to become new Associated Member**
- **B- Existing Core Project partner**
- **C- Existing Associated Member**

Please select only one option. Note that, if one institution is already partner of the Core Project or an Associated Member, then it cannot become a new Associated Member.

Organisation 1	
Name	

Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Position			
Email			
Phone			

Organisation 2			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			

Name/ email	
Admin contact point (if applicable)	
Name	
Position	
Email	
Phone	

Organisation 3			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Email			
Phone			

Organisation 4			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
	A	B	C

Status within the HBP Flagship	**X**	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Position			
Email			
Phone			

Organisation 5			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Position			
Email			

Phone	

Funding information	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	

FLAG-ERA JTC 2021
Graphene Flagship Partnering Project Application

This form must be filled in and submitted along with the main proposal description document. It is expected to be prepared in concertation with Flagship members (whether they are partners of the proposed project or not).

Coordinators of projects recommended for funding will be able to reuse this form as is in order to proceed with the association with the Graphene Flagship.

Project identification	
Title	
Acronym	
Start date	
Duration *(in months)*	
Project coordinator	
First and last name	
Email	
Affiliation *(Organisation/ Institute, Laboratory, Department, etc.)*	
Country	
Project summary	

Interactions with the Flagship Core Project
Expected added value for the project to join the Graphene Flagship as a Partnering Project
Contribution to the Graphene Flagship objectives, complementarity with the Graphene Flagship Core Project
Foreseen interactions and organisation to facilitate alignment and information flow between the project and the Graphene Flagship Core Project
Graphene Flagship Core Project Work Package(s) or Spearhead Project(s) with which interactions are foreseen

List of all institutions involved in the project. Please, tick the appropriate box **A- Applies to become new Associated Member** **B- Core 3 Project partner with new/additional research group/institute** **C- Existing Core 3 Project partner and Principal Investigator** **D- Does not wish to become Associated Member** *Please, **mark with "X"** only one option under A, B, C or D. Note that, if one institution is already partner of the Core Project (option B and C), then it cannot become a new Associated Member. Use additional fields as needed.*	
Approved PPs and AMs are expected to be listed on the Graphene Flagship webpages (name of project and institutions). Please, indicate if you agree with this (YES/NO):	YES/NO

Organisation Name	
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*	
Country	
Principal Investigator first and last name	
Principal Investigator email	

Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing*				

Organisation/University/Other-please specify)				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D
Organisation Name				
Type of organisation *(Company/SME/Research Performing Organisation/University/Other-please specify)*				
Country				
Principal Investigator first and last name				
Principal Investigator email				
Status within the Graphene Flagship	A	B	C	D

Funding information	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	

FLAG-ERA JTC 2021
Human Brain Project (HBP) Flagship Partnering Proposal

This form must be filled in and submitted along with the main proposal description document. It is expected to be prepared in concertation with Flagship members, (whether they are partners of the proposed project or not). While preparing the proposals, consortia are encouraged to contact EBRAINS High-Level Support Team (HLST) (flag-era2021@ebrains.eu) if it is of their interest to explore whether the services developed by EBRAINS (https://ebrains.eu/) offer potentially valuable solutions to fulfil their aim. For relevant EBRAINS services related to this call for proposals please see below. Once submitted, unless the applicant opt out of this possibility, this form is forwarded to Flagship representatives.

Coordinators of projects being selected for funding by FLAG-ERA and having confirmed the desire to become a HBP Partnering Project will be asked to sign a MoU and will be displayed as on the HBP website.

Project identification	
Title	
Acronym	
Start date	
Duration *(in months)*	
Project coordinator	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	
Confirm that you support this project if funded by FLAG-ERA to be developed into a Partnering Project https://www.humanbrainproject.eu/en/about/project-structure/partnering-projects/	
Ethics Rapporteur Note: Activities conducted in a PP need to comply with the Ethics Compliance and other Ethics Management processes of the HBP as described on the Ethics Management website. This includes the nomination of an Ethics Rapporteur, responding to the ethics compliance survey and, where applicable, the submission of any ethics approvals and related documents.	
First and last name	
Email	
Affiliation (Organisation/ Institute, Laboratory, Department, etc.)	
Country	

Project summary

Interactions with the Flagship Core Project
Expected added value for the project to join the HBP Flagship as a Partnering Project
Contribution to the HBP Flagship objectives, complementarity with the HBP Flagship Core Project
Foreseen interactions and organisation to facilitate alignment and information flow between the Partnering Project and the HBP Flagship Core Project
HBP Flagship Core Project Work package(s) with which interactions are foreseen: https://www.humanbrainproject.eu/en/about/project-structure/work-packages/
Foreseen use of the EBRAINS services

List of all institutions involved in the project. Please tick the appropriate box: **A- Applies to become new Associated Member** **B- Existing Core Project partner** **C- Existing Associated Member** *Please select only one option. Note that, if one institution is already partner of the Core Project or an Associated Member, then it cannot become a new Associated Member.*	
Organisation 1	
Name	
Acronym (if applicable)	
Type *(Large enterprise, SME, Private/Public*	

Research Organisation, Other-please specify)			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Position			
Email			
Phone			

Organisation 2			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			

Name	
Position	
Email	
Phone	

Organisation 3			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Email			
Phone			

Organisation 4			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			

Name	
Email	
Position/function	
Institute, laboratory, department, group, team	
Co-investigators	
Name/ email	
Name/ email	
Admin contact point (if applicable)	
Name	
Position	
Email	
Phone	

Organisation 5			
Name			
Acronym (if applicable)			
Type *(Large enterprise, SME, Private/Public Research Organisation, Other-please specify)*			
Country			
Status within the HBP Flagship	A	B	C
	X	**X**	**X**
Principal Investigator for the project			
Name			
Email			
Position/function			
Institute, laboratory, department, group, team			
Co-investigators			
Name/ email			
Name/ email			
Admin contact point (if applicable)			
Name			
Position			
Email			
Phone			

Funding information	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	
Funding source and amount	
Funding organisation	
Country / region	
Funding amount (in € and/or local currency)	

Annex 2 (SCOPE reports)

Ref. Ares(2017)4772327 - 30/09/2017

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

FETFLAG-01-2016 - Project no 730033

SCOPE

Support and Coordination of the Partnering Environment for FET Flagships

Coordination and Support Action

Start date of project: 2017-01-01

Duration: 36 months

D3.1 Report on PPs status and future needs

Due date of deliverable: Month 9

Actual submission date: Month 9

Participant: European Science Foundation (ESF)

H2020 Project no 730033 SCOPE		
Dissemination level		
PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	

Version	Date	Author	Comments
1	12/09/2017	Ana-Maria Ciubotaru	1st draft
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2	26/09/2017	Ana-Maria Ciubotaru	Final version
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This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

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List of tables / figures

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Deliverable summary

This deliverable presents the status of the Graphene Flagship Partnering Projects (PPs) and Associated Members (AMs) in terms of number, research area and composition, and also the support to be offered through SCOPE in order to reinforce their participation in the governance, public and outreach activities organised by the Core project.

The total number of Partnering Projects of the Graphene Flagship as of September 2017 is 18, including FLAG-ERA (13), national (1) and EC (4) projects. 73 organisations are, as of September 2017, associated to the Flagship, out of which 29 have been associated as individual organisations and 44 through Partnering Projects. Detailed statistics of Partnering Projects distribution per Core project work packages, type of organisation and research areas are presented, as well as for the Associated Members.

Details about the mechanisms put in place by SCOPE in order to support Partnering Projects and Associated Members to strengthen their interactions with the Core project through direct support for travel and also increase the visibility of their results by offering dissemination and communication support are presented.

Introduction

Partnering Projects and Associated Members are an integral part of the Graphene Flagship initiative and are represented in the governance of the Flagship through the Partnering Division representatives (Head and Deputy), who are elected by the division members.

Although the participation of the Partnering Division Head and Deputy in the Flagship management meetings was active, due to lack of resources available for this task in Core1 project, there was no dedicated support provided for organising and ensuring the communication flow between the Head and Deputy, and members of the Partnering Division, nor for supporting the interactions (in terms of travel support) between the Partnering Division and the Core project members.

SCOPE project has been designed to address this need for support of Partnering Projects and Associated Members in order to further foster their collaborations with the Core project by providing them support for networking and dissemination activities, but also help them organise among themselves within the Partnering Division.

1. Partnering Projects and Associated Members of the Graphene Flagship

Since the beginning of the Core1 project and as of September 2017, 18 Partnering Projects and 73 Associated Members (29 as individual organisations and 44 through PPs) have been associated to the Graphene Flagship. The last update on PPs and AMs integration was reported in the deliverable 20.1[1] of the Core1 project to which we will refer in some parts of this report.

AMs are spread across 19 European countries, including 3 countries (Croatia, Romania and Serbia) that are not part of the Core Project consortium as shown in Figure 1.

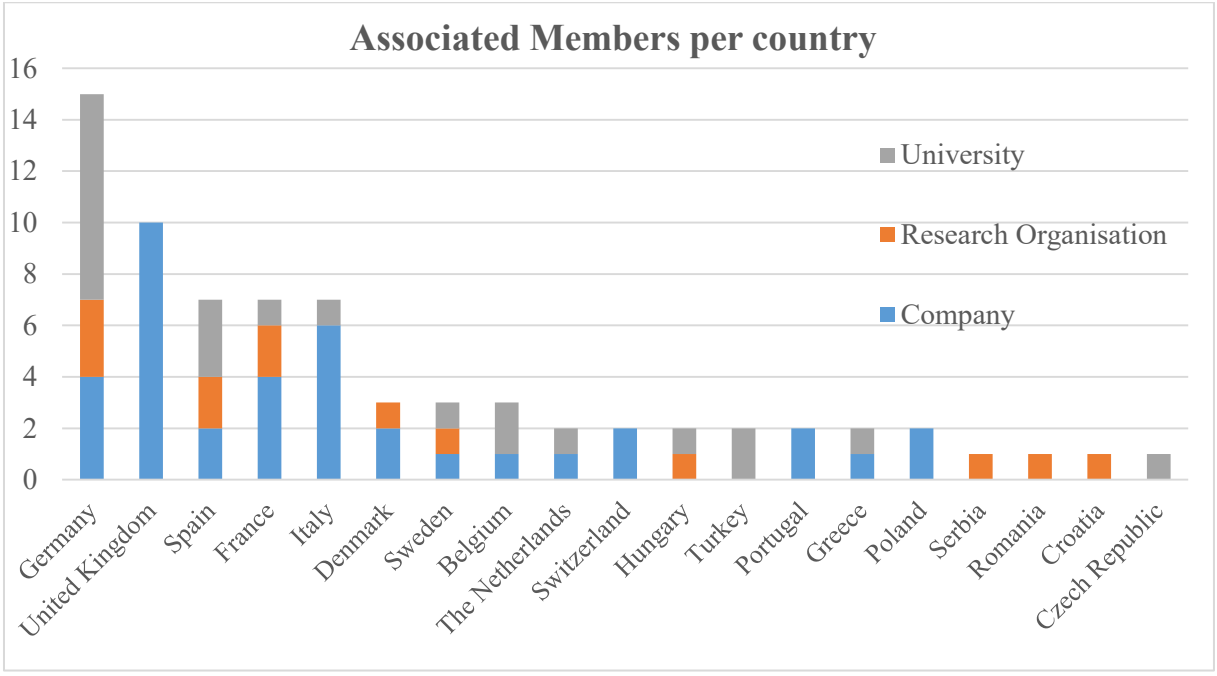


Figure 1. Distribution of Associated Members per type of organisation and per country

The association process and the management of PPs and AMs applications is not presented in this deliverable as this task is covered within the WP20 (Alignment) of the Core 1 project.

1.1 Assessment of Partnering Projects status

As of September 2017, 18 Partnering Projects[2] are associated to the Graphene Flagship as follows:

- 13 projects funded through the 2015 FLAG-ERA joint Transnational call (JTC);

[1] D20.1 Report on Partnering Projects and Associated Members integration
[2] https://graphene-flagship.eu/project/partnering/Pages/Partnering-Projects0628-6942.aspx

- 2 projects funded through the NMP call (POLYGRAPH and GLADIATOR);
- 2 ERC grants (2DCHEM and NOC2D);
- 1 national project (PHONAMP).

Each PP is associated to at least one Core1 project Work Package and has one contact person attributed (usually the WP leader of the WP to which the PP is associated). The description of the Partnering Projects is available on the Graphene Flagship website[2].

The distribution of different types of PPs per Core project Work Packages is presented in Figure 2.

1.1.1 Partnering Projects statistics

PPs bring new knowledge, new competencies, new ideas and new resources to the Graphene Flagship by performing research and innovation activities in different areas that are in line with the Flagship objectives. The distribution of PPs per different research areas as defined by the FLAG-ERA JTC 2015 call in collaboration with the Graphene Flagship Core project is presented in Figure 3.

We note the tendency for current PPs to focus on lower TRL Work Packages as fully expected considering the type of the institutions involved (see Figure 6).

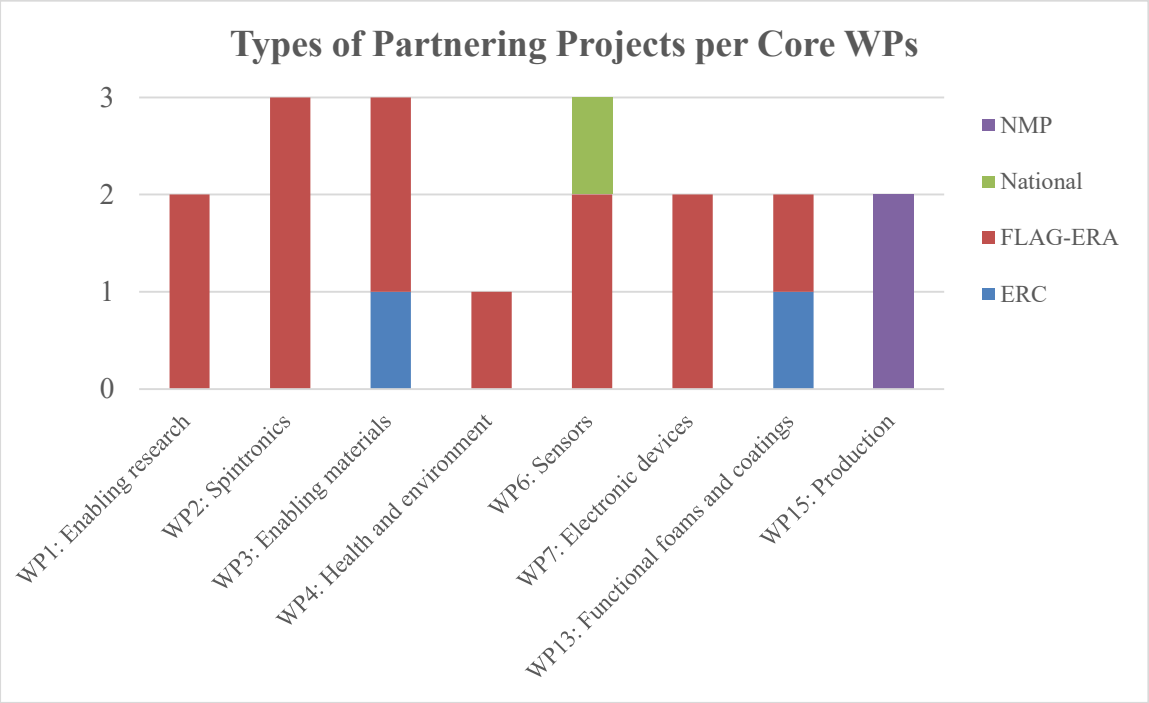


Figure 2. Distribution of type of Partnering Projects per Core project Work Packages

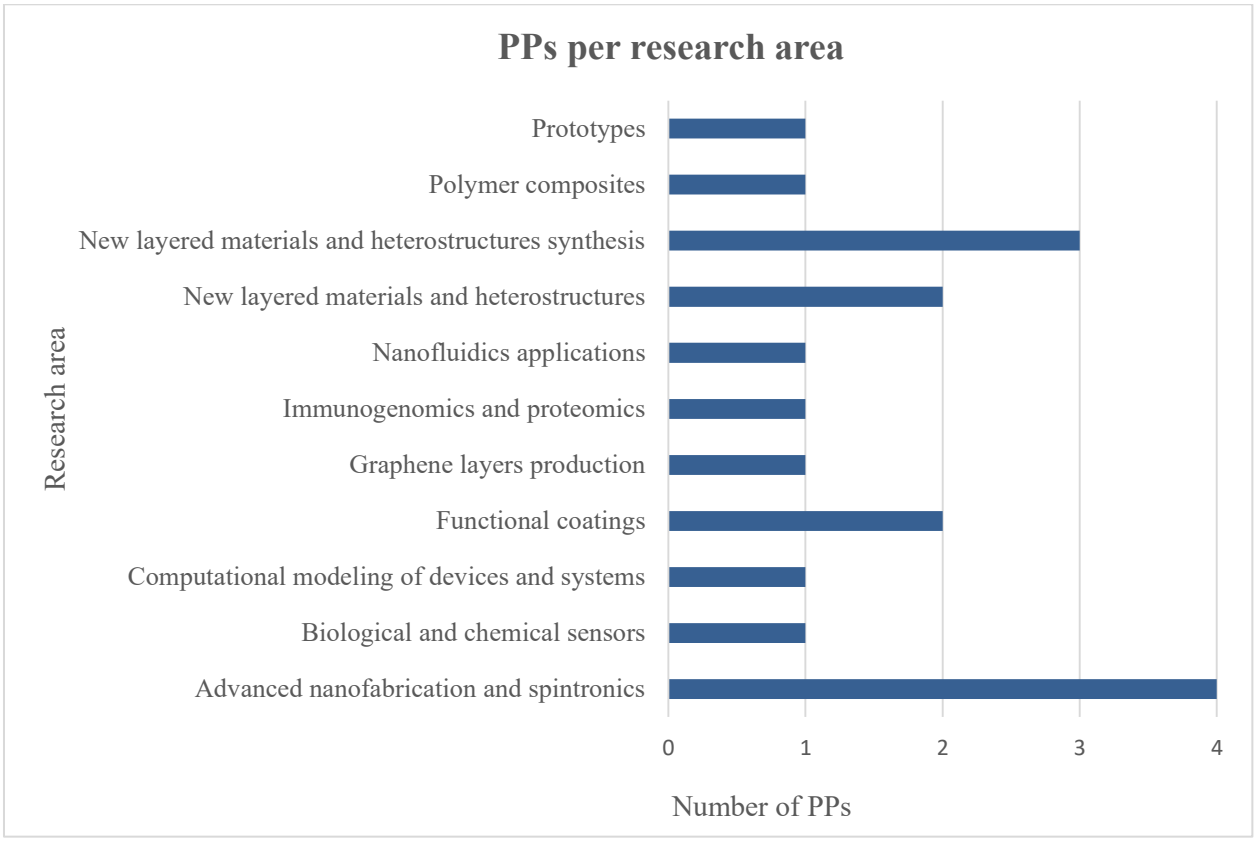
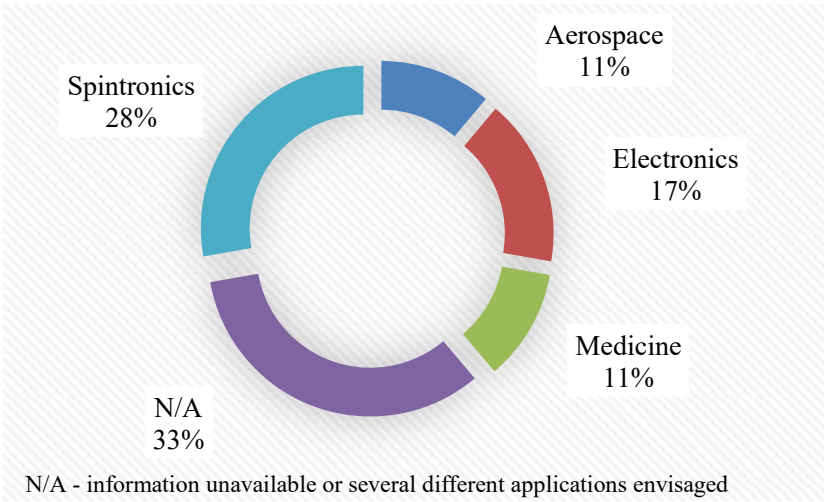


Figure 3. Distribution of Partnering Projects per research areas

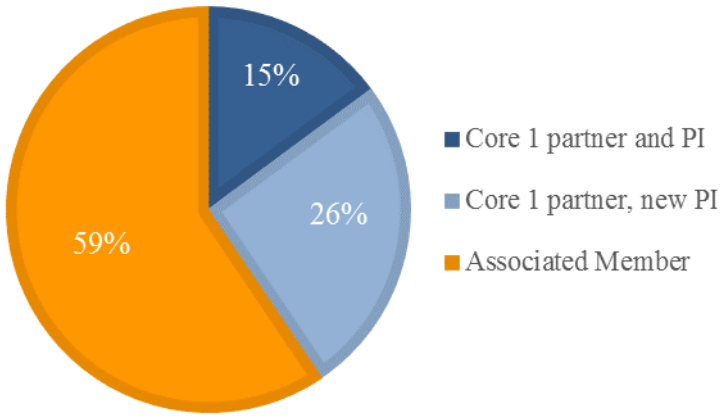


In terms of application area, we note that most of the PPs are related to Spintronics (28%) and Electronics (17%), while for 33% of the PPs the information is not available or several (potential) applications are envisaged (Figure 4).

Figure 4. Partnering Projects field of application

1.1.2 Associated Members within Partnering Projects

Institutions that are involved in Partnering Projects and are not already part of the Core Project consortium can become Associated Members, if they wish to do so.



59% of the organisations involved in the 18 PPs are AMs. We also note that in the case of large research organisations, new PIs or research groups have joined the Flagship through the association mechanisms - 26% are Core1 project organisations with a new PI, while 15% of them are Core1 project organisations with a PI already involved in the Core project activities (Figure 5).

Figure 5. Types of organisations involved in Partnering Projects

More detailed analysis presented in Figure 6 shows the distribution of types of organisations involved in Partnering Projects. We note that 30 organisations out of the 44 are associated through a FLAG-ERA PPs. While the percentage of universities involved in FLAG-ERA PPs is very high (90%), we note that the large companies and most of the SMEs and Research Organisations came through the NMP projects.

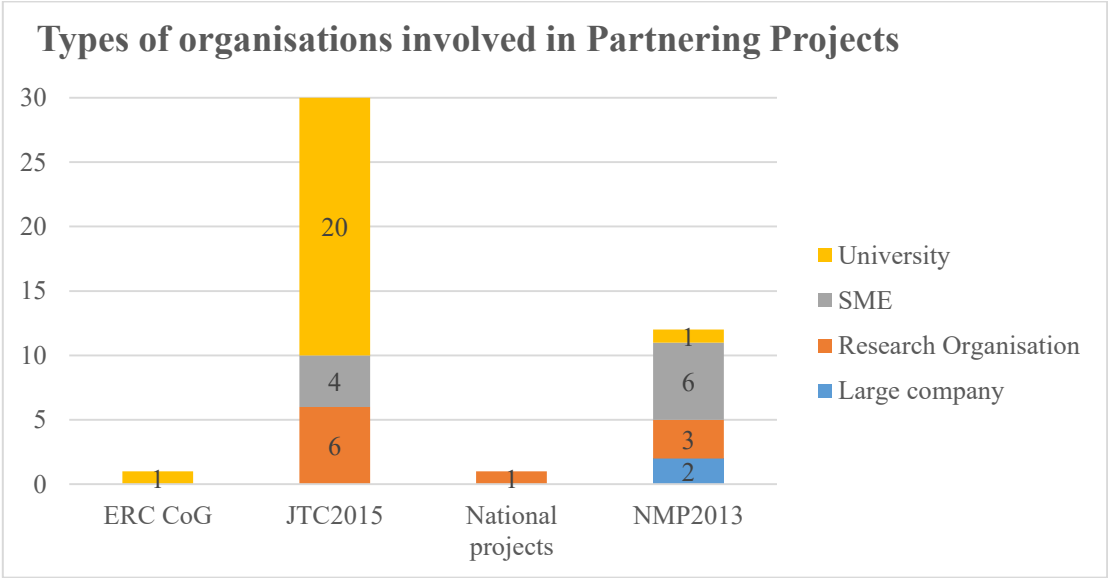


Figure 6. Types of Associated Members involved in Partnering Projects

1.2 Assessment of Individual Associated Members status

Individual Associated Members are self-standing organisations applying individually to become AM (they are not involved in a PP). Individual AMs come with an own, publicly or privately funded, research activity and have to be nominated by a member of the Executive Board or by a Core project Work-Package Leader. Individual AMs have the same right and benefits as the AMs associated through a PP.

As of September 2017, 29 Individual AMs are associated to the Flagship. As the PPs, each Individual AM is associated to one Core1 project Work Package and has one contact person attributed (usually the WP leader of the WP to which it is associated). The distribution of Individual AMs per Core project Work Packages is presented in Figure 7.

This channel has mostly been used by companies and SMEs that are seeking involvement in the Flagship in cases where they have R&D activities funded internally, or as potential end users of graphene and related materials-based technologies. As a result, we note the tendency for Individual AMs to focus on high TRL Work Packages (Figure 7).

The number of Individual AMs is constantly growing (29 in September 2017 *vs.* 22 in March 2017[1]), which shows the increasing interest of SMEs and companies on GRM-based technologies. More information about the type of resources, facilities and infrastructures that are brought into the Flagship by the Individual AMs is reported in the deliverable 20.3[3] of the Core1 project.

[3] D20.3 Report on funding and alignment

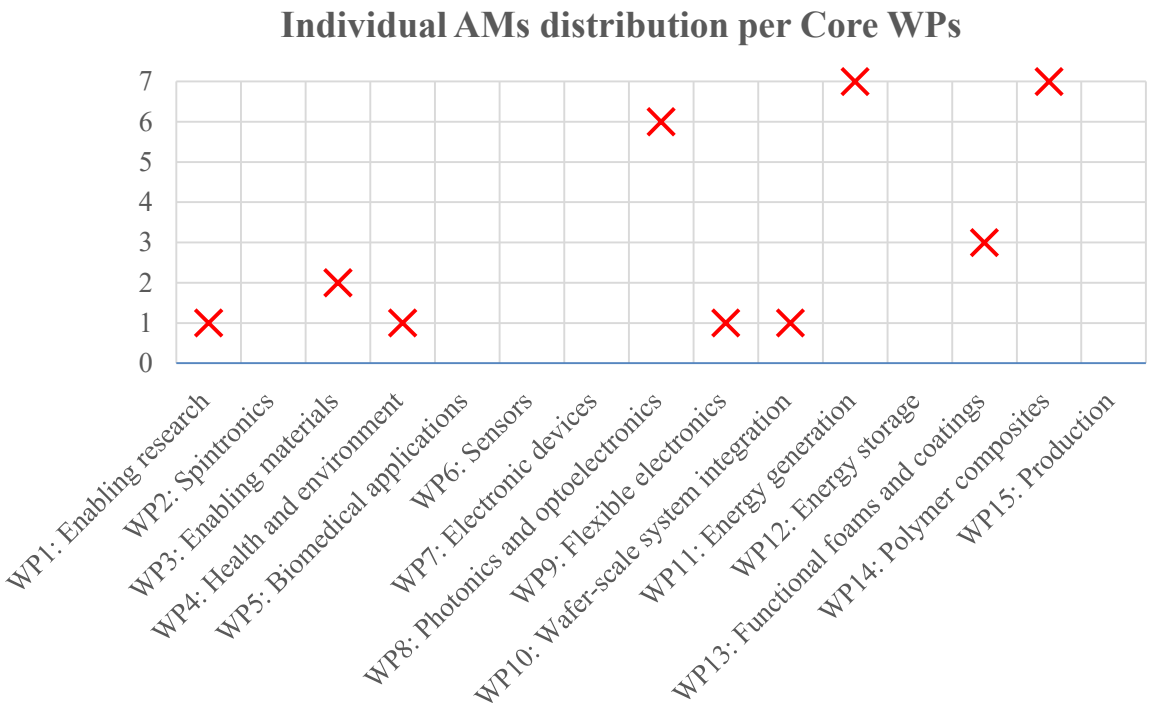


Figure 7. Distribution Individual AMs per Core project Work Packages

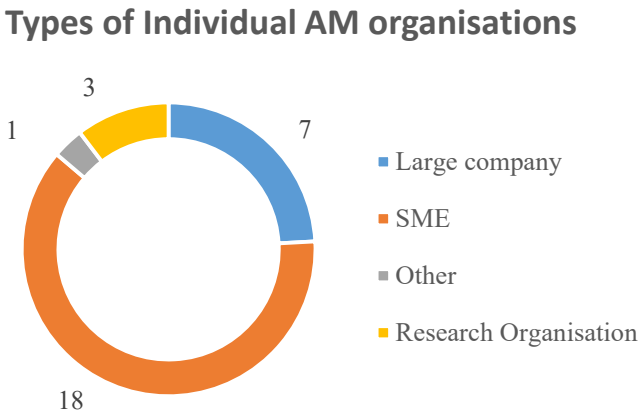


Figure 8. Types of Individual Associated Members organisations

For the ease of understanding, in the other sections of this report, we will refer to the Individual AMs as AM, without making the distinction between the two categories.

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

2. Integration of Partnering Projects and Associated Members within the Graphene Flagship initiative

The association mechanism and the ways of integrating new organisations and researchers that are not part of the Core project consortium has been discussed during the FP7 phase with the EC and the Funding Agencies, and implemented at the beginning of the H2020 phase of the Flagship, i.e. 1 April 2017, when the Core1 project started. The first Partnering Projects to be associated to the Flagship were the 13 FLAG-ERA projects funded by the Funding Agencies through the Joint Transnational Call launched in 2015. Organisations involved in these PPs became Associated Members of the Flagship, and they were followed by other PPs and AMs.

Interactions between the PPs and AMs, and the Core project were already reported in the deliverable 20.1[1] of the Core1 project. There interactions include participation in divisions and work package meetings, as well as dissemination activities. However, additional effort is needed to track the interactions and collaborations between the PPs/AMs and the Core project members. Therefore, on one hand, efforts are done by the Graphene Flagship in order to get feedback from the Core project members on their interaction with the PPs and AMs, while, on the other hand, SCOPE will try to collect the feedback from the PPs and AMs.

2.1 PPs and AMs representation in the Flagship governance

Partnering Projects and Associated Members are grouped in a division, called Partnering Division, which is the fifth S&T division of the Flagship and are represented in the governance of the Core project through the Partnering Division Head and Deputy. Both the Head and Deputy are full members with voting rights of the Management Panel and the Executive Board of the Core1 project.

The election of the Partnering Division Head and Deputy was initially carried out in April/May 2016 following the kick-off meeting of FLAG-ERA 2015 JTC projects. One of the eligibility criteria of the election process was that none of the candidates can come from Core project organisations. As a result, the two elected representatives were from AMs involved in two FLAG-ERA PPs, which were the only PPs associated to the Flagship at that time.

Meanwhile, due to the fact that both the Head and the Deputy have moved to Core project organisation, SCOPE has organised the election process in order to appoint new representatives. The election was carried out between 31 May and 13 June 2017 and resulted in the appointment of Dr. Stefano Borini from Graphitene Ltd. and Professor Oğuz Gülseren from Bilkent University, both from AM organisations.

Full description of the election process will be reported in the deliverable 3.2 *Terms of reference and proposal for structure of the External Division of the Graphene Flagship and first report on Graphene Partnering projects added value with recommendations* of the SCOPE project due December 2017.

2.2 Feedback from Partnering Projects and Associated Members

In order to gather the feedback from the PPs and AMs on the association mechanism and their needs in terms of interactions/collaborations with the Core project, a survey was launched and a consultation workshop was organised. The findings of these activities are presented in this report.

2.2.1 Survey to PPs and AMs

A first survey to PPs and AMs representatives (77 persons contacted in total) was carried out by SCOPE in March 2017 in order to assess the needs, and the integration and collaborations between PPs/AMs and the Core project (Annex 1). The response rate was low, with only 13% of the representatives having answered the survey. The outcome of the survey was presented and discussed with the Partnering Division members during the consultation workshop organised by SCOPE in April 2017 in Bologna, jointly with the General Assembly of the Graphene Flagship.

The main outcome of the survey is detailed below:

a) Collaborations with the Core project
   57% of the respondents indicated that are engaged in collaborations with researchers/ members of the Core project and 62.5% have had collaborations with the Core project researchers prior to their association. Furthermore, 12.5% of them have published scientific results (articles, proceedings, patents, etc.) jointly with researchers/ members of the Core project.

   While this shows good interactions of the PPs/AMs with the Core project, 50% of the respondents have indicated that they foresee or have encountered difficulties in engaging in collaborations with the Core project partners, e.g. i) difficulties in getting involved in new proposals with Core project members; ii) impossible to get funding through the Flagship and most other EU channels are blocked for graphene research; iii) difficulties in engaging in joint dissemination activities.

b) Needs, priorities and expectations in terms of interactions/collaboration with the Core project
   Figure 9 shows the needs of the PPs and AMs in terms of interactions and collaborations with the Core project. Over 80% of the respondents would like to engage in research activities with Core project members, while over 60% would like to engage in networking activities.

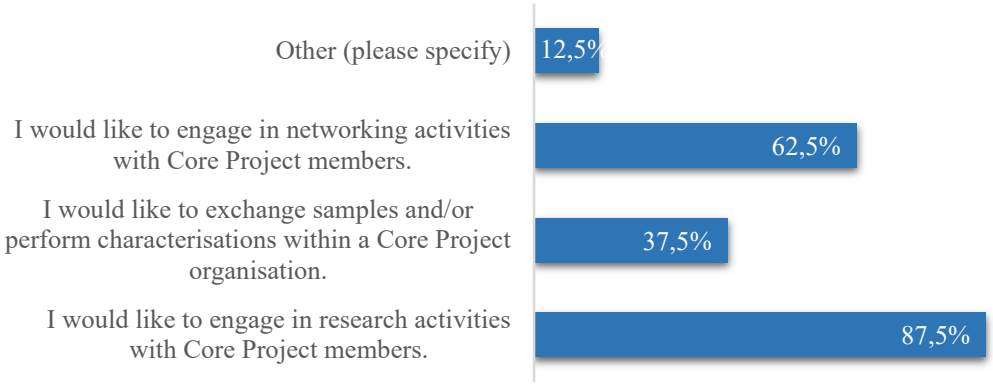


Figure 9. Feedback of the PPs and AMs in terms of needs for interaction/collaboration with the Core project

c) Feedback on the Partnering Division

83% of the respondents indicated that they have been in contact with the Partnering Division Head or Deputy and 33% would like to have more interactions with their representatives.

The PPs and AMs representatives have, as well, provided feedback on the role that the Partnering Division Head and Deputy should play. They have indicated that the representatives should:

- Be the communication channel between the Flagship, and the PPs and AMs.
- Foster collaboration/ integration between PPs and the other divisions/WPs of the Core project.
- Provide assistance and guidance to PPs and AMs.

d) Feedback on the association mechanism

When asked about their feedback on the association mechanism, the respondents have indicated that i) the Flagship needs to be flexible and responsive regarding working together on joint activities with PPs; and ii) the Flagship could organize theme-based webinars or online workshops that facilitate collaborations between PPs, AMs and Core project members.

Overall, the results of the survey show that, while interactions between the PPs/AMs and the Core project are taking place, there is still a need to further strengthen and enlarge these collaborations and to bring support to the PPs and AMs to get further involved in (networking) activities with the Core project. Here is where SCOPE can play an important role by fostering the partnering environment through direct support to PPs and AMs. The different types of support offered through SCOPE are detailed in the following section (2.3).

2.2.2 Consultation workshop with the Partnering Division

A consultation workshop was organised by SCOPE project on 6 April 2017 in Bologna, Italy. AMs of the Graphene Flagship have the possibility to attend the non-confidential parts of the Graphene Flagship General Assembly, therefore, the workshop was held jointly with the General Assembly. This allowed a broader participation of PPs and AMs representatives. In total, 20 persons attended the meeting (Annex 2). 6 FLAG-ERA PPs and 3 Individual AMs representatives were present at the workshop.

The workshop allowed to get direct feedback from the PPs and AMs, discuss the outcome of the survey and also the support that SCOPE could cover in terms of travel grants in order to strengthen their interactions with the Core project. As a result of these discussions, different types of travel grants were defined and concluded in the *SCOPE support to Graphene Flagship Partnering Projects and Associated Members* document which will be soon published on the Graphene website.

2.3 SCOPE support to PPs and AMs

SCOPE has been designed to further foster the partnering environment of the Flagship by providing direct support to Partnering Projects and Associated Members:

i. To help them engage in collaborations and networking activities with Core project partners;
ii. Direct support to the Partnering Division to organise its structure and define its *modus operandi* – ensure the information flow between Partnering Division members, their Head and Deputy and the Core project;
iii. Provide them communication and dissemination support in order to increase the visibility of their graphene-related results.

SCOPE support comes in addition to the benefits[4] already offered by the Flagship through the association mechanism.

In addition to the dissemination and communication support covered by SINC through SCOPE project, SCOPE will offer to the PPs and AMs several types of travel support. Discussion on the needs of travel support took place during the consultation workshop, with the former Partnering Division Head and Deputy, but also with the Graphene Flagship management and its communication team. All the feedback gathered allowed the definition of the following types of travel support and the information is already available on the Graphene website[5]:

- Travel support to attend (networking) activities organised by the Graphene Flagship Core Project
- Student Grants to attend Graphene Study
- Short visit grants – under discussion

[4] https://graphene-flagship.eu/SiteCollectionDocuments/Admin/Partnering%20mechanism/Benefits,%20AMPP.pdf
[5] https://graphene-flagship.eu/project/partnering/Pages/SCOPE-project.aspx

- Support to organise side events at the Graphene Week Conference
- Support to Partnering Division representatives (Head and Deputy)

This list is not exhaustive and, based on the needs and the feedback from the PPs and AMs, and their newly elected representatives, further support through SCOPE may be considered.

The guidelines on the SCOPE travel support, the eligibility and application procedure will be finalised in the coming days and made available on the Graphene Flagship website, under the SCOPE page.

3. Conclusions

SCOPE has launched a survey and organised a consultation workshop with the Partnering Division members, allowing gathering a first feedback on the status of their interactions and collaborations with the Core project and the need to further strengthen these interaction. This resulted in the elaboration of a first list of the types of support needed by the PPs and AMs that will be implemented through SCOPE. The assessment of the support provided will be made through direct feedback from the Partnering Division members and their representatives during the exchanges and meetings that will be organised by SCOPE. Based on this feedback and the needs of the Partnering Division members, new options may be considered and implemented.

SCOPE has implemented, as well, the election process of the new representatives of the Partnering Division, which resulted in the appointment of a new Head and Deputy. Further effort is needed to set-up the *modus operandi* of the Partnering Division as to make sure that the information flow between its members, their representatives and the Flagship management is ensured. Results of these actions will be reported in the deliverable D3.2 of the SCOPE project.

4. Annexes

Annex 1. Overview of the survey to Partnering Projects and Associated Members
Annex 2. List of participants at the consultation workshop

Annex 1

Overview of the survey to Partnering Projects and Associated Members

Graphene Flagship - Survey to Partnering Projects and Associated Members

Welcome!

Dear Partnering Project representative/Associated Member of the Graphene Flagship,

In preparation of the Partnering Division meeting to be held in **Bologna on 6 April**, we would be grateful if you could fill-in the questionnaire below. Your answers will allow us to gather your feedback on the association mechanism, to better understand your challenges and needs in terms of collaborations and interaction with the Core Project and better prepare the meeting. The questionnaire consists of **21 questions** and it will take you no more than 10 minutes to answer them.

Thank you very much for your cooperation. We are looking forward to meeting you in Bologna.

1. Contact Information

Name

Affiliation

Email Address

The Association Mechanism and collaborations with the Core Project

* 2. Are you part of a Partnering Project?

Yes No

3. If yes, please select the project

4. Are you an Associated Member?

Yes No

5. Is your project/organisation engaged in collaborations with researchers/members of the Core Project?

Yes No

If yes, please indicate the name of the person/organisation and the Work Package

6. Please indicate the type of interactions/collaborations that you have with the Core Project (if any)

7. Have you published any scientific results resulting from collaborations with Core Project researchers/members?

◯ Yes ◯ No

8. If yes, please indicate

- ☐ Research article
- ☐ Conference proceeding
- ☐ Book/book chapter
- ☐ Technical report
- ☐ Newspaper
- ☐ Patent
- ☐ Other (please specify)

9. Did you have active collaborations with any of the Core Project member/researcher prior to your association?

◯ Yes ◯ No

Comments (if any)

10. Do you foresee or have you encountered any difficulties in engaging in collaborations with the Core Project partners?

◯ Yes ◯ No

If yes, please specify

11. What are your needs, priorities and expectations in terms of interactions/collaboration with Core Project members?

- [ ] I would like to engage in research activities with Core Project members.
- [ ] I would like to exchange samples and/or perform characterisations within a Core Project organisation.
- [ ] I would like to engage in networking activities with Core Project members.
- [ ] Other (please specify)

12. Please provide any comments on the Association Mechanism of Partnering Projects and Associated Members and specifically any improvements that you consider would be useful.

The Partnering Division

Partnering Projects and Associated Members are represented in the governance of the Graphene Flagship through the Partnering Division Head and Deputy who are elected by the members of the Partnering Division. Both of them are members of the Graphene Flagship Executive Board and Management Panel and their role is to assure the information flow between the Partnering Division and the Graphene Flagship management.

13. Have you already been in contact with the Partnering Division Head or Deputy?

○ Yes ○ No

Comments (if any)

14. Would you like to have more interactions with the Partnering Division Head or Deputy?

○ Yes ○ No

Comments (if any)

15. What is, in your opinion, the role of the Partnering Division within the Graphene Flagship initiative?

16. What would be, in your opinion, the best way to structure the Partnering Division and how should it function?

17. Please provide any comments regarding the Partnering Division and its Head and Deputy.

SCOPE Project

Support and Coordination of the Partnering Environment for FET Flagships (SCOPE) is a 36-month Coordination and Support Action project funded by the European Commission which was launched on 1 January 2017. SCOPE main aim is to answer the challenge of coordination and building of partnerships environment of the two Flagships to ensure that their visionary and highly ambitious goals are achieved and to help create an "ecosystem" where the Core Projects co-exist and interact with the Partnering Projects (PPs).

SCOPE is designed to provide support to Partnering Projects to help them engage in collaborations with Core Project partners and define their needs and priorities, as well as guidance in the process of the definition of the management structure of the Partnering Division and its modus operandi. Also, SCOPE will provide direct support (reimbursement of travel costs) to Partnering Projects and Associated Members to help them participate in networking activities organised by the Core Project.

18. Do you find such initiative useful?

◯ Yes ◯ No

Comments (if any)

19. Do you plan to request support from SCOPE to engage in (further) collaborations and networking activities with Core Project?

Yes No

If yes, please specify

20. Please provide any comments regarding SCOPE project and in particular what you would like to see as initiatives and activities that should be organised.

General Comments

21. Please provide any general comments and/or recommendations.

THANK YOU!

The survey is now over. Thank you very much for your feedback!

Annex 2

List of participants at the consultation workshop

Name	Affiliation
Stefano Borini	Graphitene Ltd
Gaute Juliussen	Graphitene Ltd
Grzegorz Lupina	Innovations for High Performance Microelectronics (IHP)
Adolfo Benedito	AIMPLAS
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Coskun Kocabas	Bilkent University
Fabrizia Cesca	Center for Synaptic Neuroscience, Istituto Italiano di Tecnologia (IIT)
Rainer Adelung	Kiel University (CAU)
Filippo Giannazzo	CNR-IMM, Catania, Italy
Max Lemme	RWTH Aachen University
Jari Kinaret	Chalmers University of Technology (Graphene Flagship)

Eugenia Vranjancu	Chalmers University of Technology (Graphene Flagship)
Karin Weijdegård	Chalmers University of Technology (Graphene Flagship)
Sophia Lloyd	University of Cambridge (Graphene Flagship)
Wide Hogenhout	EC
Cecilia Cabello	FECYT (SCOPE)
Almudena Carrero Escribano	FECYT (SCOPE)
Ana-Maria Ciubotaru	ESF (SCOPE)
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Tiphaine Sturtz	ESF (SCOPE)

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FETFLAG-01-2016 - Project no 730033

SCOPE

Support and Coordination of the Partnering Environment for FET Flagships

Coordination and Support Action
Start date of project: 2017-01-01
Duration: 39 months

D3.3 Report on Graphene PPs added value with recommendations

Due date of deliverable: Month 39
Actual submission date: Month 39
Participant: Isabella Anna Vacchi, Ana-Maria Ciubotaru, Ana Carolina Selvati - European Science Foundation (ESF)

H2020 Project no 730033 SCOPE		
Dissemination level		
PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	

History of changes

Version	Date	Author	Comments
1	04/12/2018	Ana Carolina Selvati (ESF)	1st draft
2	04/02/2020	Isabella Anna Vacchi (ESF)	2nd draft
3	05/03/2020	Ana-Maria Ciubotaru (ESF)	3rd draft
3.1	16/03/2020	FECYT	Comments to the 3rd draft
4	23/03/2020	ESF	Final version
5	27/05/2020	ESF	Revised version

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

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Deliverable summary

This deliverable reports the effort on assessing the Partnering Projects (PPs) and Associated Members (AMs) integration and added value towards the Graphene Flagship and *vice versa* during the entire duration of the SCOPE Support and Coordination Action project. It provides non-exhaustive collected information based on requested and granted SCOPE support, launched surveys, and existing interactions and collaborations that could be tracked down between the PPs/AMs and the Core Project (CP) members though joint efforts with the Graphene Flagship.

Since the beginning of the partnering mechanism, an increased number of AMs and PPs have been associated to the Flagship (Annex 1). As the number of PPs/AMs is continuously evolving, important progress has been made during SCOPE lifetime to stablish efficient and reactive communication channels with and within the Partnering Division (PD); some of these actions were previously described in the SCOPE deliverable D3.2. These communications channels have not only been kept, but also improved within the WP3 (ESF) in order to provide adequate access to information to the Graphene Flagship Partnering Division members. Apart from the regular newsletters implemented by SCOPE, a joint effort between SCOPE and Graphene Flagship was the launch of Harbour, the intranet space for the Partnering Division members.

During the lifetime of the SCOPE project, the main actions of WP3 consisted in:

i) substantial effort put in providing tailored support to the AMs and PPs in order to reach a better integration;
ii) organise and support the election of AMs/PPs representatives;
iii) ensure the Partnering Division representation in the governance bodies of the Flagship;
iv) gather feedback through yearly launched surveys in order to asses satisfaction of PPs/AMs;
v) keep the communication channels active through regular newsletters and email exchanges in order to ensure timely information flow and to incentivize the PPs/AMs to strengthen their participation and collaboration with CP members;
vi) initiation of early meetings with the Partnering Division, CP and FLAG-ERA Funding Agencies in order to offer a platform for networking opportunities.

Introduction

The Partnering Division, composed of the PPs and AMs, is an integral part of the Graphene Flagship initiative. Its members are represented in the governance of the Flagship through the Partnering Division representatives (Head and Deputy), who are full members of the Management Panel[1] (implementation body) of the CP. Both representatives, who must be

[1] http://graphene-flagship.eu/project/management/Pages/Management-Panel.aspx

from AM organisations, are elected by the Partnering Division members in order to ensure the independence of their division.

During SCOPE lifetime, a total of 39 Partnering Projects and 142 Associated Members (public and private organisations) from 26 European countries (Figure 1), out of which 53 individual AMs and 89 belonging to the Partnering Projects, were part of the Graphene Flagship initiative.

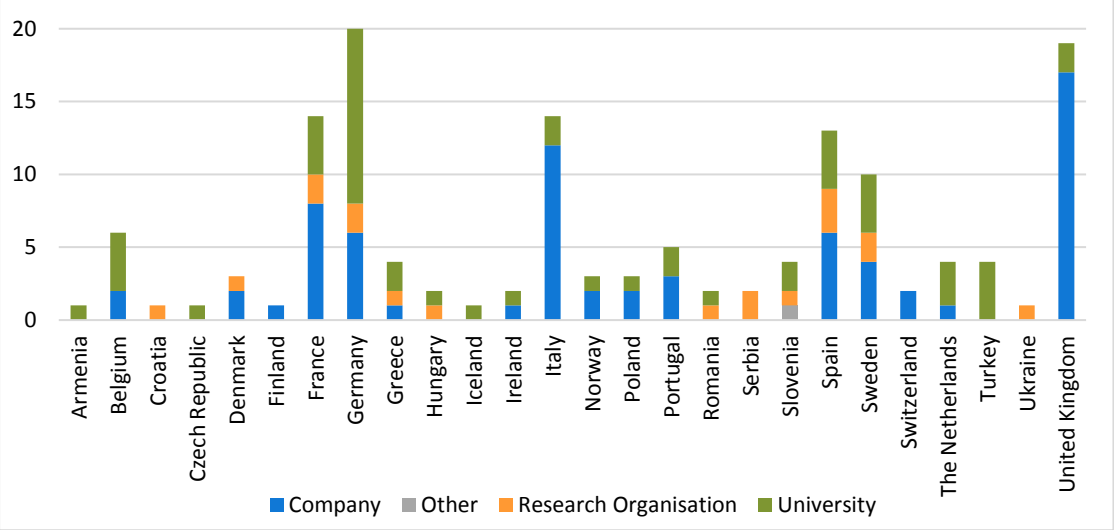


Figure 1. Distribution of AMs per country per type of organisation

While AM organisations joining *via* PPs are mainly universities and research organisations, individual AMs are mainly large companies and SMEs, and they are linked to more applied CP WPs as shown in Figure 2.

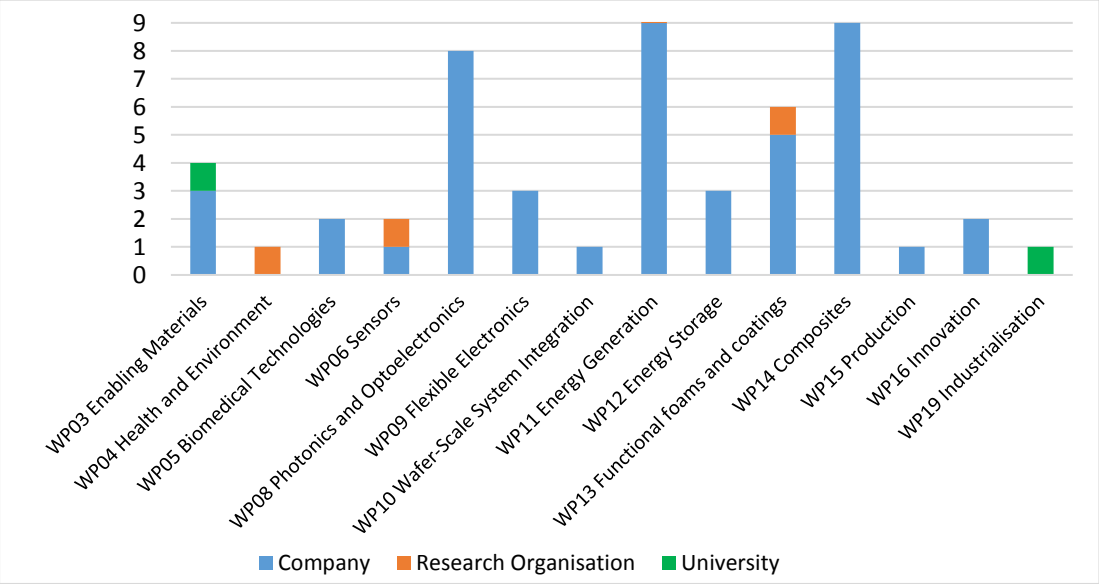


Figure 2. Distribution of individual AMs per CP WPs

Out of the 39 PPs associated to the GF during Core1-Core2 period, 30 of them came mainly through the FLAG-ERA JTC 2015 and JTC 2017 calls, while 7 were EC-funded projects. One aspect to be noticed is that more than 2/3 (26 PPs) of the PPs were coordinated by PIs coming from AM organisations (Figure 3).

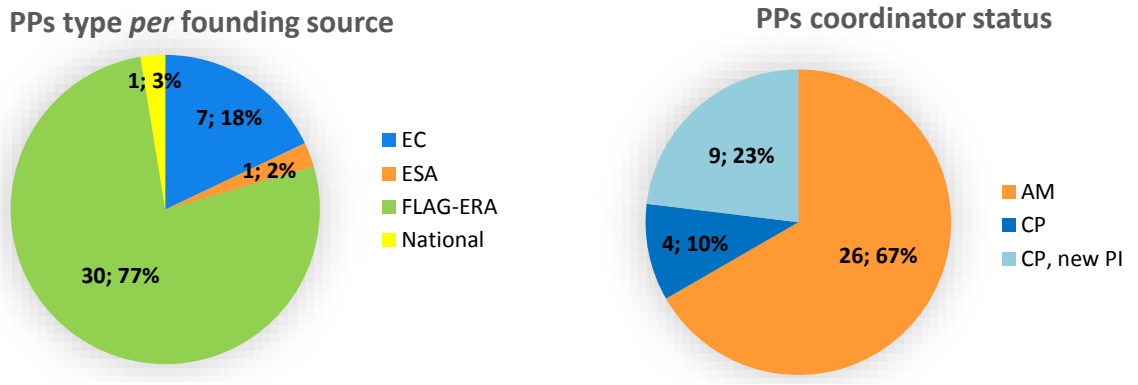


Figure 3. PPs type per founding source (left) and status of coordinator (right)

PPs are mainly linked to the CP WPs dealing with fundamental research activities as shown in Figure 4. Nevertheless, throughout the FLAG-ERA JTC calls and in line with the goal of the GF to move to higher TRL activities, more applied PPs have been associated through the JTC2017 call. This shows also the commitment from the FLAG-ERA Funding Agencies to align the calls to the strategy of the GF.

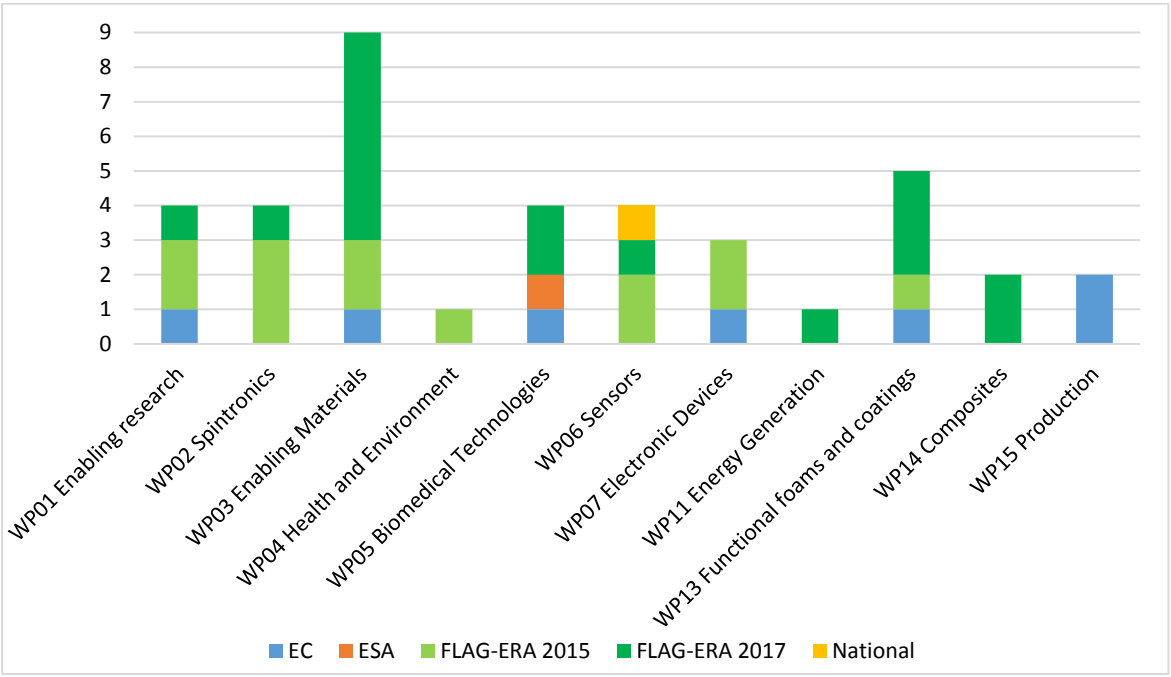


Figure 4. Distribution of PPs per CP WPs

The PPs are performing research that is in line with the GF objectives and that complements

the activities covered by the CP. Many of the PPs are dealing with materials synthesis and characterisation (39%), while others focus on applications related to spintronics (15%), health and environment (18%), electronics (10%), energy (8%), and aerospace and automotive (10%).

The support tools put in place by SCOPE aimed at ensuring a better integration of the Partnering Division members into the Flagship initiative and increase their contribution to the Flagship's mission. Within this deliverable, we aim at assessing the added value of the PPs and AMs to the Flagship and *vice versa* and the impact of the SCOPE support on the integration of the AMs and PPs, while providing recommendations for the amelioration of the partnering mechanism for the future phase of the Flagship.

1. Partnering Projects and Associated Members added value

The added value of the PPs and AMs to the Flagship and *vice versa* can be assessed *via* several channels, which have been described in the deliverable D3.2. Nonetheless, dedicated effort is still needed to ensure that existing collaborations/interactions between the Partnering Division and the CP members are tracked. This can be achieved *via* different channels as described below and necessitate effort from both SCOPE and the Flagship.

i) Monitoring of participation in Partnering Division meetings, Graphene Week Fringe Session, General Assembly meetings, as well as travel grants granted to AMs and PPs;

ii) Yearly surveys targeting directly the PPs and AMs with the aim to get direct feedback on their interactions with the CP members.

iii) The scientific integration of AMs and PPs can be assessed, as well, based on the information collected from:

- ✓ Core project internal assessment performed at the end of each year
- ✓ Core project review reports
- ✓ Direct input from Core project Work Package Leaders and Deputies
- ✓ Data on joint-publications available online

While SCOPE has focused its effort on the two first channels above, effort is also done by the CP to track and monitor the interactions with the AMs/PPs. It is expected that the outcome of this joint effort allows a better understanding of the overall added value of the association mechanism for all parties involved.

1.1 SCOPE Activities

The activities implemented by SCOPE aimed at bringing to the Partnering Division members the opportunity to network and collaborate with CP members. This was done by means of representation of the Partnering Division in the Graphene Flagship governance, access to relevant information, organisation of Partnering Division meetings and different financial support to attend CP activities or events.

1.1.1 Partnering Division representation in the Graphene Flagship governance

The representation of the Partnering Division in the Graphene Flagship governance is of key importance to assure the involvement and benefits of the AMs and PPs. As part of the Management Panel meetings, new advantages can be discussed such as the integration of the Partnering Division members in the organization of the Graphene Week conference or other scientific events of the Graphene Flagship.

As a reminder, the two representatives of the Partnering Division, in addition to their role in the governance of the Flagship (i.e., full members of the Management Panel of the Graphene Core project), were also members of the SCOPE Advisory Committee.

Election of the Head and Deputy of the Partnering Division

From 2017 until 2020, there have been three elections for the Partnering Division representatives run by SCOPE. The election process and the eligibility rules were agreed during the consultation workshop organised in April 2017 during the Flagship General Assembly meeting. The "Guidelines for the Election process of the Graphene Flagship Partnering Division Head and Deputy" document, describing the whole process, eligibility criteria and timeline, was presented in SCOPE deliverable D3.2. One challenge remains the high turnover in Partnering Division representatives that is mainly due to their move to CP organisation or the addition of their organisation to the CP consortium.

The first election was undertaken in October 2017 and ended with the selection of Stefano Borini, from Graphitene (United Kingdom), as leader and Oguz Gülseren, from Bilkent University (Turkey), as deputy.
The second election took place in October-November 2018 with the appointment of Andrey Turchanin from Friedrich Schiller University Jena (H2O PP) (Germany) and Yuri Svirko from University of Eastern Finland (CoExAN PP) (Finland), respectively as Head and Deputy of the Partnering Division. Both were from Associated Members organisations and belonged to PPs.
In June 2019, another election process has been launched following the integration of Friedrich Schiller University Jena into the CP consortium. As a result, Yuri Svirko was elected as Head and Jan Erik Hanssen (Graphitene) as Deputy of the Partnering Division. It is to be noted that this election was done under Core 2 project and so the representatives are elected until the end of Core 2 project, with the possibility of re-election, in order to synchronise election procedures with the other divisions of the Graphene Flagship.

Participation to Graphene Flagship General Assembly meetings

All Partnering Division members are invited to attend the open part of the annual Graphene Flagship General Assembly meetings as representatives of their respective organization, where they can take part to the discussion about the next steps of the Flagship. This gives AMs and PPs visibility, and a more detailed overview of the Graphene Flagship past

achievements and future plans.

From 2017 to 2019, both individual AMs and PPs representatives were attending the General Assembly meetings (Table 1).

	2017 – Bologna, Italy	2018 – Leuven, Belgium	2019 – Strasbourg, France
General Assembly meetings	6 individual AMs from 4 organizations, 12 AMs from 10 PPs	8 individual AMs, 5 AMs from 3 PPs	4 individual AMs, 4 AMs from 3 PPs

Table 1. AMs attendance to General Assembly meetings

1.1.2 Increased visibility and access to information

Increased visibility and access to information are key benefits for the AMs and PPs. Within SCOPE, these were achieved through different paths (Table 2):

i) Internal communication: Invitations to and information about Graphene Flagship events.
ii) External communication: Dissemination of scientific results and promotion of SCOPE support.

The following tools (Table 2) were used by SCOPE project:

Type of communication	Tool	Information
Internal	E-mail	Invitation to Graphene Flagship events; Involvement in PD representatives' elections; Information about Graphene Flagship Expression of Interest (EoI) calls.
	Harbour	Access to information about Graphene Flagship events on calendar (i.e., WP meetings etc.); Access to speakers' presentations from SCOPE events; Access to the list of Partnering Division members registered at Harbour.
	Newsletter	Information about Graphene Flagships events; Updates about the Partnering Division; News items about scientific highlights from Partnering Division members.
External	Graphene Flagship news	Scientific news from Partnering Division members published on Graphene Flagship website.
	Graphene Flagship annual report	Inclusion of scientific highlights from Partnering Division members in the Graphene Flagship annual reports.
	SCOPE flyer	Access to information about Partnering Division members benefits and SCOPE support.

Table 2. Communication tools used by SCOPE for the Partnering Division.

SCOPE newsletters

A communication channel has been established with the Partnering Division members to assure correct flow of information through regular SCOPE newsletters. A range of different information of interest to the AMs/PPs was communicated *via* the newsletters, like:

- Upcoming events organised by the Graphene Flagship and SCOPE (i.e. Graphene Week, Partnering Division meeting, Fringe Session within Graphene Week, Women in Graphene);
- Upcoming events where the Graphene Flagship was represented/participant (i.e. Mobile World Congress);
- SCOPE available grants;
- List of newly approved AMs and PPs;
- Partnering Division elections and renewal process of AMs and PPs;
- Scientific highlights from AMs and PPs' results;
- Dissemination of the Graphene Flagship Annual report;
- SCOPE tools and updates.

Overall, during the lifetime of SCOPE project, 8 newsletters have been sent out. They are available in Annexes 4 to 11.

Input to the Graphene Flagship Annual Reports

Every year, the Graphene Flagship disseminates an annual report which summarises the achievements and key results of the Flagship during the previous year. Partnering Division members are invited each year, since 2016, to share their scientific highlights obtained during the previous year to be considered for inclusion in the annual report. Since its beginning, SCOPE has provided support with the collection of highlights and interaction with the Flagship on this task. The ranking of the input received was made by the Partnering Division representatives according to the scientific relevance; the number of highlights considered for each report was dependent of the space available, while following the ranking.

In 2016 and 2017, seven (four JTC2015, two EC and one national project) respectively five (four JTC2015 and one EC project) highlights from PPs were included in the report. In 2018, one input from an Associated Member was considered, together with five from Partnering Projects (two JTC2015, one JTC2017, one EC project and one transnational project) (Annex 2). For last year, 2019, 12 inputs were collected, i.e., 8 from PPs and 4 from AMs. Out of these, three inputs from PPs (JTC2015, JTC2017 and EC projects), and three from individual AMs were selected.

As the Graphene Flagship is moving towards higher TRL, the number of individual AMs is increasing and, consequently, the number of individual AMs that want to showcase their results augments accordingly. This is an important opportunity for Partnering Division members to increase their visibility within the Graphene Flagship and beyond by using the visibility of the Flagship's dissemination channels.

1.1.3 Financial support

Financial support has been granted to Partnering Division members, according to the SCOPE eligibility criteria, to participate to different CP events and to visit CP partners for scientific collaborations and exchanges. SCOPE has provided support to AM institutions and researchers involved in PPs, and to individual AMs to efficiently organize their interactions among themselves and with the CP, through participation to meetings, workshops or other relevant activities organised by the CP. Also, support was offered to AMs and PPs to attend the Partnering Division meetings organised by SCOPE, which has been a very useful tool for networking opportunities.

Travel grants

The travel grants, which aim at supporting AMs and PPs to participate in CP activities, are very varied and have been adapted throughout the entire project to answer the needs of the Partnering Division members. The needs in terms of types of support provided through SCOPE were defined based on the feedback from the Partnering Division members through surveys and workshops. As a result, SCOPE has put in place different types of tools for support. The information was made available on the Graphene Flagship website and has evolved since its first version, published in October 2017, according to the feedback received from the Partnering Division members[2].

All requested grants that were granted to AMs and PPs during SCOPE lifetime (70 grants) are detailed in the Table 3 (relative organisations are reported in Annex 3). Most travel grants were given to support the attendance to the Partnering Division meetings (31), the Graphene Week fringe sessions (5) and to different Work Package or Division meetings of the Graphene Flagship Core project (7).

	2017	2018	2019	2020
Partnering Division meetings	10 travel grants Bologna (06/04/2017)	13 travel grants San Sebastian (10/09/2018)	8 travel grants Helsinki (23/09/2019)	
Work Package or Division meetings	1 travel grant to attend Core project Division 2 meeting (02/11/2017)	2 travel grants: 1 to attend WP3 Core project meeting, Munich (18/09/2018); 1 travel grant, (Partnering Division Head) to attend the 2nd SCOPE Advisory	3 travel grants to attend Core project WP6 and WP14 meetings (05/04/2019, 7-8/11/2019 and 28/11/2019)	1 travel grant to attend Core project WP3 meeting (10/02/2020)

[2] http://graphene-flagship.eu/project/partnering/Pages/SCOPE-project.aspx

		Committee meeting, Madrid (18/12/2018)		
Student Grants	7 Student grants, Graphene Study Summer school, Sweden	2 Student grants, Graphene Study Winter school, Austria	9 Student grants, Graphene Week 2019, Finland	
Other	1 travel grant to the Head of the Partnering Division to attend the FLAG-ERA II project Workshop, Riga (27/04/2017)	N/A	5 travel grants to attend the Graphene Week 2019 Fringe Session, Finland; 1 travel grant to attend Tetrapak Marketplace, Italy	1 visit grant for an AM to perform research in a Core project laboratory, Netherlands

Table 3. Requested grants throughout the years from 2017 to 2020

As the Partnering Division members are becoming more aware of these benefits, and of how the networking and integration within the Graphene Flagship functions, the requests have increased toward the end of SCOPE project. This is expected to continue after the termination of SCOPE and in Core3 phase.

1.1.4 AMs/PPs interactions with Core project

Partnering Division members were participating as exhibitors at the Mobile World Congress (MWC), upon invitation from the Graphene Flagship, in the Graphene Pavilion to showcase their prototypes and devices. From 2017 until 2019, 10 different AM organizations exhibited prototypes in different topic areas each year (Table 4). The 2020 edition of the MWC, that was scheduled on 24-27 February 2020, was cancelled, therefore, data is not presented in this report.

Year	Topic area	AMs
2017	Supercar, Composites	Haydale (UK)
	IoT and sensors	Gnext (IT), Haydale (UK)
	Energy	FGV Cambridge Nanosystems Ltd (UK)
2018	IoT and sensors	GrapheneTech (ES)
	Energy	APR Technologies (SE), BeDimensional (IT)
	Wearables and health	KTH Royal Institute of Technology (SE)
2019	Mass production	Talga (DE)
	Printable electronics	GrapheneTech (ES)
	Phone of the Future	Versarien (UK)
	Wearables of the Future	Atomic Mechanics (UK)

Table 4. AMs exhibiting at MWC

Tracking the active interactions and collaborations between AMs and PPs, and the CP is arduous as it relays only on information that is collected internally by the Flagship and from SCOPE surveys based on voluntary contribution from the AMs/PPs Principal Investigators (PIs).

During the 2020 Science and Technology Forum (STF), interactions with Partnering Division members were reported by several CP WPs as shown in Figure 5.

It can be noticed an increase in awareness of CP members about the mechanism of integration of AMs and PPs. This will help including Partnering Division members further during Core3 phase.

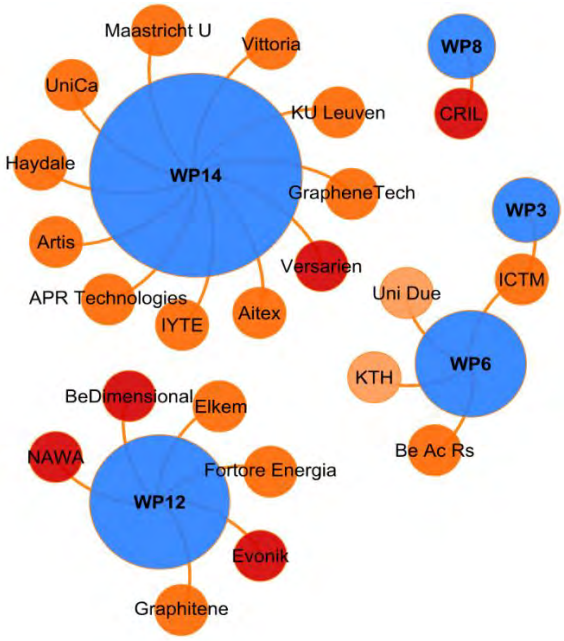


Figure 5. Graph showing the interactions between Core Project and AMs according to the information collected from the STF (Colour code: Core project (blue); AM (orange); PP (light orange); AM integrating Core3 project (red).

As shown in Figure 5 (in red), for some AMs, the collaboration became that important that they were selected *via* the 2019 Expression of Interest (EoI) call to integrate the Core3 project (Fig. 1 in red). In total, 12 AMs have integrated the Core2 or Core3 projects either during the preparation of the next project phase or via the EoI 2017 and 2019 calls launched by the GF. Some concrete research collaborations/interactions between AMs/PPs and CP members are presented below. They were tracked from the information collected *via* the SCOPE surveys and are not exhaustive.

Examples of joint research collaborations between individual AMs and CP

- ICTM (AM) – WP6 Sensors: research collaboration on designing and making of graphene-based gas sensors and samples exchange with other CP members who do gas sensing measurements. ICTM has also published a joint article with CP members on multilayer CVD graphene growth on Mo (B. Vasić et al., Appl. Surf. Sci., 509, 144792 (2019))

- Bandera (AM) – WP12 Energy Storage: have worked together in the development of new compounds with a large variety of polymers with graphene

- Elkem (AM) – WP12 Energy Storage: joint research on testing of new materials and recipes for Li-ion batteries - part of a large testing regime

- Graphenest (AM) – WP3 Enabling Materials: joint collaborations with CP members on graphene-based conductive inks and polymers for electromagnetic interference shielding

- Versarien (AM) – WP14 Composites: Versarien graphene-based composites samples were used for tests in WP14

Examples of joint research collaborations between PPs and CP

- Grafin PP (JTC2017) – WP5 Biomedical Technologies: joint research on **graphene-based electrodes** for neural interfaces (graphene-based electrode samples exchanges and share of results with the CP)

- H2O PP (JTC2017) – WP3 Enabling Materials: joint research on **CVD growth of** transition metal dichalcogenides (**TMD**) for photonic devices applications (S. Shree et al., 2D Mater., 7, 015011 (2020))

- CoExAN PP (MSCA-RISE) – WP7 Electronic Devices: joint research on study of **photonics phenomena of carbon-based nanostructures** for optoelectronic devices applications

- MX-OSMOPED PP (JTC2017) – WP13 Functional Foams and Coatings: samples exchanges and joint research on characterization of transport properties in thin **graphene-based nanocomposites thin films**

1.1.5 Partnering Division meetings

SCOPE has organised three Partnering Division meetings since its beginning. Each of the meetings was different in order to adapt to the needs of the Partnering Division by means of facilitating the networking between members of Partnering Division and CP. The meetings took place in 2017, 2018 and 2019 respectively. We can notice an increase in the attendance (Table 5) of Partnering Division members to the meetings during the years, which shows an increased awareness and interest from the AMs/PPs.

Partnering Division meeting	Bologna 2017	San Sebastian 2018	Helsinki 2019
Number of attendees	23 (31%)	39 (45%)	40 (49%)
Number of PPs represented	9 (50%)	18 (51%)	16 (59%)
Number of Individual AMs represented	5 (25%)	7 (28%)	10 (31%)

Table 5. Partnering Division meetings

While the first Partnering Division meeting was organised right after the Graphene Flagship General Assembly meeting 2017, the two last ones (2018 and 2019) took place as a side event of the Graphene Week conference, as there has been a positive feedback from participants because of the networking and integration possibilities within this event. If in the 2018 meeting the main purpose has been to give scientific presentations of the research developed by AMs and PPs, in the last year meeting the purpose was focused on networking by bringing together AMs, PPs, Partnering Division leaders, CP members and FLAG-ERA Funding Agencies representatives with the aim to leverage their interactions and present the status of the Partnering Division. The target was more shifted on showing to Partnering Division members the vision, potentials and benefits of being part of the Flagship initiative.

1.2 Feedback from Partnering Project and Associated Members

With the aim of understanding the challenges and needs in terms of collaborations and interaction of PPs and AMs with the CP, three surveys were launched in 2017, 2018 and 2019 respectively. The surveys are a good way of assessing the efficiency of the association mechanism to the Graphene Flagship. Moreover, the feedback collected was important to provide tailored support to PPs and AMs, and to help them engage in further collaborations with the CP.

From the overall feedback collected from the AMs and PPs through these surveys, the following points for action and conclusions were drawn:

- AMs and PPs are willing to participate in CP Work Packages and Divisions meetings - the dissemination of information about such events is therefore indispensable for them.
- AMs and PPs are looking forward to showcasing their achievements and share their results with the CP – getting them involved in CP dissemination activities (annual reports, exhibitions, Graphene connect, road mapping workshops etc.) is, therefore, important.
- AMs and PPs are interested in receiving financial and dissemination support – the SCOPE tailored support was, therefore, useful to help them better integrate into the Flagship initiative and is important to continue after the termination of SCOPE.

The Graphene Flagship also represents a very important network for AMs and PPs to share their activities with and explore possible collaborations.

Feedback from Partnering Division members has been collected on SCOPE activities:

- The association mechanism - to understand better the interactions between Partnering Division member and the CP.

- The information provided – to improve and maintain the information flow.
- Their expectations and points for improvement – needs for further support for a better integration.
- The Partnering Division meetings and their added value.

1.2.1 Feedback collected through the survey launched in 2019

As results from SCOPE surveys launched in its first period were presented already in previous reports and deliverable, we are focusing in this deliverable on showing the feedback received through the latest SCOPE survey launched at the end of 2019.

At the end of its lifetime, SCOPE has sent a survey to all AMs and PPs associated to the Flagship during the Core2 phase. The aim was to assess the added value of the activities done by the project, and also the satisfaction of the AMs and PPs. The response rate of the survey was significant, i.e., 34%: i) 11 answers (out of 33) from AMs; ii) 26 answers (out of 69) PP representatives which cover 61% of the PPs running in 2019. Thus, collected feedback covers only a part of the whole community, meanwhile more than half of PPs are represented in this survey. To be noted that in 2019 survey, the feedback not only of the coordinator of PPs was considered, but of all AM organizations that were part of the respective project.

Interesting aspects emerged after three years of SCOPE support. The interest in being involved in Partnering Division activities within the Graphene Flagship is still high, nevertheless, in comparison, the satisfaction of the benefits that this status provides to Partnering Division members can still be improved (Figure 6). This underlines the importance of the support provided by SCOPE and the need to continue supporting the Partnering Division members in Core3, advancing in the amelioration of this support.

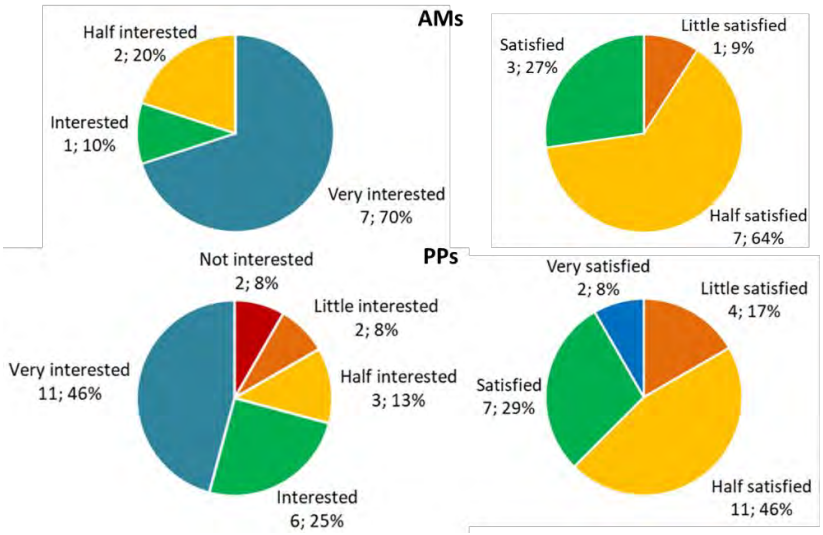


Figure 6. Pie charts left: Interest in being involved in Partnering Division activities within the Graphene Flagship expressed by AMs (top) and PPs (bottom); Pie chart right: Satisfaction of the benefits the Partnering Division status has provided to AMs (top) and PPs (bottom).

Feedback on the association mechanism and support provided

The association has been studied by means of contact channels, collaborations and scientific outputs. Overall, most of the participants to the survey declared to be in contact with their respective work package (Figure 7). The lower percentage of PPs could be related to the identification of the coordinator of a PP as main contact person with the Graphene Flagship.

As for now, about half of the total number of PPs and AMs respondents are involved in collaborations with CP partners even though several encountered difficulties in engaging in collaborations. Improvement could be achieved by establishing communication channels between CP and Partnering Division members, and by increasing the number of Partnering Division members involved in CP WP and Division meetings.

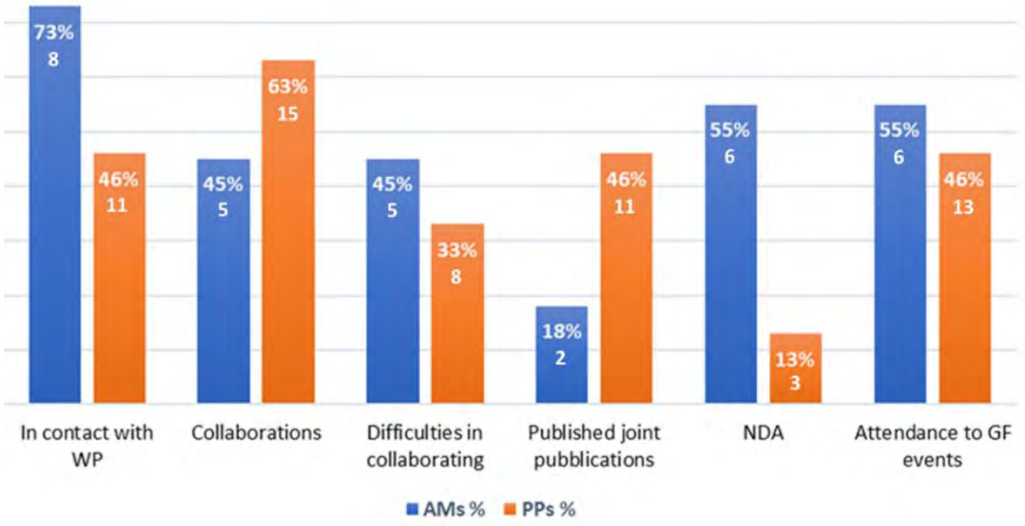


Figure 7. Histogram showing different collaboration parameters with the Core project.

From these reported collaborations, there have been 13 joint publications (mostly PPs research articles and conference proceedings) and 9 signed NDAs (by individual AMs). This different trend between PPs and AMs is mostly related to the different types of organizations that are part of the Partnering Division as AMs or in PPs. A high number of individual AMs are SME or companies, meanwhile organisations involved in PPs are mostly universities or research organizations. For the future, a tailored support depending on the type of organization could be envisaged. This diversity is reflected as well on the type of research collaborations in which the AMs and PPs are involved in with CP (Figure 8). While PPs are mainly involved in joint publications and research activities, the AMs are participating to higher extent to events and road-mapping activities.

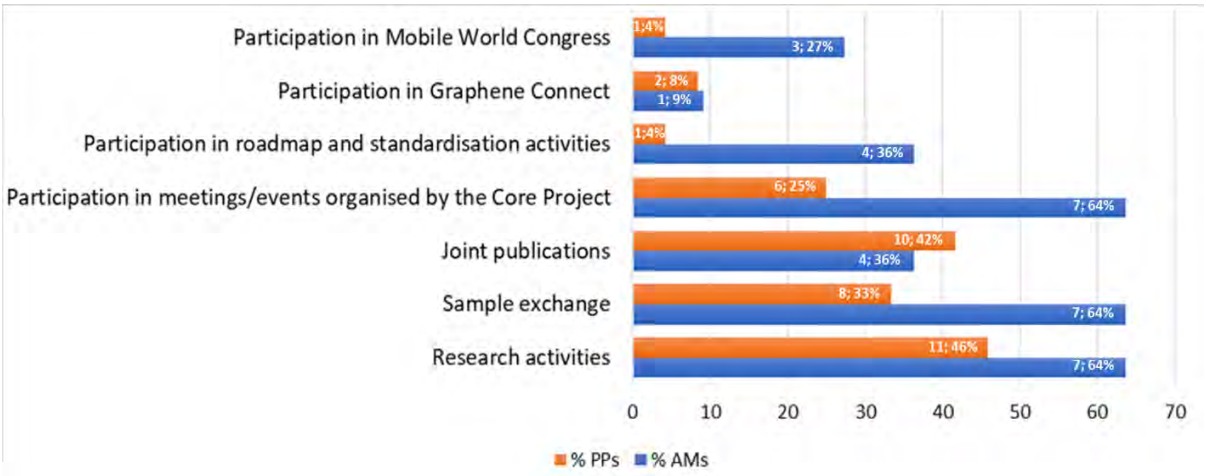


Figure 8. Type of research collaborations that PPs (orange) and AMs (blue) are engaged in with researchers/members of the Core project.

Feedback on the information provided – Information channels and visibility

As mentioned in section 1.1.2, increased visibility and access to information are key benefits for AMs and PPs. Up to now, most of the information was shared through newsletters and, when needed, *via* e-mails. As Harbour, the intranet space for AMs and PPs, is still rather new, it is not the preferred information channel. Whereas, the newsletters have been perceived as a useful information tool by most of the AMs and PPs (about 75%). Thus, Harbour should be kept in parallel to the more known communication channels at first.

The feedback about the satisfaction regarding the information provided was generally positive (Figure 9), and most of AMs and PPs declared to be aware of the overall support that SCOPE project provided (63% AMs; 75% PPs).

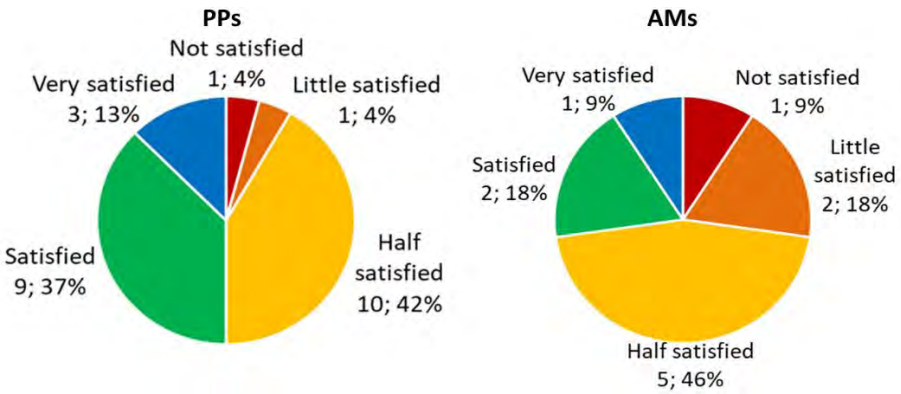


Figure 9. Pie charts about the satisfaction of the information provided to PPs (left) and AMs (right).

Support provided by SCOPE for both i) attending meetings/events organized by the CP and ii) dissemination and communication has been perceived as useful. From the members that

answered the survey, 17 (8 AMs (73% of respondents) and 9 PPs (38% of respondents)) have profited of SCOPE support and information channels to attend a meeting/event organized by the CP and 10 of them (3 AMs (27% of respondents) and 7 PPs(39% of respondents)) have benefited of SCOPE dissemination and communication support. At this stage, about 40% of respondents have results to disseminate through SCOPE/Graphene Flagship communication channels. A more direct way for AMs and PPs to share a highlight with the communication team could be put in place for the future.

Expectations

The intention to request support to engage in further collaborations and networking activities with the CP is still high (64% AMs; 67% PPs), thus, it is crucial to provide information about the inclusion of SCOPE support into Graphene Flagship Core 3 project, since most of AMs and PPs declared not to be aware of it (88% AMs; 62% PPs) even though this information was communicated in the 2019 Partnering Division meeting and also *via* the latest SCOPE newsletter.

Highest interest for both AMs and PPs is to continue engaging in networking and research activities with CP members (Figure 10).

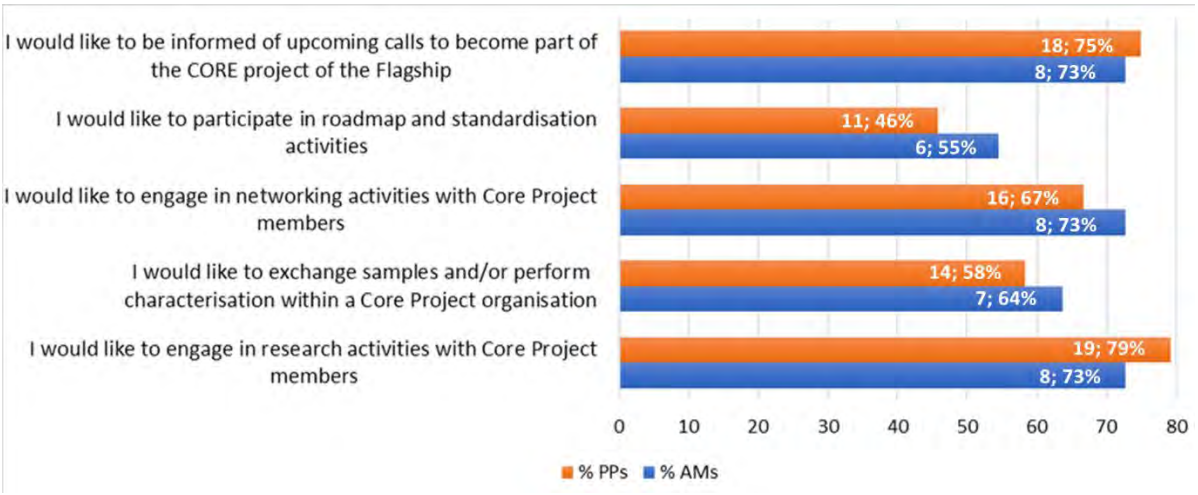


Figure 10. Priorities and expectations in terms of interactions/collaborations with Core project members expressed by AMs (blue) and PPs (orange).

Both have expressed, as well, the interest of being informed of upcoming EoI calls as funding is a key aspect of successful collaboration.

Points for improvement

The most cited words in 2019 surveys are resumed in the Figure 11. It is informative to observe the occurrence (size of the word) of the concepts within the survey to AMs (red) and PPs (blue) to identify the key aspects to work on. As the type of organizations is often different (AMs are mostly companies or SME, while PPs are mostly research institutes and

universities), the focus is also different. PPs are more interested in integration, scientific collaborations, networking and involvement in Graphene Flagship activities. Individual AMs, instead, are more focused on the output, i.e., graphene products and graphene technology, as well as in collaborations, networking and involvement in Graphene Flagship activities.

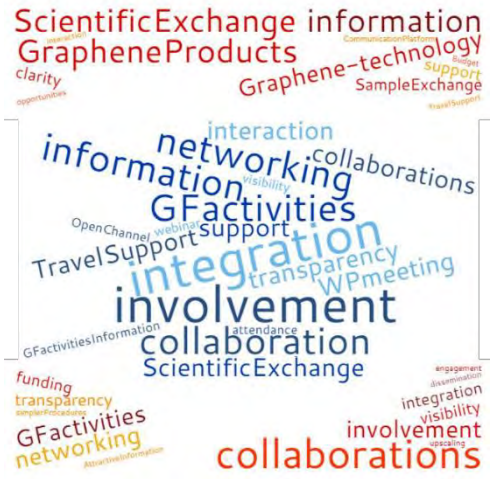


Figure 11. Word cloud on the main aspects expressed in the 2019 surveys to AMs and PPs. Words/concepts in red-shades were extracted from the survey to AMs, meanwhile the ones in blue-shades are from the survey to PPs.

Other key concepts that came out from the analysis of these surveys are clarity and transparency. To facilitate the interactions between the Partnering Division and the CP partners, it has been suggested to better explain the tasks of the work-packages and create a merged list of CP and Partnering Division members with the respective scientific activities to push further networking and collaborations opportunities.

1.2.2 Feedback collected on Partnering Division meetings

A survey has been launched after the last Partnering Division meeting held during the Graphene Week 2019 conference in Helsinki, Finland, to collect the feedback of the attendees (19 answers; 48%). The overall impression about the meeting and the networking opportunities has been mostly positive (Figure 12 left and centre) and, for those who attended the previous meetings as well, improved (Figure 12 right).

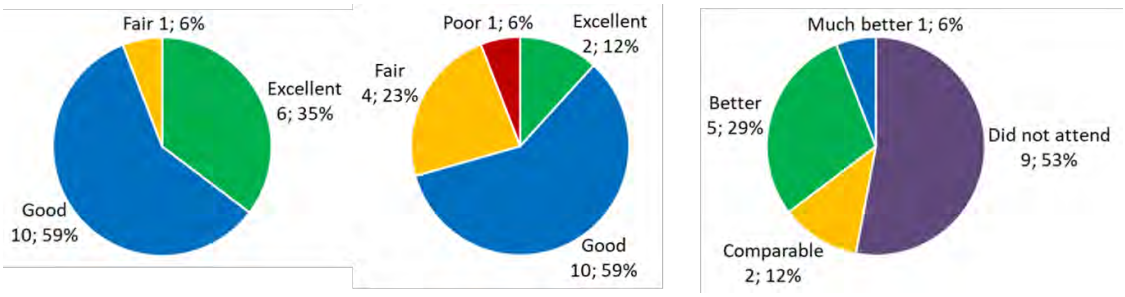


Figure 12. Pie charts showing: left) the feedback on the impression about the Partnering Division meeting; centre) the feedback on the networking opportunities during the meeting [The scale is: excellent- good- fair- poor- unsatisfactory]; right) the feedback about the Partnering Division meeting 2019 compared to the previous ones [The scale is: much better- better- comparable- worse- not comparable- did not attend].

The main objectives that participants have accomplished by attending the meeting are (Figure 13): i) better understanding of the function of the Partnering Division group within the Graphene Flagship; ii) learn more about networking inside the Graphene Flagship. Thus, the purpose of the meeting has been achieved. What could be considered in the next Partnering Division meetings is the inclusion of an open session to all Graphene Week participants to improve visibility and networking opportunities. This interest was common to most of the answers collected (82%).

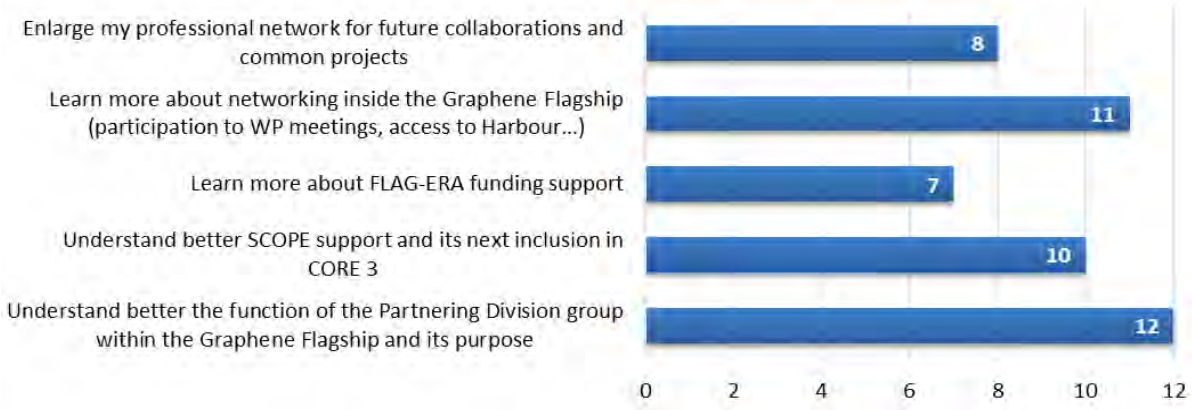


Figure 13. Objectives accomplished by participating to the Partnering Division meeting.

From the overall survey, a strong interest for networking, collaborations and information has been identified (Figure 14), together with a strong interest for higher involvement in Graphene Flagship CP activities.

Figure 14. Word cloud on main aspects expressed in the Survey about the Partnering Division meeting. The size is directly correlated to the occurrence of the concept in the surveys collected.

2. Conclusions and recommendations

The AMs and PPs bring new competences to the Graphene Flagship initiative, by performing research in line with the main goal of the Flagship. The Partnering Division remains a large and heterogeneous group of different types of organisations (universities, research organisations, SMEs, companies etc.) associated to the Graphene Flagship and keeps evolving with new members which acknowledge the attractiveness of the association mechanism, from visibility to scientific collaborations.

During its lifetime, SCOPE has provided tailored tools for coordination and key support to the Partnering Division members that have helped them to better integrate into the GF initiative and has increased their participation in CP meetings and events.

Further effort is still needed to collect the information on existing interactions between the Partnering Division and CP members, which is not obvious to obtain and interpret. In one hand, the information collected with the efforts from the Graphene Flagship on the CP interactions with the Partnering Division members is very important and useful in assessing the on-going collaborations with the AMs/PPs. On the other hand, the scientific collaborations depend on the nature of AMs and PPs, and the TRL of the respective Work Packages (WPs) to which they are linked. As expected, high TRL WPs are mostly interacting with individual AMs (SMEs and companies), different from the lower TRL WPs which are mostly collaborating with PPs. It is also noticed that interactions with the PPs in which CP members are participating is higher.

Partnering Division members are regularly invited to WPs meetings and workshops. The participation of the Partnering Division members in CP activities may result in scientific collaborations such as exchange or characterisation of samples, joint publications etc. Some joint-publications between FLAG-ERA PPs and CP members have been already reported,

giving another way to see these interactions.

There is need for continuing to provide tailored support to PPs and AMs to further foster their interactions with the CP after the termination of SCOPE project. This is already considered in Core3 project, with a dedicated budget and activities.

Based on the feedback received and lessons learned during the lifetime of SCOPE, the following recommendations can be drawn to enhance the scientific collaborations and interactions between the Partnering Division and CP members:

a) Financial support needs to be continued in order to maintain and increase the participation of the AMs and PPs in the CP activities and meetings.
b) Support for management of AMs and PPs needs to continue.
c) Provide appropriate tools for AMs and PPs to help them integrate; i.e., intranet access and tools available for AMs and PPs.
d) Newsletters targeted to AMs and PPs should be continued in order to provide the relevant information.
e) Continue to have the Partnering Division represented in the governance of the Flagship.
f) Increase awareness of CP members on AMs and PPs activities, and their scientific results that can benefit the CP.

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Annex 1

List of AM organisations associated *per* year and *per* type

Year	Type (AM or PP)	Name of organisation	PP acronyme[3] (if applicable)	PP type	Country	PP status
2015	PPs	Ankara University	G-IMMUNOMICS	JTC2015	Turkey	
		University Hospital Cologne			Germany	
		TopGaN	GraNitE	JTC2015	Poland	
		Autonomous University of Madrid	2D-SbGe	JTC2017	Spain	
		University of Duisburg - Essen	NU-TEGRAM	JTC2015	Germany	
		National Graduate School of Engineering & Research Center in Caen			France	
		Institute Ruđer Bošković			Croatia	
		University of Twente	NU-TEGRAM H2O	JTC2015 JTC2017	The Netherlands	
		Lund University	TAILSPIN	JTC2015	Sweden	
		University of Antwerpen	GRAPH-EYE	JTC2017	Belgium	
		Brandenburg Technical University Cottbus-Senftenberg	GRMH2TANK	JTC2015	Germany	Ended
		GLEXYZ			Portugal	
		Leibniz Institute for Polymer Research Dresden			Germany	
		ONERA			France	
		Autonomous University of Madrid	HiMagGraphene	JTC2015	Spain	Ended
		Soleil Syncrothron	Sograph	JTC2015	France	Ended
		Istituto P.M. srl			Italy	
		University of Antwerpen	Trans2DTMD	JTC2015	Belgium	Ended
		Jacobs University of Bremen			Germany	

[3] If not indicated, then the organisation is an Individual AM

		University of the Basque Country			Spain	
		University of Siegen	TUGRACO	JTC2015	Germany	Ended
		Polytechnic University of Catalonia			Spain	
2016	AMs	Graphensic			Sweden	
		LEGO			Denmark	
		TALGA Advanced Materials GmbH			Germany	
		NAWA Technologies			France	
		Graphitene Ltd			United Kingdom	
		Eksagon Group Ltd			United Kingdom	
		IHP GmbH			Germany	
		Graphene Nanotech			Spain	
		Dräger Safety AG & Co. KGaA			Germany	
		T-Wave-Technologies TWT			France	
		Haydale			United Kingdom	
	PPs	Palacký University Olomouc	2DCHEM	ERC CoG	Czech Republic	
2017	AMs	AIMPLAS			Spain	
		BeDimensional			Italy	
		Graphenest			Portugal	
		Versarien plc			United Kingdom	
		Electricité de France (EDF)			France	
		ARTIS			United Kingdom	
		European Synchrotron Radiation Facility (ESRF)			France	
		Evonik Creavis GmbH			Germany	
2018	AMs	Graphene Tech S.L.			Spain	
		APR Technologies			Sweden	
		Elkem AS			Norway	
		Costruzioni Meccaniche Luigi Bandera			Italy	
		Cambridge Raman Imaging			United Kingdom	
		University of Montpellier			France	
		Institute of Chemistry, Technology and Metallurgy			Serbia	

		Spiderhouse Oy			Finland	
		Vittoria Spa			Italy	
	PPs	Faculty of Information Studies Novo Mesto	2D-SbGe	JTC2017	Slovenia	
		Slovak Academy of Sciences	CERANEA	JTC2017	Slovakia	
		Pfeiffer Vacuum SAS	GATES	JTC2017	France	
		National Hellenic Research Foundation (NHRF)	GATES	JTC2017	Greece	
		Radboud University (RU) / Institute of Molecules and Materials (IMM)	GRANSPORT	JTC2017	The Netherlands	
		Uppsala University	GRANSPORT LaMeS	JTC2017 JTC2017	Sweden	
		Freie Universität Berlin	GRANSPORT	JTC2017	Germany	
		Maastricht University / Aachen-Maastricht Institute for Biobased Materials	GraSage	JTC2017	The Netherlands	
		Catholic University of Leuven	GraSage SIMPLANT SIMPLANT	JTC2017 JTC2017	Belgium	
		Textile Research Institute (AITEX) – Technical Fiber and Nanotechnologies Research Group	GraSage	JTC2017	Spain	
		Ludwig-Maximilians-Universität	H2O	JTC2017	Germany	
		Friedrich Schiller University Jena			Germany	Ended
		Potsdam University /Helmholtz Zentrum Berlin	LaMeS	JTC2017	Germany	
		Izmir Institute of Technology	MECHANIC	JTC2017	Turkey	
		Universita' degli Studi di Cagliari	MECHANIC	JTC2017	Italy	
		Laboratoire des Matériaux et du Génie Physique, Grenoble Institute of Technology (Grenoble INP)	MORE-Mxenes	JTC2017	France	
		Linköping University	GRIFONE MORE-Mxenes EPIGRAPH	JTC2015 JTC2017 JTC2017	Sweden	
		University of Nova Gorica	MX-OSMOPED	JTC2017	Sweden	
		University of Mons			Slovenia	

		Budapest University of Technology and Economics	TopoGraph	JTC2017	Belgium	
		KTH Royal Institute of Technology	CO2-DETECT	JTC2017	Hungary	
		SenseAir AB			Sweden	
		Aix-Marseille Université UMR INSERM 1106 / INS - Institut de Neurosciences des Systèmes	EPIGRAPH	JTC2017	Sweden	
		RISE SICS AB			France	
		Boğaziçi University	GRAFIN	JTC2017	Sweden	
		AXONIC			Turkey	
		NCSR-Demokritos	MELoDICA	JTC2017	France	
		Babes Bolyai University (Institute of Physics Ioan Ursu)			Greece	
		University of Liège			Romania	
		University of Porto	UltraGraf	M-Era.Net	Belgium	
		Complutense University of Madrid			Spain	
		University of Aveiro			Portugal	
		Sphere Ultrafast Photonics			Portugal	
		University of Eastern Finland	DISETCOM CoExAN	MSCA-RISE	Finland	
		Belarusian State University			Belarus	
		National Academy of Sciences of Ukraine	CoExAN	MSCA-RISE	Ukraine	Ended
		Yerevan State University			Armenia	
		University of Iceland			Iceland	
		The University of Exeter			United Kingdom	
2019	AMs	Atomic Mechanics Limited			United Kingdom	
		Lotus Partners			Spain	
		Fortore Energia S.p.A.			Italy	
		Tetra Pak Packaging Solutions S.p.a			Italy	
		Ampashield NV			Belgium	
		GRAPHEAL			France	
	PPs	Technological University Dublin	WHISKIES	ESA	Ireland	
		University of Brighton			United Kingdom	
		Optosmart srl			Italy	

		Optrace LTD			Ireland	
		Mjr Pharmjet GMBH			Germany	
		Regemat3D SL			Spain	
		GSNET SRL			Italy	
		Footfalls and heartbeats LTD			United Kingdom	
2020	AMs	INBRAIN Neuroelectronics			Spain	
		CamGraPhIC Ltd.			United Kingdom	
		Nu Quantum Ltd.			United Kingdom	
		Payper Technologies Ltd.			United Kingdom	
		Delta Nano-Engineering Solutions Ltd.			Cyprus	
	PPS	Center for Physical Sciences and Technology (FTMC)	DISETCOM	MSCA-RISE	Lithuania	
		UAB TERAVIL			Lithuania	

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Annex 2

Selected Highlights for the Annual Report of the Graphene Flagship

Annual Report 2016
- JTC2015 projects: G-IMMUNOMICS, GRMH2TANK, GraNitE, GRIFONE
- EC projects: PolyGraph, GLADIATOR
- National project: PHONAMP

Annual Report 2017
- JTC2015 projects: G-IMMUNOMICS, GRIFONE, NU-TEGRAM, 2Dfun
- EC project 2D-CHEM

Annual Report 2018
- Individual Associated Member: Bandera
- JTC2015 projects: TAILSPIN, GRANITE
- JTC2017 project: H2O
- EC project: COEXAN
- Transnational project: UltraGraph

Annual Report 2019 (in approval phase)
- Individual Associated Member: TALGA GmbH, Graphitene Ltd, ICTM
- JTC2015 project: G-IMMUNOMICS
- JTC2017 project: H2O
- EC project: COEXAN

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Annex 3

List of AMs and PPs that have received travel support from SCOPE

	2017	2018	2019	2020
Partnering Division meetings	**AMs**: - AIMPLAS - IHP - Graphitene **PPs**: - TUGRACO - GraNitE - 2Dfun - TAILSPIN - 2D-CHEM - G-IMMUNOMICS - PHONAMP	**PPs**: - G-IMMUNOMICS - MELODICA - CO2-DETECT - UltraGraf - NU-TEGRAM (X2) - GRAFIN - LaMeS - TAILSPIN - H2O **AMs**: - Bandera - Graphene Nanotech - Aimplas	**PPs**: - GraNitE - SIMPLANT - LaMeS - Grafin - H2O - G-IMMUNOMICS **AMs**: - Tetra Pak S.p.A. - Graphitene	
Work Package or Division meetings	**PPs**: PHONAMP	**PPs**: H2O	**AMs**: - ICTM (X2) - Versarien	**PPs**: H2O
Student Grants	**PPs**: - NU-TEGRAM - GRAPH-EYE - 2D-CHEM - 2Dfun (four students)	**PPs**: - TopoGraph - 2D-CHEM	**PPs**: - G-IMMUNOMICS - COEXAN - MX-OSMOPED - H2O (X2) - UltraGraf (X2) - CO2-DETECT - NU-TEGRAM	
Other			**AMs**: - Graphitene - Tetra Pak S.p.A. - Versarien - ICTM - Bandera **AMs**: Vittoria	**AMs**: ICTM

Annex 4

SCOPE Newsletter – November 2017

28 November 2017

GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE News

Appointment of the new Partnering Division representatives

Stefano Borini from Graphitene and Oğuz Gülseren from Bilkent University have been appointed as the new representatives of the Partnering Division. https://graphene-flagship.eu/news/Pages/Stefano-Borini-new-Leader-of-Partnering-Division-.aspx

SCOPE support available to Partnering Projects and Associated Members

Information on different types of support available for Associated Members and Partnering Projects through SCOPE project to foster their interactions with the Core project is available here: https://graphene-flagship.eu/project/partnering/Pages/SCOPE-project.aspx

SCOPE support for students and young researchers to attend Graphene Study School 2018 winter edition, 05-10 February 2018

Students and young researchers from Associated Members' organisations and presenting their research as posters at the Graphene Study may apply for **200 Euros** reduction of the delegates' fee to be granted through SCOPE project. More information can be found here: http://graphene-flagship.eu/graphenestudy/GS_Feb_2018/Pages/Graphene-Study-Winter-2018.aspx?ref=spc

GRAPHENE STUDY

New Partnering Projects and Associated Members have joined the Graphene Flagship initiative

Following the decision of the Graphene Flagship Management Panel, **NanoElMem** - "Designing new renewable nano-structured electrode and membrane materials for direct alkaline ethanol fuel cell" - project has been associated to Graphene Flagship. The following organisations have become Associated Members: **University of Maribor**, Slovenia; **University of Nova Gorica**, Slovenia; **Abalonyx**, Norway; **Norwegian University of Science and Technology**, Norway.

Also, the following organisations have joined the Graphene Flagship as Associated Members: **Electricité de France** (EDF), France; **ARTIS**, United Kingdom; **European Synchrotron Radiation Facility** (ESRF), France.

News on Partnering Projects' results

News on Partnering Projects' scientific results produced by SCOPE is available on the Graphene Flagship website:

NOC2D *project*: https://graphene-flagship.eu/spotlight-cinzia-casiraghi

Gladiator *project*: https://graphene-flagship.eu/new-tools-for-graphene-growth-by-the-gladiator-consortium

Polygraph *project*: https://graphene-flagship.eu/the-polygraph-project-produces-graphene-reinforced-polymers

TRANS2DTMD *project*: https://graphene-flagship.eu/trans2dtmd-investigates-electronic-transport-in-transition-metal-dichalcogenides

SCOPE on social media

LinkedIn: https://www.linkedin.com/in/scope-project-b91172150/

Instagram: https://www.instagram.com/scope_project/

Facebook: https://www.facebook.com/permalink.php?story_fbid=1968421756746302&id=1939547746300370

Contact

Communication and dissemination support: scope_project@fecyt.es

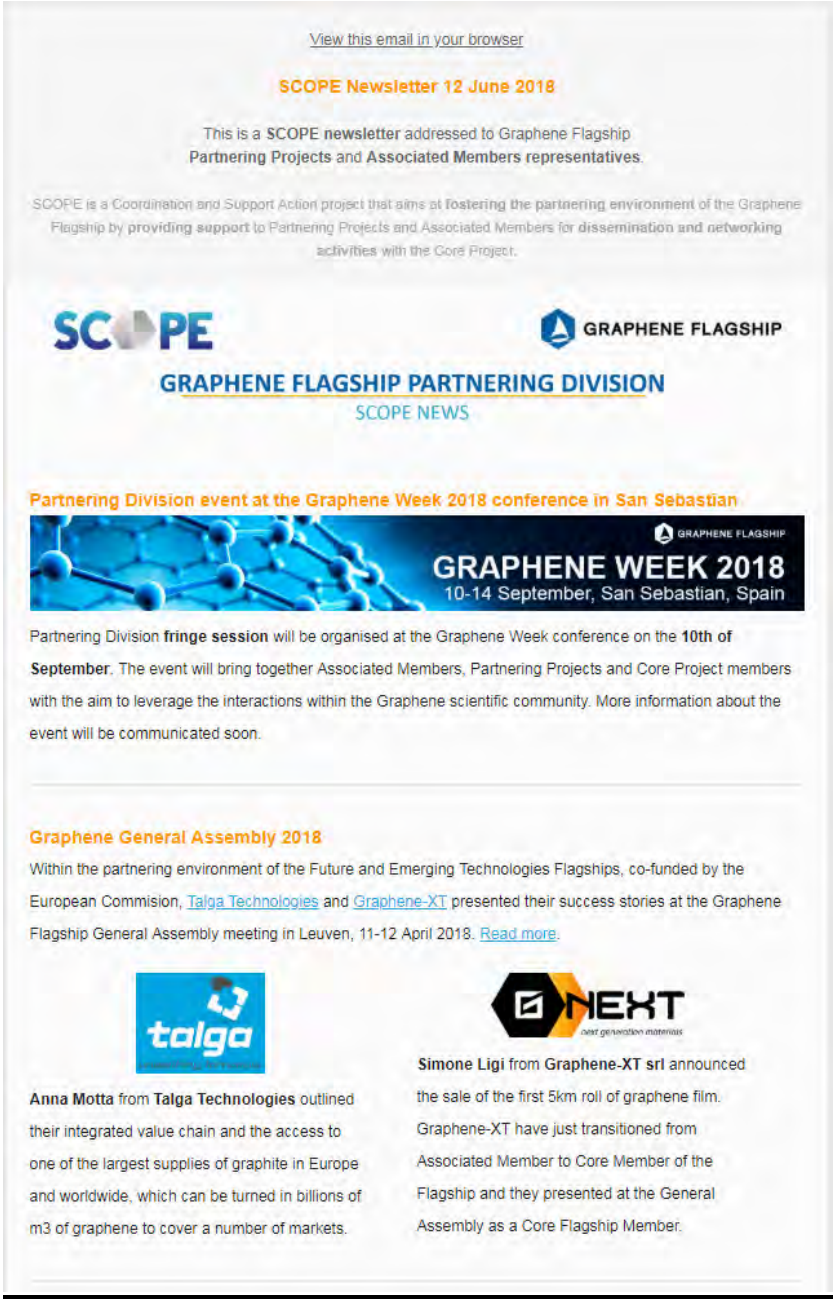
Partnering Division and SCOPE support: graphene-eu@esf.org

SCOPE project is receiving funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Annex 5

SCOPE Newsletter – June 2018

The second SCOPE newsletter dedicated to the Graphene Flagship Partnering Division members was prepared by WP3 (ESF) in order to increase the awareness of the PPs and AMs about the opportunities for support through SCOPE and the latest achievements within the Partnering Division.[4]



View this email in your browser

SCOPE Newsletter 12 June 2018

This is a **SCOPE newsletter** addressed to Graphene Flagship **Partnering Projects** and **Associated Members representatives**.

SCOPE is a Coordination and Support Action project that aims at **fostering the partnering environment** of the Graphene Flagship by **providing support** to Partnering Projects and Associated Members for **dissemination and networking activities** with the Core Project.

SCOPE GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

Partnering Division event at the Graphene Week 2018 conference in San Sebastian

GRAPHENE FLAGSHIP GRAPHENE WEEK 2018 10-14 September, San Sebastian, Spain

Partnering Division **fringe session** will be organised at the Graphene Week conference on the **10th of September**. The event will bring together Associated Members, Partnering Projects and Core Project members with the aim to leverage the interactions within the Graphene scientific community. More information about the event will be communicated soon.

Graphene General Assembly 2018

Within the partnering environment of the Future and Emerging Technologies Flagships, co-funded by the European Commision, Talga Technologies and Graphene-XT presented their success stories at the Graphene Flagship General Assembly meeting in Leuven, 11-12 April 2018. Read more.

talga

Anna Motta from **Talga Technologies** outlined their integrated value chain and the access to one of the largest supplies of graphite in Europe and worldwide, which can be turned in billions of m3 of graphene to cover a number of markets.

NEXT next generation materials

Simone Ligi from **Graphene-XT srl** announced the sale of the first 5km roll of graphene film. Graphene-XT have just transitioned from Associated Member to Core Member of the Flagship and they presented at the General Assembly as a Core Flagship Member.

[4] This information comes in addition to the information provided through the newsletters on the updates about the Core Project activities and events that are sent by the Flagship to all consortium partners and AMs.

Scientific highlights from Partnering Projects

Scientific highlights from the Partnering Division were included in the Graphene Flagship Annual Report 2017 (page 39).

"A growing number of Associated Members and Partnering Projects are supporting the Graphene Flagship, enabling an excellent alignment of GRM research across Europe and helping to realize an unprecedented network of industrial and academic partners."
Division Leader: Stefano Borini, Graphitene, UK

G-IMMUNOMICS | 2Dfun | 2D-CHEM | NU-TEGRAM | GRIFONE

Support to Partnering Projects and Associated Members available through SCOPE

SCOPE offers travel grants and dissemination support to foster the interactions with the Core project and increase visibility of Partnering Division members. For more information on the eligibility criteria and how to apply, please read the "SCOPE support" document.

Learn more

Support grants to fund the participation of Partnering Projects and Associated Members' researchers in meetings, workshops and trainings organised by the Graphene Flagship:

- Travel support to attend (networking) activities organised by the Graphene Flagship Core Project. Apply here
- Student Grants to attend Graphene Study School
- Visit grants - short visits to Core Project organisations. Apply here
- Mobility grants – international visits (outside the EU and the Graphene Flagship consortium). Apply here

Dissemination and **communication** support to Graphene Flagship Partnering Projects and Associated Members in order to increase the visibility of their research results:

- The research developed within the Graphene Flagship partnering environment is published on the Graphene Flagship news webpage
- The news items produced are disseminated via Graphene Flagship, SCOPE and SINC website and social media

New Partnering Projects with their Associated Members have joined the Graphene Flagship

17 projects supported by FLAG-ERA have been approved by the Graphene Flagship Management Panel as Partnering Projects.

FLAG-ERA

Complete list of Partnering Projects in synergy with the Graphene Flagship is available here.

News on Partnering Projects' results

Latest news produced by SCOPE is available on the Graphene Flagship website.

G-IMMUNOMICS

Biomedical tools manufactured with graphene and related materials will have to overcome a huge hurdle – our immune system.
Now, G-IMMUNOMICS studied how to 'disguise' graphene to avoid rejection.

HiMagGraphene

Magnetic moments are formed when hydrogen atoms bond to carbon atoms in the honeycomb graphene lattice. The honeycomb lattice comprises two sublattices, and the moments align ferromagnetically (blue) when on the same sublattice and antiferromagnetically (orange) when on the opposing sublattice.

LinkedIn Facebook Instagram

Contact

Communication and dissemination support: scope_project@fecyt.es
Partnering Division and travel support: graphene-eu@esf.org

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SCOPE project is receiving funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Annex 6

SCOPE Newsletter – October 2018

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SCOPE Newsletter 9th October 2018

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SCOPE GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

SCOPE grants for Mobile World Congress 2019

GSMA MWC19 Barcelona 25-28 February 2019

For the Associated Members that have applied to exhibit their prototypes at the Graphene Pavilion, the SCOPE Project offers grants to cover the registration fees.

Register here

(deadline: 15 October 2018)

Read more about the Graphene Pavilion at MWC 2019 here.

Follow-up on the 2nd Partnering Division meeting

The Partnering Division meeting took place on 10th September in San Sebastian, jointly with the Graphene Week 2018. The scientific talks covered various topics such as nucleation of crystals on graphene, epitaxial 2D semimetals, cell interaction properties with graphene, charge modelling, mid-infrared graphene detectors, graphene-polimer interaction and graphene coated optics.

The meeting gathered Partnering Projects and Associated Members representatives, Core project Work Package leaders and National Funding Agencies representatives, with the aim to foster interactions within the Partnering Division.

Fringe Session: Partnering Division Highlights

For the **first time at the Graphene Week 2018**, a session has been dedicated to the Partnering Division research-related results:

- **Transport and optoelectronic properties of 2D materials by Lucian Covaci - TRANS2DTMD project**
- **Heterostructures of 2D materials and organic semiconductors layer by Andrey Turchanin - H2O project**
- **Efficient CO2 capture and oil/water separation, Raquel Llorens-Chiralt from AIMPLAS**

Read more on the Daily Digest from the Graphene Week.

Election of Partnering Division Representatives coming up

The Partnering Division is represented in the governance of the Flagship through the **Head** and **Deputy** of the **Partnering Division**, who are members of the Core 2 project Management Panel – the operative implementation body.

The election process will be launched in the next few days. Partnering Division members will be provided further information about the eligibility criteria, nomination and voting procedures.

Access to Graphene Flagship Harbour

Habour is the **internal website** for the Graphene Flagship Associated Members and Partnering Projects representatives. It offers access to information relevant to the Partnering Division, such as news, documents and the calendar of Graphene Flagship activities.

Request Harbour Access

Graphene Study School 2019 grants available

Graphene Study school is an opportunity for master and PhD students of the institutions which are associated to the Graphene Flagship to learn more about the theory and application field of graphene and 2D materials.

The upcoming edition will have **Andre Geim** as a lecturer.

Students from Associated Members organisations can benefit from SCOPE grants (200€ grant). Share this opportunity with young researchers in your organisation!

Read more information here.

Latest AMs and PPs joining the Flagship

Partnering Projects: Ultragraph, CoExAN

Associated Members: Cambridge Raman Imaging, Construzioni Meccaniche Luigi Bandera, Elkem and University of Montpellier

Complete list of Partnering Projects **and** Associated Members

SCOPE: Supporting Partnering Projects and Associated Members

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- Mobility grants – **international visits** (outside the EU and the Graphene Flagship consortium). Apply here
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Dissemination and **communication** support to Graphene Flagship Partnering Projects and Associated Members in order to increase the visibility of their research results:

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Annex 7

SCOPE Newsletter – January 2019

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SCOPE Newsletter 24th January 2019

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SCOPE GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

Nomination of Head and Deputy of the Partnering Division

Professor **Andrey Turchanin** from Friedrich Schiller University Jena and coordinator of the **H2O partnering project**, and professor **Yuri Svirko** from the University of Eastern Finland and member of **CoExAN partnering project** have been appointed as the Head and Deputy of the Partnering Division, respectively.

Graphene Flagship General Assembly 2019

The **2019 Core 2 General Assembly (GA)** will take place on **3-4 April 2019** (lunch-to-lunch) at Université de Strasbourg - Institut de Science et d'Ingenierie Supramoleculaires (8 allée Gaspard Monge, 67000, Strasbourg, France). The GA will have two parts:

- Formal Meeting of the GA (3 April, 17:00-19:00), restricted to the members of the GA; and
- **Open Meeting of the GA** (3 April, 12:00-16:00 and 4 April, 9:00-15:00), open to all Core 2 members as well as Associated Members (AMs) and Partnering Projects (PPs).

Registration is now open for AMs and PPs to attend the Open Meeting of the GA. Deadline to register is 7 March at noon. **Note that registration is possible only for AMs who have registered to Harbour**.

Access to Graphene Flaship Harbour

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Request Harbour Access

SCOPE travel grants for Women in Graphene 2019

SCOPE offers travel grants for women from Partnering Projects and Associated Members of the Graphene Flagship to attend the Women in Graphene event.

The next Women in Graphene event will be held on 11-12 February at the National Graphene Institute in Manchester, UK.

See the programe and register here.

Apply for a SCOPE Travel grant here

Selected Associated Members can benefit from SCOPE registration grants to exhibit at the Mobile World Congress 2019

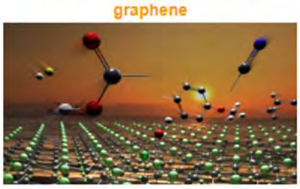
MWC19 Barcelona 25-28 February 2019

Selected Graphene Flagship members have the opportunity to exhibit their products and prototypes at the Graphene Pavilion!

News on Partnering Project's results

Latest news produced by SCOPE is available on the Graphene Flagship website.

Ultra-thin 'teflon' to reactivate graphene



'Despite the chemical similarities, there is a particular difference: fluorographene carries the fluorines bounded to tertiary carbons,' explains Michal Otyepka, a researcher at Graphene Flagship associated member Palacký University (Czech Republic). Continue reading here.

Graphene and cobalt team up in new electromagnetic devices

Scientists recently discovered how, together, graphene and cobalt offer very relevant properties in the field of magnetism. Continue reading here.

SCOPE: Supporting Partnering Projects and Associated Members

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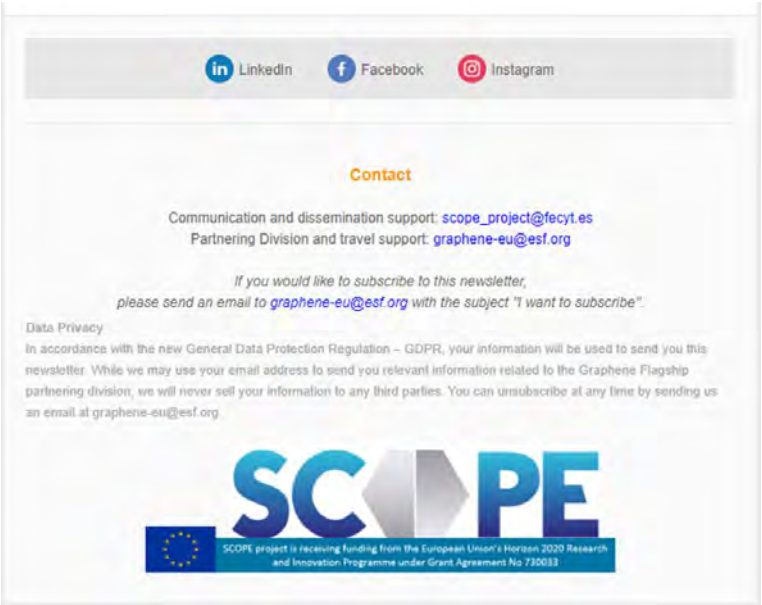
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Annex 8

SCOPE Newsletter – April 2019

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SCOPE Newsletter 29th April 2019

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SCOPE GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

2018 Graphene Flagship Annual Report

The 2018 Graphene Flagship Annual Report is now available. You can download the PDF on the Graphene Flagship website. A section for the Partnering Division highlights is included on pages 46-47.

2019 General Assembly meeting

The **2019 Graphene Flagship General Assembly meeting** took place on 3-4 April in Strasbourg, France. Professor Yuri Svirko, the Deputy Leader of the Partnering Division, presented the **status and scientific highlights** from Associated Members and Partnering Projects.

Presentations from the General Assembly will be soon available here.

SCOPE Student grants available for Graphene Week 2019

20 student grants of 200€ reduction of the delegates's fee are available for Associated Members and Partnering Projects students who will present a poster at the Graphene Week 2019. More information is available here.
In addition, the 20 selected students will be granted a 900€ travel grant by SCOPE project.

Apply for Student Grant

Partnering Division at Graphene Week 2019

3rd Partnering Division meeting at Graphene Week 2019

The 3rd Partnering Division meeting will take place during the Graphene Week 2019 in Helsinki, Finland, on the 23th of September. Meeting agenda and further communication will follow in the coming weeks.

Fringe Session at Graphene Week 2019

A Fringe Session dedicated to Partnering Division success stories will be organised on the 26th of September. More information will follow in the coming weeks.

News on Partnering Project's results

Latest news produced by SCOPE is available here.

Waterproof contacts for graphene electronic circuits

The electrical contact resistance at metal–graphene interfaces can significantly degrade the properties of devices. Graphene Flagship researchers observed that when graphene is integrated with the metal of a circuit, its contact resistance is not impaired by humidity. This will help develop new sensors with a significant cost reduction. Continue reading here.

Graphene Technologies Showcased at Mobile World Congress

Four companies associated with the Graphene Flagship exhibited their prototypes, commercial products and live demos at the Graphene Pavilion at Mobile World Congress on February 25-28 in Barcelona, Spain. Continue reading here.

Researchers Exchange Samples to Benchmark the Quality of Synthetic Monolayer layered materials

The H20 project, a Partnering Project of the Graphene Flagship, coordinated at the Friedrich Schiller University Jena, Germany, and funded by the FLAG-ERA Eranet aims to expand the layered material library by introducing new organic semiconductors (OSC) down to a few monolayers in thickness, which are mechanically stable and transferable on any other layered materials for making heterostructures. Continue reading here.

Graphene Flagship logo usage

Correct usage of the Graphene Flagship and the European Commission logo is very important while communicating about the Graphene Flagship in various capacities, such as presentations, seminars, posters and marketing materials.

GRAPHENE FLAGSHIP

Logo Design Manual

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Request Harbour Access

Latest AMs and PPs joining the Flagship

New Associated Members: Institute of Chemistry, Technology and Metallurgy (Serbia); Spiderhouse Oy (Sweden); Vittoria Spa (Italy) and Atomic Mechanics Limited (United Kingdom)

Complete list of Partnering Projects and Associated Members

Annex 9

SCOPE Newsletter – July 2019

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SCOPE Newsletter July 2019

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GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

2019 Election of the Partnering Division Head and Deputy

Yuri Svirko from **University of Eastern Finland** (Finland) and **Jan Erik Hanssen** from **Graphitene Ltd**. (United Kingdom) have been appointed by the Graphene Flagship Executive Board as the new leader and deputy, respectively of the Graphene Flagship Partnering Division.

Thank you to all participants and candidates!

Partnering Division Fringe session at Graphene Week 2019

At the Success Stories of Graphene Applications by Associated Members session at Graphene Week 2019, on **Wednesday**, **25th** of **September 2019**, **14:30-15:30**, participants will meet businesses leading the way in applying graphene to their processes and operations. Invited speakers include:

- ICTM (Serbia) - gas sensors made from thin films of 2D materials
- Costruzioni Meccaniche Luigi Bandiera (Italy) - Grapholymer: Graphene in Polymer via Extrusion, Coating, Lamination, Foaming. [...]

Read more

Partnering Division meeting at Graphene Week 2019

During the Partnering Division meeting at Graphene Week 2019, on the **23rd** of **September 2019**, **15:30-17:30**, the vision and support strategy of the Partnering Division will be presented. In addition, Core Project and Associated Members will be invited to give their respective point of view about interactions and joint activities.

Registration **to the Partnering Division meeting is open!**

SCOPE grants for Students in Graphene 2019

9 students from **Associated Member organisations** and **Partnering Projects** will be **supported by SCOPE** to attend and present their poster at the **Graphene Week 2019.**

Read more about the Graphene Week 2019 Programme here.

News on Partnering Project's results

Latest news produced by SCOPE is available on the Graphene Flagship website.

Graphene Reaches the Market...Secretly

After scaling up the production of graphene, GrapheneTech is collaborating with different companies to develop applications in different fields (energy storage; polymer, lubricants and greases; and coatings and inks bearing conductive or thermal properties). Marketing of graphene is still a challenge, some advertise the presence of graphene inside a product when there is none to increase the sales, other, instead, keep quiet to save themselves from the competition.

An Artificial Skin Made With Graphene That Will Revolutionize Robotic Surgery

Atomic Mechanics a private company based in Manchester (UK) is designing, manufacturing and commercialising a range of sensor devices based on a patented graphene-based technology. They have developed a graphene-enabled, force-sensitive film. Making force-touch interfaces flexible will allow a new design paradigm for electronic devices. This technology can be used as an electronic skin, which would allow any surface to become responsive to its environment, for applications including robotic surgery.

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GRAPHENE FLAGSHIP

Logo Design Manual

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Request Harbour Access

Latest AMs and PPs joining the Flagship

Associated Members: Lotus Partners, Fortore Energia S.p.A and Tetra Pak S.p.A.

Complete list of Partnering Projects **and** Associated Members

SCOPE: Supporting Partnering Projects and Associated Members

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Annex 10

SCOPE Newsletter – October 2019

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SCOPE Newsletter October 2019

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GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

SCOPE extension until 31 March 2020

Following the request submitted by the SCOPE consortium to the European Comission, the project has been extended by three months and will run until 31 March 2020. SCOPE will continue to provide support to the Associated Members and Partnering Projects during this period.

3rd Partnering Division meeting at Graphene Week 2019

During the Partnering Division meeting, held in Helsinki on the 23rd of September 2019, different key aspects were discussed, from the main achievements and future needs for support of the Partnering Division, to the integration of the Associated Members and Partnering Projects within the Graphene Flagship initiative. A special focus was on networking and collaboration with Core Project members. A presentation was given by FLAG-ERA coordinator on the JTC2019 call.

Curious about the topics addressed? ***Speakers presentations are now available at*** *Harbour*.

Fringe session at Graphene Week 2019

At the "Success Stories of Graphene Applications by Associated Members" Fringe session, held on 25th of September, the latest advances in packaging, coatings and composites were presented by Suhao Li, Project Scientist at Versarien, and Giovanni Della Rossa, Innovation & IP manager at Bandera Spa. Jan Erik Hanssen, CTO & Co-Founder of Graphitene and since recently deputy of the Partnering Division, presented part of their portfolio - you may not know it already, but, as Graphitene is a supplier of choice to leading academic & industry commercial customers, you may have already used their products.

Alaa Omrane from Tetrapak Spa, which recently joined the Graphene Flagship as Associated Member, focused instead on the asset and potential of graphene for the development of new environmental friendly packaging.

Marko Spasenovic, Assistant Research Professor at the Institute of Chemistry, Technology and Metallurgy (ICTM) in Serbia, concluded the session talking about the production of high quality Langmuir-Blodett transparent conductive films for graphene microphones and gas sensors, activities in collaboration with Graphene Flagship Core project WP6.

[More]

SCOPE student grants - Graphene Week 2019

At Graphene Week 2019 in Helsinki, nine early career researchers from Graphene Flagship Associated Members (AMs) and Partnering Projects (PPs) benefited from a SCOPE travel and registration grant to attend the conference. Some of them were interviewed about their time collaborating with the project and their expectations ahead of Graphene Week 2019.

Read more about their stories at the following links:

The future of graphene - Part I

The future of graphene - Part II

News on Associated Members and Partnering Project's results

Latest news produced by SCOPE is available on the Graphene Flagship website.

Yuri Svirko Elected Partnering Division Leader

Following the launch of the election process last June, Yuri Svirko, from University of Eastern Finland, and Jan Erik Hanssen, from Graphitene Ltd., UK, have been appointed by the Graphene Flagship Executive Board as the new Head and Deputy of the Graphene Flagship Partnering Division, respectively.

Yuri Svirko is professor in physics at the Department of Physics and Mathematics in the University of Eastern Finland (UEF). He was the principal investigator (PI) of the UEF team, which was involved into Graphene Flagship ramp-up phase and was one of the partners during Core 1.

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Work-package and division meetings dates are available in the Calendar at Habour.

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GRAPHENE FLAGSHIP

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Annex 11

SCOPE Newsletter – January 2020

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GRAPHENE FLAGSHIP

GRAPHENE FLAGSHIP PARTNERING DIVISION

SCOPE NEWS

SCOPE - transition to Graphene Flagship CORE 3 - 1 April 2020

SCOPE project will be ending on 31st of March 2020 and the support activities to the Partnering division will be integrated in the Graphene Flagship CORE 3 project. Further information about the transition will be available soon.

FLAG-ERA JTC 2019 - 16 new Partnering Projects associated to the Graphene Flagship

FLAG-ERA

The Management Panel of the Graphene Flagship has approved on 19th of December 2019 the JTC2019 projects as **Partnering Projects** of the Graphene Flagship, effective as of 1 April 2020.

FLAG-ERA JTC 2019 kick-off meeting will be held on 4th of May, 2020 in Bucharest, Romania.

Curious about the new Partnering Projects? Read more here

AMs and PPs renewal in CORE 3

The renewal process of current Associated Member and Partnering Projects in CORE 3 will be launched soon. The AMs and PPs coordinators will be called in the coming month to apply for renewal.

CORE 3 General Assembly meeting 2020

The CORE 3 Graphene Flagship General Assembly meeting will be held on 1-2 April 2020 in Dublin, Ireland. The meeting is open to CORE 3 AMs and PPs and the registration will be opened soon.

Find more details on the calendar at Harbour.

Mobile World Congress 2020

The MWC will be held on the 24th of February in Barcelona, Spain. It is the fifth year that the Graphene Flagship presents at this event. This year's topic at the Graphene Pavillon is future telecommunications and related graphene-based prototypes and devices will be ptresented by Core project and Associated members.

Read more about the MWC and Graphene Pavillon

Women in Graphene Career Development Day 2020

18-19 March, Bologna (Italy)

Register

Women in Graphene is an opportunity to discuss issues related to **gender and diversity** in science and tecnology fields and specifically **in the graphene community**.
There will be a negotiation skills workshop and talks given by Alessandra Scidà (CNR), Ana Helman (ESF) and Laura Kennington (British athlete). Women in Graphene will also include a poster session and a student speaker slot. *All MSc and PhD students (or equivalents) are invited* to apply even if they have never given an external talk before!

Read more here

Thank you!

The answer rate has been:

- 35% within **Partnering Projects** (which cover 65% of the Partnering Projects).
- 33% within **individual Associated Members**.

Very important information has been gathered to improve the association mechanism to the Graphene Flagship.
From a first analysis of the collected answers, there is a high interests in being involved in further interactions with the Core project, and a strong request for better integration and more information.

Your input *via* SCOPE survey is very valuable

A report will be prepared with the findings and shared *via* Harbour once ready!

News on Associated Members and Partnering Project's results

Latest news produced by SCOPE is available on the Graphene Flagship website.

Graphene activates immune cells helping bone regeneration in mice

Graphene Flagship researchers in Italy have discovered that graphene nano-tools can trigger bone formation in a mouse experiment. They hope the discovery will someday have a clinical application.
Delogu and her team have worked to take advantage of the material in the field of biomedicine: "Our preclinical research reveals that functionalized graphene may offer a medical opportunity to fight bone-related diseases".To combat bone loss suffered by astronauts due to lack of gravity Delogu is involved in the project WHISKIES.

Latest AMs and PPs joining the Flagship

Associated Members: Ampashield NV, GRAPHEAL, INBRAIN Neuroelectronics, CamGraPhIC Ltd, Nu Quantum Ltd, Payper Technologies Ltd.

Partnering Project: WHISKIES (Technological University Dublin, University of Brighton, Optosmart srl, Optrace LTD, Mjr Pharmjet GMBH, Regemat3D SL, GSNET SRL, Footfalls and heartbeats LTD), **DiSeiCom** (The University of Eastern Finland, Center for Physical Sciences and Technology of Lithuania, UAB TERAVIL, Institute of Nuclear Problems of Belarusian State University).

Complete list of Partnering Projects and Associated Members

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Correct usage of the Graphene Flagship and the European Commission logo and is very important while communicating about the Graphene Flagship in various capacities, such as presentations, seminars, posters and marketing materials.

GRAPHENE FLAGSHIP

Logo Design Manual

LinkedIn Facebook Instagram

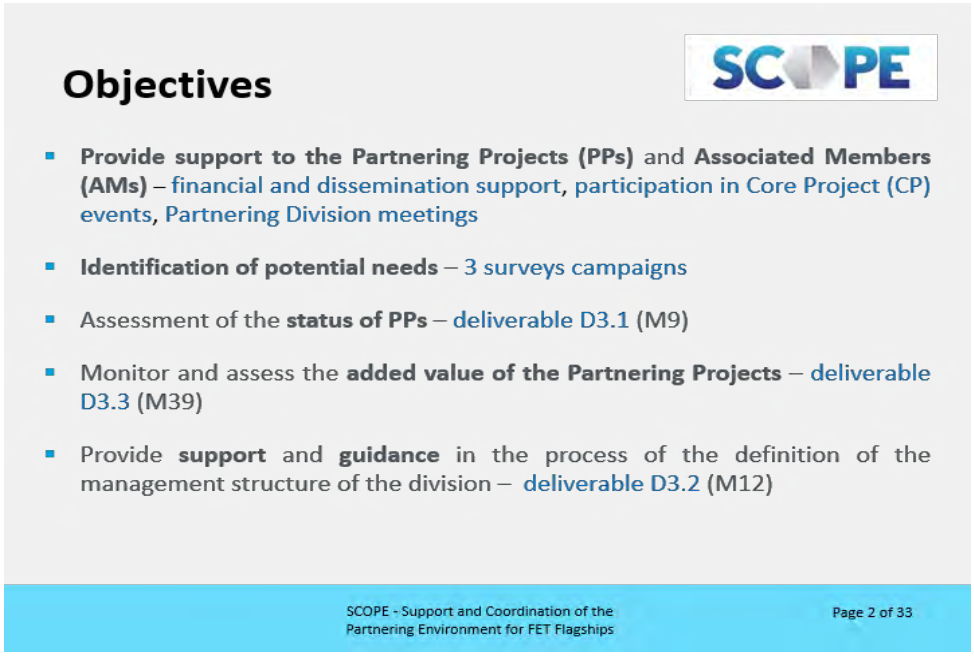
Contact

Communication and dissemination support: scope_project@fecyt.es
Partnering Division and travel support: graphene-eu@esf.org

If you would like to subscribe to this newsletter,
please send an email to graphene-eu@esf.org with the subject "I want to subscribe".

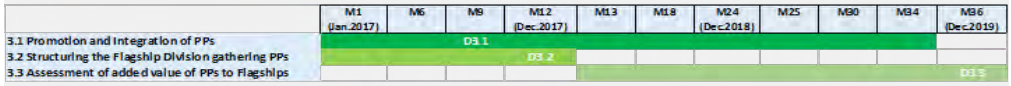
Annex 12

EC Final review – WP3 presentation



Tasks

- Task 3.1 Promotion and Integration of PPs
- Task 3.2 Structuring the Flagship Division gathering PPs
- Task 3.3 Assessment of added value of PPs to Flagships



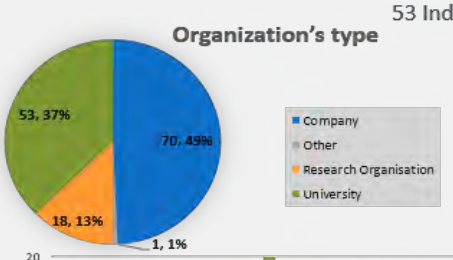
Deliverables

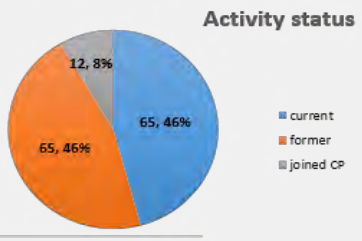
Number	Title	Due month	Nature	Dissemination level
D 3.1 ✓	Report on PPs status and future needs	09	Report	Public
D 3.2 ✓	Terms of reference and proposal for a structure of the External Division of Graphene Flagship	12	Report	Public
D 3.3 ✓	Report on Graphene PPs added value with recommendations	39	Report	Public

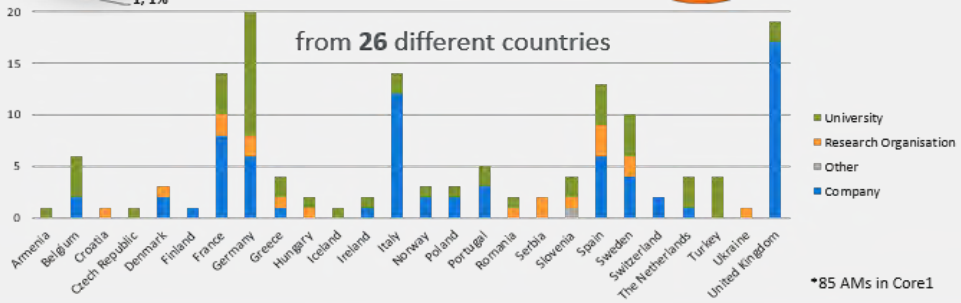
Partnering Division ecosystem

Associated Members overview – until end Core2*

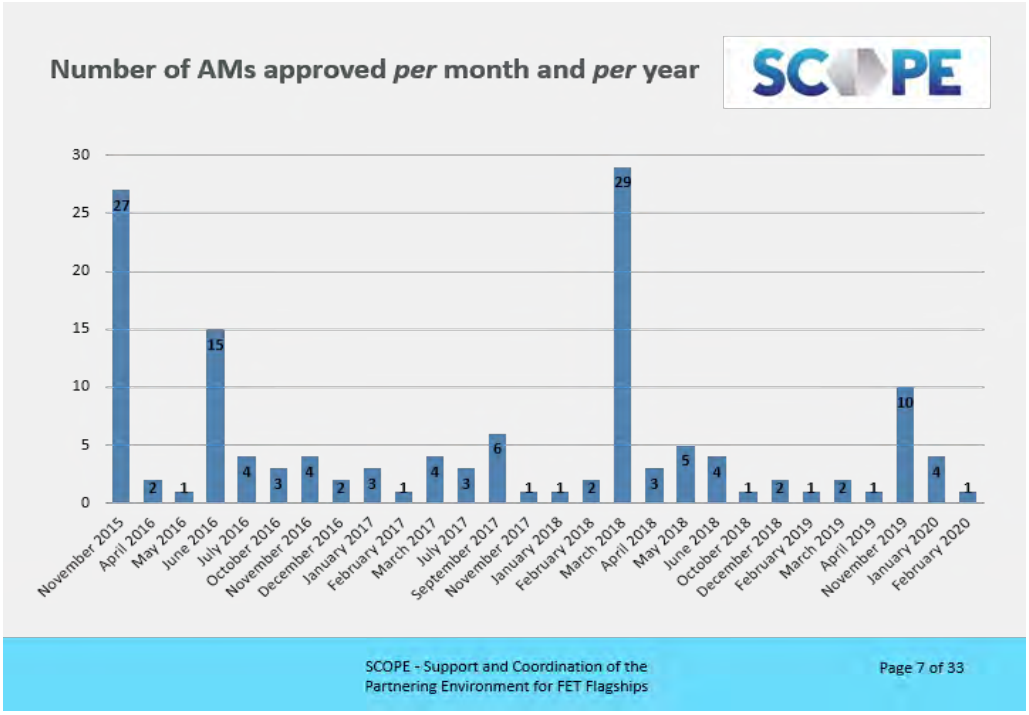
142 Associated Members
53 Individual AMs

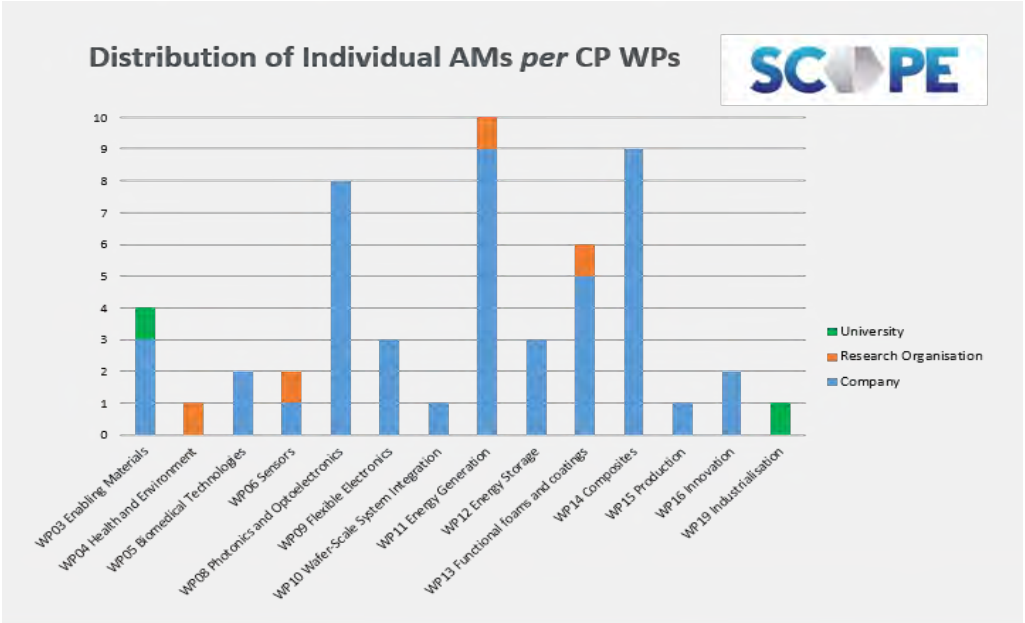


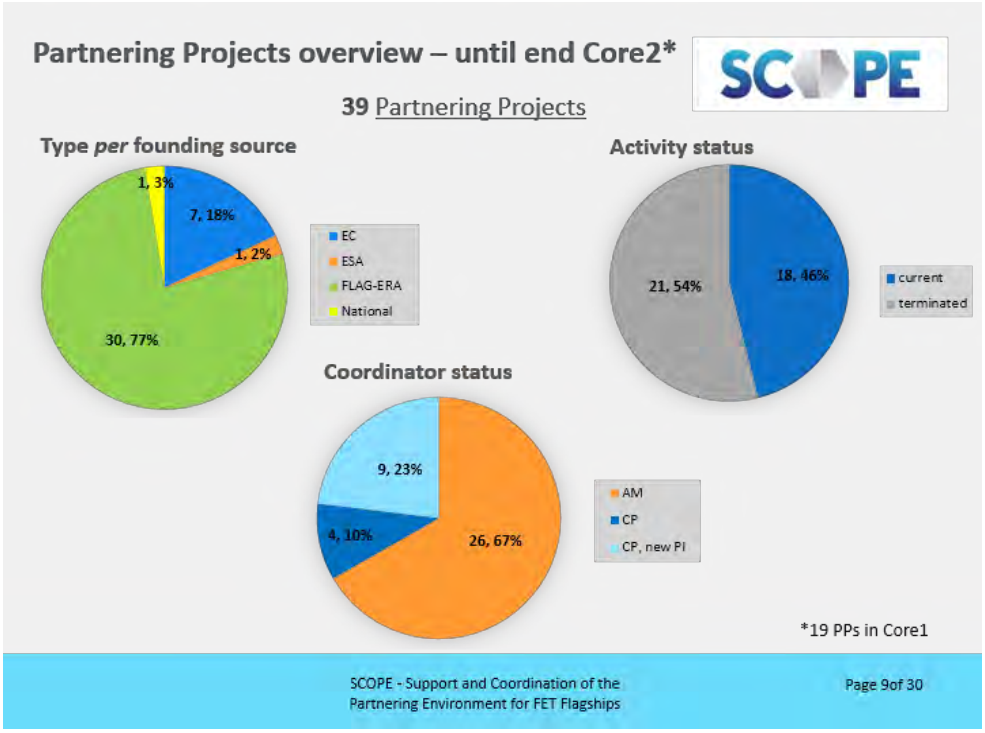




*85 AMs in Core1


Number of AMs approved per month and per year
30
25
20
15
10
5
0
27
2
1
15
4
3
4
2
3
1
4
3
6
1
1
2
29
3
5
4
1
2
1
2
1
10
4
1
November 2015
April 2016
May 2016
June 2016
July 2016
October 2016
November 2016
December 2016
January 2017
February 2017
March 2017
July 2017
September 2017
November 2017
January 2018
February 2018
March 2018
April 2018
May 2018
June 2018
October 2018
December 2018
February 2019
March 2019
April 2019
November 2019
January 2020
February 2020


Distribution of Individual AMs per CP WPs
10
9
8
7
6
5
4
3
2
1
0
University
Research Organisation
Company
WP03 Enabling Materials
WP04 Health and Environment
WP05 Biomedical Technologies
WP06 Sensors
WP08 Photonics and Optoelectronics
WP09 Flexible Electronics
WP10 Wafer-Scale System Integration
WP11 Energy Generation
WP12 Energy Storage
WP13 Functional foams and coatings
WP14 Composites
WP15 Production
WP16 Innovation
WP19 Industrialisation


Partnering Projects overview – until end Core2*
39 Partnering Projects
Type per founding source
1, 3%
7, 18%
1, 2%
30, 77%
EC
ESA
FLAG-ERA
National
Activity status
21, 54%
18, 46%
current
terminated
Coordinator status
9, 23%
4, 10%
26, 67%
AM
CP
CP, new PI
*19 PPs in Core1
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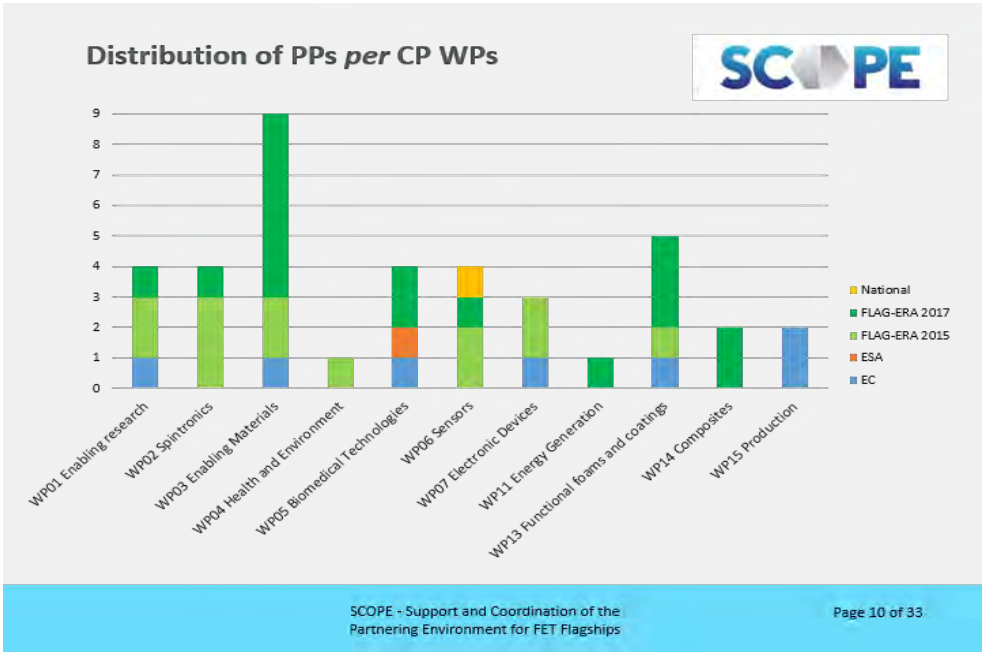
Distribution of PPs per CP WPs
9
8
7
6
5
4
3
2
1
0
WP01 Enabling research
WP02 Spintronics
WP03 Enabling Materials
WP04 Health and Environment
WP05 Biomedical Technologies
WP06 Sensors
WP07 Electronic Devices
WP11 Energy Generation
WP13 Functional foams and coatings
WP14 Composites
WP15 Production
National
FLAG-ERA 2017
FLAG-ERA 2015
ESA
EC
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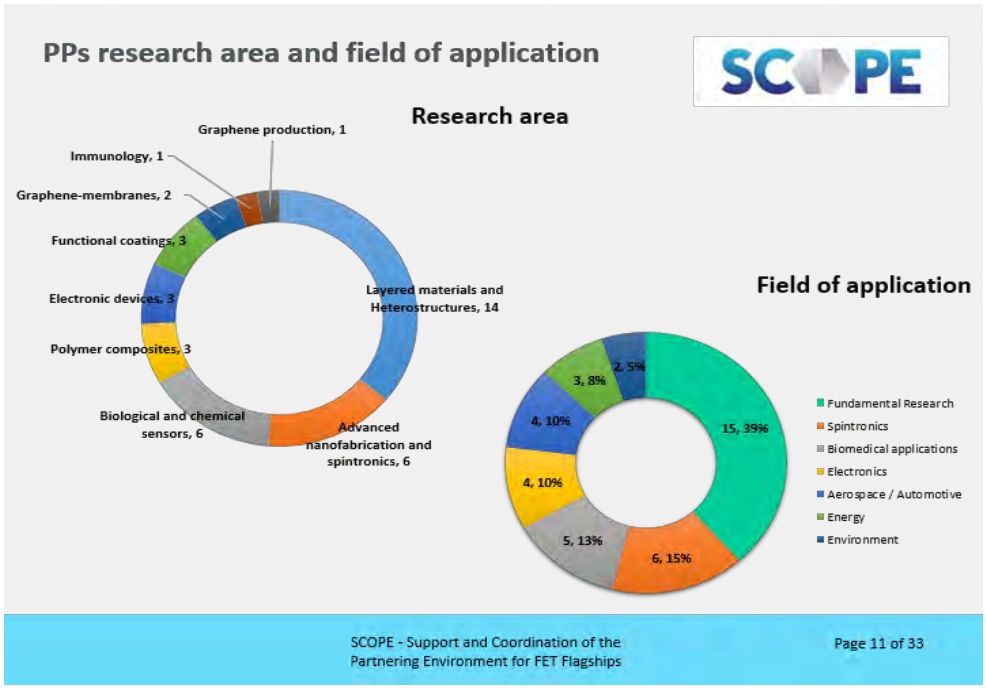
PPs research area and field of application
Research area
Graphene production, 1
Immunology, 1
Graphene-membranes, 2
Functional coatings, 3
Electronic devices, 3
Polymer composites, 3
Biological and chemical sensors, 6
Advanced nanofabrication and spintronics, 6
Layered materials and Heterostructures, 14
Field of application
15, 39%
6, 15%
5, 13%
4, 10%
4, 10%
3, 8%
2, 5%
Fundamental Research
Spintronics
Biomedical applications
Electronics
Aerospace / Automotive
Energy
Environment
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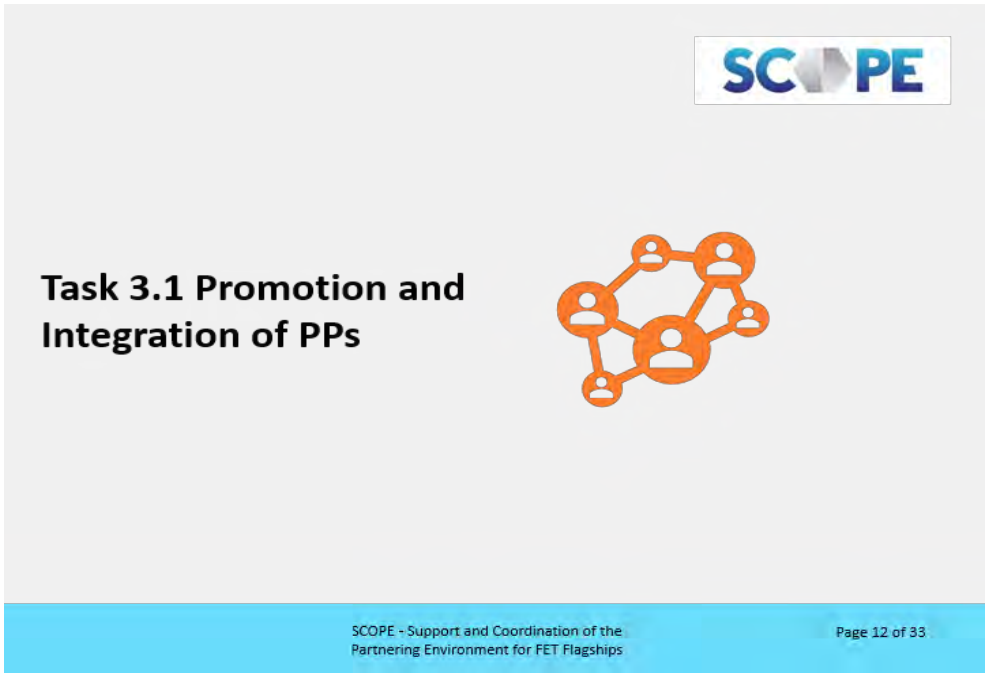
Task 3.1 Promotion and Integration of PPs
SCOPE - Support and Coordination of the Partnering Environment for FET Flagships
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Task 3.1 Promotion and Integration of PPs

- Direct (financial and dissemination) support to PPs and AMs to engage in **collaborations** with the Core Project and increase their **integration** within the Flagship initiative
- Different types of **tools for support** implemented by SCOPE following feedback from AMs and PPs, and updated according to expressed needs
- PPs and AMs are represented in the **governance of Core project** through the Partnering Division (Division 5), and in particular through the Division leader and deputy

SCOPE support to PPs and AMs*

- ***Travel support*** – 51 grants offered:
  - **31** grants to attend the Partnering Division meetings
  - **7** grants to attend WP meetings
  - **7** grants to attend other events of the GF (Graphene Marketplace, FLAG-ERA workshop, Fringe session at GW)
  - **6** grants for students to attend the Graphene Week
- ***Student Grants*** – 18 grants offered
- ***Short visit grants*** – 1 grant offered
- ***Mobility grants*** to support international visits – no requests
- Support to organise ***side events*** at the Graphene Week Conference – 3 Partnering Division meetings and 2 Fringe sessions

* Information included in deliverable 3.3, page 10, table 3

AMs/PPs integration

Mobile World Congress

Transparent and flexible force-touch human machine interface

Atomic Mechanics

Graphene earphones

Versarien

Batteries and aerospace composite panels

Talga

Graphene inks

Graphene Tech

- **10** different AMs exhibited at MWC since 2017

Fringe session

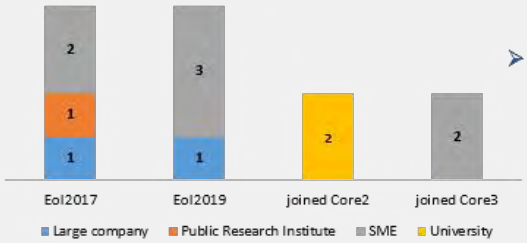
- **3** AMs in 2018 and **5** AMs in 2019 presented their highlights

General Assembly meeting

- **Over 40** AMs attended the General Assembly meetings

SCOPE news: https://graphene-flagship.eu/project/partnering/ScopeNews/Pages/SCOPE_News.aspx and https://graphene-flagship.eu/news

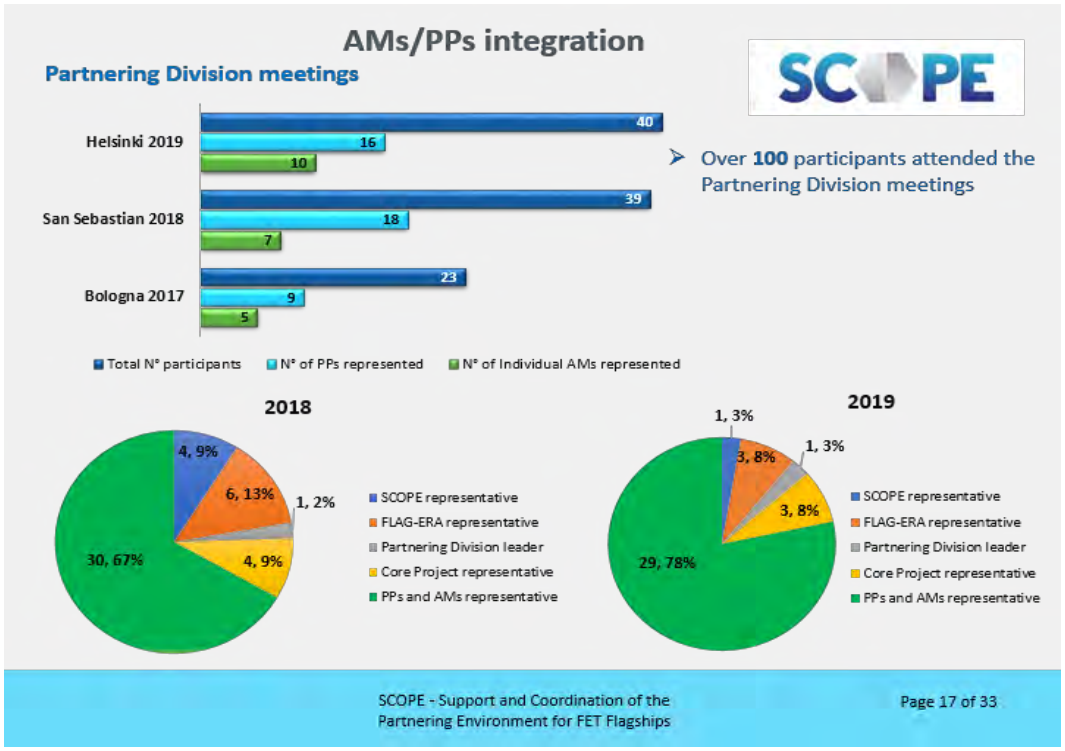
AMs/PPs integration



- **12** AM organisations have integrated the CP

- Examples of CP members on interactions with AMs/PPs – Partnering Division meetings

- Over **15** AMs participated in CP roadmap and standardisation workshops


AMs/PPs integration
Partnering Division meetings
Helsinki 2019
40
16
10
San Sebastian 2018
39
18
7
Bologna 2017
23
9
5
Total N° participants
N° of PPs represented
N° of Individual AMs represented
Over 100 participants attended the Partnering Division meetings
2018
4, 9%
6, 13%
1, 2%
4, 9%
30, 67%
SCOPE representative
FLAG-ERA representative
Partnering Division leader
Core Project representative
PPs and AMs representative
2019
1, 3%
3, 8%
1, 3%
3, 8%
29, 78%
SCOPE representative
FLAG-ERA representative
Partnering Division leader
Core Project representative
PPs and AMs representative
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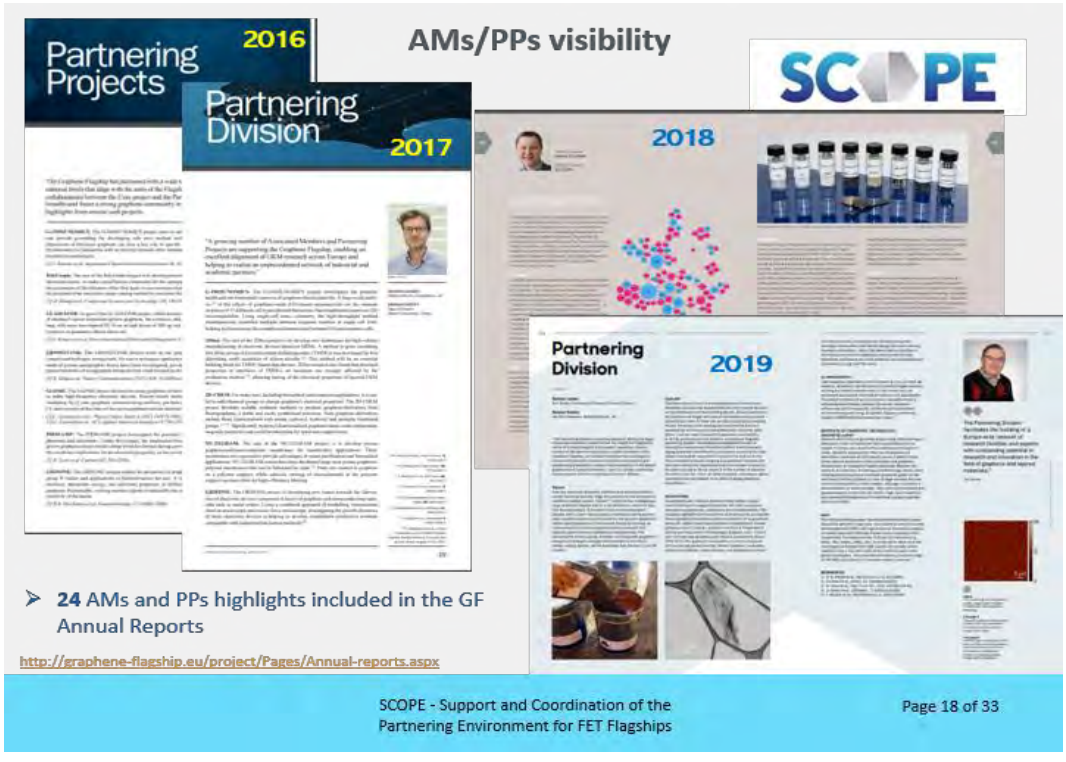
AMs/PPs visibility
Partnering Projects
2016
Partnering Division
2017
2018
Partnering Division
2019
24 AMs and PPs highlights included in the GF Annual Reports
http://graphene-flagship.eu/project/Pages/Annual-reports.aspx
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AMs/PPs communication

SCOPE newsletters

- **8** SCOPE newsletters sent out to all AMs and PPs – information flow ensured (30-40% opening rate)
- Main internal information channel
  complementary to the targeted emails and direct exchanges
- Very various information communicated
  e.g., upcoming GF events, **SCOPE available grants** and **dissemination support**, tools and updates, scientific news from AMs and PPs' results, newly approved AMs and PPs, Partnering Division elections and renewal process, etc.

Harbour

- Intranet space dedicated to AMs and PPs
- Sharing of information and documents
- **38** AM representatives from 33 AM organisations with Harbour access (at the end of Core2)

Task 3.2 Structuring the Flagship Division gathering PPs

Task 3.2 Structuring the Flagship Division gathering PPs

Support to the Graphene Flagship Partnering Division

- Elect its representatives
- Define its *modus operandi* in order to ensure the information flow between its members and their representatives as to - deliverable D3.2 (M12)

Election process of the Partnering Division representatives – general considerations

- **Rules and eligibility criteria** based on the previous election and approved by the Partnering Division members during the consultation workshop in Bologna (2017)
- **Only AMs** were able to **nominate** and **vote** – avoid Conflict of Interest
- The **Head and Deputy** have signed a Non-Disclosure Agreement with the GF coordinator organisation - allow to attend the **CP governance meetings**
- Head invited to CP Management Panel, General Assembly, Partnering Division, SCOPE Advisory Board meetings

Election process of the Partnering Division representatives

- SCOPE has organised and provided support for the election of AMs/PPs representatives in **2017, 2018** and **2019**

October 2017	October-November 2018	June 2019
• Stefano Borini, Graphitene (UK) – **Leader** • Oguz Gulseren, BU (TR) - **Deputy**	• Andrey Turchanin, JU (DE) – **Leader** • Yuri Svirko, EFU (FI) - **Deputy**	• Yuri Svirko, EFU (FI) – **Leader** • Jan Erik Hanssen, Graphitene (UK) - **Deputy**

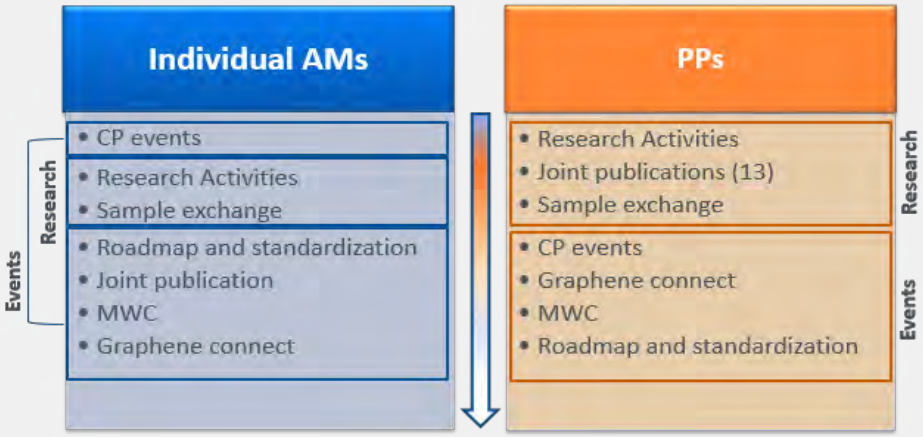
- Difficult to ensure **stability** and **continuity** of the Partnering Division representatives (change of PIs affiliation or of AM status)

Task 3.3 Assessment of added value of PPs to Flagships

Task 3.3 Assessment of added value of PPs to Flagships

- SCOPE has launches **3 survey** campaigns to collect feedback from AMs and PPs on their integration
- Monitoring of **interactions between CP and PPs/AMs**
- **Findings** of latest survey (2019) presented in deliverable D3.3 (M39):
  - 102 invitations to PPs and AMs representatives
  - 34% AMs response rate; 38% PPs response rate (covering 61% of active projects)

Involvement of AMs and PPs in GF activities and events – survey results

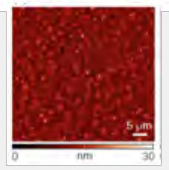


Survey outcome

- PPs are more interested in integration, scientific collaborations, networking and involvement in GF activities
- Individual AMs are more focused on the output (graphene products and graphene technology), collaborations and networking
- Interest in being involved in **Partnering Division activities** within the Graphene Flagship is high
- **Support** provided by SCOPE was perceived as useful
- Partnering Division meetings and the networking opportunities they offered were **highly appreciated** by AMs and PPs respondents

Examples of joint research collaborations - AMs

- ICTM (AM) – WP6 Sensors:
  - design and making of **graphene-based gas sensors** and samples exchange with other CP members who do gas sensing measurements
  - joint article on multilayer **CVD graphene growth** on Mo (B. Vasić et al., Appl. Surf. Sci., 509, 144792 (2019)*)



** Morphology of CVD graphene on Mo*

- Bandera (AM) – WP12 Energy Storage: development of new compounds with a large variety of **polymers with graphene**

Grraphene-based additives

- Elkem (AM) – WP12 Energy Storage: testing of new materials and recipes for **Li-ion batteries** - part of a large testing regime
- Graphenest (AM) – WP3 Enabling Materials: collaborations on **graphene-based conductive inks and polymers** for electromagnetic interference shielding
- Versarien (AM) – WP14 Composites: Versarien **graphene-based composites** samples used for tests in WP14

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Examples of joint research collaborations - PPs

- Grafin PP (JTC2017) – WP5 Biomedical Technologies: joint research on **graphene-based electrodes** for neural interfaces (graphene-based electrode samples exchanges and share of results with the CP)

Graphene-based electrode in the peripheral nerve. Picture from UAB and ICN2 of GRAFIN project

- H_2O PP (JTC2017) – WP3 Enabling Materials: joint research on **CVD growth of** transition metal dichalcogenides (**TMD**) for photonic devices applications (S. Shree et al., 2D Mater., 7, 015011 (2020))
- CoExAN PP (MSCA-RISE) – WP7 Electronic Devices: joint research on study of **photonics phenomena of carbon-based nanostructures** for optoelectronic devices applications
- MX-OSMOPED PP (JTC2017) – WP13 Functional Foams and Coatings: samples exchanges and joint research on characterization of transport properties in thin **graphene-based nanocomposites thin films**

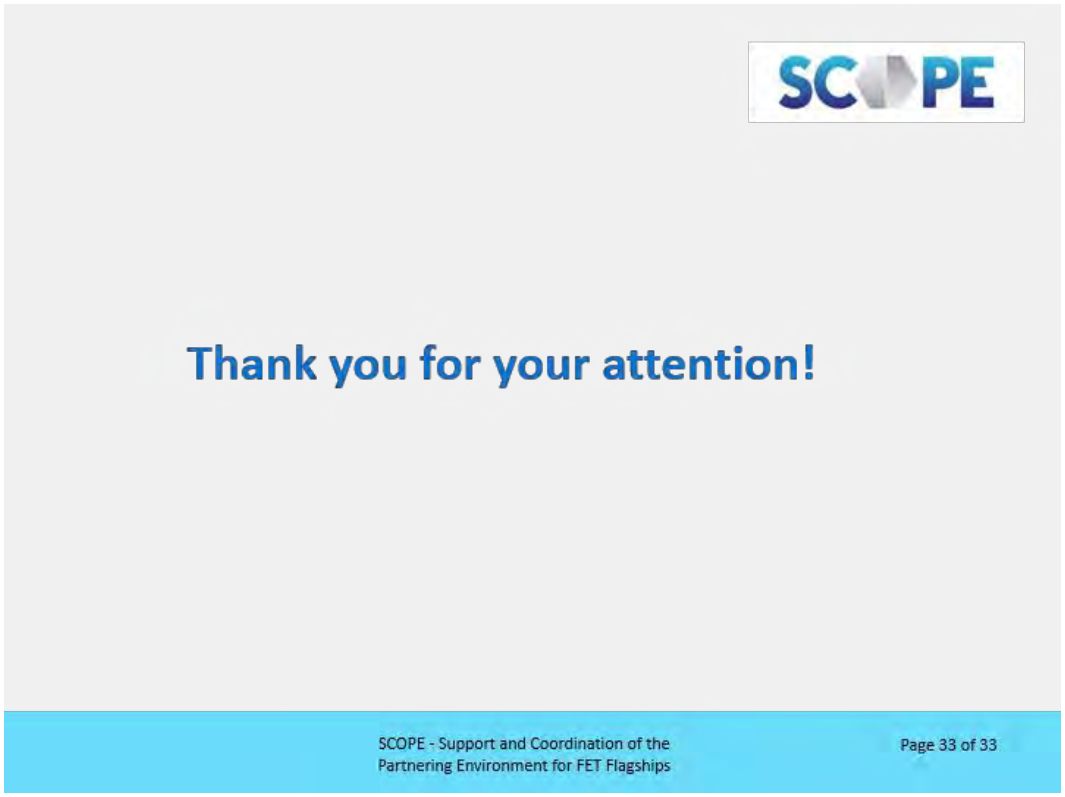
Conclusions and reccomandations

Conclusions

- SCOPE has provided **tailored** tools for **coordination** and **key support** to the Partnering Division members (based on feedback from PPs and AMs)
- Increased **integration** and **participation** of AMs and PPs in CP meetings and events – travel support (WP/Division meetings, roadmap workshops, marketplace events, Partnering Division meetings)
- Increased **visibility** of AMs and PPs results – dissemination support (news items, MWC, GA, Fringe session)
- Increased **access to information** – communication support (newsletters, Harbour)
- Monitoring of **interactions between CP and PPs/AMs** remains very challenging due to i) the large number of institutions involved and ii) no responsibility for reporting for AMs/PPs
- More active interactions of PPs that have CP PIs involved in their consortium

Recommendations and future plans

- Continue providing **coordination** and **support** in Core3:
  - financial support (grants and meetings organisation)
  - communication support (**Harbour** and newsletters)
  - dissemination support
- Continue tracking the scientific **interactions/collaborations** between AMs/PPs and CP
- Integration and involvement in **CP activities** will continue to be strengthened


Thank you for your attention!
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Ref. Ares(2018)2291816 - 30/04/2018

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

FETFLAG-01-2016 - Project no 730033

SCOPE

Support and Coordination of the Partnering Environment for FET Flagships

Coordination and Support Action

Start date of project: 2017-01-01

Duration: 36 months

D2.1 Report on PP status and future needs

Due date of deliverable: Month 9

Actual submission date: Month 9

Participant: Livie Kundert

H2020 Project no 730033 SCOPE		
Dissemination level		
PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	

Version	Date	Author	Comments
1	11/09/2017	Livie Kundert	1st draft version
1.1	20/09/2017	Sara García-Rodríguez	Comments to the 1st draft version
2	25/09/2017	Livie Kundert	2nd draft version
3	29/09/2017	Livie Kundert	Final version
3.1	29/09/2017	Cecilia Cabello	Quality and content control

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Table of Contents

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

List of tables / figures

Deliverable Summary

This deliverable presents the current status of the HBP Partnering Environment, from its composition to the integration of the Partnering Projects (PPs) and their members. It includes a description of each of the seven PPs, focusing on their member numbers, types of institution, country representation and links with the Core Project (CP).

The integration of the PPs is then presented in detail, from the specifications required during the process to join the HBP to SCOPE support activities to foster collaboration between PPs and CP Members. A short report of the events that PPs have attended in the previous year is also presented and difficulties encountered during integration of the projects are reported.

The needs of PPs, assessed first by telephone or video conference (VC) calls with representatives of each project, are surveyed.

The document ends with a conclusion and potential next steps.

Introduction

PPs are essential to the HBP Flagship environment. They create synergies between the CP and activities receiving funding at regional, national or international level and enable the HBP to remain at the cutting edge of scientific, technological and innovation development.

Since the first PPs joined the HBP in late 2015, efforts have been undertaken to foster their integration. Due to funding constraints, this progressed slowly. The SCOPE project was therefore designed to support PPs in their integration efforts and to highlight their contribution to the Flagship Environment.

The first step towards effective action is to have a solid understanding of the status of the interactions between the CP and the different PPs, as well as the HBP Partnering Environment as a whole.

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

1. Status of the HBP Partnering Environment

1.1. Partnering Projects Listing

The Human Brain Project (HBP) welcomed its first PPs via FLAG-ERA, a network of funding organisations, in response to Joint Transnational Call 2015 (JTC2015). At the end of 2015, FLAG-ERA announced that the following projects had been selected to join the HBP CP:

- CANON
- CHAMPMouse
- FIIND
- FUSIMICE
- MULTI-LATERAL
- SloW-Dyn

Following these, an application for another individual project was approved by the Science and Infrastructure Board (SIB), the governing body for scientific leadership of the HBP:

- MoCoTi

The HBP Partnering Environment is currently composed of these seven PPs. See Annex 1 for a detailed description of each.

The SIB has recently approved three further proposals and there are currently three projects under examination. These projects can only be considered as HBP PPs after signature of a memorandum of understanding (MoU) and are therefore not considered in this deliverable.

1.2. Members of Partnering Projects

The categorisation of the PP Members is undertaken on two levels, the Principal Investigator (PI) and their institution, using three criteria:

- the type of the institution: large enterprise, small- to medium-sized enterprise (SME), private or public research organisation, university, other;
- the linkage of the institution with the HBP: CP, Associate Member (AM);
- the PI relationship with the HBP: either existing or not (new PI)

The seven PPs comprise 24 institutions. The minimum number of members for a project is one and the maximum is six. The majority have three or four partners.

1.2.1 Type of institution

As in the HBP Consortium, most PP institutions are in academia, being either a research organisation (54%) or a university (42%). There is one SME.

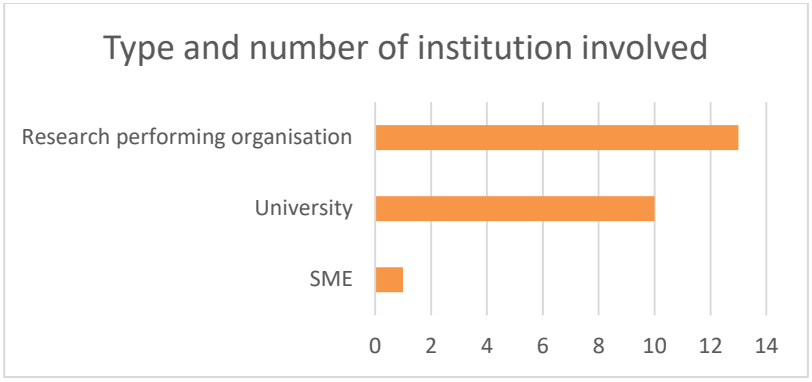

Figure 1 – Type and number of institution involved

1.2.2 Institutions' countries of origin

Europe is home to 90% of PP member institutions. Two projects, FIIND and SloW-Dyn, collaborate with North American organisations.
Figure 2 shows that France hosts most institutions: five out of six FLAG-ERA JTC 2015 projects have at least one French partner.

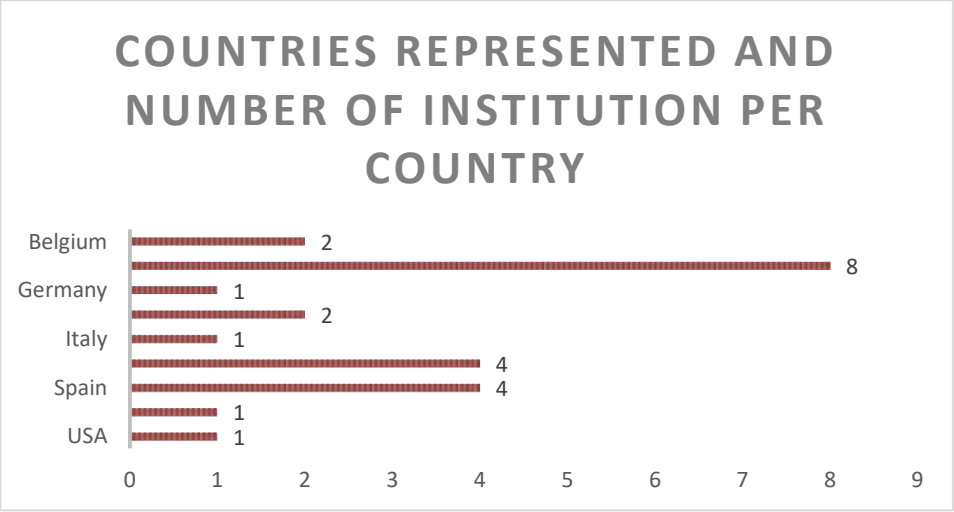

Figure 2 – Countries represented and number of institution per country

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1.2.3 Links between institutions or PIs and the HBP CP

Nine institutions out of 24 are HBP AMs; the remaining 15 are CP Members. However, out of these 15 institutions, there are only three PIs who are involved in the CP. 12 of them are new PIs in the Flagship environment. The PP mechanism succeeds in attracting and bringing on board new researchers.

1.3. Scientific links with the HBP

Links between the HBP and the PPs are established by matching the work described in PP proposals with research and development work in the consortium, as well as services offered via the HBP Platforms. Once this process is complete, a host Subproject becomes responsible for furthering the integration of the PP into HBP and assists or supports them during this process.

Of the seven PPs, presently five are hosted by research-focused Subprojects (SP1–SP4) and two are hosted by Subprojects developing platforms (SP5–10). See Table 1.

HBP Subproject	Number of linked Partnering Project(s)
SP1 Mouse Brain Organisation	3
SP2 Human Brain Organisation	1
SP4 Theoretical Neuroscience	1
SP5 Neuroinformatics Platform	1
SP10 Neurorobotics Platform	1

Table 1 – Links to HBP Subprojects

2. Integration of the Partnering Projects

2.1. Integration process

The FLAG-ERA PP kick-off meeting took place on 13 April 2016 in Budapest. The previous day, the HBP had organised the Young Researchers Event on *Simulations on different scales of space and time*. This was the first opportunity to invite the PPs to attend an HBP event. Two of them accepted the

invitation and took the opportunity to learn more about the HBP and join hands-on platform training sessions.

Following this first face-to-face meeting, the HBP organised two individual VC calls with each PP: one to discuss administrative items related to their partnership (MoU, ethics, communications); the other to focus on their scientific work and collaboration with CP researchers. These calls were excellent opportunities to create a relationship with PP Members and will continue as a first contact with any new project approved by the SIB.

The completion and signature of the MoU for the PP and AMs, who also need to sign the Confidentiality Terms and Conditions, are the main actions following the administrative call. The signature of these documents is considered to be the final step in the integration of a PP into the HBP and the official confirmation that enables them to be invited to internal HBP activities. With the FLAG-ERA projects, this procedure started in May 2016 and took a few months to be completed for five projects. One has not yet signed and has been excluded from any communications with the HBP until signature of the relevant documents. The procedure had been streamlined by the time MoCoTi joined.

Confirmed PP members of the Flagship Partnering Environment are: included in the PPs email update; invited to HBP events; presented on the HBP website; and since 2017, have access to SCOPE travel support and communications activities, giving them more visibility.

For monitoring purposes and to maintain good contacts, the SCOPE plans an individual call or interaction with each project at least every 6 months. Calls or meetings during an event (e.g. a Summit) are a unique way to have a better understanding of what they are experiencing. It also creates stronger relations with researchers, which are important to maintain. See Table 2 for a summary of actions for the integration of PPs.

Step	Action
1	Approval of the Partnering Project proposal by the SIB
2	Welcome email with association documents and invitation to a phone/VC call
3	Phone/VC call between HBP and Partnering Project Members
4	Completion and signature of a memorandum of understanding and Confidentiality Terms and Conditions
5	Inclusion in Partnering Projects email updates, invitation to HBP events, presentation of the projects on the HBP website, access to SCOPE travel support and communications activities
6	Follow-up call every 6 months or during the Summit

Table 2 — Integration of Partnering Projects: Summary of actions

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

2.2. Participation in Core Project events

In 2016, the HBP invited PPs to participate in its official events. As mentioned in section 2.1, some FLAG-ERA PPs attended the Young Researchers Event in Budapest. PP researchers are not in their early career, the target audience of the event, but the aim was to brief them and create an interest in sending their MA and PhD students to future gatherings. This was successful, as three early-career graduates from PPs participated in the 2017 Young Researchers Event.

PP members were also invited to attend the Open Day and HBP Summit in Florence, 12–15 October 2016. Four answered positively to the invitation, as representatives of SloW-Dyn, Multilateral, CANON and FIIND. Other projects either had no availability or did not have sufficient funding for travel.

PP members had the opportunity to: present their project in a plenary session; attend Subproject meetings linked to their work; and participate in the poster sessions. A specific FLAG-ERA session was also set up for them. This was a good opportunity for the Consortium and the PPs to learn more about one another and to make connections.

For the 2017 HBP Summit, the number of activities dedicated to PPs has increased: there will be a PP update in a plenary session; participation in the poster session; a parallel session; and an internal meeting dedicated to PPs.

HBP CP Members have also attended PP meetings and events. In 2016, members of Subproject 2 participated in the MULTI-LATERAL Consortium Meeting at the Max Planck Institute for Psycholinguistics, Nijmegen. In spring 2017, SloW-Dyn held a Consortium meeting with an HBP CP Member. The same project organised a workshop on *Experimental and Theoretical Analysis of Cortical Dynamics*, autumn 2017, Istituto Italiano di Tecnologia [Italian Institute of Technology], Rovereto, which included speakers from the HBP CP and was promoted via HBP communications channels.

An updated plan to monitor activities more closely is currently being developed jointly by the SCOPE, PPs, HBP CP, and FLAG-ERA.

2.3. Partnering Project Representative election

Recently, the integration of the PPs as a community in the HBP moved one step further with the election of the first PP Representatives (PP Representative and Deputy). The election was launched in June 2017 and finalised beginning of September with the appointment of Luc GENTET from the FLAG-ERA project CANON by the HBP Stakeholder Board, who will be supported by a working group composed of HBP CP and SCOPE members.

The first mandate of the PP Representatives is to represent the PP community to the SIB and to work with the HBP CP and SCOPE to establish their roles and responsibilities, starting with the Specific

Grant Agreement 2 (SGA) in April 2018.

Each project nominated two members of their Consortium for the election. Candidates needed to fulfil the following criteria:

- to have a broad and in-depth expertise in related field to HBP (e.g. neuroscience, ICT) to represent the interest of all PPs, as well as a proven experience in research management or policy;
- to be a PP member and be listed as a PI in the PP proposal;
- to be either from an AM or a CP institution, but not from a HBP CP laboratory in receipt of HBP funds;
- to be from a PP that is operational for the whole duration of the mandate;
- to comply with the terms of reference of the SIB.

Each PP had two votes, representing the choice of its Consortium, cast by the Coordinator. One of these two votes could be for their candidate, but the other had to be for a candidate other than their own.

2.4. SCOPE Support

The SCOPE project is designed to foster the HBP Partnering Environment and to provide additional benefits to joining the HBP. It fulfils two main tasks: to promote and integrate the PPs into the HBP; and to assess the added value of the PPs to the HBP, and vice-versa.

To build synergies and bring awareness about the HBP Partnering Environment, SCOPE provides support for:

- collaborations and networking activities between the PPs and CP Members;
- communications and information dissemination to increase the visibility of PPs within and outside the HBP;
- PP representation in HBP governance.

SCOPE supports the integration of new PPs from the initial phase of application and assimilation to the CP, see section 2.1.

To further develop PP integration, SCOPE offers travel grant support. The offer of grants has been developed based on discussions with PP Members during telephone or VC calls and on previous experiences, e.g. when PPs were invited to attend the 2016 HBP Summit.

Travel support to PP Members covers various activities:

- Activity 1: attendance at official Flagship events (events and meetings organized by HBP SPs, training);
- Activity 2: short visits;

- Activity 3: attendance at HBP schools and workshops;
- Activity 4: attendance at governance meetings for the PP Representative and Deputy.

A PP can have a maximum of two grants per year (excluding activity 4) up to a maximum of EUR 900.

For more details of grants and the application procedure, please see Annex 3.

In addition, SCOPE organizes activities in conjunction with HBP main events. The current target is to organize one activity during the annual HBP Summit. Depending on need and the HBP meetings programme, this might evolve in the coming years. This activity will also contribute to improvement in the visibility of PPs within the HBP CP.

Communications and dissemination support is mainly offered via FECYT and their news agency SINC, which produces articles about PP research. These articles are then promoted via HBP communications tools: social media and website. PP events are advertised via the same channels as those of HBP CP Members.

Support for PP representation in HBP governance started with the organization of the election. In this framework, SCOPE will work closely with the PP Representative and the CP. It will also support PP Members in organising PP interactions and to ensure communication flow.

2.5. Difficulties

The signing procedure for the association documents took several months for the first PPs joining the HBP and is still not finalised with some projects. This is due to two factors.

- Both the procedure and documents were entirely new for the HBP CP team. It took some time to get used to them.
- Some projects lacked the motivation to sign the documents, the HBP CP team had to send them several reminders, which slowed the procedure.

The process has already become more efficient and faster with the seventh project. Based on these first experiences, simplification of the documents has already taken place. It will be important to analyse future approvals to see whether the modifications and previous experience lead to more efficiency or whether other factors need to be taken into account.

The interactions with some projects are excellent, while others are more difficult. It is sometimes challenging to motivate them to contribute. For instance, for the election of the PP Representatives, HBP received only one nomination even after the deadline was extended. The voting process was therefore modified in a consultation to see whether voters had objections to the candidate. Only one project replied and endorsed the nomination.

3. Identification of needs

3.1. Individual phone/VC calls

SCOPE organised individual calls with each PP between April and May 2017.

Agenda of the calls:

1. (if relevant) Association process - open issues: MoUs and Ethics compliance documents;
2. SCOPE – a new Coordination and Support Action for the partnering environment;
3. key performance indicators – evaluation of PP and HBP interactions in numbers;
4. collaborations and links with HBP – status update *(a list of proposed links for each Partnering Project, as well as the updated HBP tasks list was attached to the email)*;
5. upcoming events;
6. discussion and any other business.

Common needs identified in the calls include:

- access to an HBP events calendar:
  - HBP external and internal events, trainings and demos;
- access to an events calendar for disseminating their activities:
  - promotion of PP events;
- understanding of the scientific aspect of the platforms, e.g. for which data platforms can be used;
- understanding of the technical aspect of the platforms, e.g. the software and infrastructure;
- exploration of a wish-list compiled by HBP CP members seeking collaborations and external expertise;
- exploration of the HBP expert network;
- finding information on funding opportunities.

These calls are important to maintain a good integration and communication channel with PP members. The HBP PP community is manageable on an individual basis for the moment. As the community grows, the strategy with these calls might need to be modified and become less personalised.

3.2. Survey

In addition to the calls, a survey of the PP members was launched in August 2017. The aim was to have a better understanding of the PP integration status, to confirm certain needs identified previously, and to acquire more details.

Therefore, the survey covered a broad spectrum of questions, including PP integration, information needs, desired channel of communications, SCOPE activities, and the HBP Summit (see annex 2 for the specific questions). The respondent rate was at 35% from members of five different projects.

All respondents feel integrated (67%), or somewhat integrated (33%) in the HBP, while they are all satisfied with their interactions with HBP scientists and the PP administration team. A total of 68% consider they are well enough informed about what is happening in the HBP, including events and science discoveries, while 16% responded that they were somewhat or insufficiently informed. They tend to feel better informed about what the scientists are working on (50% yes, 50% somewhat).

The survey confirmed some of the findings in the calls, PP Members are most interested in being informed about the latest scientific discoveries, publications and possible collaboration (both 83%), than by events, training, technologies offered, and information on funding opportunities (67%). Concerning the Education Programme, 50% are interested in having information.

Looking furher into the details, PPs ranked receiving information about platform usage, data availability, and events as interesting information. Information on the research network, platform development, and education training is considered less important. PPs would like to share information with the Consortium about their latest scientific discoveries and publications, possible collaborations, and events.

Regarding channels of communication, the preferred choices are newsletters or emails, followed by regular meetings and an internal Collaboratory space. Nobody selected social media.

During the HBP Summit, PP members are interested equally by a presentation in a parallel session, participation in the poster session, and meeting with other PPs to network (50%). The possibility to present their work in the plenary session to the whole Consortium is not an activity they consider as necessary.

The usefulness of SCOPE's activities is ranked as follows:

1. travel support;
2. visibility of their project within the HBP;
3. visibility of their project outside of the HBP;
4. workshop organisation during the Summit.

Finally, 100% of respondents know whom to contact if they have question regarding the HBP. Using only one email address (partnering@humanbrainproject.eu) is a successful strategy.

Surveying the PP is a good means to acquire more information. The answer rate is low, but is still higher than for some other surveys of scientists. As almost all projects had at least one member answering, it still gives a broad overview of the community.

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4. Conclusions and next steps

The integration of PPs is advancing thanks to the support of SCOPE. All measures (FTEs, travel support, and news items) are greatly appreciated by HBP and the PPs and facilitate the highlighting of contributions the PPs are making to achieve the goals set by HBP.

Further improvements are underway. We believe that regular feedback from PPs members (via calls and surveys) is essential to this process. Thanks to them, some needs have already been addressed, e.g. an email update on upcoming events, latest news from the HBP Consortium and the PP community, as well as the inclusion of PP events in the HBP calendar.

The next set of actions is as follows.

- Organisation of events at the 2017 HBP Summit in Glasgow.
    - An internal PP networking meeting enabling PP members to network with each other and discuss results of the most recent survey and proposed next steps.
    - Showcase the progress the PPs have made in a plenary session.
    - Organisation of a parallel session to give PPs a highly visible opportunity to meet CP Members.
- Improvement in information exchange. This is expected to be achieved via the setup and maintenance of a dedicated PP Collaboratory space and regular email updates.
- Tailoring of HBP services planned in the next phase to new and existing PP Member needs.

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5. Annexes

Annex 1: Descriptions of the Partnering Projects

Project name	Acronym	Partners
CHArting Multi-areal Visual Perception in the Mouse	**CHAMPMouse**	**Coordinator**: Alexander Heimel, Netherlands Institute for Neuroscience (NL) **Members:** • Hans P. Op de Beeck, University of Leuven (BE) • Gustavo Deco, Universitat Pompeu Fabra (ES)
Description of the project		
An important task of the visual system of an animal is to segregate and recognize objects and other animals in the continuous stream of inputs to the eye. This process is crucial. Is the other animal valuable or does it pose a risk? What are these landmarks and can they be used for navigation? We will develop a task for mice that allows us to study the brain processes that segregate an object from the background. The animal will report whether it perceives an object in a visually cluttered scene. Using a combination of wide-field calcium imaging and electrophysiology, we will map the neuronal correlates of visual perception and image segmentation across the visual areas in the brain, including the visual cortex, the visual thalamus and the superior colliculus, at a mesoscopic and microscopic single cell level. When we have created an atlas of the strength and latencies of these figure-ground segregation signals, we will select areas which show diverse correlates to the segregation at a single cell level to study the cell type specificity of the responses using two-photon calcium imaging. We will also interfere with processing in a selected number of areas using optogenetic tools to determine which areas merely correlate with the figure-ground segregation and which areas are essential for performing the task. Finally, using the public anatomical maps that are constantly increasing in resolution and extent, and the maps being constructed by the HBP, we will use all the neural activity from the mesoscopic and microscopic scales during task performance and from resting periods to construct a detailed model of the functional connectivity between the mapped visual areas. This will result in a wiring diagram of the brain areas involved in mouse visual perception and texture segregation.		
Link with the HBP Core Project: SP1		

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Project name	Acronym	Partners
Ferret Interactive Integrated Neurodevelopment Atlas	**FIIND**	**Coordinator**: Roberto Toro, Institut Pasteur (FR) **Members:** • Thierry Delzescaux, Commissariat à l'énergie atomique et aux énergies alternatives (FR) • Paul Tiesinga, Radboud University Nijmegen (NL) • Alan Evans, McGill University (CAN)

Description of the project

The first days after birth in ferrets provide a privileged view of the development of a complex brain. Unlike mice, ferrets develop a rich pattern of deep neocortical folds and cortico-cortical connections. Unlike humans and other primates, whose brains are well differentiated and folded at birth, ferrets are born with a very immature and completely smooth neocortex: folds, neocortical regionalisation and cortico-cortical connectivity develop in ferrets during the first postnatal days.

After a period of fast neocortical expansion, during which brain volume increases by up to a factor of 4 in 2 weeks, the ferret brain reaches its adult volume at about 6 weeks of age. Ferrets could thus become a major animal model to investigate the neurobiological correlates of the phenomena observed in human neuroimaging. Many of these phenomena, such as the relationship between brain folding, cortico-cortical connectivity and neocortical regionalisation cannot be investigated in mice, but could be investigated in ferrets. Our aim is to provide the research community with a detailed description of the development of a complex brain, necessary to better understand the nature of human neuroimaging data, create models of brain development, or analyse the relationship between multiple spatial scales.

We have already started a project to constitute an open, collaborative atlas of ferret brain development, integrating multi-modal and multi-scale data. We have acquired data for 28 ferrets (4 animals per time point from P0 to adults), using high-resolution MRI and diffusion tensor imaging (DTI). We have developed an open-source pipeline to segment and produce – online – 3D reconstructions of brain MRI data. We propose to process the brains of 16 of our specimens (from P0 to P16) using high-throughput 3D histology, staining for cytoarchitectonic landmarks, neuronal progenitors and neurogenesis. This would allow us to relate the MRI data that we have already acquired with multi-dimensional cell-scale information. Brains will be sectioned at 25 µm and scanned at 0.25 µm of resolution, and processed for real-time multi-scale visualisation.

We will extend our current web-platform to integrate an interactive multi-scale visualisation of the data. Using our combined expertise in computational neuroanatomy, multi-modal neuroimaging, neuroinformatics, and the development of inter-species atlases, we propose to build an open-source web platform to allow the collaborative, online, creation of atlases of the development of the ferret brain. The web platform will allow researchers to access and visualise interactively the MRI and histology data. It will also allow researchers to create collaborative, human curated, 3D segmentations of brain structures, as well as vectorial atlases. Our work should provide a first integrated atlas of ferret brain development, and the basis for an open platform for the creation of collaborative multi-modal, multi-scale, multi-species atlases.

Link with the HBP Core Project: SP5

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Project name	Acronym	Partners
Investigating the canonical organization of neocortical circuits for sensory integration	**CANON**	**Coordinator**: Conrado BOSMAN, University of Amsterdam (NL) **Members:** • Luc GENTET, INSERM (FR) • László NÉGYESSY, Hungarian Academy of Sciences, Wigner (HU)
Description of the project		
The organisational complexity of the cerebral cortex limits our understanding of its operation. Most studies focus on single aspects of cortical organization, yet an adequate understanding of the integration mechanisms of the brain at circuit level is missing. The goal of this project is to shed light on the multiscale organization of cortical computation by integrating neuronal and population activities with inter areal interactions. We aim to understand: i) whether the canonical architecture can be actually observed in a cortical circuit subserving multisensory integration, ii) the roles of different neuronal subpopulations in modulating feedforward and feedback processing and iii) whether such architecture is preserved across mammals. These goals will be assessed from a multi-level perspective, including whole-cell and ensemble recordings in awake animals performing multisensory integration tasks, and a neural model, performed over the collected data to extrapolate core functional architectures. Our project will reveal the microcircuit, columnar mechanisms of cortical processing related to the exchange of information across brain areas.		
Link with the HBP Core Project: SP1		

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Project name	Acronym	Partners
Ultrafast Functional Ultrasound (fUS) Imaging for Highly-Resolved Targeted Mapping of Functional Connectivity in the Awake Mouse Brain	**FUSIMICE**	**Coordinator**: Zsolt LENKEI, École supérieure de physique et de chimie industrielles (FR) **Members:** • Mickael TANTER, Institut National de la Santé et de la Recherche Médicale (FR) • László ACSADY, Institute of experimental medicine of the Hungarian Academy of Science (HU) • Annemie Van der Linden, University of Antwerp (BE)

Description of the project

The mouse brain provides unique opportunities in brain connectivity mapping, both to understand how the genotype regulates the phenotype and to understand the dynamics and pharmacological regulation of brain connectivity in well- controlled and highly-reproducible experimental setups. Recently we have developed a novel paradigm of functional connectivity mapping - Ultrafast Functional Ultrasound or fUS (Osmanski et al., Nature Communications, 2014). Through achieving parallel measurement of functional parameters with sensitivity, spatiotemporal resolution and operating simplicity unmatched by current imaging modalities, fUS may open access to previously unexplored aspects of brain function. In particular, fUS may be a ground-breaking novel method mapping not only functional connectivity, but coupled to optogenetics, also mapping effective connectivity in awake mice. This could vastly accelerate the adaptation of connectivity-based experimental approaches in neuroscience research environments. For the validation of these promises, here we propose a complementary European research network to validate the fUS technique for targeted mapping of the mouse brain.

First, the French partners (1&2) will adapt the fUS technique for minimally-invasive whole-brain mapping in awake mice, by using a motorized 2D ultra-light prototype ultrasound probe. Direct real-time 3D mapping will also be developed by using a 2D-matrix prototype probe. Typical experiments will aim to humans map major resting-state networks, already identified in human (such as the Default Mode Network), in awake resting mice. By using mouse fMRI equipment, the Belgian partner (3) wi contribute to the development and validation of analytical tool for the interpretation of fUS connectivity data. We will compare the performance of fUS- versus the standard fMRI-based mapping approaches on the same animal models and using similar analytical approaches. This will provide insights into the relative strengths and weaknesses of the fUS method. The Hungarian partner (4) will provide fine-grained connectivity data to verify well-defined sets of connections identified by fUS. Next using proof-of-concept optogenetic experiments, partners 1 and 4 will induce targeted changes in specific thalamocortica networks, and record the changes in behavior, EEG activity and functional brain connectivity in parallel. Finally, partners 1 and 3 will aim to map alterations in functional connectivity in mouse models of neurological diseases.

As a result, this project will produce new functional insights tha will complete existing data sets on the mouse brain structure and facilitate mouse-human comparisons. Hopefully, the tool developed in this project will be the base of future user-friendly cost-effective bench-top based fUS systems, optimized for the mapping of functional connectivity of the mouse brain, and ready-to-use in a standard neuroscience research lab, both in academic and industrial research environments.

Link with the HBP Core Project: SP1

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Project name	Acronym	Partners
Multi-level Integrative Analysis of Brain Lateralization for Language	**MULTI-LATERAL**	**Coordinator**: Francks CLYDE, Max Planck Institute for Psycholinguistics (NL) **Members:** • Manuel Carreiras, Basque Center on Cognition, Brain and Language (ES) • Fabrice Crivello, University of Bordeaux (FR)

Description of the project

Left-right lateralization is an important organizing principle of the human brain which is not a current focus of HBP research. One prominently lateralized anatomical and functional network underlies the uniquely human ability to speak and understand language. A lack of brain lateralization has been associated with variation in human cognitive abilities important to language, and also with susceptibility to neurocognitive disorders including language impairment, dyslexia, autism and schizophrenia. The genetic basis of human brain lateralization is unknown, while links between lateralized anatomy and function are poorly understood. It is likely that genes involved in lateralization, both developmentally and during adult function, contain variants in the population that influence cognitive performance and neurocognitive disorders. We are generating transcriptomic data on lateralized gene expression in the embryonic and adult human brain. We recently identified, for the first time, sets of neuronal genes in the healthy adult brain that are expressed at different levels in the left and right temporal cerebral cortex (crucial for the language network). Here we propose a multi-level and integrated analysis of brain lateralization for language: I. Develop improved methods to reliably and automatically measure individual differences in lateralization of the language network in large numbers of participants, for anatomy, resting state intrinsic connectivity, and task-related function. The language cortex is a variable region for which current automated methods do not perform optimally, yet automated methods are essential for achieving large datasets that are statistically powered for genetic studies. It is essential to understand human brain diversity, as well as researching the 'average brain' which is the focus of most HBP activity. II. Apply the methods in brain imaging datasets having genetic data available, for the purposes of association and rare variant analysis followed by integrated genome-level analysis with transcriptomic (lateralized gene expression) data and genomic gene-set analysis. These combinatorial analyses go beyond standard genome-wide association scanning. Rather, the genomic data will be utilized to merge multiple genetic signals, informed by gene expression data and gene function data, in order to increase statistical power. III. Relate the gene sets arising from step II to human cognitive variability linked to reading and language, and susceptibility to neurocognitive disorders. Again, evidence-based combinations of genetic variants, constructed over many genes, will be investigated. Pinpointing shared genetic effects on lateralization and cognition would discriminate causal relations from mere correlation. Outcomes from this research program will include improved technology for automated analysis of large numbers of brain scans, and possible definition of susceptibility factors for important subtypes of impaired cognition.

Link with the HBP Core Project: SP2

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Project name	Acronym	Partners
Slow Wave Dynamics: from experiments, analysis and models to rhythm restoration	**SloW-Dyn**	**Coordinator**: Maria Victoria Sanchez-Vives, Consorci Institut d´Investigacions Biomèdiques August Pi i Sunyer (ES) **Members:** • Stefano Panzeri, Fondazione Istituto Italiano di Tecnologia (IT) • Ruben Moreno Bote, Univerty Pompeu Fabra (ES) • Nicolas Brunel, University of Chicago (USA) • Mathieu Galtier, RHYTHM (FR) • Alain Destexhe, Centre National de recherche scientifique (FR)

Description of the project

Slow wave sleep and its underlying corticothalamocortical activity -slow oscillations- appears to be critical not only for memory but also for the maintenance of the brains structural and functional connectivity. At the same time, slow oscillations are an emergent pattern from the network, highly revealing of the underlying structure and dynamics of the system. In this project we plan to develop a data-constrained realistic model of the generation of slow oscillations. It will consist of a biophysically realistic model of adaptive exponential integrate- and-fire cells fully compatible with existing neuromorphic implementations in HBP. The model will go beyond state-of-art models by first describing mathematically and then fitting to real cortical data not only the first-order structure (mean), but also the second-order structure (variance and correlations) of the spatio-temporal organization of slow-wave oscillations. This model will be first developed and used to understand and document the cellular and network mechanisms slow wave oscillatory activity, and then to investigate the transformation of slow wave sleep with age and in two murine models of neurodegenerative disease associated to ageing.

The model will be built and constrained using experimental data of cortical activity during slow oscillations obtained covering multiple scales. These data, together with a set of purpose-developed analytical methods, will reveal the causal contribution of genetically identified neurons to the slow wave dynamics, the 2D and 3D patterns of propagation of activity across different areas, an will go all the way to the very extensive data set of EEG obtained from large populations of humans during sleep through the SME in the project. A large emphasis will be on the analytical methods used at all levels, and the resulting tools will be useful for the scientific community. With this approach, we want to understand the underlying cortical system at multiple scales and reproduce it in silico. This will open up the possibilities for designing sensory stimulation patterns during sleep that restore young sleep in ageing individuals, an intervention expected to have a positive impact on cognition. This specific application will be directly accessible to society through the exploitation of the project led by the partner company.

Link with the HBP Core Project: SP4

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Project name	Acronym	Partners
Motor Control and Timing in the Cerebellum: Spatio-Temporal Integration in Complex Neuronal Networks	**MoCoTi**	**Coordinators**: Jörg Conradt/ Florian Röhrbein/ Christoph Richter, Technical University of Munich (DE)
Description of the project		
Thanks to the ever improving temporal and spatial resolution of modern functional brain imaging techniques there is a growing body of experimental data relating different temporal tasks like sensory motor synchronization (SMS) or interval estimation (IE) to specific brain regions. For IE and SMS the two main important regions are the cerebellum and the striatum, respectively [1]. Unfortunately, functional imaging cannot help to elucidate on the way in which clocking signals are created by those regions, let alone the way in which they are integrated into our thoughts, emotions, and actions. Lesion studies and functional imaging both find the cerebellum to play a key role in human timing, especially for sub-second time intervals. The cerebellum connects our brain to our mechanical periphery, which is inherently linked to the physical world via its mass, its inertia; but how does the cerebellum measure time? Is it deterministically driven by internal oscillators like a quartz clock? Or are our limbs to the cerebellum what a pendulum is to a mechanical clock? Does the cerebellum need that mechanical feedback loop as a driver, for intermittent calibration, or not at all? What in the end does it take to estimate time intervals or tap your toe to a beat? These are questions we are addressing with theoretical analysis and simulations on the SpiNNaker [2] platform. We are starting from a bare bones model of cerebellar micro-zones [3] connected to robotic limbs [4]. We will augment and extend our model step-by-step and thereby thoroughly test its temporal features and characteristics at each stage. With our bottom-up approach of building relevant circuitry piece-by-piece, we hope to identify the essential ingredients for different aspects of time in the cerebellum.		
Link with the HBP Core Project: SP10		

Annex 2: Questions of the survey on Partnering Projects integration and needs

1. **General information**
    a. Project name:
    b. Optional: name

2. **Integration**

- Do you feel integrated as a PP in the HBP Flagship?
    - Yes
    - Somehow
    - No

If somehow or no, do you have suggestions to improve your improve it?

- Are you satisfied with the interactions you have with the HBP scientists?
    - Yes
    - No

If somehow or no, what activities would you suggest?

- Are you satisfied with the interactions you have with the administrative PP team?
    - Yes
    - No

If somehow or no, what activities would you suggest?

3. **Information**

- Do you feel enough informed about what is happening in the HBP? (events, science discoveries, etc.)
    a. Yes
    b. Somehow
    c. No
- Do you feel enough informed about what the HBP researchers are working on?
    - Yes
    - Somehow
    - No

- What information are you interested in?
    - Latest scientific discoveries and publications
    - Events
    - Training on the platforms
    - Technologies offered
    - Possible collaborations
    - Information on funding
    - Education Programme
    - Other: please specify

- Rank information you are interested in the most:
  - Data
  - Platforms (usage)
  - Platforms (development)
  - Education/training
  - Events
  - Information on the research network
  - Other: please specify

- What information would you like to share with the HBP Consortium?
  - Latest scientific discoveries and publications
  - Events
  - Training on the platforms
  - Technologies offered
  - Possible collaborations
  - Other: please specify

4. Channel of communications:

- What channel of communications are you interested in having with the HBP consortium?
  - Collab with information compiled and updated
  - Emails
  - Newsletter
  - Regular meeting
  - Social media
  - Other: please specify

Do you find regular meetings with the administrative PP Team helpful?

- Yes
- Somehow
- No

If somehow or no, do you have other suggestions?

Do you find email update sent by the administrative PP Team helpful?

- Yes
- Somehow
- No

If somehow or no, do you have other suggestions?

5. HBP Summit: annual gathering

What activities would you be interested in to consolidate your integration?

- Face-to-face meeting with targeted scientists contacted beforehand
- Presentation in plenary (to the whole consortium)
- Presentation in one of the parallel sessions (to smaller groups who registered to the

session)
- Meeting with other Partnering Projects to network and learn more about the HBP Partnering Environment
- Participation in the poster session
- Other: please specify

6. SCOPE

Rank the usefulness of SCOPE support activities
- Workshop organisation during the Summit
- Visibility of your Project within HBP
- Visibility of your Project outside of HBP
- Travel support

7. Contact
- Do you feel you know whom you can contact if you have questions?
  - Yes
  - No
- If yes, who?

Do you have other issue that you want to bring to our attention?

END OF SURVEY

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Annex 3: Guidelines, SCOPE travel grants support to the Partnering Projects of the Human Brain Project (HBP), September 2017

This document represents work in progress and is a living document that will be updated based on the identified needs, as to better foster the collaboration and integration of Partnering Projects in the Human Brain Project.

SCOPE aims at generating a mutual benefit between the Partnering Projects (PP) and the Core Project (CP). It provides travel grants support to the PPs to enable them to participate in research, governance, networking and dissemination activities organised by the CP.

Eligibility Criteria

Partnering Project can receive a maximum of 2 grants per business year, excluding travel support for the Partnering Projects Representatives.

The submission of the relevant application documents by the deadline is the first eligibility criteria.

Table 1: eligibility criteria and priority access

Association to the Flagship	Institution type	Type of applicants	Possibility to apply to SCOPE travel grant support	Priority
Coordinator or Member of a PP Consortium	Core Project Member	PI/researchers involved in the Core Project	No	None
		Researcher not involved in the Core Project	Yes	Medium
	Associated Member	N/A	Yes	High

- Support through SCOPE project will be provided to scientists who are involved in one of the Partnering Projects that are associated to the Flagships.
- Priority for support will be given to scientists from Associated Members' institutions.
- Scientists from private SMEs that are Associated Members have low priority.

- Large private companies and private institutions are not eligible for support through SCOPE. Also, scientists who have a research position at one of the Core Project's organisations and are directly involved in the Core Project's activities are not eligible for support through SCOPE.
- Researchers from institutions outside of Europe are not eligible.
- The rules of the H2020 AMGA will apply in cases as the eligibility of non-European researchers involved in PPs and AMs, or in gender balance issues (specially the pages 251 to 253). SCOPE will follow the Euraxess European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers, especially in which relates to working conditions and career development.

Types of travel grants support

The travel grants support will only cover travel expenses (transportation and accommodation) and potential registration fees within the limits of up to EUR900 /travel grant, except if stated otherwise below.

Maximum number of application during the duration of the Partnering Project: 2 per business year, possibly distributed between different individuals and while fund is still available and excluding travel support for the Partnering Projects Representatives.

1. **Support to attend networking activities organised by the Core Project**

SCOPE will provide support to attend events organised by the HBP Core Project. The targeted (networking) events include official HBP Flagships events, such as events and meetings organized by HBP Subprojects and the HBP Summit.

2. **Support for early career researchers**

   SCOPE will provide support to attend events of the HBP Education Programme. The Education Programme has its own funding support covering travel costs with maximum 450€. The amount of costs covered by SCOPE are aligned on what the Education programme is offering as grants, but in the case of SCOPE, will cover travel and accommodation, while the Education Programme covers exclusively travel. Double application is not allowed.

Target group:

- Master students already carrying out research
- PhD students
- Researchers who received their doctoral degree within the past three years

Cost covered:

- Maximum EUR450 per travel grant (for travel and accommodation)

SCOPE will also support early career researchers (same target group) applying for a travel grant to participate in the Summit or the Young Researchers Event, or any other event organized by the HBP. Costs are covered as for other types of grant, i.e. EUR900.

3. Short visit grants

SCOPE will support Partnering Project Members visiting labs and furthering their collaboration with Core Project Members. This grant is open only to senior researchers for the moment, as early career researchers can apply to the lab visit grant offered by the HBP Education Programme.

Invitation letter (email) by the hosting lab is compulsory. See template under point 7.

4. Support to Partnering Projects Representatives (Head and Deputy)

Support to the Partnering Project Representative/Deputy will be provided by SCOPE project to attend HBP governance meetings or other related, for example the FLAG-ERA meetings.

SCOPE project will cover up to three travels per year over three years. These travels are not included in the 2 applications per Partnering Project per year.

As for the other travel grants, the Partnering Project Representative/Deputy will need to fill in the relevant application and reimbursement documents to benefit from this support.

Application procedure

Action	Who	Timeline
Fill in the travel request application form and send it to **partnering@humanbrainproject.eu** with **scope_project@fecyt.es** in cc.	Partnering Project	1.For events with registration: latest 5 weeks prior to the registration deadline. 2.For meetings/events without a registration deadline: latest 5 weeks prior to the wished day of depature. Please note that the earliest you send us your application, the more chances there is your application will the accepted.
Revision of the application. If incomplete, sent back to applicant.	SCOPE	

If the applicant doesn't have an invitation from the CP organiser. The selection process will take place.	HBP	
Announcement of approval or rejection of the travel grant support	SCOPE	1. One week after the registration deadline expires. 2. One week after the wished day of departure.

Selection procedure

The selection of eligible (nominative) applications will be done in collaboration with the SP meeting/event organizer and will be based on the scientific excellence and the relevance for the applicant(s) to participate in the meeting/event as long as the PP hasn't used their 2 grants per year. For general HBP event such as the HBP Summit, the organising committee will revise the application based on a selection criteria template (see below).

- Excellence of the scientific/technological expertise and work
- Relevance of the scientific/technological expertise and work
- Potential for enhancing the integration and collaboration of the PP and the CP Members.

If the applicant receives an official nominative invitation (e-mail) by one the HBP CP Member, this will be considered as a successful selection process. See an invitation letter template under point 7.

Reimbursement procedure

Action	Who	Timeline
Attend the event, meeting, workshop, etc.	PP	
Send the relevant documentation and original receipt for reimbursement to: scope_project@fecyt.es	PP	Latest 30 days after the event
Reimbursement of the travel costs	SCOPE	Latest 2 months after the event

Travel arrangement rules (FECYT)

Travel costs will be covered by FECYT under the following conditions:

- Applicant is respecting the SCOPE eligibility rules of the activity.
- The Partnering Project has not been awarded more than 2 travel grants in the current business year, for HBP PPs. In the Graphene Flagship, their eligibility criteria (explained above) will be applied.

- Application documents have been filled in and approved on time.
- Costs are related to the event described in the application document and respecting its dates, e.g. accommodation cannot be extended before or after the event.
- Short report of outcomes is filled in when the reimbursement is requested and original receipts sent.

In general terms, FECYT offers the option of booking the travel (flight/train) of the applicant researchers, always taken into account a deadline of 4 weeks prior to the event involved.
All other eligible costs, like accommodation and local transport, will be booked/payed by the applicants and reimbursed following the event. A travel claim form will be provided in order to process this procedure.

If the applicants prefer to book themselves their travel (flight/train), they are free to do so. Please take into account that the reimbursement process could take two months at most.

- The **travel claim form** should be sent **within 30 days after** the meeting/event/workshop, duly completed and signed, along with **all original documents** supporting your expenditure and FECYT bookings: Boarding cards / e-tickets /train tickets (QR codes are valid). Hotel voucher and any booking document in which the price is shown.

Original tickets of public transportation (to/and from airport/train station to the event)Taxi receipts for medium distances, in case other alternatives are too expensive, or if no public transportation means are available (maximum two, to/and from airport/train station to the event). Invoice of the registration fees, related to the event (if applicable).

IMPORTANT:

- ✓ **The invoices for the hotels should be issued to the name of the person travelling (not their organization**) to be directly reimbursed.
- ✓ **Accommodation** costs up to two nights will be covered, depending on your flight/transport availability. Stays longer than 2 days will be considered case by case. **A maximum of 120€ per night could be reimbursed**.
- ✓ Business class or first class air/train tickets will not be considered.
- ✓ Fuel expenses cannot be reimbursed.
- ✓ A digital version of the tickets and invoices can be sent in advance to the e-mail scope_project@fecyt.es , but FECYT needs the **original documents sent by post** to the following address:
  SCOPE project (Sara García-Rodríguez). Ministry of Economy, Industry and Competitiviness. Paseo de la Castellana, 162, floor 18 (impares, 19.6) - 28046 Madrid (Spain). Contact: scope_project@fecyt.es (tel: +34 91 603 80 52).

Contacts

Your main contact during the application and approval procedures is:
Livie Kundert, HBP Partnering Environment Coordinator
Contact: partnering@humanbrainproject.eu

When the application is approved, your main contact for booking and financial aspect of the travel grants is:
Sara García-Rodríguez, SCOPE Project Manager
Contact: scope_project@fecyt.es
Tel: +34 91 603 80 52; cell: +34 695 894 811

Invitation letter/email template

Dear SCOPE Project,

Herewith, as a member of the SPXX of the Human Brain Project, I invite NAME, from INSTITUTION, Member of the PP NAME to participate in NAME OF EVENT/MEETING/SHORT VISIT taking place in LOCATION from the DATE to the DATE.

I confirm the participation in the EVENT/MEETING/SHORT VISIT of NAME will contribute to the strengthening of the collaboration and integration of their Partnering Project within the HBP Core Project.

Best regards,

SIGNATURE

Ref. Ares(2020)2839284 - 02/06/2020

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FETFLAG-01-2016 - Project no 730033

SCOPE

Support and Coordination of the Partnering Environment for FET Flagships

Coordination and Support Action
Start date of project: 2017-01-01
Duration: 39 months

D2.3 Report on HBP PPs added value with recommendations

Due date of deliverable: Month 39
Actual submission date: Month 39
Participant: EPFL

H2020 Project no 730033 SCOPE		
Dissemination level		
PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	

Version	Date	Author	Comments
1	21.12.2018	Je-ok Presser (EPFL)	First draft of the deliverable 2.3
2	11.01.2019	Je-ok Presser (EPFL)	Second draft of the deliverable 2.3
3	20.03.2020	Martin Telefont (EPFL)	Third draft of the deliverable
3.1	25.03.2020	FECYT	Proposal for modifications
4	06.04.2020	Martin Telefont & Je-ok Presser (EPFL)	Fourth draft of the deliverable
4.1	07.04.2020	FECYT	Proposal for modifications
5	11.04.2020	Martin Telefont & Je-ok Presser (EPFL)	Final version
6	02.06.2020	Je-ok Presser (EPFL)	Requested modifications conducted

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List of Figures and Tables

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Introduction

The Human Brain Project (HBP) consortium outlined in 2013 an ambitious vision for neuroscience, computing, and medicine. In it co-design and collaboration were highlighted as a possible engine to achieve ground breaking advances in each of the three fields. This bold ambition was supported by the European Commission with a Flagship grant and a number of supporting action grants.

HBP created the Partnering Environment (PE) to allow consortia to show their commitment and contribution to the HBP vision. The idea of Partnering Projects (PP) was kicked off subsequently and the first six projects joined after successfully competing in a FLAG-ERA organised Joint Transnational Call (JTC) in 2015. Since then two more JTC calls have increased the number of Partnering Projects. On top of that HBP tested a version of Evangelist based PP recruitment. HBP PIs were asked to include as second to last slide in their presentations a reference to the Partnering Projects with the Prompt to go to the HBP Partnering Page for more information and to consider submitting an application. We also encouraged HBP researchers to actively direct people interested in their posters and presentations at major conferences (e.g. the annual Society for Neuroscience Conference) to visit PP posters and presentations. This helped us to introduce PIs to the idea of promoting the PE and the PP to other researchers. While these actions appear humble, they helped HBP reach a balance between FLAG-ERA funded and non-FLAG-ERA funded PPs.

In this document we summarise how SCOPE supported the integration of Partnering Projects into the HBP Partnering Environment. Many of the lessons learned helped inform the strategy for onboarding and integration of HBP external consortia for the last funding phase of HBP (2020-2023).

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1. Becoming a Partnering Project

1.1 Eligibility Criteria

There are two eligibility requirements for projects wanting to become a Partnering Projects:

- The projects make a significant contribution to the HBPs strategic research roadmap.
- The projects and their partners already have their own funding, or can demonstrate that they will have it in the near future.

While the first criterion did not change, the understanding of the second has become more nuanced. In the first years of the Partnering Environment it was understood that applicants

should be supported by a dedicated grant. As interest in becoming a Partnering Project grew, we decided to experiment with the interpretation of the criterion. During the onboarding process we found that Partnering Projects which only had institutional support asked different questions and were very eager to be informed of opportunities to collaborate with other groups. SCOPE support was vital to develop a process addressing the interests and needs of these projects. We have not reached the point where one of the PPs that were initially self-supported returned with a Project supported by a dedicated grant, but we expect this to happen in the next one to two years.

1.2 Application Processing

The application process in essence is as follows:

- Application completeness check & evaluation of scientific alignment with HBP goals
- Approval/rejection by Science and Infrastructure Board
- If approval, signature of Memorandum of Understanding (MoU)

SCOPE feedback on the execution, and possible improvements, based on subsequent Partnering Project integration experience was vital to ensure a smooth and professional experience. For example, the MoU signature was a precondition for Partnering Projects organizations to be able to freely interact with HBP contributors. In some cases, PP organizations and HBP contributing organizations signed Confidentiality Agreements to permit the free flow of information.

When realizing that collecting MoU signatures was a challenge for large PP Consortia, we suggested to groups in this situation to connect with their HBP counterparts before the completion of this step avoiding topics which are sensitive. While this may sound like a small improvement it was highlighted a number of time that this helped projects to have a rolling start

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and was understood as a sign that SCOPE was ready to help find creative ways to supporting researchers in advancing their work.

Based on experience with this "pre-onboarding" we have asked potential PP applicants to reach out to HBP researchers as early as possible in their application preparation. We have found that this resulted in a much easier application process as they are more well-rounded and actionable.

2. Onboarding

Following a successful application PPs were officially welcomed into the HBP Partnering Environment. The next steps were that they were paired with a HBP contributor (often a Principal Investigator) who would act as Partnering Project Mentor and an organized kick off call.

2.1 PP Mentors

SCOPE/EPFL ensured that all PPs received a PP mentor which matched to the topical or technical needs of the Project. For the first waves of Partnering Projects they would also act as guides to help navigate the tools and service offering. Later waves of Partnering Projects started to increasingly rely on maturing documentation and asked their PP mentor to act as match maker or connector to topics and researchers which were considered complimentary to the PPs. While the contributions of the PP mentors were charged to the HBP Grant, the coordination of the program as well as maintenance and tracking was orchestrated by SCOPE/EPFL.

2.2 Kick Off Video Conference Calls

Kick off calls were the main vehicle to onboard the Partnering Projects and allowed them and their PP mentors to get a better understanding of specific PPs needs and interests. Both were furthermore encouraged to formulate a plan for operational alignment based on the needs and interests of the PP. While in most cases PPs do not formalise their action plan in explicit form, we found that these early steps have a positive effect on the scope of collaboration and expectation management. As of late March 2020, we have knowledge of a single instance where communication between a Partnering Project and an HBP mentor, or another supporting person, was not ideal and had to be supported by SCOPE supported coordinators to bring back on track. During the call we also highlighted potential topical overlaps with research groups in HBP or

other PPs and encouraged them to sign up for information services (such as the newsletter) and for upcoming HBP events. We also used the opportunity to collect missing information needed to complete a webpage for the new PPs (for more information on the website please see section "Visibility of PPs").

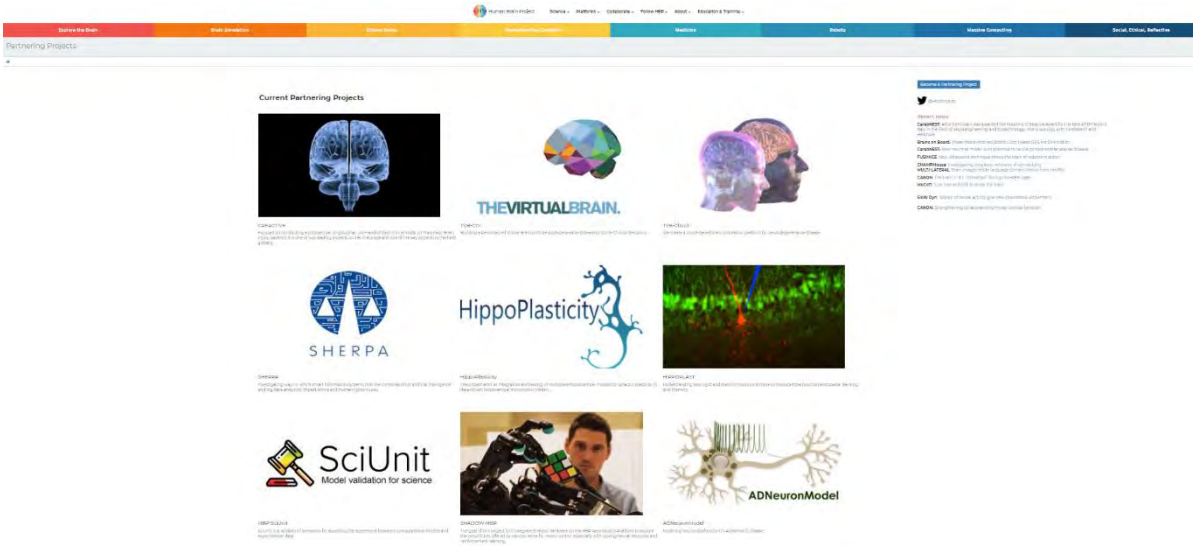

Figure 1: Screenshot of HBP Website: Partnering Projects Overview

3. Integration Activities

In the starting months of the collaborations many of the Partnering Projects relied on information and responses to queries addressed by the Partnering Environment. Continuous communication between PPs, the PP Representative and HBP members such as the ethics officer, the HBP leadership and relevant HBP members in this early stage helped many Projects find their heading quickly and to establish operational collaborations between researchers.

3.1 PPs and HBP

A consistent communication with PPs supporting the integration activities was crucial for this. The communication was sustained by e-mails responding to inquiries from PPs concerning the usage and collaboration with HBP members, engaging PPs in SCOPE activities such as available SCOPE grants, SCOPE updates, and opportunities for SCOPE to write articles about PPs and their scientific results.

HBP Newsletters were regularly sent to PPs to inform about education programmes, HBP events, scientific highlights as well as information on opportunities such as Expression of Interest calls.

To communicate SCOPE activities and the support available for PPs, HBP published the SCOPE flyer, information about the SCOPE travel grant and overall information about SCOPE on the HBP website as visualized in the screenshot below.

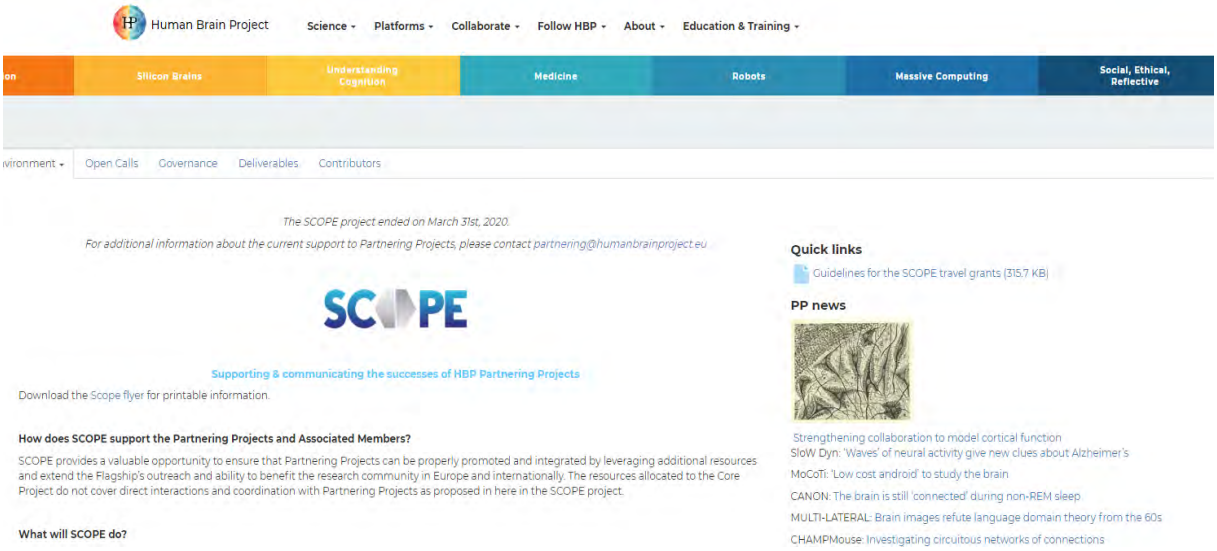

Figure 2: Screenshot of HBP Website: SCOPE

3.1.1 PP Representative in the HBP governance

The PPs elected in 2017/2018 the PP Representative Luc Gentet who represented the PPs in the HBP governance, in particular the Science and Infrastructure Board (SIB) of HBP. Between the years 2018-2020 the PP Representative Luc Gentet participated in more than 34 SIB meetings to represent the PPs. Furthermore, he got supported by SCOPE to attend four face-to face meetings in 2018, two face-to face meetings in 2019 and one face-to face meeting in 2020. Further details about the meetings are depicted in the SCOPE Deliverable 1.3.

3.1.2 Periodic "check ins"

In early 2019 we conducted phone calls with all active Partnering Projects to get feedback on integration opportunities offered to them in the Partnering Environment (via SCOPE or PP mentor support). We found that there were two patterns of integration. Most PPs favored in the first year a loose integration (videconference calls, meetings on the periphery of community

events). In the second year some intensified their integration activity by attending training events and seeking SCOPE support to do so.

The video conference calls between active PPs and their SP mentors in early 2019 raised possible opportunities for collaborations and highlighted the following integration activities, which the PPs appreciated the most: Access to the HBP consortium, SCOPE grants, exploiting competence of HBP members, utilizing and being able to contribute to the HBP Research Infrastructure and ultimately to HBP's vision. Through being associated with the HBP brand, PPs benefited by gaining visibility and recognition.

3.2 Financial Support

Over the years SCOPE offered financial support, in the form of travel or event support, to Partnering Projects. This was done to support them in their integration activities by allowing them to physically meet and interact with HBP researchers. Table 1 summarizes the types of grants offered and their reception.

Type of grant	2017	2018	2019	2020	Total
Travel & registration fee grant	1	2	6	31	40
HBP PP representative travel grants	1	3	0	1	5
Short visit grant	0	2	1	0	3
Early career researchers attending HBP events	0	3	0	0	3
Joint-workshops	0	0	0	2	2

Table 1: SCOPE grants in 2017-2020

3.2.1 Travel Grants

The SCOPE grant receiving the most attention has been the travel grant supporting PPs to attend Flagship events/meetings. The numbers have been increasing year after year, with the exception of 2019, which is due to the 2019 Summit having been moved to early 2020. Since the SCOPE deliverable 1.3 is describing the indicators in detail, this report is outlining all the PPs who received SCOPE travel grants to attend HBP events in Appendix E and will describe the results of the travel grants in the sections on integration activities and collaborations between PPs and HBP.

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3.2.2 Short Visit Grants

We were surprised that the possibility to visit HBP partners for a short visit was only realized once. Based on feedback we received from PPs they had briefly considered this option but many felt that their first questions were addressed by the increasing availability of HBP training resources (both online and in course format) or that they needed settings like joint workshops to begin exploring deeper questions. We understand that in some instances these workshops lead to students and post-docs spending significant time (weeks) in HBP or PP laboratories, but we did not systematically collect information on this type of interaction.

3.2.3 Joint-Workshop Grants

Based on the feedback we received from the PPs through videoconferences, the SCOPE activities adapted to their needs in order to facilitate the collaborations between PPs and HBP. Hence, a grant has been offered to PPs for joint-workshops with their respective HBP partners. The SCOPE grant supported the realization of two joint-workshops in 2019.

	Federating Rare and Complex Epilepsy Data Using the Medical Informatics Platform	**Federating Traumatic Brain Injury Data Using the Medical Informatics Platform**
PP and HBP SP	EpiCARE; SP8 - Medical Informatics	CREACTIVE; SP8 – Medical Informatics
Number of participants	31	11
Date/Location	2019-11-30; Lyon, France	2019-09-26; Bergamo, Italy
Objectives	a) Show the analytic capacity of the MIP by leveraging EpiCARE data. b) Discuss on harmonization of data and specific common data elements for rare epilepsies. c) Show how to implement data in the MIP: data extraction from RedCap, harmonisation of data to create the csv file that will be used for creating the json file.	a) Demonstrate installation of the MIP platform in two separate servers, each one containing a split part of the CREACTIVE data. b) Perform federated analyses on these two datasets consisting of descriptive statistics and validating the IMPACT prognostic score through the appropriate indicators, including the Calibration Belt c) Plan further possible federated analyses to be implemented in the MIP platform.
Activities	Give the members of the consortium the opportunity to	Give the members of the consortium the opportunity to see a demo live presentation of the MIP to demonstrate

	have a hands-on session on a pre-selected dataset to demonstrate the potential of this innovative tool in the development of new clinical strategies to diagnose and treat rare forms of epilepsy.	the potential of the MIP Algorithm using the TBI centralised data, guiding them through a hands-on session.

Table 2: Joint-workshops supported by SCOPE in 2019

The two joint-workshops successfully facilitated collaborations between both PPs and HBP. The full reports from both joint-workshops can be found in Appendix C and D.

4. Visibility of PPs

EPFL and FECYT encouraged PPs to share progress and success stories that could be made accessible to the community to highlight the contributions Partnering Projects are making to their domain of research and the larger Flagship effort. Some PPs were more ready than others to share. We attribute some of this to the different stages the PPs were in (early and mid-project versus end of project) and scientific communication to the general public still being a novel activity for many consortia. PPs were encouraged to use the HBP logo on their presentations and highlight that they are Partnering Projects.

The HBP website has been an established platform to present PPs and their collaboration with HBP, ensuring their visibility and recognition.

4.1 HBP Website

As described under the section Onboarding, the Partnering Environment ensured the visibility of all the PPs on the HBP website as showcased in Figure 1. Furthermore, PPs were asked to provide us with project details such as the timeframe of the project, funding, a project description, objectives of the project, a description of the collaboration with HBP, partnering organisations, joint publications and further publications. This information got publicized on their individual webpage created on the PE section such as the example in Appendix F.

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4.2 Social Media

To encourage more PPs to share their work and their experience we initiated a more conversational and impression-based communication campaign on the periphery of the HBP Summit 2020. We conducted video interviews with some of the PIs attending the Summit and work is underway to share final cuts of them with the public via social media. It is planned to expand this to a yearlong activity that gives PP contributors at different career stages a chance to share their experience and research with the wider public.

4.3 HBP Summit

Besides the internal HBP events PPs were invited to and attended, as described under the section SCOPE grants, the HBP summit. It was possible to get an extension of SCOPE support for 26 PPs (in total 46 researchers and the PP Representative) to attend the Summit. The SCOPE grant itself supported 17 PPs (in total 31 researchers and the PP Representative) to attend the summit. Appendix E lists all PPs that have received travel support from SCOPE to attend the HBP summit on 3rd -6th February 2020.
Communication between the PPs and the HBP consortium was strengthened by three PPs having the opportunity to present their projects and their collaborations with HBP at a plenary session during the HBP summit. Ten further projects were given the opportunity to present their projects and their collaborations with HBP at a parallel session during the summit, and eleven PPs could present their posters, hence their project results to the HBP consortium to share their work and network with the HBP consortium.

The parallel session at the summit with 47 PP members being present was also a platform to introduce some HBP services, which are available to PPs. PP members had the opportunity to directly connect to the HBP service providers. All in all, it has been an activity which introduced the new HBP services, when they became available, such as the HLST or the Collaboratory. Newest HBP Research Infrastructure developments were also introduced to PPs while offering opportunities to attend trainings to utilize those HBP services, such as the FENIX Infrastructure or the Knowledge Graph.

Appendix A depicts all PPs represented at the 2020 Summit, their topic of research, the names of the PP PIs that attended the 2020 Summit, and information regarding the sessions of the Summit they were involved in.

The attendance at the HBP Summit enabled PP members to learn more about the HBP Research Infrastructure, EBRAINS and its usage, as well as to strengthen communications with HBP members and collaborators. Additionally, it gave PP members the opportunity to present their project results and network with the HBP consortium. Please find pictures of the HBP Summit in Appendix G.

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5. Outlook and Recommendations

Since the start of the Partnering Environment, at the start of SCOPE, 107 organisations have contributed to build the Partnering Environment. 30% of these Organizations were previously associated with HBP. This is due to HBP contributing researchers starting new projects, and non HBP contributing Researchers at the same organizations joining via a Partnering Project. The remaining 73 organizations had no prior affiliation with HBP.

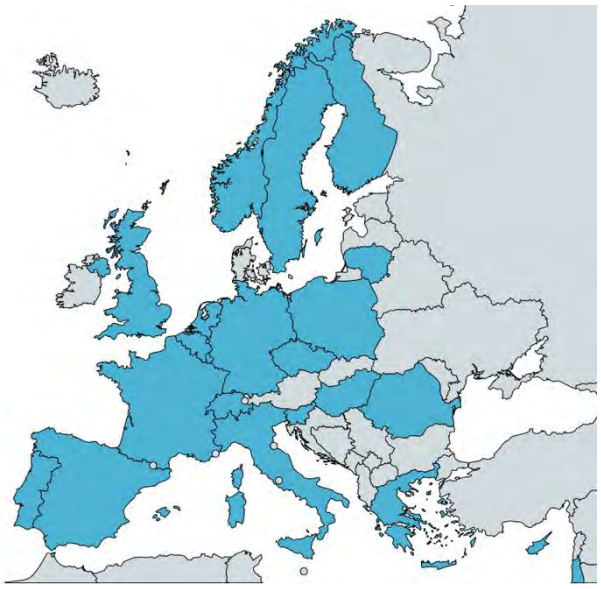

Illustration: Location of Partnering Project Contributors

Much of the SCOPE support had gone into establishing workflows to support the integration of such a large number of organisations into the HBP environment and updating them based on feedback of PPs and HBP. We consider the smooth operation of the Partnering Environment and the full adoption of SCOPE suggestions on continuing the Partnering Environment in the last phase of HBP a success.

HBP is entering the last phase of its journey as a Flagship strengthened with the following processes and approaches developed thanks to SCOPE.

A developing sense of community spirit between Partnering Projects. This was most visible at the HBP Summit. Creating the opportunity for this number of PPs to join a single event, and supporting them in presenting themselves as a group was a remarkable accomplishment of SCOPE in the past year. Similar activities have been worked into the HBP plans for the next years.

We received a very good overview of how far different modes of support (PE central support, PP mentors, collaborators, service providers, HBP high level support team) can function and are accepted as such by Partnering Projects. Finding the right balance was not an easy task and SCOPE was vital in collecting feedback, suggesting adjustments, and testing different support combinations.

Based on our experience it takes time for an idea like the Partnering Projects to establish itself, both in a hosting consortium and in candidate consortia. A clear value proposition helps, but is often not sufficient. Researchers in our PPs value the ability to freely interact with colleagues in a non-competitive setting over formal channels of access and services their association with HBP entitles them to. Interestingly we received the same feedback from HBP researchers when

asked which service they would like to extend the most beyond the Flagship funding phase. We plan to provide exactly such an environment over the remainder of HBP and try to find a way that this could continue to be offered after, maybe in the context of EBRAINs Partnering Projects.

We would like to pass two recommendations on to groups engaged in similar activities, or in a position to support them. Interdisciplinary consortia may sound like the ideal partners to help establish new communities, but this is only possible via long-term support and an open minded and ended approach to this activity.

We believe that SCOPE has been successful in creating bonds between 40 consortia. Regardless of topical or technical background SCOPE created the atmosphere for researchers to talk to each other about their process, goals, setbacks and successes. We consider the results of the described SCOPE activities as a worthy foundation for the next stage in building a healthy community supporting and feeding of the EC Flagship efforts.

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Appendix A: PPs and PIs that attended the 2020 Summit

Abbreviation	Topic	Where/Who @summit2020
1 ChampMouse	CHArting Multi-areal Visual Perception in the Mouse	Plenary session/Alexander Heimel
2 CREACTIVE	Collaborative REsearch on ACute Traumatic brain Injury in intensiVE care medicine in Europe	Plenary session/Stefano Finazzi
3 CerebNEST	Large-scale network models of the cerebellum for sensorimotor robotic control	Plenary session/Alessandra Pedrocchi, Alessandra Trapani, Alice Geminiani
4 TVB-Cloud	We create a cloud-based brain simulation platform for neurogenerative disease	Parallel session/Petra Ritter, Jochen Mersmann, Paula Popa, Bogdan Valean
5 TVB-CD	Building a Personalized Virtual Brain with Neurodegenerative Disease to Guide Clinical Decisions	Parallel session/Anthony Randal McIntosh
6 SoRoN	Soft Robotics with the HBP Neurorobotics Platform (NRP)	Parallel session/Poster/Satoshi Oota
7 CANON, DOMINO	Investigating the canonical organization of neocortical circuits for sensory integration	Conrado Bosman, Luc Gentet
8 HA-CTion	Hypothalamic histaminergic modulation of brain regions involved in fear memory	Beatrice Passani, Patrizio Blandina, Gustavo Provensi
9 EpiCARE	European Reference Network for rare and complex epilepsies	Poster/Andreas Schulze-Bonhage, Milan Brazdil

10 AdNeuronModel	Modeling neuron dysfunction in Alzheimer's disease	Parallel session/Helene Marie
11 RobotBodySchema	Robot self-calibration and safe physical human-robot interaction inspired by body representations in primate brains	Parallel session/Matej Hoffmann, Jan Šochman, Zdenek Straka
12 MAPS	Mapping Brain Circuits in Spatial Navigation	Poster/Andrea Mele, Arianna Rinaldi, Eleonora Centofante
13 Macaque vision	Biomimetic modeling of macaque visual cortex	Parallel session/Simo Vanni, Poster/Henri Hokkanen
14 Brainsynch-Hit	Study on directional interactions between brain areas in healthy controls and in patients with stroke to understand the neural mechanisms of neuropsychological deficits.	Poster/Andrea Brovelli, Chiara Favaretto, Michele Allegra
15 SENSEI	SEgmentation of Neurons using Standard and supErresolution	Nicola Vanello, Lydia Danglot, Peter Dedecker
16 Nest Desktop	An interactive application for computational neuroscience.	Parallel session/Stefan Rotter
17 RGS@HOME	The RGS@home project: Scaling ICT based neurorehabilitation to personalized 24/7 home care	Parallel session/Poster/Paul Verschure
18 SpinnCer	Neuromorphic hardware simulations of cerebrocortical-cerebellar loop	Poster/Beatrice Marcinno
19 MOSAIC	Modulation of slow OScillAtions In Cognitive tasks	Poster/Stefan Ferraina

20 HippoPlasticity	Integration and testing of multiscale hippocampal models for synaptic plasticity in data-driven hippocampal microcircuit models.	Poster/Ausra Saudargiene, Bruce Graham, Justinas Dainauskas
21 SHERPA	Investigating ways in which smart information systems impact ethics and human rights issues.	Poster/Bernd Stahl, Laurence Brooks
22 HPN-H&D	Human Projection Neurons in Health & Disease	Christos Strydis
23 SoundSight	The sight of sound: how vision shapes the development of auditory inputs to the occipital cortex	Christiaan Levelt
24 Brains on Board	Brains on Board: Neuromorphic Control of Flying Robots	Parallel session/Thomas Nowotny
25 NeuroReact	Neural real-time planning for reactive industrial robots	Parallel session/Lea Steffen
26 Slow-Dyn	Motor Control and Timing in the Cerebellum: Spatio-Temporal Integration in Complex Neuronal Networks	Patricia Caravajal

Appendix B: Joint- Workshop Report: HBP SP8 and PP EpiCARE

1. Why was the joint-workshop beneficial for the collaboration between EpiCARE and SP8?

It enabled discussing on how to advance the implementation of the partnership at various levels, including deployment of MIP, and involvement in the future HIP project.

2. What has been the outcome of the joint-workshop?

It boosted the progress in the deployment plan of the MIP across EpiCARE centres, and it helped to get commitment from EpiCARE SEEG centres to participate to HIP during SGA3.

3. What is the added value that EpiCARE have found collaborating with SP8/HBP?

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EpiCARE would greatly benefit from the Medical Informatics Platform (MIP) being installed in part or all of its hospitals to perform federate analyses of the collected data without requiring to export or to centralize sensitive information by accelerating the development of new clinical studies and trials of innovative treatment, in particular for orphan forms of epilepsy.

4. What is the added value of SP8/HBP to collaborate with the PP?

The collaboration between EpiCARE and HBP illustrates the relevance and value of the MIP to support brain research within a large network of high-profile academic medical centres. It will also reinforce the potential of the HBP research in the field of epilepsy surgery and intracerebral EEG recordings, by providing more participants and patients.

Appendix C: Joint-Workshop Report: HBP SP8 and PP CREACTIVE

1. Why was the joint-workshop beneficial for the collaboration between TBI groups and SP8?

The workshop helped to:

- Align more closely NEGRI with SP8.
- Further harmonise the aims of CREACTIVE and SP8.
- Helped to bring the CENTER TBI project into the joint collaboration at the practical level through the participation of the team from INCF.

2. What has been the outcome of the joint-workshop?

We have clarified the next steps to be taken in order to permit federated analysis of the data. At present the installed Medical Informatics Platform (MIP) functions only at the local level but not in federated status.

3. What is the added value you've found collaborating with SP8/HBP?

The added value comes from collaborating with a view to sharing and comparing TBI data from different cohorts and having more extensive datasets on which to perform analyses thanks to the unique capacities of the MIP and its federated analyses.

4. What is the added value of SP8/HBP to collaborate with the PP?

This collaboration will reinforce the chance to produce valuable results within the field of TBI, helping to develop new clinical and research strategies in care and prevention by using the MIP to federate large cohorts of TBI patients. This new cooperation (Creactive – Center TBI) will allow to increase the valuable datasets of TBI patients in order to perform deeper analyses using the MIP.

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Appendix D: List of HBP Partnering Projects (Feb. 2020)

Acronym of Partnering Project	Home SP of PP mentor	Title of Partnering Project	Country of Project Coordinator	PP since (year)	Start date of PP	End date of PP	Source of funding
Brains on Board	SP9/SP10	Brains on Board: Neuromorphic Control of Flying Robots	GB	2018	Dec 2016	Dec 2021	National
RobotBodySchema	SP10	Robot self-calibration and safe physical human-robot interaction inspired by body representations in primate brains	CZ	2018	Jan 2017	Dec 2019	National
MOSAIC	SP3	Modulation of slow OScillAtions In Cognitive tasks	IT	2019	Feb 2019	Feb 2021	National
SoRON	SP3	Soft Robotics with the HBP Neurorobotics Platform (NRP)	JP	2020	Jan 2018	Jul 2021	National
TVB-CD	SP4	Building a Personalized Virtual Brain with Neurodegenerative Disease to Guide Clinical Decisions	CA	2019	Apr 2018	Apr 2024	National
EpiSensor	SP8	Wearable Sensors and Epilepsy	GB	2019	Mar 2019	Mar 2021	National
NeuroReact	SP10	Neural real-time planning for reactive industrial robots	DE	2019	Jul 2017	Jun 2020	National
Async-Prop	SP3	Propagating Activity in Isolated Cortical Networks at the Edge of Asynchrony	GB	2019	Mar 2017	Mar 2021	National
InterneuronAxon	SP6	Axon signalling in hippocampal fast-spiking interneurons	NO	2018	Sep 2016	Aug 2020	National
HPN- H&D	SP2	Human Projection Neurons in Health & Disease	NL	2019	Sep 2017	Sep 2022	National, EU

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CREACTIVE	SP8	Collaborative REsearch on ACute Traumatic Brain Injury in intensiVe Care Medicine in Europe	IT	2018	Oct 2013	Mar 2020	National, EU
CerebNEST	SP6	Large-scale network models of the cerebellum for sensorimotor robotic control	IT	2017	Jun 2016	Mar 2020	National, Voucher Programme
CHAMPMouse	SP1	CHArting Multi-areal Visual Perception in the Mouse	NL	2016	Dec 2015	Jun 2020	JTC 2015
MULTI-LATERAL	SP2	Multi-level Integrative Analysis of Brain Lateralization for Language	NL	2016	Jun 2016	Dec 2019	JTC 2015
CANON	SP1	Investigating the canonical organization of neocortical circuits for sensory integration	NL	2017	Feb 2016	Mar 2020	JTC 2015
Brainsynch-Hit	SP8	Alterations of functional connectivity in the human brain after focal lesion and cognitive function: empirical and modeling studies	IT	2019	Jan 2018	Nov 2020	JTC 2017
HIPPOPLAST	SP4	How rigid and plastic circuits contribute to hippocampal function	FR	2019	Mar 2018	Feb 2021	JTC 2017
CORTICITY	SP2	Comparative Investigation of the Cortical Circuits in Mouse, NHP and Human	FR	2019	tbc	tbc	JTC 2017
SENSEI	TBD	SEgmentation of Neurons using Standard and supErresolution	IT	2019	Dec 2019	Feb 2023	JTC 2019

DOMINO	SP5, SP7	Development Of cortical Multisensory Integration mechanisms at micro- and macro-scales during NOrmal and pathophysiological conditions	NL	2019	Dec 2019	Nov 2022	JTC 2019
HA-CTion	TBD	Hypothalamic histaminergic modulation of brain regions involved in fear memory	IT	2019	Mar 2020	Feb 2023	JTC 2019
NeuronsReunited	TBD	Neurons reunited: data and software to reconstruct long-range projection neurons from brain tissue, place them in a digital reference brain with high precision, and model their interactions	NL	2020	Jan 2020	Dec 2023	JTC 2019
SMART BRAIN	SP1	Advanced Morphological Reconstruction of Human Brain Tissue by Multimodal Fusion of Multiscale Optical Imaging Technologies	IT	2019	Jan 2020	Dec 2022	JTC 2019
SoundSight	SP3	The sight of sound: how vision shapes the development of auditory inputs to the occipital cortex	NL	2019	Jan 2020	Dec 2022	JTC 2019
SHADOW-HBP	SP10	Integration of Shadow Dexterous Hand with the HBP Neurorobotics Platform	GB	2019	May 2019	Mar 2020	Voucher Programme

HippoPlasticity	SP6	Multiscale Hippocampal Models for Neuronal Plasticity: Integration to the Brain Simulation Platform	LT	2019	Apr 2019	Apr 2020	Voucher Programme
SpinnCer	SP6/SP9	Neuromorphic hardware simulations of cerebrocortical-cerebellar loop	IT	2019	May 2019	Mar 2020	Voucher Programme
MAPS	SP6	Mapping Brain Circuits in Spatial Navigation	IT	2019	Apr 2019	Apr 2020	Voucher Programme
ADNeuronModel	SP6	Building Alzheimer Disease Neuron Model	FR	2019	Jun 2019	Mar 2020	Voucher Programme
HBP-SciUnit	SP6/SP5	Enhancing HBP Model Validation using SciUnit	US	2019	May 2019	May 2020	Voucher Programme
NESTDesktop	SP10	NEST Desktop	DE	2019	Apr 2019	Mar 2020	Voucher Programme
Macaque vision	SP6	Biomimetic modeling of macaque visual cortex	FI	2019	Sep 2019	Mar 2023	Voucher Programme
TVB-Cloud	SP5	VirtualBrainCloud	DE	2019	Dec 2018	Nov 2022	EU
RGS@HOME	SP1/SP8	The RGS@home project: Scaling ICT based neurorehabilitation to personalized 24/7 home care	ES	2019	Jan 2019	Dec 2021	EU
SHERPA	SP12	Shaping the ethical dimensions of information technologies – a European perspective	GB	2019	May 2018	Nov 2021	EU
EpiCARE	SP8	European Reference Network for Epilepsy	GB	2020	Mar 2017	Mar 2019	EU
MoCoTi	SP10	Motor Control and Timing in the Cerebellum: Spatio-Temporal Integration in Complex Neuronal Networks	DE	2017	Mar 2015	Mar 2018	National

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SloW-Dyn	SP4	Slow Wave Dynamics: from experiments, analysis and models to rhythm restoration	ES	2017	Dec 2015	Nov 2018	JTC 2015
FIIND	SP5	Ferret Interactive Integrated Neurodevelopment Atlas	FR	2018	Jan 2016	Nov 2019	JTC 2015
FUSIMICE	SP4	Ultrafast Functional Ultrasound (fUS) Imaging for Highly-Resolved Targeted Mapping of Functional Connectivity in the Awake Mouse Brain	FR	2017	Jan 2016	Nov 2019	JTC 2015

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Appendix E: List of PPs that have received travel support from SCOPE

In year 2017:

Partnering Project	Event
PP representative	HBP Summit 2017 + 1st SCOPE Advisory Committee meeting
Slow-Dyn	HBP Summit 2017

In year 2018:

Partnering Project	Event
MULTILATERAL	HBP gender conference
CANON	Networking meeting with SP1
PP representative	SIB HBP Pavia
PP representative	EC Review HBP
PP representative	HBP Summit 2018
CerebNEST	HBP Summit 2018
CerebNEST	HBP Summit 2018
RobotBodySchema	HBP Summit 2018
RobotBodySchema	HBP Summit 2018

In year 2019:

Partnering Project	Event
Brains on Board	HBP Workshop on Neural SLAM

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

In year 2020:

Partnering Project	Event
ChampMouse	HBP Summit 2020
CREACTIVE	HBP Summit 2020
CerebNEST (3 participants)	HBP Summit 2020
PP Representative	HBP Summit 2020
HA-CTion (3 participants)	HBP Summit 2020
EpiCARE	HBP Summit 2020
AdNeuronModel	HBP Summit 2020
RobotBodySchema (3 participants)	HBP Summit 2020
MAPS (3 participants)	HBP Summit 2020
Macaque vision (2 participants)	HBP Summit 2020
Brainsynch-Hit (3 participants)	HBP Summit 2020
SENSEI (3 participants)	HBP Summit 2020
Nest Desktop	HBP Summit 2020
RGS@HOME	HBP Summit 2020
SpinnCer	HBP Summit 2020
MOSAIC	HBP Summit 2020
HippoPlasticity (2 participants)	HBP Summit 2020
SHERPA	HBP Summit 2020

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

Appendix F: Individual PP webpage on HBP website

Human Brain Project

Science · Platforms · Collaborate · Follow HBP · About · Education & Training

Silicon Brains | Understanding Cognition | Medicine | Robots

Brains On Board

Key facts

Time frame: 2016 to 2021

Origin: Spontaneous Application

Collaboration with HBP:

Funding: Engineering and Physical Sciences Research Council (EPSRC), UK

Project Website Brains on Board

News:

These Insect-Inspired Robots Don't Need GPS For Orientation

brains on BOARD

The "Brains on Board" project is an EPSRC funded Programme Grant, involving teams of biologists and computer scientists from the University of Sheffield, the University of Sussex, and Queen Mary University of London.

What if we could design an autonomous flying robot with the navigational and learning abilities of a honeybee? Such a computationally and energy-efficient autonomous robot would represent a step-change in robotics technology, and is precisely what the 'Brains on Board' project aims to achieve.

Project Description

Autonomous control of mobile robots requires robustness to environmental and sensory uncertainty and also need the flexibility to deal with novel environments and scenarios. Animals solve these problems through having flexible brains capable of unsupervised pattern detection and learning. Behavioural biologists and neuroscientists are increasingly realising that 'small'-brained animals such as insects have extremely rich behavioural repertoires. The honeybee, an extremely well-studied animal with a brain of only 1 million neurons, exhibits sophisticated learning and navigation abilities through highly efficient neural processes. Bees can reliably navigate over several kilometres in 3-dimensional space, learning the features that will enable them to return to their nest.

Objectives

The project will fuse computational and experimental neuroscience to develop a new class of highly efficient 'brain on board' robot controllers, able to exhibit adaptive behaviour while running on powerful yet lightweight General-Purpose Graphics Processing Unit hardware. This will be demonstrated via autonomous and adaptive control of a flying robot, using an on-board computational simulation of the bee's neural circuits; an unprecedented achievement in robotics technology.

Collaboration with HBP

Brains on Board (BoB) and the Human Brain Project (HBP) complement each other in many ways. BoB is focused on insect brains and applications in autonomous robotics using physical robots. HBP is working on mouse and human brain data and a virtual neurorobotics platform. More closely related to the core of this partnership, BoB is focused on using GPU accelerator technology for neuromorphic simulation of brain models while HBP is developing BrainScaleS and SpiNNaker neuromorphic computing platforms. This creates synergies through the re-use of brain models for different platforms and a widening of applications for the HBP neuromorphic platforms.

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Appendix G: Pictures from the PP sessions at the HBP Summit 2020

Illustration: PP Representative during the plenary session on Partnering Projects at the HBP Summit 2020

Illustration: PP keynote speaker at the plenary session on Partnering Projects at the HBP Summit 2020

Illustration: Partnering Projects presenting their posters during the Poster session at the HBP Summit 2020

Appendix H: HBP Presentation at the EC Review

Outline

1. Objectives and Activities
2. Integration Results
   1. PPs & institutions involved
   2. Success stories
   3. Grants
   4. Communication
3. Visibility
4. Conclusion & Impact

1. Objectives & Activities

Objectives & Activities

Onboarding activities	• Application processes simplified & coordinated • Kick Off Conference Calls • HBP mentor
Integration activities	• Periodic "check ins" • SCOPE grants • HBP Summit 2020 • PP Representative
Communication, Dissemination & Visibility	• Focal point (HBP consortium, PP Representative, FLAG-ERA) • HBP Newsletters • SCOPE grants/services promoted • Feedback • PP presence on HBP website • PP's encouraged to use HBP logo

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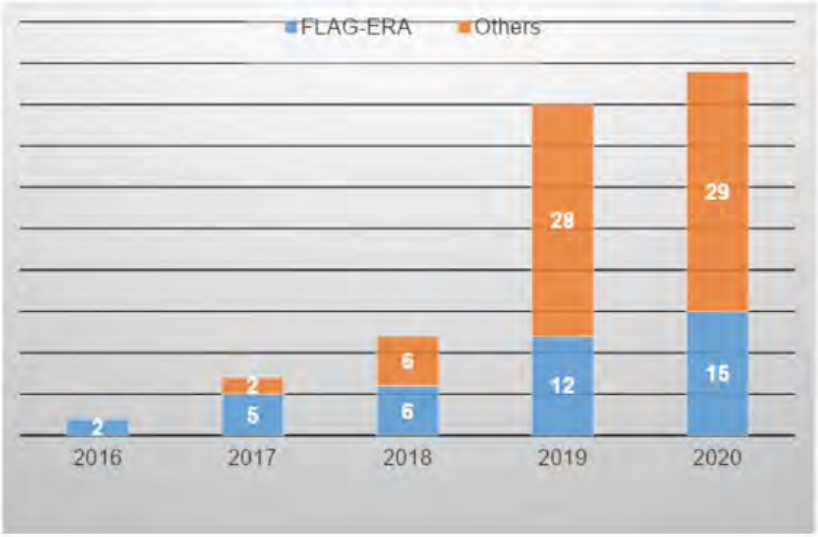
SCOPE

2. Integration Results:

2.1 PPs & institutions involved

PPs: Evolution & Summary

SCOPE



44 Partnering Projects
- 28 active PP
- 16 concluded PP

Total funding over 61m
- 33.5 m from EU
- 16 m from FLAG-ERA
- 12.4 m from National

108 Partners
- 74 Associated Members
- 34 HBP Partners

Duration: 1- 7 years (av. 3)

Evolution of active PPs

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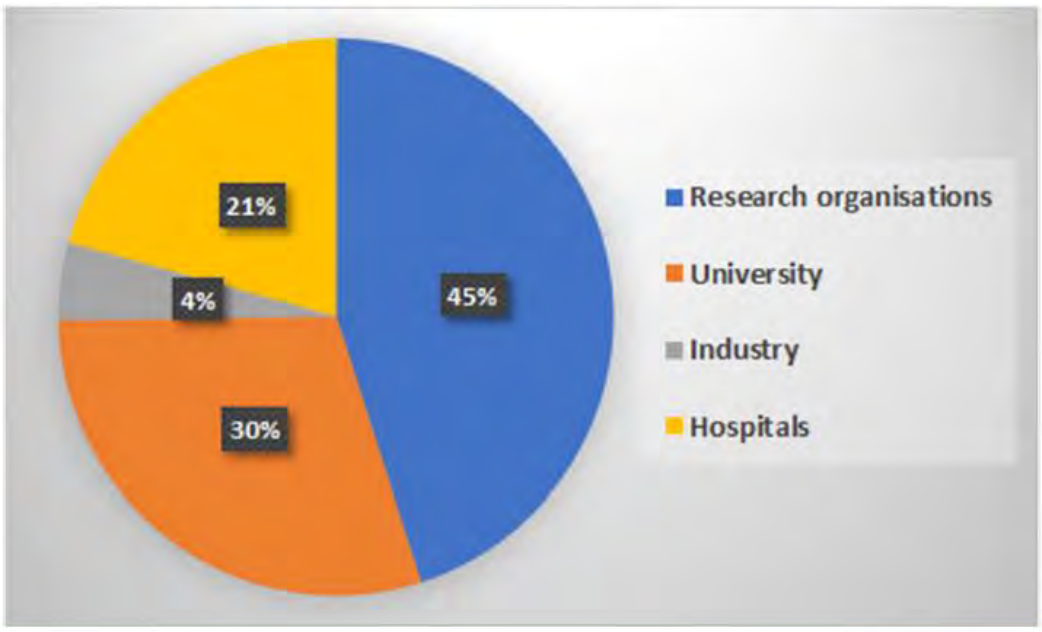
PPs: Institutions involved



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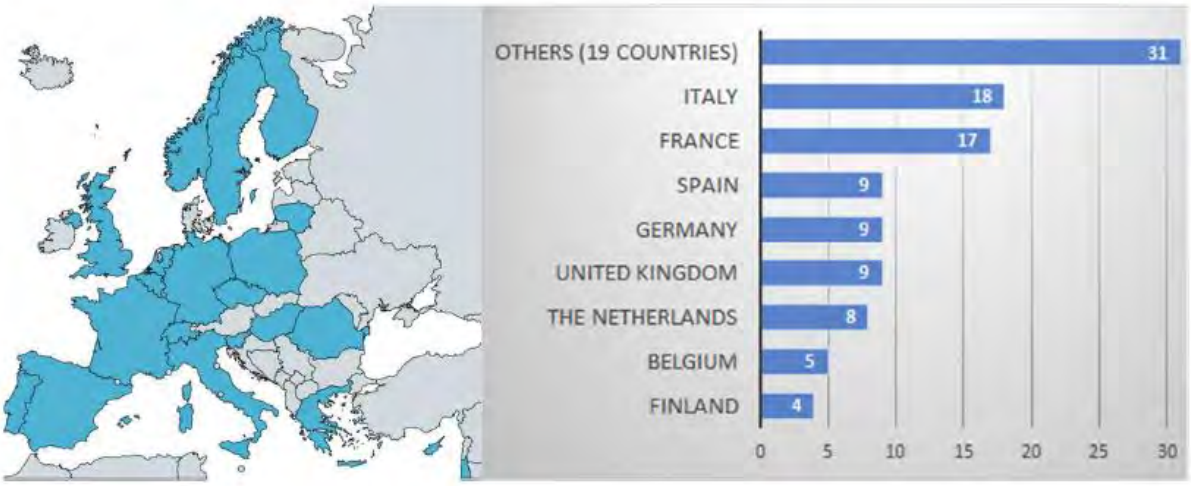
PPs: Distribution per country



2. Integration Results

2.2 Success stories

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 730033

SHADOW-HBP (2019-2020)

Aim: To enhance Shadow Robot´s current control system through embodied AI and brain-derived controllers
-> using the Neurorobotics Platform

Impact: Shadow Robot customers will be able to easily explore learning paradigms and control models coming from neuroscience

CREACTIVE (2012-2020)

Aim: Data collection of Traumatic brain injury (expects to enrol 7-9,000 moderate to severe TBI patients over 4 years)

-> Contributing datasets to the Medical Informatics Platform combining clinical data for public use

Impact: Identify the most effective clinical interventions to treat TBI patients optimally

2. Integration Results:

2.3 Grants

Grants: Summary

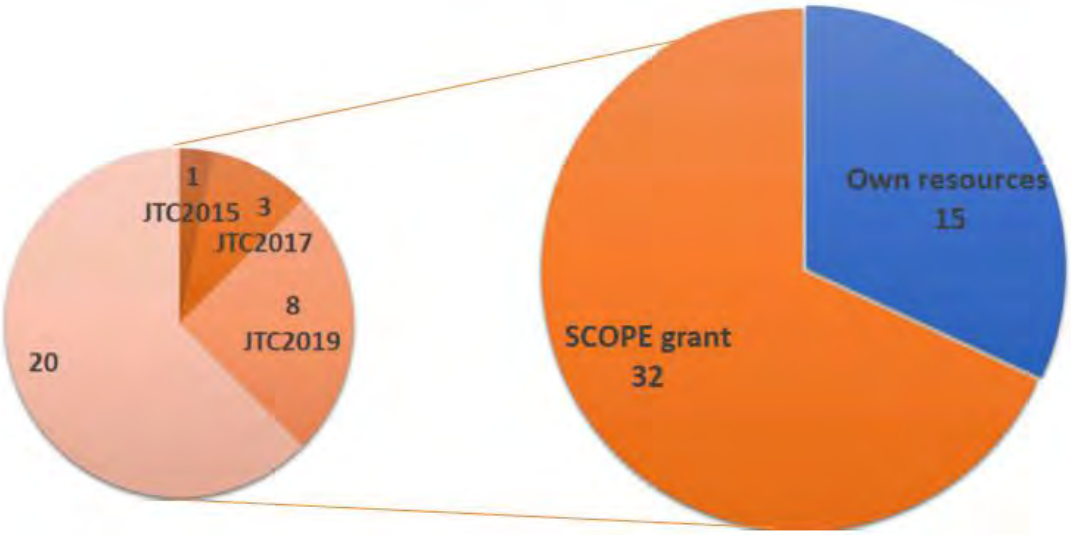
Type of grant	2017	2018	2019	2020	Total
Travel & registration fee grant	1	2	6	31	40
HBP PP representative travel grants	1	3	-	1	5
Short visit grant	-	2	1	-	3
Early career researchers attending HBP events	-	3	-	-	3
Joint-workshops	-	-	-	2	2

Source: FECYT

Grants: Joint- Workshops, 2019

Result	→ **Federated Epilepsy/Traumatic Brain Injury Data Using the Medical Informatics Platform (MIP)** → Planned the implementation of the collaboration → Deployment plan of the MIP across the PPs consortium → Commitment from PP's to participate during SGA3 → Harmonised aims	
Number of Participants	31	11
Activities	• Demonstrated the MIP • Discussed integration • Federated analysis on PP's datasets • Hands-on-session on the MIP	

Grants: Travel & Fee, Summit 2020



2. Integration Results:

2.4 Communication

Communication

- Periodic "check-ins" & Kick Off Conference Calls
  - → Highlighted possible collaborations, HBP mentor
  - → Understanding of needs, interests & requests
  - → Feedback on Benefits:
    - ★ Access to the HBP consortium
    - ★ SCOPE grants
    - ★ Using & co-developing the RI to contribute to HBP's vision
    - ★ Being associated to HBP
    - ★ Gain Visibility & Recognition
- Focal point (HBP consortium, PP Representative, FLAG-ERA)
- Promoted SCOPE grants/FECYT writing articles

Communication

- Monthly HBP Newsletters, SCOPE grants
- Twitter, slack

PP Representative

Involvement of PP Representative Luc Gentet (INSERM, France)

- → HBP governance
- → Integration activities

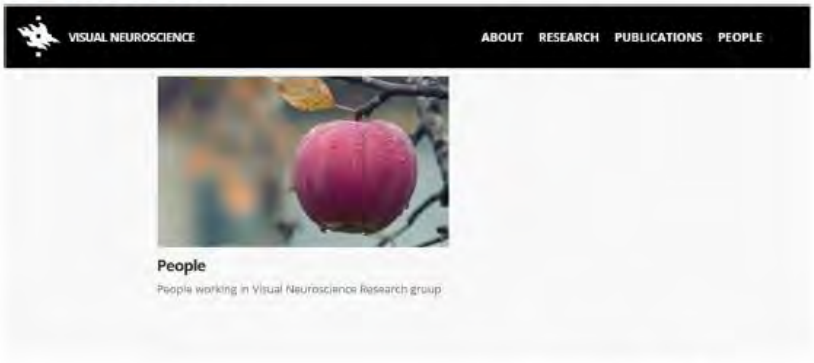
3. Visibility

Visibility

- HBP website:
  - → Description of project, collaborations
  - → FECYT's articles
  - → Interviews

Visibility

- Recognition:
  - → 2 PPs requested using the HBP logo on their presentations & websites



COLLABORATION

HUS Helsinki University Hospital

Human Brain Project

Visibility

- HBP Summit 2020
  - → 3 PP - keynote speakers
  - → 10 PPs -parallel session
  - → 11 PPs - poster session

4. Conclusion & Impact

Conclusion & Impact

ACTIVITIES

RESULTS

For 44 PPs:
- Onboarding & Integration
- Access to the HBP consortium
- 2 joint-workshops
- Visibility on the HBP website
- Communication channels
- Results reported

@ Summit 2020: 3 sessions
- 47 PP members participated
- 20 PPs presented

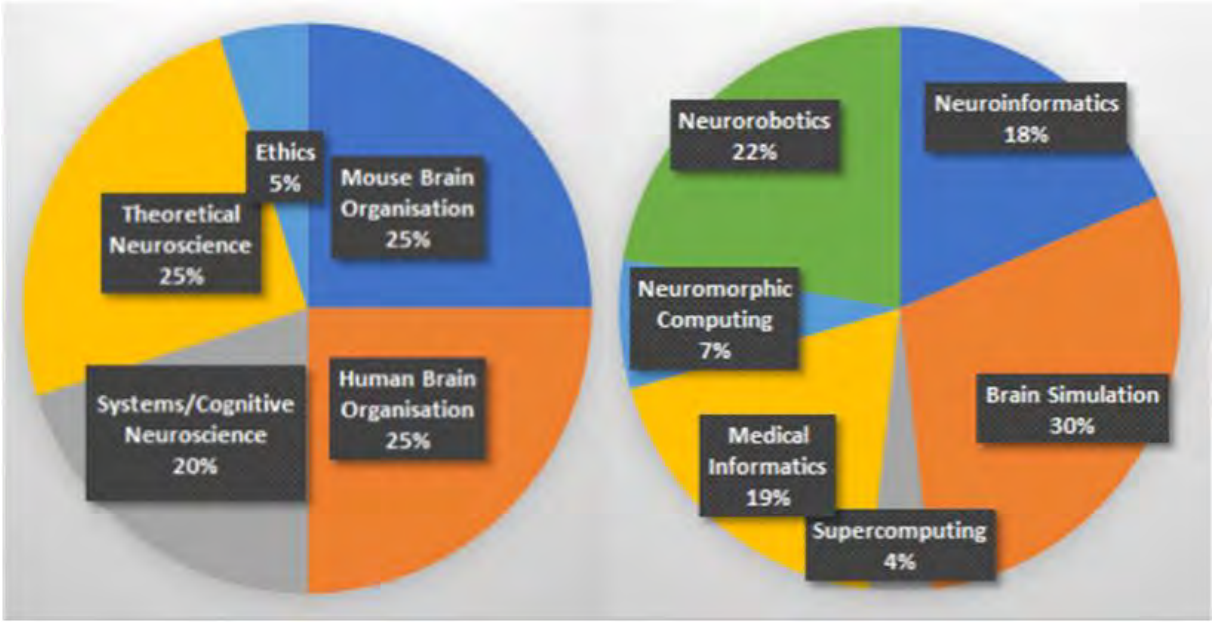
@Summit 2017: 2 sessions

IMPACT
- Integration of PPs (view slide)
- Media Analytics (view slide)
- PP stories (view slide)
- In SGA3:

➢ Recruitment
➢ Coordination
➢ Integration
➢ Engagement support
➢ Collaboration Registry
➢ Data & Analytics

Impact: PPs in the HBP roadmap

HBP Research areas



HBP Platforms

Impact: Joint-workshops

Added Value for PP	→ **Sharing & comparing** extensive data from different cohorts → **Performing federate analyses with the MIP** without requiring to export sensitive information → **Accelerate the development** of new clinical studies of innovative treatment
Added value for HBP	→ **Development of new clinical and research strategies** ◆ **For care and prevention of TBI** ◆ **For Epilepsy surgery** → **Illustrates the relevance** of the MIP to support brain research within a large network of high-profile academic medical centres.

Impact: Media Analytics

	Views	Avg. view duration	Countries
	250 (9,100 impressions, April - May 2020)	00:48	
	14,769 (Oct.07 - Mar2020)	01:31	Switzerland, Germany, Italy, US, UK, Spain, France, Netherlands, India, Belgium
	1,622 (Jun07 - Mar2020)	02:58	Spain, Switzerland, Austria, Italy, UK, France, Germany, US, India, Netherlands
	1,921 (Mar19 - Mar2020)	01:41	Switzerland, Germany, Italy, US, Spain, France, UK, Greece, India, Netherlands

Impact: PPs first-hand

https://www.youtube.com/watch?v=XSttYfsu_uw

Thank you for your attention!

Q&A