

Experiences from the FET Flagships Interim Evaluation

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The views expressed in this presentation are those of the speaker and do not necessarily reflect the official European Commission's view on the subject, nor that of the FET Flagships Interim Evaluation Panel

DISCLAIMER







launched in 2013 10 years, 1 B€ initiatives

www.graphene-flagship.eu 150+ partners from 23 countries

Human Brain Project



www.humanbrainproject.eu/ 116 partners from 24 countries



FP7 ERANET: www.flagera.eu

37 funding agencies from 26 countries

Part of the presentation is courtesy of Thomas Skordas Director of Digital Excellence and Science Infrastructure directorate, DG Connect, European Commission



Flagships: A Game Changer!





- Address a grand S&T Challenge
- Build on European Scientific excellence
- Technology-oriented
- Partnership involving academia, industry, the Commission and Member States
- Commitments to invest
- Enabling collaboration with nationally funded research
- Attracting international cooperation
- New scientific discoveries → European leadership
- Key competitive advantage to the European industry and large benefits to society
- Keeping talents in Europe
- Education and Training



FET Flagships: The phases











European Commission

Flagship budget:

- 50% from the EU and
- 50% mainly from the MS/AC
 → in-cash or in-kind contributions
- Integration framework CP/PPs

Flagship Governance

➔ Board of Funders: MS & EC





Commission expert group for the Interim Evaluation of FET Flagships

OBJECTIVES, COMPOSITION AND METHODS



The Evaluation Criteria



analusis

planning

Five Evaluation Criteria

1. Relevance / Contribution to EU policies

The relationship between the needs and problems in **Society and the objectives of the intervention**

2. Effectiveness

How successful was the intervention in progressing towards the objectives

3. Efficiency

The relationship between the resources used by an intervention and the changes generated by the intervention

4. Coherence

How well or not different actions work together

5. EU "added-value" of the intervention

Why the intervention is justified at EU level



The Evaluation Panel



Name	Position
Maria Carrozza (Chair)	Member of the Italian Parliament; Professor at Scuola Superiore Sant'Anna, Italy
Charlotte Brogren	Director General VINNOVA, Sweden
Ruth McKernan	Chief Executive Director of Innovate UK, United Kingdom
Matthias Kleiner	President of the Leibniz Association, Germany
Michal Kleiber	Vice-President of the European Academy of Sciences and Arts, President of the European Materials Forum, Poland
Paul Kidd (Rapporteur)	Consultant, United Kingdom

Senior Advisors: Caroline A. Lodemann, Calogero Oddo, Johan Lindberg, Sivasegaram Manimaaran

independent high-level experts, all with experience of research policy and strategy

Blog post by Thierry Van der Pyl of 27 Jan 2016

"FET Flagships interim evaluation: the best is yet to come"

http://ec.europa.eu/digital-agenda/en/fet-flagships#Blogs







- This evaluation was not a scientific review of the work undertaken by the Flagships, but an assessment of the instrument itself. However, the Panel's work did call upon the results of scientific reviews of the Flagships, as well as evidence provided from other sources.
- The Expert Panel consisted of independent high-level experts, all with experience of research policy and strategy, drawn from five countries, assisted by a Rapporteur, four Senior Advisors, and European Commission staff.
- Final FET-F Panel report was approved on 31st of January 2017







- Three meetings among the members of the Expert Panel (1st of February, 8th of July, 9th of December, 2016) to review evidence and to formulate their conclusions.
- Periodic telephone conferences among the Panel's Advisors were held to plan and implement the evidence gathering work and to discuss the writing of the report.





- Additional evidence was provided by the two Flagships and the two support projects FLAG ERA and TAIPI.
- The Panel received the technical review reports of the two evaluations of the on going Flagship initiatives, which provided insights into the views of the technical experts assessing the progress of the two Flagships. This included the technical assessment of Flagships progress to date, but also responses to more strategic questions surrounding the role and effectiveness of the Flagship instrument.







- Evidences collected through written questionnaires and interviews, from a wide range of stakeholders organised into the following groups:
 - FET Advisory Group;
 - European Commission;
 - National Ministries and funding agencies;
 - Graphene and HBP Flagship participants;
 - Coordinators of partnering projects to the Flagships
 - Non-participants in the Graphene and HBP Flagships, but working within the respective fields;
 - Organisations from outside the EU;
 - Others (not covered by the above).







FET FLAGSHIPS Interim Evaluation

Commission expert group for the Interim Evaluation of FET Flagships

FINDINGS AND RECOMMENDATIONS

Members of the Evaluation Panel

Maria Chiara Carrozza (Chair) Charlotte Brogren Michal Kleiber Matthias Kleiner Ruth McKernan Paul T Kidd (Rapporteur)

Senior Advisors

Johan Lindberg Caroline A Lodemann Sivasegaram Manimaaran Calogero M Oddo

Final Report February 2017





Evaluation criterion 1: relevance



- The Flagship instrument has increased investments in Research and Innovation.
 Both Flagships are demonstrating that they are contributing towards excellent science, although there are differences between the two. Both projects are delivering world-leading results, and are reporting achievements beyond those defined by their Key Performance Indicators, for example, in terms of the number of scientific research publications. They are also raising the profile of Europe's leading edge research, while also moving towards innovation outcomes in the longer term.
- If the individual Flagships continue to deliver on their ambitious agendas they will be well placed to make an **important contribution towards the Europe 2020 goals of delivering smart, sustainable and inclusive growth.** This will subsequently create employment in the resulting industries of the future. And this makes the Flagships of continuing relevance to all involved stakeholder communities and to European citizens.
- The key point is that the general objectives of the Flagships are unique to this particular instrument. Such objectives continue to be highly relevant as part of Europe's overall Research and Innovation Strategy. There is a strong justification therefore to continue funding the instrument at EU level. FET Flagships also represent value for money as a Research and Innovation funding instrument.



Evaluation criterion 2: effectiveness



- While the Flagships demonstrate their effectiveness in delivering excellent science, their future effectiveness in supporting innovation still needs to be demonstrated. Additional work should be undertaken on refining this aspect. In particular, the stakeholders need to consider further, how best to achieve, in one instrument, what are often seen as very different objectives excellent science and excellent innovation.
- Further improvements are also desirable to both the strategic and operational management of the Flagships. In particular, more can be done to reduce the burden associated with a two-year funding cycle, which importantly, will also help improve in-year budget flexibility and enable the Flagships to better respond to opportunities and make significant investments in infrastructure or demonstrators.



Evaluation criterion 2: effectiveness



- As for the strategy boards of the Flagships, these need to be more positioned within an international context. This will allow for **benchmarking of European** leadership in the respective fields and for informing on future investments. Such changes to the strategic management approach will also be important for ensuring the shift of focus towards innovation, as the scientific results become more mature.
- It is also the case that some of the Key Performance Indicators (KPIs) used by the Flagships are very traditional in the sense that they are too oriented to describing typical research outcomes. **Further development of the KPIs is needed**. KPIs can help emphasise and clarify differences with other research and innovation instruments of Horizon 2020.



Evaluation criterion 3: efficiency



- There is a TAIPI indicator on efficiency: "share of management cost compared to overall cost". According to the TAIPI report, "during the ramp-up phase, about €3.5 million (4.7%) of the overall budget (€75 million) were allocated to management actions. The share of management costs in the Graphene Flagship has been kept at a low level, and it is by 1.5% below the share of FP7 management costs."
- Anyway, it is still too early in the history of the Flagships to be assessing efficiency in detail. Measuring efficiency in terms of share of management cost compared to overall cost, and showing better indicators in the Flagships in comparison to smaller-scale programs, may not be fully satisfactory. This matter needs to be considered in more detail as the Flagships develop, particularly in respect to factors that may affect efficiency in the longer term. The most important matters are those that relate to the efficiency of strategic and operational management, and the efficiency of the mechanisms that link the Flagships to national initiatives.



Evaluation criteria 4-5: coherence and EU added-value



- Relating to the issue of the relationship with other Horizon 2020 activities, there is a **need for improved interaction across the programme**, in order to guarantee the Flagships are informed about decisions taken in other parts of the Horizon 2020 programme and Commission policy elsewhere.
- Linking research investments made through private and public funding across Europe with the two current Flagships is proving to be more difficult than expected. The relationship between the Flagships and national initiatives must be seen in the framework of a global view of the interaction between European and National programmes. Thus far the EU added value has yet to be fully demonstrated. To improve this situation two issues are crucial: (i) Flagship selection process and (ii) the mechanisms used to link to national initiatives.

Very relevant criteria in the perspective of the present workshop on P2Ps



Evaluation criteria 4-5: coherence and EU added-value



- The Flagship selection process needs openness and transparency and must involve all relevant stakeholders. This process also needs to **ensure commitment and buyin from national authorities from the start.** It is necessary to be clear as to what conditions make a Flagship an appropriate vehicle for supporting research. The rationale for the choices made and agreement on the distinct features of Flagship when compared with other initiatives should also be clear.
- These lessons have been learned and the **approach to the creation of new** Flagships is now being done in closer collaboration with the national authorities.
- The second matter, that of the linking mechanisms between the Flagships and national initiatives, is still under development. These need to be further improved. In particular other mechanisms, beyond those conceived thus far, need to be explored in the **quest to find the simplest and most effective means of cooperation and coordination between the Flagships and national level activities**.

Very relevant criteria in the perspective of the present workshop on P2Ps European Commission



Recommendation 1. Strategic Relevance of the Flagship Instrument in Setting and Implementing the European Strategy for Research and Innovation

The continuing strategic relevance of the Flagship instrument for Europe's research and innovation is confirmed, with a strong endorsement of the thinking underlying the Flagship concept. The funding of the Flagships instrument represents good value for money in terms of the quality of the research and its potential for innovation. It is thus recommended that the Flagship initiative be continued, and new Flagships launched in fields where the concept is relevant.

European Commission



Recommendation 2. Increase Clarity of Purpose and Differentiation between the Flagships and other Research Instruments

The **nature** of **FET Flagships** and how they **differ from other research instruments** needs to be further articulated if the value commensurate with the scale of the investment being made is to be achieved. The concept of Technology Readiness Levels (TRLs) should be used to differentiate Flagships from other research instruments. In particular it is important to demonstrate how the focus of the Flagships shifts across TRLs with time. Further reflection on the design of the Flagship instrument is needed to reach a situation where science is driving innovation, and in turn, this innovation is driving new science. The Flagships need to demonstrate that they have strategic research and innovation agendas aligned with industrial interests. This should be based on understandings of existing industries, as well as opportunities for new entrants such as via start-up companies able to boost disruptive innovation. More effort should be devoted to involving SMEs in the Flagships.



Recommendation 3. Establish a Standard Means of Assessing the Flagships based on Key Performance Indicators that Fully Reflect Purpose

European Commissior

The **KPIs** used by the Flagships should be more **sophisticated**. They should include the means of assessing **future potential**. KPIs should be developed to measure the meaningful engagement of industry. Such KPIs should be grounded in realistic potential reflecting the existing industrial landscape and its potential for future developments. KPIs measuring the differences between Flagships and traditional Research and Innovation projects should be developed. A **common** system of assessing the Flagships should be created so that **comparisons of KPIs across Flagships** can be made.

European Commission



Recommendation 4. Improve Operational Management to Enhance the Budget Flexibility and Reduce Administrative Overhead

Funding models and funding time-scales should be changed to reflect the special nature of the Flagships. A longer funding cycle should be implemented to improve the flexibility needed to respond to changing circumstances and opportunities. This will also help further increase administrative efficiency. National and EU level schemes should be examined to see which good practices could be transferred across to the Flagships. A relevant example at national level is the Innovate UK's funding for Catapult Centres.

European Commission



Recommendation 5. Improve Strategic Management to Enhance Openness of the Flagships towards Adopting New Directions

The Flagships should be **more open to external inputs** that can challenge assumptions and direction. Today, the implementation of separated strategic and advisory activities from day-to-day management help Flagships enhance their capabilities to develop in new directions and towards innovation and exploitation of results. **Strategic advisory boards that bring in international perspectives should be implemented in all Flagships to create a global context.** These boards should also review the Flagships by defining benchmarks so that an understanding of European leadership can be established.





Recommendation 6. Improve Coherence with other Horizon 2020 Activities

A higher degree of **interaction** is recommended between initiatives under Horizon 2020 and beyond. It is essential that **communication within the Commission is improved** to ensure that stakeholders have a clear understanding of the opportunities on offer and the relationship between them.

> Very relevant recommendation in the perspective of the present workshop on P2Ps





Recommendation 7. Improve the Process of Selecting Flagships

It is recommended that commitment and buy-in from stakeholders including national authorities is obtained early on, before Flagships topics are finally selected. The process should be grounded in science and technology potential, the potential for impact and EU added value, and should attentively take into account the priorities recommended by Member States.

> Very relevant recommendation in the perspective of the present workshop on P2Ps





Recommendation 8. Improve Engagement with National Initiatives

The operation of the **model of using national Partnering Projects** to engage national level activities with the Flagships should be monitored with a view to **finding improvements and simplifications**. Additional ways for public and private initiatives to engage with the Flagships should be sought. Outreach activities to all interested parties, including relevant research communities that have not yet been engaged by the Flagships, should be increased with the aim of ensuring a greater structuring effect and avoiding duplication of effort.

> Very relevant recommendation in the perspective of the present workshop on P2Ps





A personal experience as researcher

SYNERGY BETWEEN RESEARCH FUNDING INSTRUMENTS

Feeling Texture with a Bionic Fingertip

An amputee and non-amputees feel textural features in realtime from an artificial fingertip connected to nerves in the arm.



Intraneural stimulation elicits discrimination of textural features by artificial fingertip in intact and amputee humans (2016)





Synergy between TIME (FP7), Nebias (FP7), Nanobiotouch (FP7), Nemesis (Italian Ministry for Health) and HandBot (Italian MIUR) projects.





BBC

Fox News



Artificial Touch from bionic prostheses to surgical robotics



Surgical Robotics

Applications in Bionics Touch restoration in limb amputees Derivative key enabling technology

Neuromorphic encoding of tactile information

Science of the human sense of touch and engineering of an artificial sense of touch

The neuro-robotics discovery engine and artificial touch



Science of the human sense of touch and engineering of an artificial sense of touch