

Results of the EFFECT Open Discussion on the relevance of European support to interdisciplinary high-risk research on disruptive technologies

The [public discussion](#) on the relevance of European support to interdisciplinary high-risk research on disruptive technologies, which was recently undertaken by the EFFECT project, spurred great interest among a variety of stakeholders, with more than 40 appreciations and 21 comments received.

The objective of the discussion was to gather the opinions of various stakeholders, and the general public, to help assess the relevance, coherence, effectiveness and added value of financial support on multidisciplinary high-risk research with specific reference to disruptive technologies. The discussion was open from the 1st of March until the 31st of May 2018.

The discussion covered the main topic discussed during the event "[European Leadership through Disruptive Technologies: Future and Emerging Technologies Towards 2030](#)", organized by EFFECT project¹, in collaboration with the European's Parliament ITRE Committees members, Patrizia Toia e Isabella De Monte. The event took place on the 7th of March 2018 at the European Parliament and brought together parliamentarians, EU officials, industry experts, scientists, academics, members of the FET Advisory Group and the Horizon 2020 FET Flagship Interim Evaluation Committee.

The open discussion published on the Futurium portal engaged more than 21 individuals, who answered to the major question **"Why should interdisciplinary high-risk research on disruptive technologies be supported?"**.

"Multidisciplinary and impact are the main keywords" wrote Marco Nolinari in his comment, and this reflects one of the first relevant results of the open discussion, which involved stakeholders leading in different disciplines, such as neuroscience, psychology, biology, physics, chemistry, mathematics, computer science, social sciences and economics.

Many aspects have been identified as relevant to reply to the main question:

- Dimensions of Multidisciplinary (cross, trans, multi, intra);
- European need to support high-risk interdisciplinary research and collaboration, which in 2014-20 was funded mainly by Horizon 2020 [Future and Emerging Technologies \(FET\) programme](#);
- Disruptive innovation capable to foster development and long-term growth emerging from interdisciplinary collaboration;
- Main focus on ideas, in order to foster the direct support to emerging leaders in the scientific and innovation community;

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- The need to foster a transparent evaluation process, capable to support with adequate funding excellent and novel consortia.



Graph.1 Outcomes of the public discussion within the European scientific community on “interdisciplinary high-risk research on disruptive technologies”

Contributors to the discussion focused their attention on one of the Horizon 2020 FET programme. The major reason behind this, it’s related to the promotion of collaborative research, which should be high risk and interdisciplinary, focused on the emergence of disruptive technologies and innovation. This has been furtherly explained by Arianna Menciacchi, who described her view regarding the difference between interdisciplinary high-risk research developed in the FET programme and European Research Council programme.

The responders identified several issues as relevant for the topic. The Graph 1 shows main concepts behind the received contributions (axes), the number of votes in the defined area, the average of topic relevance and appreciation received (trends).

The collaboration among multidisciplinary communities represented the main aspect identified as relevant because of the following reasons:

- The interactions among different fields allow to come up with disruptive innovations, which represent the fundamental step to guarantee industrial development and social and economic growth;
- “The world is far too complex to be studied in slices, as the current disciplines force us to do” wrote Fausto Giunchiglia. Multidisciplinary collaborations could be able to solve complex problems, by creating unexploited results and real added value to our society and economy.
- Collaboration among STEM and social sciences brings to sharable knowledge capable to bring advancements in science, technology and our society.

The second main topic focused on the need to open financial support not solely on "science-to-market" breakthroughs, but also to basic and fundamental research devolved to disruptive technologies, which is high-risky per definition. As stated in a report² from EU dated 2009: *"In Research and Development there tends to be a high correlation between potential impact (= excellence, frontier, bringing about radical innovations, breakthrough research, or similar objective) and risk, implying that the higher the risk of the research the higher are its potential impacts."*

Basic interdisciplinary science focused on emerging technologies could help Europe grasp leadership early in those promising future technology areas renewing the basis for future European competitiveness. Gaining leadership in specific areas can make a difference for society in the decades to come.

"Nowadays a disruptive innovation is mainly the finding of a connection, an unexpected link among different disciplines" wrote Matteo Mascagni. The emergence of disruptive innovation along the path of high risky interdisciplinary collaboration is another of the major trends of discussion contribution.

This was also embraced in terms of the emergence of novel actors in the science and innovation ecosystems. "If you seek truly breakthrough innovations, then you also need to give space to non-mainstream researchers and ideas" wrote Gianluca Baldassarre. This approach is particularly evident in the FET programme, which foster the participation of young researchers and high-tech SMEs.

Finally, major comments were also given on the efficiency of the evaluation process of the funding schemes, highlighting the relevance to focus on disruptive ideas, giving access to the funding support also to emerged stakeholders and on the basis of a truly interdisciplinary panel of independent experts. This was highlighted also in terms of open funding opportunities in areas already covered by major initiatives funded by the European Commission, e.g. FET Flagships, guaranteeing the truly openness of funding schemes dedicated to interdisciplinary high-risk research on disruptive technologies.

The results of the discussion, launched by EFFECT project, have been transferred to the European Commission in order to support the implementation of the current Horizon 2020 programme, and in particular the FET programme, and to consider suggestions for improvements with a view to a successor programme.

FET in numbers: The importance of the FET programme is well summarized by the following figures: around 25% of FET projects lead to patent applications within three years of completion; roughly 40% include partners from high-tech research small and medium enterprises; one in eight lead to a start-up company within three years of finishing.

More information:

The discussion is available at: <https://ec.europa.eu/futurium/en/digital4science/why-should-interdisciplinary-high-risk-research-disruptive-technologies-be-supported>

For any questions feel free to contact the EFFECT team at info@fetfx.eu

²MORE FRONTIER RESEARCH FOR EUROPE A Venture Approach for Funding High Risk – High Gain Research Report „SIS 2009 ERABSTUDY“ (final) For the European Commission DG Research,2009