

Joint Technology Initiatives

Joint technology initiatives (JTIs) were set up as European institutional public-private partnerships to carry out the strategic research agenda of some established European technology platforms. Five JTIs were established under the 7th framework programme for research. Evaluation of these JTIs led to development of their legal framework to simplify their rules and procedures. Six JTIs are currently operational, receiving a €6.7 billion contribution from Horizon 2020.

Policy context

In March 2000, the European Council [adopted](#) the Lisbon strategy aiming to make the European Union 'the most competitive and dynamic knowledge-based economy in the world'. In the field of research, this was to be implemented by creating a [European Research Area](#) (ERA), within which national research systems would become interoperable and integrated. In March 2002, the European Council also [adopted](#) the Barcelona objective, stating that spending on R&D and innovation in the Union should approach 3 % of GDP by 2010. With the twin objectives of addressing the fragmentation of research and increasing private investment in research, the European Commission suggested creating [public-private partnerships](#) (PPP). In March 2003, the European Council [supported](#) the Commission's proposal to create [European technology platforms](#) (ETPs).

Establishing the joint technology initiatives

The Commission [identified](#) that the implementation of the strategic research agendas of some ETPs would require a pan-European approach with dedicated funding in June 2004. It suggested setting up appropriate structures called 'joint technology initiatives' (JTI) using Article 171 of the Treaty establishing the European Community ([now](#) Article 187 of the Treaty on the Functioning of the European Union – TFEU). This article was used for the first time in 2002, to establish the joint undertaking (JU) to implement the [Galileo](#) programme for satellite navigation. In September 2004, the Commission [began](#) to reflect on criteria for ETPs to become JTIs, focusing on the strong public interest and the real European added value. The JTI concept was supported by the [Council](#) of the EU in November 2004, and by the [European Parliament](#) and the [European Council](#) in March 2005. Joint technology initiatives were included in [proposals](#) for the 7th framework programme (FP7).

In June 2005, the Commission [detailed](#) the criteria for JTI selection: strategic importance of the topic and presence of a clear deliverable; existence of market failure; concrete evidence of Community added-value; evidence of substantial, long-term industry commitment; and inadequacy of existing Community instruments. The Commission identified six potential JTIs on: fuel cells and hydrogen ([FCH](#)); aeronautics and air transport ([Clean Sky](#)); innovative medicines ([IMI](#)); nanoelectronics technologies (ENIAC); embedded computing systems (ARTEMIS); and global monitoring for environment and security (GMES). The joint undertakings to be established would ensure the efficiency and durability of the JTIs, support the long-term commitment of the private and public partners, and promote transparency, cooperation and openness between the participating stakeholders. In November 2006, the Commission updated its [roadmap](#) to establish the JTIs. The Commission defined necessary keys for the success of the JTIs: increased investment from industry; the capacity for public investment to effectively address market failure in the field; governance; and the role of the Member States.

Joint technology initiatives in 7th framework programme

The [regulation](#) and [specific programme](#) for FP7 adopted in December 2006 included the final list of criteria to select the JTIs. The impact on industrial competitiveness and growth and the contribution to broader policy objectives including benefit to society were added to the criteria already mentioned. In May 2007, a Commission [document](#) presented the state-of-play on the JTIs. They were expected to have a leverage effect on both private investment and national public funding and to create a critical mass at EU level to compete worldwide. They would have to comply with the [state aid framework](#) for research. While a 'one size fits all'



approach was not deemed appropriate, the Commission proposed guiding principles to establish the JTIs covering the legal structure, governance, openness, transparency and financial management.

[Regulations](#) for four joint undertakings (ENIAC, ARTEMIS, IMI and Clean Sky) were adopted by the Council in December 2007, while the [regulation](#) for the fuel cells and hydrogen JU was adopted in May 2008. Following the failure of the PPP approach for Galileo in 2007, the JTI approach to implement GMES – now the [Copernicus](#) programme – was abandoned.

The Commission and the private sector partners, individually or through associations, are represented in the JU. For ENIAC and ARTEMIS, Member States were also represented, as they contributed to the JU budget. The EU financial contribution to the JTI is managed by the JU, while the private sector contributes in kind. Other financial contributions can be provided to the JTI, such as structural funds. The expected budget committed for the JTIs under FP7 is presented in table 1. The JTIs establish their own annual work programmes, implemented by the JU that organises calls for proposals and ensures distribution of EU funds to the partners.

The Commission recognised in the April 2009 FP7 progress [report](#) that the establishment of the JTIs had been 'long and tedious' and that it was too early to judge whether they would have the intended impact. In January 2010 the JTI sherpa group [assessed](#) the first experience of setting up institutional PPPs in research at European level as 'a challenging and cumbersome resource-intensive experience for all parties'. It underlined that trust and confidence between the public and private partners were the cornerstone of the JTIs and identified key principles regarding the legal structure, governance, operational modalities and funding of the JTIs. The sherpa group noted that the procedures for the private sector partners were burdensome and disproportionate, the system was excessively control-based and the rules reflected generalised aversion to risk. The group advocated that the current legal framework for the JTIs should be reviewed. The same remarks regarding the JTIs were formulated in the midterm [review](#) of FP7 in November 2010. The variety of rules and procedures in the JTIs was mentioned as an issue in the 2015 final [review](#) of FP7 that also noted clearer measurements for industry commitments were needed.

Table 1 – JTI funding under FP7 and Horizon 2020 (in € million)

FP7	FCH	Clean Sky	IMI	ENIAC	ARTEMIS			Total
EU	470	800	1000	450	420			3140
Industry	470	800	1000	1750	1535			5555*
Member States	-	-	-	800	745			1545
Total	940	1600	2000	3000	2700			10240
Horizon 2020	FCH2	Clean Sky 2	IMI2	ECSEL	BBI	S2R		Total
EU	665	1755	1638	1185	975	450		6668
Industry	700	2250	1725	2400	1800	470		9345
Member States	-	-	-	1200	-	-		1200
Total	1365	4005	3363	4785	2775	920		17213

Data source: European Commission. *Expected contribution. The 2015 [evaluation](#) noted an industry contribution of €4.66 billion.

Horizon 2020 review of the joint technology initiatives

Taking the criticisms of the JTIs into account, in September 2011, the Commission [suggested](#) that the procedures would be simplified for the JTIs under Horizon 2020. In July 2013, the Commission [noted](#) that under Horizon 2020 the JTIs should address strategic technologies in areas that suffer from well-identified market failures associated with risky research. It confirmed that the existing JTIs would be renewed (with ENIAC and ARTEMIS merged in a single JTI on electronic components and systems – [ECSEL](#)). It announced that a new JTI would be created in bio-based industries ([BBI](#)). The Commission confirmed that the JTIs under Horizon 2020 would have clearer and more ambitious objectives and an improved governance to ensure openness to new participants. Simplification would be achieved with an improved legal framework and the uniform application of the Horizon 2020 [rules of participation](#) to all JTIs, as included in the Horizon 2020 [regulation](#).

The [regulations](#) for five JTIs based on Article 187 TFEU were adopted in May 2014. The [regulation](#) for an additional JTI on rail products (Shift to Rail – [S2R](#)) was adopted in June 2014. Following the adoption of the new financial [rules](#) in October 2012 that included specific measures for PPPs (Article 209), the financial rules of the JTIs refer to the Commission delegated [regulation](#) on the model financial regulation for PPPs adopted in September 2013 ([amended](#) in October 2015).