

Public-private partnerships in research

SUMMARY

The EU public-private partnerships (PPPs) in research were set up in the context of the development of European Research Area policy in 2003 with two main objectives. First, they were to address the fragmentation of research efforts between the private and public sector and across borders. Second, they were to increase public and private investment in research activities to reach the target of 3 % of EU gross domestic product. The first PPPs – the European Technology Platforms and the Joint Technology Initiatives – were developed to achieve these objectives.

The initial focus of the PPPs on research activities was broadened in 2005 with the introduction of a more comprehensive view of innovation. The European Institute of Innovation and Technology and its Knowledge and Innovation Communities were set up to embody this new vision by promoting the integration of research, innovation and education activities. The 2008 financial crisis demanded swift action to support investments in research and led to the establishment of the rapidly implemented contractual PPPs. By 2010, the focus on technology challenges had been replaced by the need to tackle societal challenges. The European Innovation Partnerships provided a new tool to better address these challenges by integrating all the actors of the innovation process.

Around 70 EU PPPs in research help define common priorities and visions for EU, national and regional research and innovation activities. However, the multiplication of PPPs created a new form of fragmentation with different types of PPPs focusing on similar fields. The 3 % target has not been reached (currently at 2.03 %). The share of private investment in research has stagnated at around 55 % since 2004, whereas the share of the budget of the EU framework programme for research (FP) dedicated to the PPPs has more than doubled (9.1 % for FP7 versus 21.5 % for Horizon 2020). All these aspects will have to be considered when setting the budget for the PPPs in FP9.



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The rise of public-private partnerships

General aspects of PPPs

The current form of public-private partnerships (PPPs) emerged at the end of the 1990s as an instrument of new public management (NPM), an approach for public sector organisations inspired by the management of private sector institutions. The objective of NPM is to provide better services to the citizens in a more efficient and effective way, reducing costs for the public sector. NPM is focused on the outcomes and based on key aspects such as decentralisation, externalisation, a clear separation between policy conception and implementation and evaluation.

In this context, the cooperation between the public and private sector evolved and led to a new form of PPPs where both sectors would 'combine their resources and knowledge in order to satisfy clearly defined public needs in a best way, with shared responsibility, risks and profits'.¹ These PPPs can be used to provide services such as in the health sector or to develop infrastructures and have specific characteristics:

- They establish a long-term and stable cooperation between the partners;
- Their outcomes and performances are clearly defined;
- Each partner contributes to the partnership with resources provided by both the public and the private partners under clear, although sometimes complex, arrangements;
- The public partners define the aims and objectives to be reached and monitor and evaluate the outcomes. They keep their role as organiser, regulator and controller but lose their role of direct operator to the private partners; and
- Risks normally borne by the public partners are transferred to the private partners.

At the European Union (EU) level, such PPPs were established at the turn of the century in two fields in particular: the implementation of trans-European transports networks and the conduct of research and development programmes. These PPPs were either based on purely contractual obligations (contractual PPPs) or involved the establishment of a new entity held and operated jointly by the public and private partners (institutional PPPs).²

Strategic PPPs in research policy

Since the end of World War II, research policies support cooperation between the public and private sector. However, this cooperation took the form of contract research or public procurement with the objective of linking public and private research, orienting public research closer to application fields or addressing market failures. The new form of PPPs that progressively emerged in research policy since 2000 attempt to move beyond those aspects and are [referred](#) to as 'strategic PPPs' by the OECD.

These PPPs are characterised by long-term public support, requiring large funding commitments which aim to address strategic issues to: strengthen the industrial base; address long-standing or global problems; support economic growth; create employment; maintain leadership at the technological frontier; or maintain a comparative advantage. Hence they display a stronger top-down orientation and often revolve around emerging scientific and technological fields. As the OECD points out, 'the drivers behind the rise of strategic PPPs include the need for business to reduce risk and uncertainty in cutting edge technologies and for governments to achieve more from research investments at times of budgetary constraints'.

At the EU level, the framework programme for research and development (FP) had always been open to private sector institution participation. The evolution of EU research and innovation policies led to the development of different forms of strategic PPPs that illustrate the shift in recent years in research policies towards addressing social, environmental and economic challenges.

PPPs in European research policy

The Lisbon strategy, the European Research Area and the Barcelona objective

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) in which national research systems would become interoperable and integrated, allowing for better flows of knowledge, technology and people between them. In March 2002, the European Council also adopted the Barcelona [objective](#): 'overall spending on R&D and innovation in the Union should be increased with the aim of approaching 3 % of GDP by 2010. Two-thirds of this new investment should come from the private sector'.³

In this context, the European Commission [recognised](#) that European PPPs in research could be the right instrument to address three different issues:

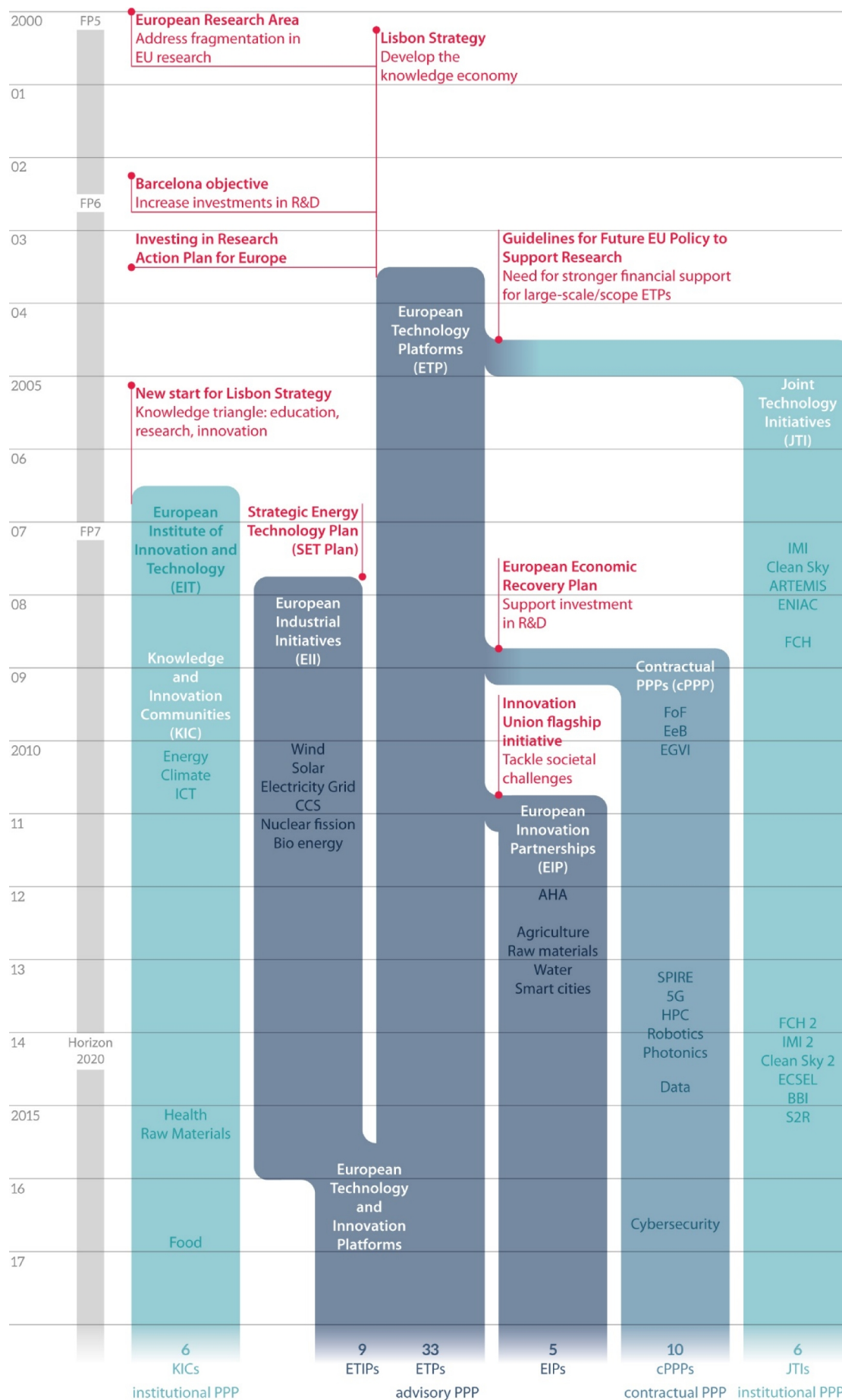
- tackle the fragmentation of the European Research Area and influence EU, national and regional research agendas to promote an alignment of the priorities;
- increase the investment in research, both from the public and especially the private sector; and
- address technological challenges.

The European Technology Platforms

The [European Technology Platforms](#) (ETP) were the first type of PPPs in research promoted at the European level. These industry-led stakeholders' fora, each focusing on a specific technological area, such as nanomedicine, road transport or photovoltaics, play an advisory PPP role. The members of the ETPs – mostly research institutions from the public sector and private companies – together define a strategic research agenda (SRA) providing a long-term vision for the research activities in their sector. The SRA help in aligning research activities in a field across Europe between the private and public sector. The implementation of the SRA is the responsibility of the members and is not directly supported by specific funding mechanisms: the partners have to mobilise private funds and EU, national or regional public sources of funding to reach their objectives. The SRAs are taken into account by the European Commission when preparing the work programme of the FP. They can also be used by the members to influence national and regional research policies and programmes.

The ETPs were launched by the Commission in the action [plan](#) for investing in research in June 2003. The concept quickly caught on, with 25 ETPs active by 2005. This number has slowly evolved and 41 ETPs are currently listed on the Commission [website](#).⁴ Since their creation, the ETPs have often been at the origin of the establishment of other types of EU PPPs in research (Figure 1).

The Commission adopted a new strategy for the ETPs – ETP 2020 – in 2013. This focused on three functions: strategic, in their capacity to provide business-focused analysis of research activities; mobilisation in networking actors; and dissemination, in their capacity to share information and knowledge.

Figure 1 – Policy context for the creation and evolution of EU PPPs in research and innovation

Data source: European Commission.

The Joint Technology Initiatives

In June 2004, the European Commission [identified](#) that the implementation of SRAs of some ETPs would require a pan-European approach with dedicated EU funding. It suggested setting up institutional PPPs called [Joint Technology Initiatives](#) (JTI) by establishing legal structures known as joint undertakings (JUs), using Article 171 of the Treaty establishing the European Community ([now](#) Article 187 of the Treaty on the Functioning of the European Union – TFEU). The list of criteria to select the ETPs that would become JTIs was defined in the regulation establishing the seventh framework programme for research (FP7) adopted in December 2006. It included the evidence of the EU added value of the JTI, the inadequacy of the existing EU instruments to implement the SRA and the impact of a JTI on industrial competitiveness. The JTIs are focused on a narrower technological field than the ETPs.

The regulation establishing the five JTIs on aeronautics and air transport ([Clean Sky](#)), innovative medicines ([IMI](#)), nanoelectronics technologies (ENIAC) and embedded computing systems (ARTEMIS) were adopted by the Council in December 2007 and the regulation for the JTI on fuel cells and hydrogen ([FCH](#)) in May 2008. The total EU budget for the JTIs under FP7 reached €3.14 billion.

The evaluation of the JTIs conducted in [2009](#) and [2010](#) concluded that the establishment of the JTIs had been a long and difficult process. These evaluations led to a review of the legal framework for the JTIs under Horizon 2020 so that the JTIs would fall under the same rules of participation as the other parts of the programme.⁵ Three of the JTIs were renewed (FCH, IMI and Clean Sky), ENIAC and ARTEMIS merged in a single JTI on electronic components and systems ([ECSEL](#)) and two new JTIs were established in bio-based industries ([BBI](#)) and rail products (Shift to Rail – [S2R](#)).

The members of each JU are the Commission and legal entities representing the private sector, represented individually or through associations. The Member States are also represented when they contribute financially to the JTI (ECSEL). Each JTI establishes its own annual work programme implemented by the JU that organises the calls for proposals for research projects and ensures the distribution of EU funds to the selected projects. Most of the calls are open to all participants and some are restricted to members of the JU. The total EU budget dedicated to the JTIs under Horizon 2020 is €6.67 billion.

Other joint undertaking in research

Single European Sky Air Traffic Management Research ([SESAR](#)) was established as a JU funded under FP7 in February 2007. SESAR seeks to develop the new technology needed to deliver [Europe's Single Sky](#), a project to reform Europe's airspace that is expected to double capacity and halve air traffic management costs. In June 2014, SESAR was [renewed](#) as a JU, funded under Horizon 2020 with a budget of €585 million complemented by two contributions of €500 million each from industry and from Eurocontrol.

The focus on innovation

The new Lisbon strategy and the Aho report

The 2005 European Commission [communication](#) on a new start for the Lisbon strategy placed a strong focus on knowledge and innovation. The Commission renewed its support for the JTIs under development and proposed setting up a European Institute of Technology as an equivalent to the Massachusetts Institute of Technology (MIT).

In January 2006, an expert group mandated by the Commission presented a [report](#) on 'Creating an Innovative Europe', known as the 'Aho report', after the group's chair. The

experts were positive about the ETPs, seeing them as an 'effective vehicle for the course of action that [they] propose[d]' to support research and innovation in Europe. They urged the Commission and the Member States to be selective about choosing ETPs that would be financially supported as JTIs. Nevertheless, they did not comment on the Commission's idea regarding a European Institute of Technology.

These publications suggested a broader view of innovation, not limited to research and technology development, but also including skills development and other aspects of the innovation process, such as regulation and financial support. In this context, the EU PPPs should also evolve to include more partners and a broader scope of activities.

The Knowledge and Innovation Communities

The [European Institute for Innovation and Technology](#) (EIT) was [first](#) presented as an institution integrating the three dimensions of the knowledge triangle: education, research and innovation. Following debates between experts, the Commission and the Member States, the EIT was finally [established](#) in March 2008 as a funding instrument supporting a new type of PPP, the Knowledge and Innovation Communities (KIC).

The KICs are pan-European autonomous partnerships of higher education institutions, research organisations, companies and other stakeholders. Each KIC establishes a legal entity – usually a private company or a not-for profit association – headed by a chief executive officer who prepares the KIC's annual business plan, reports on activities, receives the EIT funding and distributes it among the KIC partners. The KICs have the potential to integrate innovation activities at different levels (European, national, regional and local). Furthermore, they are the only partnerships that integrate activities involving all actors from the knowledge triangle and covering a large part of the innovation ecosystem. Finally, they are set up for a period of 7 to 15 years and are the only partnerships that are expected to be financially self-sufficient in the long-term.

The first three KICs were established in 2010, on [climate](#), [digital](#) technologies and [energy](#). Two other KICs were established in 2015, on [health](#) and [raw materials](#), and a KIC on food was [selected](#) in November 2016. An additional KIC on manufacturing was to be selected in 2016. However, the proposal submitted by the partners did not meet the level of excellence required for designation as a KIC. The possibility to relaunch a call for proposals for a KIC on manufacturing is currently under discussion.

The evaluations of the EIT and its KICs have shown that the implementation of the concept has been difficult. The last [assessment](#) of the EIT by the European Court of Auditors in April 2016 recognised the validity of the rationale for setting up and supporting the EIT, but pointed out several issues regarding its operational framework and management. The main current issue faced by the KICs is how to reach financial sustainability, meaning that they should be able to run their activities without the EU financial support they receive from the EIT.

Supporting research in energy technologies

In January 2007, the Commission adopted an [energy policy](#) for Europe that included the preparation of a European strategy energy technology plan ([SET plan](#)), [adopted](#) in November 2007. The SET plan tackled two objectives – lowering the cost of clean energy and putting EU industry at the forefront of the low carbon technology sector – by developing energy technologies. Existing ETPs had started to develop common visions in various energy technologies. Nevertheless, the Commission considered that this work had not overcome the problem of fragmentation, sub-critical capacities and overlapping

activities between European and national levels. To implement the objectives of the SET plan, the Commission created a new type of PPP: the European industrial initiatives (EII).

In October 2009, the Commission adopted a [communication](#) regarding the [technology roadmaps](#) for the development of the low carbon technologies in six fields in which to establish EIIs: wind energy, solar energy, bioenergy, electricity grid, carbon capture and storage (CCS), and nuclear fission. An additional transversal initiative on energy efficiency linked to smart cities was also proposed. The EIIs would bring industry, the research community, Member States and the Commission together to develop and put in place an [implementation plan](#) for each field. The EIIs would accelerate the development and deployment of these technologies by aligning European and national programmes, pooling public and private resources and sharing the associated risks.

EU funding would be available under the framework programme (FP) for research, the intelligent energy Europe [programme](#), the [NER 300 programme](#) based on emission allowances from the New Entrants' Reserve (NER), set up under the EU emissions trading system and the European energy programme for recovery ([EEPR](#)) established in July 2009. The first four EIIs (wind, solar, electricity grid and CCS) were [launched](#) in June 2010. Two additional EIIs on bioenergy and nuclear energy were launched at the SET plan [conference](#) in November 2010.

A [review](#) of the EIIs conducted by the JRC in 2013 concluded that the SET plan had promoted the 'Europeanisation' of energy technology research. However, the EIIs had not fully met their foreseen mission and key objectives. The review of the SET plan and the adoption of the [integrated SET plan](#) in September 2015 led to the merging of the six EIIs with eight existing energy ETPs, and the creation of an additional EII on deep geothermal energy. These ETP entities were rebranded as [European Technology and Innovation Platforms](#) (ETIPs). The ETIPs are equivalent to European Technology Platforms, but operate in the energy field and the context of the integrated SET plan.

Maintaining investments in research

Addressing the financial crisis

In October 2008, the European Commission reacted to the beginning of the financial crisis by proposing a European [framework](#) for action, including increased investment in research and innovation. A month later, the Commission proposed the adoption of a European economic recovery [plan](#) (EERP).

The Commission proposed to set up major research PPPs in three sectors: automobile, with the European green cars initiative ([EGCI](#)); construction, with the European energy-efficient buildings initiative ([EeB](#)); and manufacturing, with the factories of the future initiative ([FoF](#)). These three sectors were key industrial sectors of the European economy, and important for the future competitiveness of Europe in a low carbon economy.

The contractual public-private partnerships

In order to implement the scheme quickly, the option of setting up these research PPPs as JTIs was abandoned. They would instead be implemented as a new type of PPP: [contractual PPPs](#) (cPPPs), between an association representing the private sector and the European Commission. The contractual arrangement between the parties would secure EU funding for the long-term on a given topic under the seventh framework programme for research (FP7), to be matched by the private sector. Industry was given the leading role in setting up the programme's research priorities in the defined areas. Under the contractual arrangement, the private sector would produce multi-annual roadmaps of

research priorities that would be taken up by the Commission when preparing the first draft of the annual work programme for FP7. After this first step, the standard FP7 procedure would apply to adopt the work programme, including discussion with the Member States. Following the adoption of the work programme, the calls for research projects would be fully open and follow normal FP7 rules.

The three cPPPs were [launched](#) in March 2009, following a meeting between the Commission and high level representatives of industry in the three sectors concerned. The EU contribution under FP7 until 2013 was €1.6 billion. An [interim evaluation](#) of the scheme under FP7 was conducted in 2011 and a [final assessment](#) in 2013. Although the evaluations noted that it was early to give a definitive assessment of the impact of the cPPPs, they were positive overall, and the cPPPs were considered a useful scheme to be developed further in the next framework programme, Horizon 2020.

The cPPP scheme was integrated in the Horizon 2020 [regulation](#) adopted in December 2013 (Article 25). Three cPPPs were continued (evolving towards green vehicles instead of green cars) and five new cPPPs were [announced](#): on a sustainable process industry ([SPIRE](#)); 5G infrastructures ([5G](#)); high performance computing ([HPC](#)); [photonics](#); and [robotics](#). Two cPPPs were introduced later: in [big data](#) in October 2014; and in [cybersecurity](#) in July 2016. A €7.15 billion budget is ring-fenced for the cPPPs, almost 10 % of the Horizon 2020 budget (mainly under Pillar II – Industrial leadership).

The future internet PPP

The Commission proposed establishing a PPP in future internet (FI) technologies and applications in a [communication](#) adopted in October 2009. The [FI-PPP](#) was established in 2010 with a budget of €300 million under FP7. It was implemented in three [phases](#) between 2011 and 2016. The future internet PPP was reframed under Horizon 2020 to become the cPPP focused on the development of 5G infrastructures.

PPPs and societal challenges

Europe 2020 and the innovation union policy

In March 2010, the European Commission adopted its Europe 2020 [strategy](#) for smart, sustainable and inclusive growth. This was developed further in the flagship [initiative](#) on the innovation union adopted in October 2010. These communications introduced a strong focus on the need to tackle European and global societal challenges, such as climate change, energy and resource scarcity, health and ageing.

In 2004, the European Research Advisory Board had already [raised](#) the point that the ETPs should not only focus on scientific and technological challenges but take a broader view of socio-economic challenges. The 2009 [review](#) by the ETP expert group had also suggested that the existing ETPs should be enlarged to include innovation and address societal challenges. Under the innovation union policy, the Commission proposed to launch a new type of PPP to implement this focus on societal challenges, called the [European innovation partnerships](#) (EIP).

The European innovation partnerships

The [EIPs](#) were established to go beyond existing PPPs by acting across the whole innovation ecosystem and focusing both on the demand and the supply side. They were expected to break down the silos and bring stakeholders together across policies, sectors and borders. They were to streamline, simplify and better coordinate existing instruments in the European research landscape, such as other PPPs and [public-public partnerships](#) (P2Ps) such as [joint programming initiatives](#) and [Article 185 initiatives](#).

A steering group (SG) with representatives from the Member States, the European Parliament, industry leaders, and researchers, as well as key stakeholders representing non-research components of the innovation process (regulation, standards, procurement), would develop a strategic implementation plan (SIP). The SIP would present a common vision about the societal challenge concerned and identify the bottlenecks that needed to be overcome to reach a clear target set for the partnership by the stakeholders. The EIPs would not be [established](#) as a new body, nor would they provide and manage funds for projects or initiatives necessary to implement the SIP: they would instead be advisory PPPs.

The SIP for a pilot EIP on active and healthy ageing ([AHA](#)) was adopted in November 2011. Based on this first step, the Commission completed the [framework](#) for the EIPs. Four additional EIPs were established on [agricultural productivity and sustainability](#) and [water](#) in June 2012, on [raw materials](#) in October 2012 and on [smart cities](#) in March 2013.⁶

An independent expert group evaluated the EIP scheme in February 2014. Its [report](#) concluded that 'the ambition for the EIPs was rightfully set high', but that 'current EIPs have suffered somewhat from inconsistency in execution'. The EIPs did not provide the systemic change expected by the experts, and they considered that the current method of implementation would yield disappointing results. Nevertheless, the recommendations from the expert group were not implemented, no new EIP were established, and the innovation union [policy](#) was discontinued. The Commission still provides a secretariat for the five EIPs that are managed by different Commission directorates-general, depending on their topics, and each EIP continues to operate in its own way, supporting networking activities and exchange of good practices.

Current situation of EU PPPs in research

All EU PPPs in research except the ETPs were established in the lifetime of FP7 (Table 1). In May 2010, the Council noted in its [conclusions](#) that a common framework for all PPPs was necessary in order to maximise their impact and to ensure efficient and transparent functioning of existing and future PPPs. This framework included common rules and procedures, including the flexibility necessary to adapt to all industrial sectors; a clear definition of private and public roles; accessibility to the partnership; representation of the Member States; monitoring of the implementation of calls; and a mechanism for evaluating the long-term socio-economic impact of PPPs.

The Commission reviewed the situation on the PPPs and P2Ps in a [communication](#) adopted in September 2011 with the aim 'to overcome unnecessary duplication and to provide clarity on how partnering can be best implemented'. It recalled that the partnerships were formed in a spirit of creating mutual trust between the partners. The Commission stressed that, regarding governance, all partners must maintain their commitments on a long-term basis. It confirmed that the two types of PPPs would be supported under Horizon 2020: contractual partnerships, and dedicated legal structures under Article 187 TFEU (the JUs). Regarding implementation, the Commission noted that transparent accounting methods were needed to measure industry contributions – usually in kind – effectively. It also noted that the PPPs must operate in an open and transparent set-up. Finally, the Commission underlined that Member States participating in PPPs should harmonise and synchronise their administrative processes. The Council [reacted](#) positively to these proposals.

Table 1 – Comparative view of existing EU PPPs in research

PPP	European Technology Platforms	Joint Technology Initiatives	Knowledge and Innovation Communities	European Industrial Initiatives/European Technology and Innovation Platforms	Contractual PPPs	European Innovation Partnerships
Type of PPP	advisory/coordination	institutional	institutional	advisory/coordination	contractual	advisory/coordination
Proposed in	2003	2004	2005	2007 (EII)	2008	2010
First established in	2003	2007	2010	2009 (EII) - 2015 (ETIP)	2009	2011
Number of active partnerships	33	6	6	9	10	5
Structures	Not-for-profit associations	Joint undertakings by Council regulation under Article 187 TFEU	Not-for-profit associations, private companies, European companies	Not-for-profit associations	Not-for-profit associations	Steering Group
Key deliverables	Strategic research agenda (SRA)	Strategic research agenda and annual work plan	Annual business plan	Strategic research agenda (SRA)	Multi-annual roadmap of research priorities	Strategic implementation plan
Thematic scope	Broad on a given technological field	Focused on a specific technology or field	Broad on a given societal challenge	Broad on a given energy technology	Focused on a specific field	Broad on a given societal challenge
Key partners	Research actors from the private and public sectors	Commission and private sector (with Member States in one JTI)	Public and private actors covering research, innovation and education activities	Research actors from the private and public sectors	Research actors from the private and public sectors	Public and private actors covering the innovation process (policies, research, regulation, standards, funding, etc.)
Timeframe	Long term - 10/15 years	Medium term - 7 years	Long term - 15 years	Long term - 10/15 years	Medium term - 7 years	Medium term - 7/10 years
EU funding	Indirect - SRA taken into account to prepare FP work programme	Direct - JUs develop their own work plan and distribute EU funds	Direct - KICs develop their own work plan and distribute EU funds	Indirect - SRA taken into account to prepare FP work programme	Direct - Part of FP budget is ring-fenced for the cPPPs. Roadmap used to establish the work programme adopted under normal FP process	Indirect - Support provided for the secretariat
Budget under FP7		€ 3.14 billion	€ 309 million (for EIT)		€ 1.65 billion	
Budget under Horizon 2020		€ 6.67 billion	€ 2.28 billion (for EIT)		€ 7.15 billion	

Data source: European Commission.

The Commission confirmed its [orientations](#) for the PPPs under Horizon 2020 in July 2013. PPPs were justified for important sectors with complex challenges requiring long-term and large-scale investments. Due to the time and effort needed to implement JTIs, the use of JUs should be limited to those 'where there is a major strategic research and innovation objective that cannot be met through the normal Horizon 2020 implementation.' The use of cPPPs was favoured. No new JTIs have been proposed since the beginning of Horizon 2020, while two additional cPPPs were established.⁷

Article 25 of the Horizon 2020 [regulation](#) clarified the situation on PPPs by providing a list of clear criteria to select PPPs and to implement them under two options: JUs under Article 187 TFEU or contractual PPPs. The EIT and its KICs would continue to be funded by the programme. ETPs and EIPs were mentioned in the Horizon 2020 regulation and in the specific [programme](#) implementing Horizon 2020 in their capacity to provide external advice when preparing the work programme implementing Horizon 2020.

Outlook

The development of the different types of public-private partnerships was justified by the evolution of research and innovation policies and the economic context. However, the multiplication of instruments led to a new type of fragmentation and a lack of overall coherence between the different instruments. The European innovation partnerships tried to address this issue, but added a new layer in an already complex system. The attempt to clarify the situation under Horizon 2020 provided new guidelines for the PPPs without suppressing any of them. The evolutions requested for the European technology platforms made them close to EIPs. However, the fact that they do not receive direct EU funding push the ETPs towards being recognised as contractual PPPs.

The 3 % target initially to be achieved by 2010 was postponed to 2020 under the innovation union policy. The [current data](#) – 2.03 % in 2015 – shows that this target was not reached and that the evolution in the last 10 years, from 1.75 % in 2004, has been limited. The [share](#) of private investment in research has also stagnated in the EU since 2004, at 55 %, below the 66 % requested by the European Council in 2002. These data question the impact of the PPPs and their capacity to increase private investment in research, one of their key objectives. In parallel, the EU budget dedicated to PPPs (joint technology initiatives, knowledge and innovation communities and contractual PPPs) has increased. This represented 9.1 % of the total budget of FP7, but represents 21.5 % of the budget of Horizon 2020.

Evaluations point out the positive aspects of the networking activities of single PPP. However the overall impact of the PPPs on the alignment of policies at EU, national and regional level on overcoming the fragmentation and duplication often varies from one PPP to another. The impact on supporting EU's competitiveness is also difficult to assess.

No new types of PPPs have been established since the beginning of Horizon 2020. The evaluations of the current PPPs to be conducted in the context of the mid-term evaluation of Horizon 2020 are expected to provide a clearer view of the impact of the PPPs. These evaluations will feed into the debate on the place and share of the budget for PPPs under the next framework programme, FP9.

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Reillon V., [Public-public partnerships in research](#), EPRS, European Parliament, October 2016.

Endnotes

¹ [Public-private partnerships as an instrument of new public management](#), B. Rakic and T. Radenovic, Facta Universitatis, Series: Economics and Organization, Vol. 8, No 2, 2011, pp. 207-220.

² These general aspects of PPPs at EU level were presented in the [green paper](#) on public-private partnerships adopted by the Commission in April 2004.

³ These different policies were supported by the European Research Advisory Board that suggested the use of PPPs in research in [September](#) and [December](#) 2002.

⁴ This list of 41 ETPs includes 8 of the 9 European Technology and Innovation Platforms (ETIP).

⁵ For example, the European Association of Research and Technology Organisations (EARTO) had voiced its [concerns](#) on the 20 % cap on the reimbursements of overhead costs in November 2008.

⁶ The EIP on smart cities started as an EII that was [reframed](#) as an EIP in July 2012.

⁷ A [call](#) was made in April 2017 by Marian-Jean Marinescu (Romania, EPP) for the establishment of a JTI in space research.

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