

# EIT: Our Impact from 2010 to 2016

The EIT – Making Innovation Happen

European Institute of Innovation and Technology (EIT)

Budapest | 26 October 2017

[www.eit.europa.eu](http://www.eit.europa.eu)



The EIT is a body of the European Union



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# Executive summary

The primary objective of this study is to **analyse the global and European socio-economic impact of the EIT and its Knowledge Innovation Communities (KICs)** from 2010 till 2016. With existing reviews mostly focusing on results and efficiency, this study sets out to look beyond those results and structure the achievements of the EIT Community in terms of impact.

The impact of the EIT Community can be structured in five distinctive development phases of the EIT Community: **Mobilise, Build, Deliver, Recognise** and **Impact at Scale**. These phases can be linked to respectively the Input, Activities, Output, Outcome and Impact steps of the “results chain” approach to measure cause-and-effect, with the advantage of linking the achievements to progress over time. The development phases are depicted over time in Figure E-1 for the first wave of KICs whilst the impact is further described here in accordance to these phases.

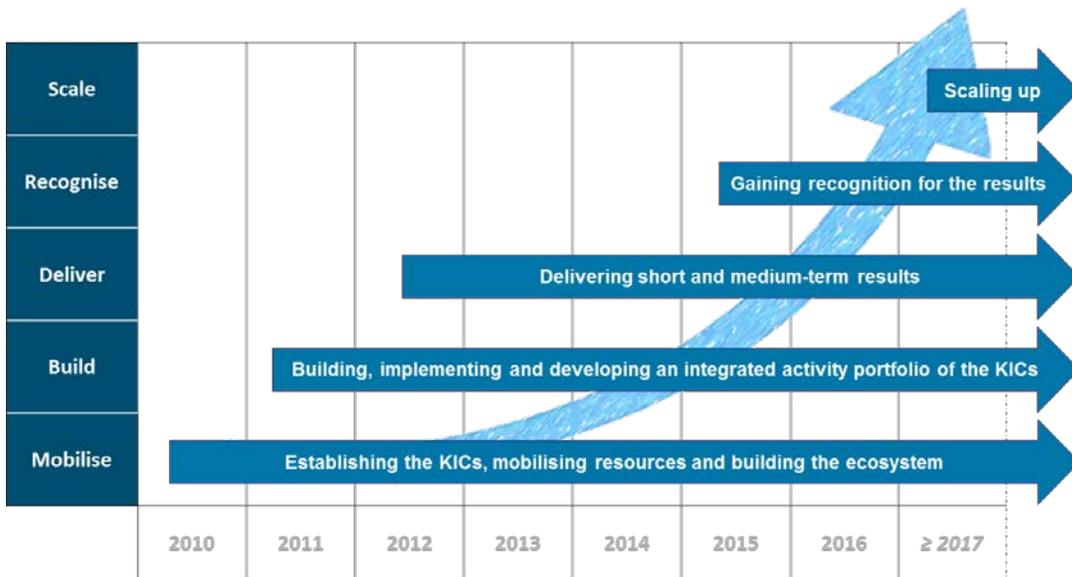


FIGURE E-1: Progression of development phases of the first wave of KICs over time

In its **mobilisation** phase, the EIT Community has been attracting partners and funding at a growing rate. It has established a network of trust of more than 800 partners across Europe, making it **one of the largest networked innovation communities in the world**. Trust is evidenced by the growing rate at which partners have committed funding to the innovation communities over a sustained period of seven years.

In its **build** phase, the EIT Community has been **developing and implementing activities using the concept of Knowledge Triangle Integration**. Thanks to targeted and integrated activities for entrepreneurship education (e.g. EIT labelled master and doctoral programmes; Massive Open Online Courses), business creation and support services (e.g. thematic business accelerators), and innovation activities (e.g. “Innovation projects”), **greater integration between education, research and business is observable** within the EIT Community.

In the **deliver** phase, **strong growth patterns in knowledge transfer output, incubated business ideas, new products and services, and start-up creation as a direct result of KIC activities are observed.** Between 2012 and 2014, the number of incubated business ideas more than quadrupled. With a strong surge in new products and services developed in 2016, **commercial activity enabled by the EIT Community is expected to grow strongly in the coming years.** Moreover, the EIT educational programmes delivered graduates with an entrepreneurial mind-set, some of whom are already pursuing an entrepreneurial career.

Following the short and medium term results, the EIT Community has gained **recognition** for what it is delivering. The EIT model was recognised outside Europe, with stakeholders in Australia **replicating the model for the establishment of Climate-KIC Australia.** KIC partners acknowledge that the EIT Community has **positively impacted their innovation capacity and culture.** In addition, **the accelerator programmes are recognised to rank among the best in the world in their field,** with EIT Digital's Accelerator ranked on the 8th place among 579 accelerator programmes in Gust's Global Accelerator Report 2016. Moreover, venture capitalists expressed **confidence in the commercial potential** of the EIT Community's entrepreneurial activity by investing over €600 million in EIT Accelerator companies.

**The quality of education is also recognised.** Available data indicate that more than 9 out of 10 EIT alumni find employment within 6 months of graduation, and that their initial remuneration is suggested to be as high as 15% higher than their cohort non-EIT programme graduates. Moreover, 18 EIT entrepreneurs were listed in the prestigious 2017 Forbes 30 under 30 Europe list. An independent review has led to renewed award of the EIT Label to various EIT master programmes.

With recognition for the work, now is the time for the EIT Community to start **scaling up the impact.** In recent years, the EIT Community has already started to make a mark on delivering **economic impact** all over Europe. **As of 2016, the EIT Community provides for 429 jobs (FTE) directly. Its created, nurtured and supported start-ups have created an estimated additional 6,100 jobs (FTE), implying that each job at the EIT Community supported the creation of an additional 14 jobs in the wider economy.** As these start-ups show potential to evolve into mature companies, economic impact is likely to expand in coming years. With the portfolios of individual KICs valued as high as €1.5 billion (EIT Digital), and forecasted revenues surpassing the €3 billion mark, generating a potential 60,000 additional jobs in the next 7 years (EIT InnoEnergy), early estimates underline the potential for **impact at scale.**

Finally, with each of the KICs addressing a specific societal challenge and following the progress throughout the development phases, **KICs show progress in delivering** on their objectives. Activities **start reaching a scale on which it becomes feasible to measure the societal returns.** Today, we already observed many societally relevant concepts going to market thanks to the EIT Community, implying greater societal impact in the coming years.

# 1. Introduction to the study

This section introduces the scope of and our approach to the study, including a brief note on the concept of impact and the contents of this report.

## 1.1 Scope of the study

The primary objective of this study is to **analyse the global and European socio-economic impact of the EIT and its KICs**, in particular with respect to society, the economy, education, entrepreneurship, and business creation and development from 2010 till 2016. In order to achieve this objective, existing available data collected by the EIT and the KICs, as well as in earlier studies, have been analysed to establish (emerging) impact. In this process, the focus has been put on the following:

- The overall impacts have been quantified wherever the available data allow it. Where quantitative data were not available, the impacts have been qualitatively described. As an example, a key element of the EIT's approach is its ability to create and deploy networks. Once these networks become active, they start fostering a chain of links that in turn catalyse impact, e.g. by connecting young entrepreneurs with venture capitalists, who in turn provide crucial funding for these start-up ventures to flourish, ultimately generating revenue and employment. These so-called network effects are difficult to quantify, but this study aims to at least qualify the impact of the network where applicable.
- Being one of the core characteristics of the EIT's approach to innovation, it is crucial to take into account the unique and individual characteristics of the different KICs while assessing the impact they make. Our methodology therefore implies a differentiated approach towards each KIC to take into account the different goals, strategies and impact they make. Given the widespread and manifold Co-Location Centres of these KICs, this study does not set out to assess the impact of each of the Co-Location separately, but rather considers their collective impact at the KIC-level.

## 1.2 The concept of impact

The objective of the study asks for a clarification of the terminology used for this assignment, particularly on impact. For the purpose of this study, we take into consideration the definition of impact as provided by the European Commission<sup>1</sup>:

*“The term impact describes all the changes which are expected to happen due to the implementation and application of a given policy option/intervention. Such impacts may occur over different timescales, affect different actors and be relevant at different scales (local, regional, national and EU). In an evaluation context, impact refers to the changes associated with a particular intervention which occur over the longer term.”*

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<sup>1</sup> European Commission. Glossary. Available at: [https://ec.europa.eu/info/better-regulation-guidelines-and-toolbox\\_en](https://ec.europa.eu/info/better-regulation-guidelines-and-toolbox_en)

Common practice in the literature is to consider the results chain; a categorisation of the steps from what organisations do up till the changes they bring about, and the cause-and-effect relationships between these steps. The OECD has formalised this in the form of their ‘results chain’, which is comprised of five defined steps. Figure 1-1 provides a schematic overview of the results chain with corresponding definitions for each step.

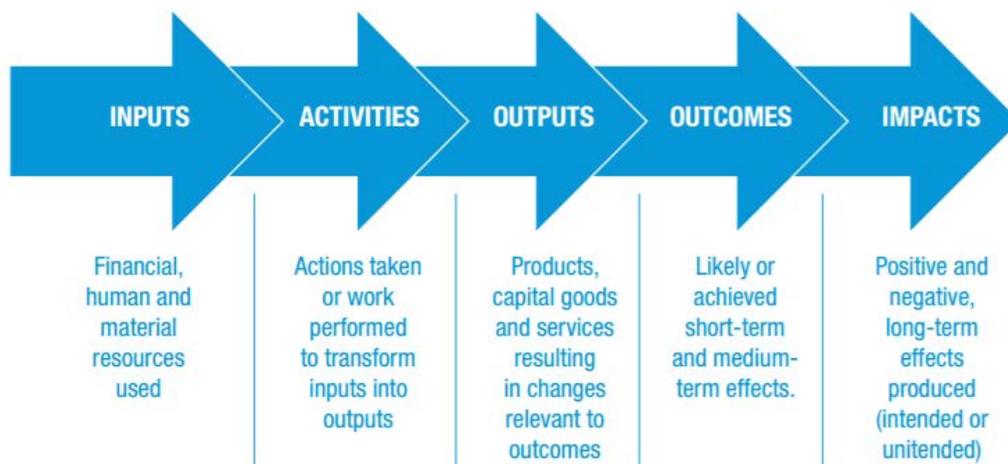


FIGURE 1-1: The results chain as defined by the OECD<sup>2</sup>

We often see that output, outcome and impact of an intervention are mixed up in written descriptions. Whereas output is the immediate effect of an activity (e.g. the number of students trained), outcomes are realised further down the result chain (e.g. the number of businesses created by those students that were trained), while impact is generally considered to be its effect on society and the economy at large (e.g. the number of jobs created by those businesses created by the students in question; or new technologies brought to the market by those businesses created by the students in question). For the purpose of this study, output, outcome and impact are collectively referred to as “results” and – in line with our definition – considered in case they can be attributed to the EIT Community.

### 1.3 Synopsis of our approach

This study has an **exploratory nature**, marking a distinct difference with the various on-going and recently completed reviews of the EIT and its KICs. Extensive attempts have been made to both qualify and quantify the impact of the EIT and its KICs, yet none of them have formulated an overall impact pathway nor have they looked considerably beyond short-term results (i.e. output/outcome). While impact remains difficult to quantify, this study sets out the goal to look beyond the currently measured short-term results.

Our methodology is **grounded in the available impact assessment literature** and adopts key principles from the European Commission’s Impact Assessment Guidelines. The Commission’s approach to conducting

<sup>2</sup> OECD (2013). Development Results: An Overview of Results Measurement and Management. Figure extracted from page 3.

impact assessments is structured along three phases: identification of impacts, qualitative assessment of the more significant impacts, and in-depth qualitative and quantitative analysis of the most significant impacts. These three phases are conceptually the same as the three core phases of our impact assessment approach and can be considered consecutively as phases of structuring the impact assessment, qualitative assessment of the impacts, and in-depth (quantitative) assessment of the impacts.

Given the various (formal) reviews that have recently been performed, **we focused our approach on conducting a series of in-depth interviews across the KICs**, instead of initiating a new wave of surveys. At the same time, this study builds upon results of surveys undertaken in other studies, also taking into account the raw data.

## 1.4 Acknowledgments

This study has been made possible with the extensive help and support of the EIT and its KICs. In no particular order, we wish to express our gratitude to Mr. Kern (EIT), Mr. De Oliveira Janeiro (EIT), Ms. Atanassova (EIT), Mr. Cofino (EIT), Mr. Pianesi (EIT Digital), Mr. Jonker (EIT Digital), Mr. Pavia (EIT InnoEnergy), Mr. Barker (EIT Climate-KIC), Ms. Bove (EIT Health), Ms. Hanghøj (EIT RawMaterials), Mr. Beetz (EIT Food), Mr. Juros (European Commission) and Mr. Amico Roxas (European Commission). Their feedback as well as their ability to mobilise the relevant stakeholders during times of business reporting cycles and parallel studies has greatly contributed to this report.

## 1.5 Contents of this report

The remainder of this report presents the aggregated results of the impact assessment conducted across the EIT and its individual KICs:

- Chapter 2 presents the mission of the EIT and its KICs, the history of the EIT Community and the approach taken to date.
- Chapter 3 continues by presenting the impact realised to date.
- Chapter 4 concludes with an outlook for the EIT and its KICs, based on the current set of main strategic directions developed by the EIT for post-2021.
- Annex A presents a list of sources referred to in this report.
- Annex B presents an extended impact logic of the EIT and its KICs.

## 2. The EIT and its KICs: mission, history and approach

The EIT set a goal to accelerate innovation to the market for the benefit of society, and to educate future entrepreneurs and change makers. It aims to establish a pan-European ecosystem based on trust. By boosting the innovative power of Europe, it seeks to find solutions to global societal challenges.

### 2.1 The EIT Community as an engine for fostering growth and addressing societal challenges

The EIT was established by the European Parliament and the Council of the European Union in 2008 to “develop conditions which are attractive to investment in knowledge and innovation in Europe in order to boost competitiveness, growth and jobs in the European Union”<sup>3</sup>. The European Parliament and the Council established the Community level initiative to “complement existing Community and national policies and initiatives by fostering the integration of the knowledge triangle — higher education, research and innovation — across the European Union”<sup>4</sup>. It became operational in 2009 and began its first practical activities in 2010.



FIGURE 2-1: The European Institute of Innovation and Technology and the Knowledge and Innovation Communities (KIC)

The EIT is an integral part of Horizon 2020, the European Union’s current Framework Programme for Research and Innovation. This €80 billion funding programme with the objective of addressing societal challenges and assisting the European Union to gain leadership in enabling and industrial technologies.

<sup>3</sup> REGULATION (EC) No 294/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 March 2008 establishing the European Institute of Innovation and Technology, 2008

<sup>4</sup> *Ibid.*

Within this programme, the EIT has been allocated more than €2.4 billion to achieve its goals and to further develop its activities between 2014 and 2020.

## 2.2 The EIT is unique in its approach and distinctive from other (European) initiatives

There is a number of points that make the EIT stand out from other policy initiatives, both inside and outside the European Union, and specifically the following:

- The EIT is set up as **an institution governing a set of Knowledge Innovation Communities (KICs)** that each **address a specific societal challenge** (*henceforth: the EIT Community*).
- This community has **presence all over Europe**, making it a pan-European networked endeavour.
- The EIT Community bridges a ‘gap’ between research and market through greater integration of education, research and business (**Knowledge Triangle Integration**).
- A unique funding mechanism is put in place that aims at **creating financial sustainability** of the KICs over time, with the ability for the EIT to allocate funds based on priorities and results.

### The driving force behind the EIT is its Knowledge Innovation Communities (KICs) which address a specific societal challenge

At the core of the modus operandi of the EIT lies the creation and support of Knowledge Innovation Communities (KICs). They are best described as closely interlinked trans-European partnerships build around specific themes where stakeholders from higher education, research, business, cities, regions and NGOs collaborate intensively. Each KIC consists of a network of nodes, led by a KIC Head Quarter (HQ). The KIC HQ fulfils a strategic role focused on defining the overall strategy of the KICs and being the administrative heart that deals directly with the EIT.

For each KIC, the national and/or regional implementation of activities is concentrated in a (select) number of “nodes of excellence” across Europe. Each node runs at least one Co-Location Centre (CLC), which can be regarded as the physical spaces where national and regional activities take place. To add value, the CLCs leverage existing infrastructures (e.g. labs, offices, campuses and existing innovation hubs) to physically bring talent from all sides of the knowledge triangle together to facilitate intensive collaboration and support the creation of innovations.

What makes the KICs unique, is that **they aim to contribute to solutions for addressing the grand societal challenges Europe faces. In doing so, they contribute to the goals of the Horizon 2020 programme, as these challenges are in line with the grand societal challenges the Horizon 2020 programme seeks to address.** Up till now, five KICs have been established and are fully operational. A sixth KIC - EIT Food - was recently designated and is expected to become operational by the end of 2017. Two more KICs, respectively on added-value manufacturing and urban mobility, are expected to be set-up in the near future. Table 2-1 provides a short overview of the (upcoming) KICs, including the grand societal challenges they aim to contribute to.

TABLE 2-1: Overview of (expected) establishment of the KICs and their societal contribution

KIC	Societal contribution
<b>Wave 1 – established in 2010</b>	
EIT Climate-KIC	Mitigate and adapt to climate-change by building a zero-carbon economy and climate resilient society.
EIT Digital	Drive digital innovation, education and entrepreneurship for economic growth and quality of life in Europe.
EIT InnoEnergy	Secure adequate supply of energy produced in a sustainable and affordable manner and transitioning towards a zero-carbon economy.
<b>Wave 2 – established in 2015</b>	
EIT Health	Promote healthy living and active ageing by increasing awareness of good habits and encouraging changes in behaviour, developing tools to help people to work more flexibly and live longer in their own homes and improve cost-effective healthcare, through innovations that empower patients.
EIT Raw Materials	Sustainably explore, extract, process, recycle and substitute raw materials in an efficient, secure, sustainable and circular way.
<b>Wave 3 – established in 2017</b>	
EIT Food	Secure an adequate supply of high quality food: Ensuring a sustainable value chain from “from farm to fork”, from resources to consumers, improving nutrition and making the food system more resource efficient, secure, transparent and trusted.
<b>Wave 4 – 2018</b>	
EIT Manufacturing	Create an integrated manufacturing system spanning the entire value chain from production, distribution and end-of life treatment of goods, products, services based on a customer-driven innovation system.
EIT Urban Mobility	Ensure a smart, greener, more inclusive, and safer integrated urban mobility system.

## The EIT Community has physical presence all over Europe, and further extends that presence through implementation of its Regional Innovation Scheme

In contrast to other research and innovation initiatives across the world, **the EIT Community is more than a collaboration network with limited physical presence**. In fact, the EIT and its KICs have physical locations all over Europe, making use of their offices to implement activities as well as provide a physical platform for their partners to get together. Figure 2-2 presents the locations – as of 2016 – of the EIT Community in Europe.

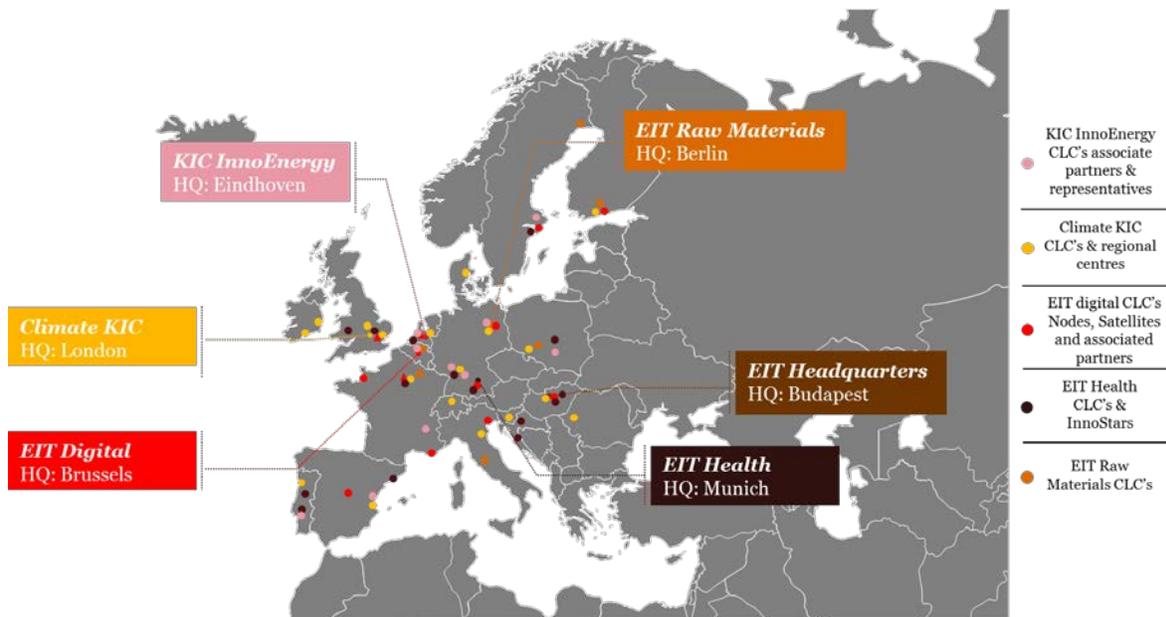


FIGURE 2-2: The EIT Community's physical presence in Europe (by 2016)

Aside from the physical locations in Europe, **EIT Digital set up a physical hub in Silicon Valley in 2014**, signifying that the network is broader than Europe. With the hub, EIT Digital aims to create a two-way bridge between the European ecosystem of EIT Digital and the Bay Area ecosystem. Specifically, by expanding outside of Europe to one of the key hotspots in digital technology, it seeks to strengthen the European ecosystem via the inflow of ideas, talents, students, researchers, entrepreneurs, technology, start-ups, and investments, with activities clustered around innovation & entrepreneurship, and entrepreneurial education.

Finally, in 2014 the EIT introduced the **EIT Regional Innovation Scheme (EIT RIS)**. The scheme was designed to share good practices and experience emerging from the EIT Community's activities, as well as to widen participation in KIC activities. The EIT RIS opens up the activities of the Innovation Communities to non-partners, allowing them to take part in and benefit from the Innovation Community's activities, services and programmes.<sup>5</sup> Moreover, it facilitates access from European countries that lack physical presence of the KICs to the EIT Community, **resulting in coverage of the entire European Union of the EIT Community network.**

## Boosting Europe's innovation capacity through Knowledge Triangle Integration (KTI)

To boost Europe's innovation capacity, the EIT plays a pioneering role in overcoming the fragmented European innovation landscape. The EIT aims to increase European sustainable growth and competitiveness by reinforcing Europe's innovation capacity in a dynamic global context. As a means of achieving this, **the EIT pursues Knowledge Triangle Integration (KTI)**: stimulating close, effective links between research, education and innovation, the three sides of the 'Knowledge Triangle'.

<sup>5</sup> <https://eit.europa.eu/activities/outreach/eit-regional-innovation-scheme-ris>

The Knowledge Triangle involves many actors, including large industry, public bodies, NGOs, SMEs, research organisations, investors, end-users, and public authorities at regional, national and supranational level. The key types of actors are plotted schematically in Figure 2-3, which also displays the Knowledge Triangle in the middle.



FIGURE 2-3: KIC Innovation Ecosystems and the Knowledge Triangle<sup>6</sup>

The theory behind Knowledge Triangle Integration stipulates that **a higher degree of integration between the different types of actors leads to an increase in innovation capacity**. The relationship between the degree of KTI and the degree of innovation capacity follows four distinctive stages, as pictured in Figure 2-4. As a first level of KTI, activities in research, education and business are linked to facilitate innovation. Through integrated activities, deeper interaction between stakeholders from the knowledge triangle is facilitated. These actors are then more likely over time to display a deeper integration in their innovation and entrepreneurship strategies, of which joint strategies and activities are a clear signal. Ultimately, the integrated activities, institutional interactions and joint strategies lead to a networked innovation ecosystem.

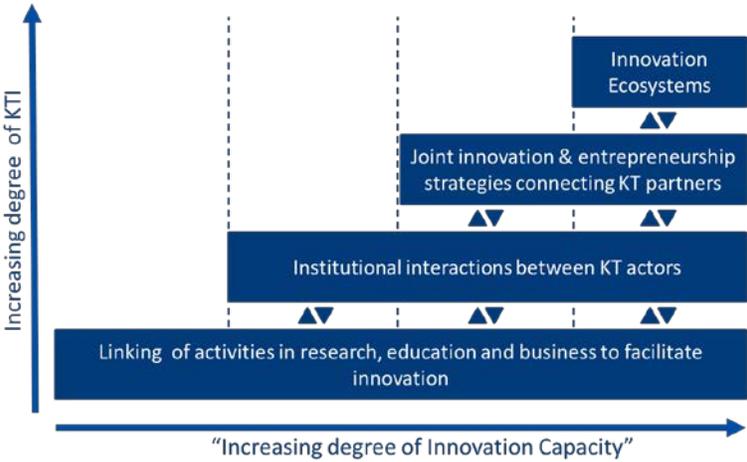


FIGURE 2-4: The degree of Innovation Capacity in relation to the degree of KTI

It needs to be highlighted that **KTI is not a goal of the EIT on itself**. Instead, it is **best regarded as a means of bridging the gap between research and commercialisation, strengthening the innovation community of the European Union and increasing the (commercial) applicability of cutting-edge research relevant to societal challenges**.

<sup>6</sup> EIT. (2017). The Future EIT: Strategic Outline. October 2017, Budapest.

## A novel approach towards funding innovation through its innovation communities

To increase the effectiveness of funding innovation and to allow for a degree of flexibility in legal requirements for providing local funding, **the EIT has adopted a flexible funding model to finance the KICs**. It is designed to promote long-term involvement and financial commitment of the KIC partners and to be a catalyst for innovation. Its funding model is based on the following three principles:

- Leveraging and pooling resources
- Sustainability
- Providing support and incentivising performance

To create leverage in funding, the EIT set as part of their regulation the rule **to fund up to a maximum of 25% of a KICs total budget**. The non-EIT funding may include KIC partners' own resources, public funding at national, regional and EU level, or other private sources. Moreover, the EIT expects from the KICs that they gradually become financially sustainable, which is why after a period of 10 years after establishment, funding is gradually decreased in the subsequent 5 years down to less than 10% of the total budget. Furthermore, the EIT incentivises performance while still providing ample support by allocating funding based on both support and competition. Support funding is granted proportionally to all KICs, depending on a KIC's maturity only, whereas competitive funding is allocated by the EIT to the KICs based on the KICs past performance and their business plans.

At the heart of this funding model lie the Framework Partnership Agreement (FPA; duration of 7 years) and the yearly Specific Grant Agreements (SGA). In addition to outlining the rules and regulations of the collaboration between EIT and the KICs, these two agreements allow the EIT to implement a flexible funding strategy. The FPA ensures that the KICs have a long-term strategy and commitment to EIT and the yearly SGAs leave room for EIT and the KICs to adapt the allocation of funds and the nature of the KIC activities to societal changes.<sup>7</sup>

The differentiated funding strategy **allows the EIT to put a strong focus on financial sustainability of the innovation communities while being able to focus on specific innovation themes**. Moreover, through the SGAs, the EIT is able to fund specific innovation projects up to a 100%, allowing it to put focus on specific innovation topics.

To leverage the funding provided by the EIT, four layers of financial leverage have been put in place, as depicted in Figure 2-5. First of all, the EIT has defined two key categories of activities of the KICs, for which the funding together makes up for the total budget of a KIC:

- **KIC Added Value Activities (KAVA)**. These are KIC activities contributing to the integration of the knowledge triangle of research, innovation and higher education, including establishment, administrative and coordination activities of the KICs, and contributing to the overall objectives of the EIT. These activities may be financed up to 100% by the EIT financial contribution up till the 10<sup>th</sup> year of operation, after which this is gradually reduced in 5 years to less than 10%. Here,

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<sup>7</sup> EIT (2016). Principles for financing, monitoring and evaluating KIC activities.

the financial leverage comes in the form of a (voluntary) co-financing of these activities from KIC partners.

- **KIC complementary activities (KCA).** These are KIC activities that have a link with at least one KAVA and are fully financed by non-EIT funding sources. In Figure 2-5 they are therefore depicted as the primary level of financial leverage.

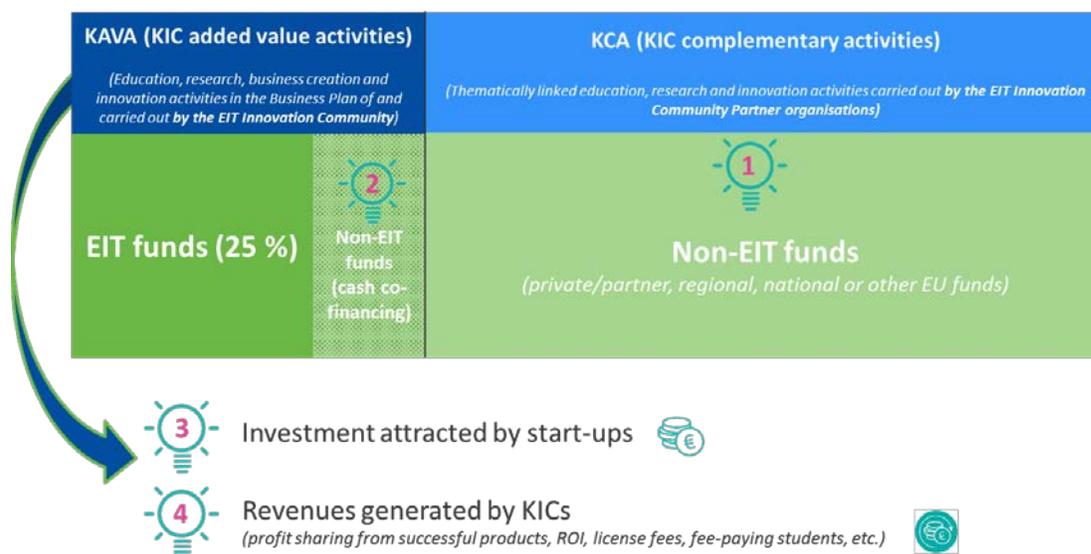


FIGURE 2-5: The EIT funding model and its four layers of leverage

Aside from the funding sources outlined above, **an additional two layers of funding are part of the EIT funding model:** investments attracted by start-ups and scale-ups, and revenues generated by the KICs. Companies supported by the EIT Community are helped to raise external investments for building and scaling their businesses. Furthermore, the KICs have access to a variety of (potential) revenue streams from their activities, ranging from profit sharing from successful companies they support up till collecting tuition fees from students to finance their activities.

## 2.3 The KIC model is the engine that drives output, ultimately leading to economic and societal impact

The KIC model can be considered as an integrated, iterative and non-linear process, driven by the KICs, supported by the EIT and enabled by an ecosystem of partners from industry, research and education.

The **KICs build and support ecosystems with relevant actors from all dimensions of the Knowledge Triangle:** research, business and (higher) education. The ecosystem is the foundation on which all the activities take place, making it a critical success factor. Through a variety of activities, KICs support the creation and expansion of this innovation ecosystems, e.g. by actively bringing together stakeholders and by creating trust to encourage partnerships among different actors of the Knowledge Triangle. A crucial factor to the KICs' success in delivering impact is therefore to what extent they create trust among large numbers of partners in the long-term sustainability of the institutional structure they provide.

Furthermore, the KICs focus strongly on **embedding an entrepreneurial mind-set in education**. Moreover, they also aim to teach students the relevant knowledge for finding solutions to the grand societal challenges. This is further strengthened through linkages between academia, research and industry, whereby cutting-edge research results are used as an input for the content of the educational programmes and leading industry insights in ensuring the relevance of the educational programmes.

With the working principles of the KIC-model in mind, it can be argued that **a combination of research-based innovation activities, business creation and development services, and entrepreneurship education activities lead to economic and societal impact, and the creation of talent**. These activities can only deliver impact if they are built on a solid foundation, i.e. an ecosystem characterised by trust and partnerships between actors from the complete Knowledge Triangle. In turn, the economic and societal impact, and the talent creation will help establish the EIT and its KICs as a recognisable brand and drive thought leadership to boost the innovation capacity of the European Union. Figure 2-6 puts the KIC model schematically in perspective of the Knowledge Triangle.

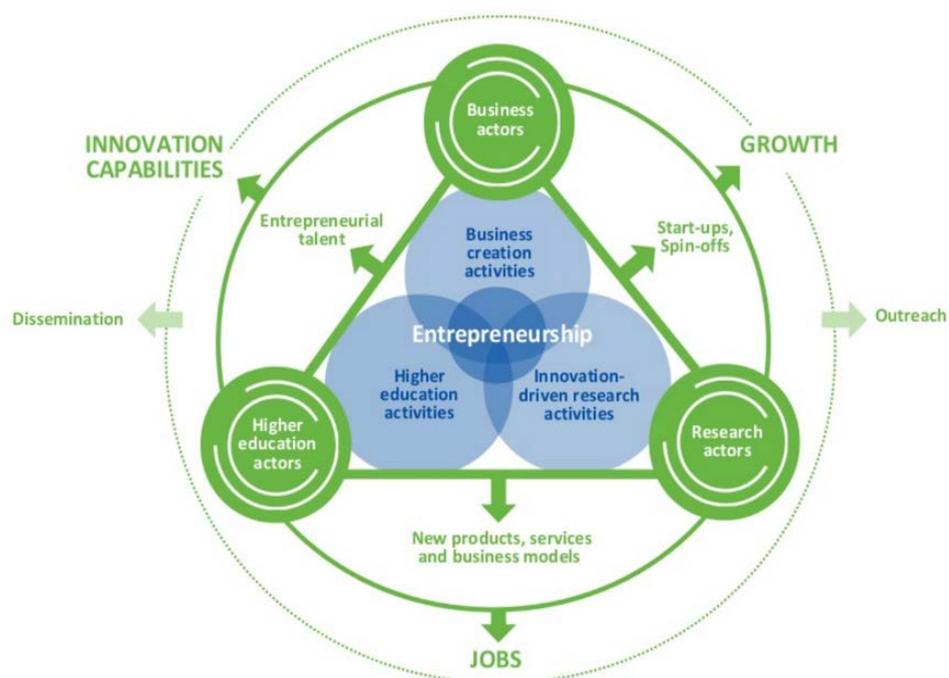


FIGURE 2-6: The KIC innovation model (source: EIT Health Campus, presentation by Dr. Ursula Muhle)

### Formalising the value-adding mechanism of the KIC model in a logical impact model

Taking into account the high-level sketch of how the KICs operate, a logical impact model was developed for this study that considers the complementary nature of the various activities as well as the links and synergies between them. Figure 2-7 presents a concise schematic overview of this logic, of which a more detailed pathway is presented in Annex B. The impact logic plots the KIC's development all the way from input to impact. At the input level, **the foundation of the model is its ecosystem**. The ecosystem builds on

the partners and resources that have been mobilised by the EIT Community and can therefore also be considered as providing the input for its development.

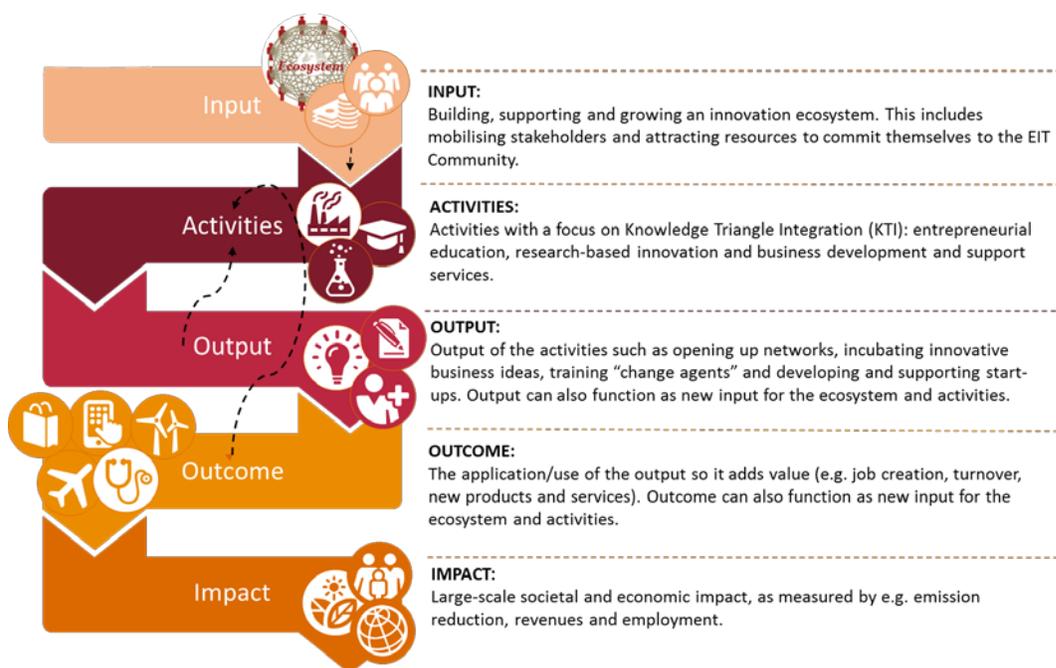


FIGURE 2-7: Consolidated impact pathway of the EIT Community

Moving up from the ecosystem we have plotted **the integrated approach the KICs have taken at the activity level**. Also referred to as Knowledge Triangle Integration, these activities should be considered together. Strong interlinkages can be observed between the entrepreneurial education, (research-based) innovation and business development and creation activities. Education fosters talent that both possesses the relevant technical skills and industry knowledge to succeed, as well as being equipped with a set of entrepreneurial skills to drive commercialisation of technology.

With the creation of new and growth of existing businesses we are moving to the level of **output**. Moreover, the activities result in all sorts of output that form the basis for impact down the road, including the incubation of business ideas, knowledge transfers, and new products and services.

**Outcome** becomes visible when a KIC moves beyond what its community of partners can deliver on its own and succeeds in getting the recognition and commitment of stakeholders to its results. A strong signal is sent by e.g. a venture capitalist committing funding to a company supported by a KIC, which allows the company to start scaling up to a level that it could not have reached without this investment. In the field of education, a positive assessment by independent experts of a KIC’s EIT-labelled masters and doctoral programmes shows a similar sign of confidence in the educational system developed.

Given the strong entrepreneurial and business focus towards innovation that the EIT and its KICs have taken, the element of **market application of innovations can be captured in the form of economic value-adding activities**. The philosophy behind this is that both new and existing businesses need to be financially healthy to survive, i.e. self-sustainable. This requires revenue streams, which are a direct result

of their commercial success. The bigger their commercial success (“value-added”), the larger its economic impact will be (e.g. through creating European added-value and creating jobs).

**The actual application of the technology is what will ultimately drive the (societal) impact.** Here it also generally holds that the bigger their commercial success is, the larger the application of their concept is on the market, the greater the societal impact. In contrast, if the innovations are not commercially successful, businesses will not flourish nor will they directly impact society at a sufficient scale to make large-scale impact. It may still find a way in new concepts that are commercialised at a later stage, but that is subsequently captured in the economic value-adding activities of those endeavours.

### The EIT is the governing organisation that oversees and supports the KICs, acting as a catalyst for the EIT Community to flourish

As overseeing body of the EIT Community, one of the EIT’s key roles is to ensure **the right conditions for the KICs to deliver impact.** The EIT can be considered as the enabler of the KICs and – as an independent governing organisation – plays an important role in building trust in the EIT Community. It also governs the EIT funding for the KICs’ Added Value Activities. Compared to other European initiatives, having such an internal independent oversight is unique and adds to infusing trust in the ecosystem.

**The importance of the overall support function should not be underestimated.** For external partners to commit resources to the KICs, a high degree of trust between partners is required, both in terms of how partners perceive the ability to collaborate with other actors and in terms of the expected benefit of participating in such a collaborative approach. To achieve this level of trust, the KICs need to be convincing to their stakeholders. The EIT also lends to the credibility of the ecosystem as an independent by acting as an independent quality assessor for the KICs, e.g. through its mandatory annual approval of the KICs business plans, its evaluation of the annual results, and certification and renewal of the EIT-label for the KICs’ educational programmes. At a higher strategic level, the EIT also ensures that the KICs strategic objectives are in line with the overall objectives for Europe’s Innovation Union.

The impact of this support function is **not easily isolated from the overall impact the EIT Community has.** By infusing trust in the ecosystem and setting the bar for quality of the KICs, it can be argued that **the EIT plays its part already at the fundamental level of the EIT Community.** On top of that, the EIT engages in activities to further promote the EIT Community and embed the EIT Community in European policy. Thus it should be noted that when we refer to the impact of the EIT Community, we refer to the collective impact of the EIT and its KICs.

# 3. The impact of the EIT Community

The impact levels depicted in our formal model fit well with the development phases of the KICs. Considering their time of establishment (2010) up till 2016, they have mobilised resources, built and grown a trusted pan-European ecosystem, developed a portfolio of activities, delivered results at a growing rate, gained recognition from both within and outside the EIT Community, and have demonstrated that they are on their way to scaling up impact. With results growing at an exponential rate and with impacts emerging, the impact of the EIT Community is expected to increase in the coming years.

## 3.1 A model for structuring the EIT’s impact to date

Section 2.3 introduced our formalised impact model. Our model fits well with the development the first-wave KICs have gone through since their establishment in 2010. Structuring the impact accordingly to the different development phases of the EIT Community allows us to consider not only the impact on itself, but also view this in light of the progress that has been made. The development phases can be related to our impact logic model as follows.

TABLE 3-1: Linking the development phases of the EIT Community to the impact model

KIC development phase (from interviews with KIC CEOs)		Impact model
Phase 1	Mobilise	Input
Phase 2	Build	Activities
Phase 3	Deliver	Output
Phase 4	Recognise	Outcome
Phase 5	Impact at scale	Impact

The development of the EIT Community happened over time, meaning that the initial levels of the impact model were achieved by the KICs in the first years and that they have gradually grown their portfolios of activities and output over time. An important tipping point has been reached by the first-wave KICs when they got recognition from external stakeholders (i.e. not part of the EIT Community) for their work, such as venture capitalists committing funds to companies supported by the KICs or external subject-matter experts acknowledging the quality of the KICs’ education programmes.

Overall, our analysis of the achievements between 2010 and 2016 reveals that there **is clear progress along the results chain**. From 2010 onwards, the EIT and its KICs have built an innovation community, developed and implemented relevant activities, supported the growth of **375 start-ups**, enabled **1,250 knowledge transfers**, incubated **3,292 business ideas**, led to **1,200 entrepreneurial graduates** from its higher education programmes, and helped develop **497 new products and services**.<sup>8</sup> By now, the EIT and its KICs have entered a phase in which recognition is starting to show. The progress from input towards output (i.e. mobilisation towards recognition) in only the 7<sup>th</sup> year of operation of the first wave of KICs gives a promising perspective for the years to come with respect to further delivering results, gaining

<sup>8</sup> Raw data obtained from the individual KICs and aggregated by the authors.

more recognition and scaling up the impact. Figure 3-1 presents the different development stages over time.

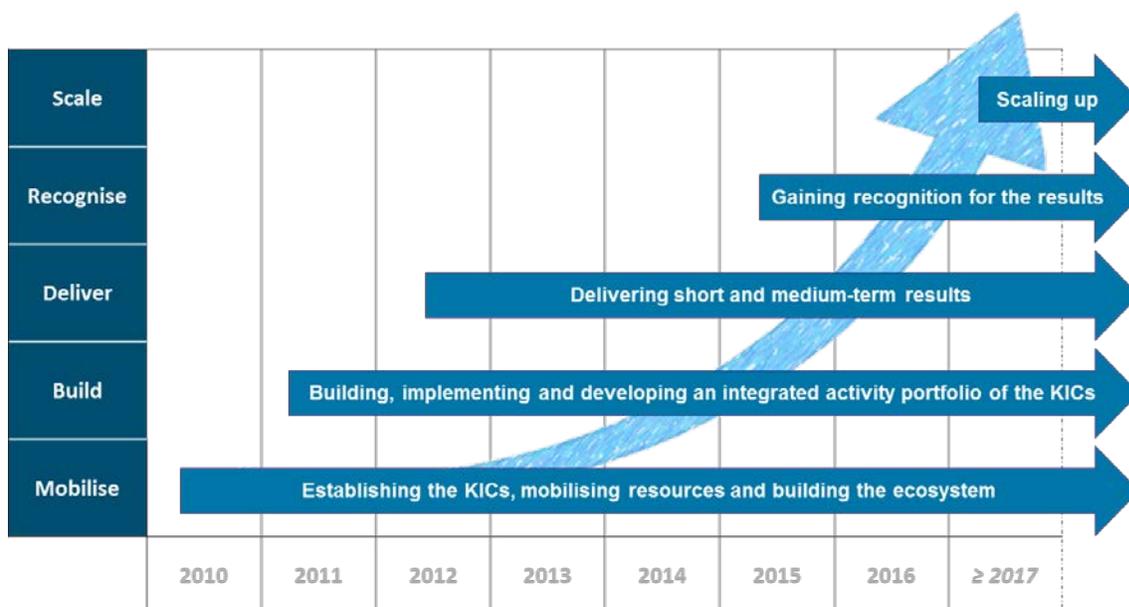


FIGURE 3-1: Progression of development phases of the first wave of KICs over time

The results delivered by the EIT Community to date in each development phase can be summarised as follows in Table 3-2.

TABLE 3-2: Progression of development phases of the EIT Community 2010-2016

KIC development phase	Results delivered
Phase 1- Mobilise	<ul style="list-style-type: none"> <li>• Setting up of 6 KICs</li> <li>• Mobilising 840 partners from all sides of the knowledge triangle, among which 25% SMEs</li> <li>• Setting up of an alumni association for each KIC, complemented by an overall EIT Alumni Community Board, and including expansion of InnoEnergy CommUnity beyond their alumni community to include over 2,000 members.</li> <li>• Active knowledge sharing and cooperation within the EIT Community</li> </ul>
Phase 2 - Build	<ul style="list-style-type: none"> <li>• Setting up of innovative EIT-labelled education programmes, which together make up a working pan-European educational model</li> <li>• Developing a portfolio of research and innovation activities</li> <li>• Developing targeted activities for developing and supporting businesses</li> <li>• Integrating the Knowledge Triangle, so that each of these activities reinforce each other</li> </ul>
Phase 3 - Deliver	<ul style="list-style-type: none"> <li>• 1,250 knowledge transfers</li> <li>• 3,297 business ideas incubated</li> <li>• 497 new products and services</li> <li>• 375 start-ups created</li> </ul>

	<ul style="list-style-type: none"> <li>• 1,200 entrepreneurial graduates</li> <li>• 7.3% of EIT alumni have started up a business since their graduation</li> </ul>
Phase 4 - Recognise	<ul style="list-style-type: none"> <li>• Replication of the EIT model outside Europe</li> <li>• 16,8 million people reached by EIT Climate KIC's Climathon</li> <li>• Between 90 and 100% employability of graduates</li> <li>• 18 EIT entrepreneurs in the 2017 Forbes 30 under 30 Europe list</li> <li>• Gust ranked EIT Digital's Accelerator on the 8<sup>th</sup> place among 579 accelerator programmes in their Global Accelerator Report 2016</li> <li>• € 634M of venture capital signed by external venture capitalists to EIT accelerator companies</li> </ul>
Phase 5 - Impact at scale	<ul style="list-style-type: none"> <li>• EIT Digital's supported 243 start-ups and scale-ups created 3,200 jobs and a total revenue of €256 million, with these numbers continuing to grow rapidly. Their portfolio of supported start-ups and scale-ups was valued at €1.5 billion in 2016.</li> <li>• EIT InnoEnergy supported 171 early-stage start-ups and produced 83 new business ventures. These ventures have created over 960 jobs in Europe and €21 million revenue.</li> <li>• EIT InnoEnergy's "Innovation Projects" brought 64 new products and services to market with total sales forecasts surpassing the €3 billion mark for the coming 7 years.</li> <li>• EIT Climate-KIC has fostered 229 start-ups that collectively generated over 2,000 jobs (2016).</li> <li>• The EIT Community has directly created 429 jobs (FTE; 2016) in employment spread out across the EIT's and its KICs' locations.</li> <li>• Aggregating employment created indirectly by the EIT and its KICs (<i>here: employment generated by supported start-ups and scale-ups</i>) implies indirect job creation of 6,100 FTE (2016).</li> <li>• In total, the EIT Community has thus contributed to the creation of close to 6,600 jobs, implying that for each job at the EIT, an additional 14 jobs were fostered at created, nurtured and supported companies.</li> <li>• The first wave of KICs already have examples of how their supported businesses will drive societal change, with three examples projecting respectively: <ul style="list-style-type: none"> <li>○ annual savings of 82,800 tons of CO<sub>2</sub>;</li> <li>○ sensor technology to help the blind with information about their surroundings; and</li> <li>○ risk management solutions to protect agricultural value chains against shifts in weather patterns.</li> </ul> </li> </ul>

### 3.2 Mobilising resources and growing a trust-based innovation community

Following the establishment of the EIT in 2008, the first wave of KICs was created in 2010. After an open call for proposals in 2009, the EIT Governing Board designated the first three KICs after extensive evaluation of the proposals presented to them. Kicking off their journey, the KICs started building the

network of partners they hold today and secure the necessary public and private funding to fuel their activities. Their efforts to date resulted in creating the largest networked pan-European innovation system with physical presence also outside of Europe. They have mobilised funding for their activities, which for the large part have been sourced from both private and public sources outside the EIT.

## A networked innovation community based on trust was successfully built up and continues to grow

Starting from scratch in 2010, the KICs have successfully established a network of partners since its inception. While still growing today, **the EIT Community is already the largest pan-European networked innovation community**. Starting with 82 partners in for EIT Digital, EIT Climate-KIC and EIT InnoEnergy combined, the KICs expanded their network by 2016 to include 840 partners from business, research, education and various other categories, including cities and regions. With the start-up of EIT Raw Materials and EIT Health in 2015, the EIT Community experienced another boost in its growth by expanding their network in new domains.

The EIT Community is also characterised by **a high diversity of actors** that participate in it. Industry has expressed keen interest to partner with the KICs, evidenced by the relatively high number of business partners across the KICs. With almost half of the partners coming from industry, this is significantly higher than the relative industry participation (~30% in 2014) in Horizon 2020, emphasising the business-like mind-set of the KICs compared to other European research and innovation initiatives. Moreover, SMEs represent approximately 25% of the EIT Community partners, which is comparable to the Horizon 2020 participation rate of SMEs<sup>9</sup>.

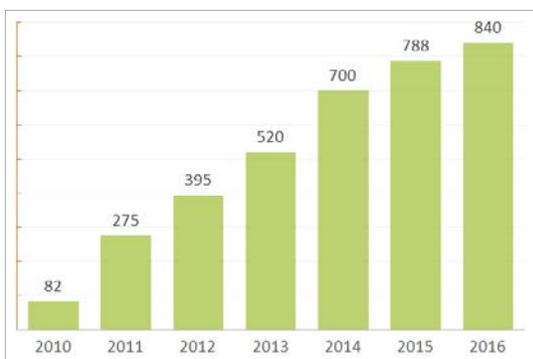


FIGURE 3-2: Number of KIC core partners over time

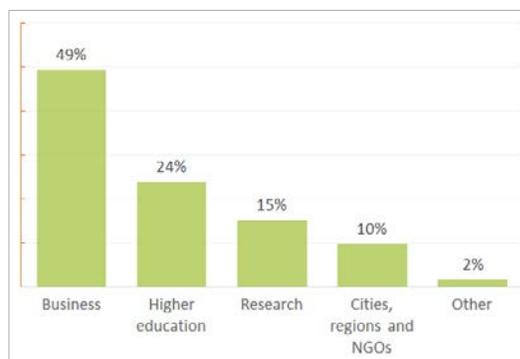


FIGURE 3-3: Distribution of KIC partners per category (2016)

The growth of the ecosystem is largely dependent on **the level of trust the EIT Community is able to create among partners**. Without trust from (potential) partners in the EIT's ability to deliver on their mission and create long-term sustainability of the institutional structure they provide, stakeholders are unlikely to commit themselves. As a neutral third party among these stakeholders, the EIT – and at a more operational level the KICs – acts as **a bridge between the different interests of stakeholders**, both within stakeholder groups (e.g. among competing firms) and across stakeholder groups (e.g. between business, research and academia). Through a variety of activities, the KICs actively bring together stakeholders and

<sup>9</sup> <https://ec.europa.eu/programmes/horizon2020/en/horizon-2020-statistics>

encourage partnerships among different actors of the Knowledge Triangle. The rate of expansion of the ecosystem, the composition of involved partners as well as the fact that these partners collaborate on projects **evidences the presence of trust within the ecosystem**.

**The high diversity of actors also in itself incentivises stakeholders to partner with the EIT Community.**

Partners of the KICs expressed their appreciation to us for both the size and the diversity of the network. For some, the EIT Community's network with its different actors was key for their decision to become a partner of the EIT Community themselves.

## The EIT Community has expanded its locations and its network across Europe

Aside from the number of partners involved, **the EIT Community has also geographically expanded their ecosystem**. In 2010, the EIT Community – measured by its headquarters and co-locations – consisted of 16 KIC-managed locations and the EIT headquarters, which together covered 11 different European countries. By 2016, the community had physically expanded to 34 locations (headquarters and co-locations), covering 13 different European countries. In addition, the first wave KICs expanded their physical presence in the form of office locations and/or associated locations both within the countries they were already operating as well as outside, covering a total of 15 different European countries. With presence in Silicon Valley (United States, 2015) and Australia (2016), expansion outside of Europe has also been realised by respectively EIT Digital and EIT Climate-KIC.

To increase involvement from European countries where no physical location was established and extend the benefits of the EIT Community to them, the EIT introduced the **EIT Regional Innovation Scheme (EIT RIS), as described in section 2-2**. As of 2016, the EIT RIS combined with the physical locations of the EIT Community cover the entire EU-28, as well as an additional 11 H2020 Associated Countries<sup>10</sup> in Europe.

## Trust in the ecosystem is also evidenced by the funding that has been committed to the EIT Community

As the EIT only funds up to 25% of the total budget of a KIC, the KICs have to make sure that additional funds are sourced elsewhere. **The willingness of parties to commit to financing the KICs in itself proves that they see the (potential) benefit**. Moreover, it displays a level of trust of stakeholders in the EIT Community, as they are willing to co-invest in the innovation community. This is evidenced in the funding that has been provided to date. Over time, the EIT funding has gradually increased, so has the amount of funding that comes from both co-funding and complementary funding. The sharp increase in co-funding in 2016 was in part to thank to the new KICs that were commissioned, which managed to secure investors right away to kick-start their core activities.

Looking at the distribution of funds across the types of sources, the commitment of KIC partners is clearly visible. Making up for the largest part of the total funding of the KICs, **their sustained annual financial contribution over time signals a level of trust in the EIT Community that it delivers**. Moreover, the KICs have managed to secure annual funding from other European, regional and national public funds of roughly the same proportion as the EIT-funding provided to them.

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<sup>10</sup> Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Former Yugoslav Republic of Macedonia, Georgia, Moldova, Montenegro, Serbia, Turkey, Ukraine.

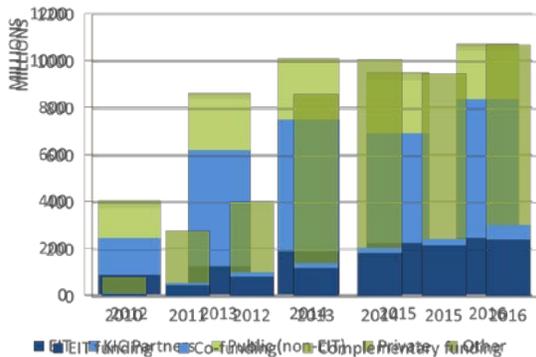


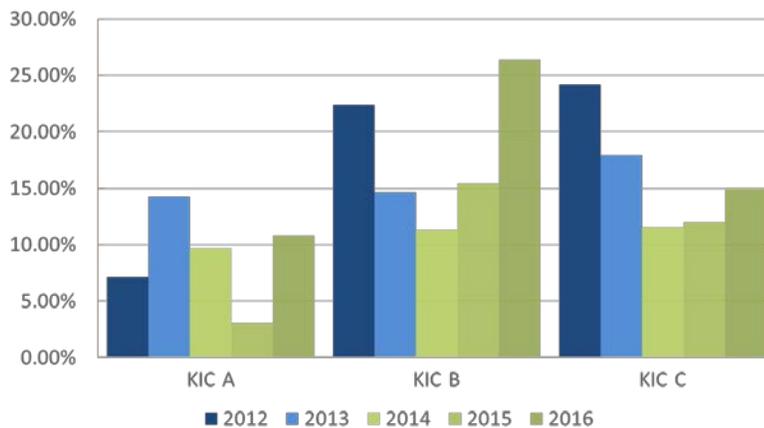
FIGURE 3-4: KIC funding over time per type of funding (per year)



FIGURE 3-5: Distribution of KIC funding per source (per year)

With the KICs’ core activities – the KIC Added Value Activities (KAVA) - being funded with EIT resources and the co-funding in place, the heart of the community is largely funded directly by the EIT. This presents a challenge for the KICs in the coming years which they will need to tackle. Now in their 7<sup>th</sup> year of operation, the first wave of KICs have reached their peak in the level of annual funding they can obtain from the EIT. The EIT’s contribution to a KIC will start to phase out 10 years after designation of a KIC, implying that **the next four years will be crucial for the first wave of KICs to realise substitution of the EIT funding to other sources**. Specifically, in 2021, a maximum 80% of the total KAVA-funding can be provided by the EIT, going down further to 60%, 40%, 20% and 10% in respectively 2022, 2023, 2024 and 2025.

FIGURE 3-6: Non-EIT KAVA-funding relative to the total KAVA-funding over time for the first wave KICs



Note: data is anonymised across KICs to adhere to confidentiality of underlying data.

The recent development in co-funding of KAVA-activities – as depicted in Figure 3-6 – suggests that the KICs are starting to make this transition, with the relative non-EIT contribution of the KAVA-activities showing a rising trend between 2014-2016. **One of the KICs has even demonstrated rapid improvement of their non-EIT KAVA-funding throughout 2014-2016, lowering the relative EIT contribution to less than 75% of their KAVA-budget despite significant growth of the total**. This implies its capability of reaching at least the financial goal for 2021 as set out in the funding principles for the KICs, though it remains to be seen

over the coming years to what extent this trend can be accelerated in order to meet the financial sustainability targets for 2021-2025.

## The KICs have established individual alumni associations, complemented by an overall EIT Alumni Community Board

Following the graduation of the first cohorts of students from the KIC educational activities, **the KICs installed alumni associations to offer alumni an opportunity to stay connected.** The alumni communities offer members networking opportunities by actively connecting them not only to other alumni, but also to stakeholders from the field – including business and education stakeholders. They are active not only as a platform, but stimulate active networking through e.g. organising and inviting members to partner and EIT events.

Although the alumni communities share a common goal to connect and integrate the alumni in the broader EIT Community, they differ in approach. A difference can be seen in the way EIT InnoEnergy has organised their alumni community. **Instead of setting up a separate organisation for alumni, EIT InnoEnergy established a sustainable energy community board – InnoEnergy CommUnity – that focuses on the entire EIT InnoEnergy ecosystem.** Set up in 2015, this network today is already composed by more than 2000 members, coming from over 80 countries. The InnoEnergy CommUnity provides a vacancy database for its users, organises events, and stimulates active (on-line) discussions among members to help accelerate the energy transition by fostering collaboration.

To guide the different alumni communities at the individual KICs and stimulate cross-learning and collaboration, **the EIT also appointed the first EIT Alumni Board in 2016.** With a mandate to represent the entire EIT Alumni Community, four representatives from the KICs were appointed, complemented by an EIT Observer who provides guidance and support to the board.<sup>11</sup>

## The EIT Community is harnessing its networking capabilities, with innovation being sourced from all over Europe and connected to investors all over the world

One of the key working principles of the EIT Community – and benefits of the ecosystem it aims to boost – relates to its networking capabilities. Although difficult to capture in terms of quantifiable impact, its influence shows in many of the activities as a crucial factor. The networking effect is most clearly observable through the business creation and development services, where its effect is evident when we consider **the spread of business opportunities across Europe that are enabled** by the EIT Community.

In-depth analysis of investment data from EIT Digital revealed that within the digital realm, **cross-border market access is facilitated, especially for European entrepreneurs outside the typical ‘lead’ markets.** Figure 3-7 presents the deal flow of EIT Digital’s investment portfolio for 2015-2016. As can be observed in the deal flow, EIT Digital managed to provide access to international markets by introducing entrepreneurs to customers abroad and supporting them with business coaching services. Moreover, whereas most Access to Finance services have

*The four biggest Access-to-Finance deals in 2015-2016 at EIT Digital were all raised outside their national markets.*

<https://eit.europa.eu/eit-community/eit-alumni/alumni-board>

led to national investment deals, the four biggest investments in 2015-2016 were all brokered internationally, with some even taking place in the United States.

Evidence obtained from the other KICs support the notion that a pan-European networking mechanism is used extensively for facilitating business deals and investments. For example, EIT InnoEnergy – through their Poland co-location – supported Spanish start-up EOLOS with administrative procurement procedures in Poland in a call for tender they were convinced of to be a good fit for their technology. This provided them a chance to present a competitive bid to the local authorities as well as facilitate state-of-the-art technology to go to market outside its domestic market.

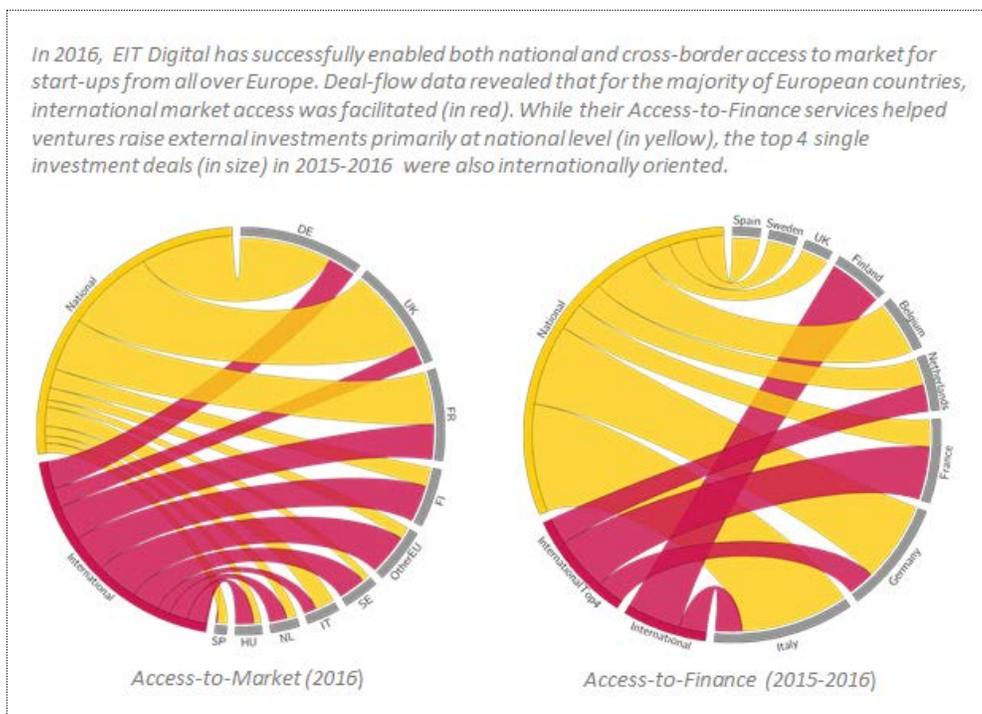


FIGURE 3-7: Deal flow of EIT Digital Accelerator's investment portfolio, 2015-2016<sup>12</sup>

### The EIT Community displays active knowledge sharing, which has clearly benefited the start-up process of the new waves of KICs

Another networking element of the ecosystem is its ability to share learnings, both internally and externally. KICs proved to be actively sharing their learnings within their community, which is best observed when looking at the development of activities within the KICs over time. New KICs have **taken into account the “lessons learned” from the existing KICs** by engaging in frequent discussions with each other. Stakeholders from the more recent KICs praised the support they received from the first wave of KICs, which has helped them to start-up more rapidly and formulate a business plan and strategy that is much clearer from the start. In turn, a clearer approach has allowed them to start-up the activities

<sup>12</sup> Based on internal data delivered to us by EIT Digital.

quicker and secure external funding at a faster rate, which further accelerated the start-up process of the more recent KICs.

Moreover, the learnings not only include having the know-how on how to start-up and run the KIC more efficiently, but also extend beyond the ecosystem. With the KICs already established and with members of first wave KICs involved in the start-up of new KICs, external support companies (e.g. consultants and recruitment agencies) that are experienced with the KICs could also be easily identified. KIC representatives noted that experience of such support companies with the KICs has further accelerated the start-up period.

Finally, specific cases within the business activities suggest that there is strong collaboration within the individual KICs in terms of **opening up their networks to their start-ups and partners**. Examples include start-ups that receive help from offices outside their own to land significant investment deals. Of significant remark is that this is not limited to Europe, with e.g. the Silicon Valley hub operated by EIT Digital acting as a bridge for companies to connect to the Silicon Valley. The other way around has also been observed, where the KICs are actively seeking SMEs for industry partners abroad to facilitate collaborative projects. With presence all over Europe, their reach is a strong advantage in connecting the various stakeholders.

### 3.3 Building, implementing and continuously developing an integrated activity portfolio

Almost in parallel to mobilising the resources, establishing networks and building the ecosystem, **the KICs started developing their activity portfolios**. With Knowledge Triangle Integration (KTI) in mind, the KICs needed to design activities tailored to education, research and business whilst assuring that they would be integrated in such a way that they also achieve greater integration among the different stakeholders. To date, the EIT Community has been able to develop such a portfolio of activities in an integrated way. Continuous development of the activity portfolios has taken place. Moreover, evidence suggests that the implementation of these activity portfolios is resulting in deeper integration of the Knowledge Triangle, implying that the EIT Community has made significant progress in delivering on their goals.

#### The EIT Community developed and implemented a working pan-European educational model that impacts the European educational system

The EIT was mandated to “develop ‘flagship’ education as a model for excellence throughout European higher education”.<sup>13</sup> Building towards that goal, **the EIT has successfully set up a working pan-European educational models within its KICs**. Since its start, the EIT Community has built partnerships between different educational providers from different countries. In doing so, it has not only been able to agree on a common educational offering, but it has also established financial agreements between the various partner institutions. This greatly increases the international opportunities for students, as they can follow the exact same degree abroad as they can at their home university. Having parity in place for the full degree is unprecedented, setting an example for other institutions that it is possible to implement a pan-European programme with different institutions.

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<sup>13</sup> High Level Group, (2016). The Future of the European Institute of Innovation and Technology (EIT): Strategic Issues and Perspectives.

What drives the uniqueness of the educational offering is **the integration of innovation and entrepreneurship** in the educational models. This integration is not only characterised by a theoretical background on innovation and entrepreneurship, but also takes a rather practical approach. Business is highly involved in teaching and coaching students to come up with innovative ideas and transforming them into business concepts. Exemplary for this is the project-driven approach that is part of the degrees, in which students are expected to team up and come up with solutions for addressing a societal and business need. This requires practical application of the technical scientific knowledge they are taught as well as put their entrepreneurial skills into practise.

There have also been a number of innovative concepts developed by the KICs in the field of education that potentially go beyond their own community. Two examples clearly demonstrate this:

- While all KICs offer (or plan to offer) Massive Online Open Courses, **EIT Digital was one of the first to offer a blended full degree with a first semester online**. Their MOOC has had over 25,000 participants, with approximately only 25% coming from campus users. Furthermore, EIT Health already in 2016 – 1 year after their start-up – managed to attract 23.726 participants in its MOOC sessions. Overall, the use of the MOOCs implies a reach far beyond the students enlisted in their campus-based educational programmes.
- EIT Climate-KIC has developed the **“EIT Climate-KIC Journey”**, an innovative education model that encourages talented students to develop a new innovative concept in the time of a single summer school. The curriculum is delivered closely with industry and enables students to interact with stakeholders from the field. They are taught entrepreneurial skills and coached to bring their concept further to market, working in a multi-disciplinary team.

## Research and Innovation activities were developed and continuously improved over time to boost relevance and effectiveness of the efforts

As part of building their activities in line with the structure of the Knowledge Triangle, **the KICs developed a portfolio of research and innovation activities**. Although each developed their activity portfolios in a different way, thematic ‘Innovation Projects’ are a standard element. These projects bring together different partners from the knowledge triangle to develop new products, services, processes and business models. Staying true to the aim of the EIT Community to address societal challenges, the projects are focused on contributing to the specific societal themes the KICs have.

**Setting up and implementing these innovation projects in 2011 and 2016 can be considered as a key achievement of respectively the first and second wave of KICs** in this phase. With targeted activities taking place that unite the different stakeholders from the Knowledge Triangle, it stimulates Knowledge Triangle Integration. Moreover, as the projects are focused on bringing societal innovation to market, they form the basis for part of the results the KICs have already delivered and will – in future – deliver (see sections 3.4, 3.5 and 3.6).

In addition, **the innovation portfolios have been continuously developed**, displaying clear progress in how they are formulated. Across the KICs, we see that the annual review of their strategy and business plan also results in changes to the implementation of innovation activities. Over time, consolidation of activities is noticeable as well as prioritisation of (new) innovation activities, suggesting that more effective ways of delivering results are being considered actively. For example, EIT Climate-KIC changed their portfolio structure between 2015 and 2016 from a pillar based approach (education,

entrepreneurship and innovation) to a theme-focused approach, in which for each theme they have integrated the entrepreneurship and innovation activities. Moreover, EIT Digital consolidated their 13 different “action lines” on various themes to 5 more focused thematic portfolios to achieve a more comprehensive and focused delivery of results over time.

## The KICs have all put targeted activities in place for developing and supporting businesses

Another key achievement in this phase is the **design and implementation of business development and support activities**. With business acceleration programmes going live in 2012 for the first wave of KICs, entrepreneurs are offered services to help them transform their business ideas into successful ventures. The business activities at a later point in time have turned out to be one of the key sources of impact that is emerging today, proving the fundamental added value of these portfolios and the importance of its establishment.

What makes the establishment of these business programmes also unique is the fact that they are exclusively focused on accelerating business within the thematic priorities of their KICs. Each KIC has implemented a screening mechanism to ensure that the business ideas presented to them not only qualify in terms of business potential, but also contribute to addressing the societal focus of each KIC. This puts the accelerator services in a unique position, **as they can claim rights to be one of the few – if not only – accelerator fund focused on accelerating innovation in their particular societal theme**. Put differently, they offer entrepreneurs a unique opportunity for business support in bringing societal innovation to market, further emphasising the societal drive of the EIT Community.

## The activity portfolios clearly developed over time, taking into account the learnings the EIT Community has accumulated

The development of activities over time is clearly reflected in the annual KIC business plans. The first business plans and grant agreements of EIT Climate-KIC, EIT Digital, and EIT InnoEnergy date from 2010 and are focused on establishing the KICs by e.g. creating a structure, hiring people, developing themes for innovation projects, setting up funds, and recruiting students. Although these business plans considerably differ from those written in 2016, the fundamental activities and basic principles were already there: entrepreneurial education programmes, building an innovation system around co-location centres (for support of entrepreneurship and business creation) and creating a broad innovation network for knowledge sharing and dissemination. Subsequently, throughout the years, the structure of the business plans varied and the KICs expanded their activities, showing a development path over time.

What is quite different is how the business plans of the second wave of KICs have developed. **Looking solely at the way the business plans of EIT Health and EIT Raw Materials are structured, they appear relatively mature** compared to the initial business plans of the preceding KICs (already established in 2009). This is understandable, as the early KICs needed to develop and operationalise the operating model, as well as come to terms with finding an insightful reporting structure for both the KICs and the EIT. More importantly, however, it implies that the learning experience of KICs over time may have trickled down to the KICs that have recently been initiated.

## With an integral approach towards the different types of activities, the EIT Community has achieved deeper integration between education, business and research.

The underlying philosophy of the EIT is to create greater Knowledge Triangle Integration (KTI) – i.e. a deeper integration between education, research and business (ERB). The Knowledge Triangle concept is an integral part of the activities conducted by the KICs and as such clearly recognisable in their business plans. Although the KICs all have a different interpretation of what constitutes KTI, there is evidence that all of them contribute to greater integration of the relevant actors within the KICs. The following observations are noteworthy<sup>14</sup>:

- **Increased flows of knowledge and new types of co-operation** were observed between education institutions, research organisations and business via CLCs, networking events. In a recent survey, almost 71% of the KICs' partners indicated that they believe that the KICs have been 'effective' or 'very effective' in supporting knowledge transfer between businesses and universities/ research organisations. This is also supported by the growing number of knowledge transfers taking place within the EIT Community<sup>15</sup>.
- There is **visible integration** of research results and innovative practice into the educational offer. The curricula are shaped by research and innovation results in many ways, including the use of latest technological advancements as case studies in their courses as well as delivery of educational activities by research partners<sup>16</sup>.
- There is **involvement of industry in the design and delivery of educational programmes** within the KICs. At all KICs, leading industry partners are invited for guest talks in lectures, are involved in delivering the lectures, take a role in innovation challenges, guide internships and supervise theses. Involvement in the design of educational programmes is observable at e.g. EIT Digital, where a new Industrial Ph.D. programme was co-designed by industry and educational activities are co-funded by industry partners.
- The **expertise of the different co-location centres and partners is used to add value to educational experiences**, e.g. by bringing state-of-the-art knowledge and technology in the educational programmes. This ensures that students are taught the relevant skills using state-of-the-art technology platforms.
- Students are taught **themed education and entrepreneurship programmes**, with access to research facilities and business accelerators to develop and launch their business ideas. The thematic approach also reinforces the EIT's strategy to contribute to finding solutions to societal challenges.
- The concept of the Knowledge Triangle is used to **help reduce the fragmentation of industry**, demonstrating greater integration. This is particularly evident when considering that within the

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<sup>14</sup> ICF & Technopolis (2017). Evaluation of the European Institute of Innovation and Technology (EIT): Final Report. Commissioned by DG EAC of the European Commission.

<sup>15</sup> As presented in more detail in Section 3.1 of this report.

<sup>16</sup> EIT (2016). Assessment of the implementation of the EIT Knowledge and Innovation Communities (KICs) educational activities.

communities, leading partners that are naturally competing join up to address projects that may have a profound societal effect.

### 3.4 Delivering results already in 2011 and growing strongly between 2012-2016

After setting up and implementing their first activities in 2010-2011, focus of the KICs gradually shifted more to delivering the first results of those activities. They were off to a quick start, with **first output of the activities already showing in 2011**. Once the activities started to pick up pace in 2012, **results were delivered quickly**, also fuelled by continuous development of the activity portfolios. In the period 2010-2016, the EIT Community delivered in growing numbers on transforming ideas into marketable products and services, showing clear progress towards long-term economic impact. All in all, the delivery to date proves that the EIT Community has been able to develop a growing portfolio of business ideas, knowledge transfers, new products and services, and start-ups.

#### Strong growth in knowledge transfers taking place as a direct result of KIC activities

Through the KIC activities, innovation is fostered that has market relevance and is applicable within their societal themes. Often in practice, the entity commercialising the innovation is different from the entity (or even consortium) developing the innovation. Put differently, the source of the underlying technology comes from outside the commercial entity. For such commercialisation to be made possible, knowledge needs to be transferred, typically between research and business actors. **Evidence shows that not only is knowledge transfer happening within the EIT Community; it has also grown considerably between 2012 and 2015.**

Figure 3-8 shows how the annual output in knowledge transfers – following directly from KIC activities – has evolved over time. **Between 2010 and 2016, a strong growth in knowledge transfers created each year is clearly observable.** The increasing number of knowledge transfers fuels a growing base of innovative concepts that may in time be commercialised. The technology that is transferred can e.g. be commercialised in new start-ups, brought to market by existing businesses, implemented to strengthen existing businesses, or used as a basis for further technological development.

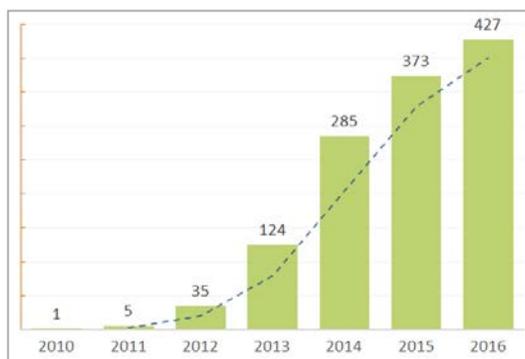


FIGURE 3-8: Number of knowledge transfers created by the KICs (per year; 2010-2016)

**A jump in knowledge transfer output is also clearly noticeable between 2013 and 2014**, after the second year in which the KICs had implemented most of their activities (2012). Once the activities picked off steam, relevant knowledge was being generated that was subsequently transferred to other partners. From there onwards, growth has been progressively strong up till 2016. With EIT Raw Materials and EIT

Health becoming fully operational in the coming years, another significant jump in knowledge transfers is expected to take place in the coming years.

## The output in incubated business ideas shows quick uptake after the start of the activities and continues to grow strongly

Another indicator used by the EIT Community to track their progress is **the number of business ideas that are incubated**. For this, the KICs keep track of the number of formalised commitments between KICs and entrepreneurs on specific business ideas. These business ideas will need to progress from concept to concrete market application and commercial success, either through the creation of start-ups or through marketing and commercialisation efforts of existing businesses. While it is inevitable that some of incubated business ideas will not turn out to be a commercial success, they show the potential of the EIT Community to deliver innovation in the years to come.

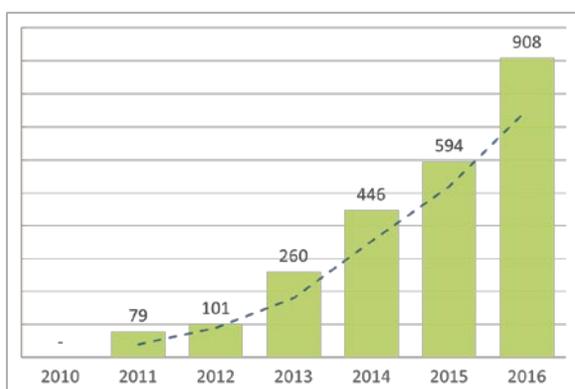


FIGURE 3-9: Number of business ideas incubated by the KICs (per year; 2010-2016)

Similar to the knowledge transfers taking place, there is strong growth in output from the moment the activities start full implementation. **Between 2012 and 2014, the number of incubated business ideas more than quadrupled.** Interesting to observe is that the incubation of business ideas already start rather quickly after the inception of the KICs. Right from the start, KICs – together with their partners – started identifying impactful business concepts. This is why already in 2011, KICs were incubating business ideas. This is also why in 2016, only one year after the inception of EIT Raw Materials and EIT Health, a significant jump in business ideas incubated is noticeable. The two new KICs –

following a similar approach in this – contributed strongly to the growth and are expected to further fuel growth the coming years.

## Growth in the number of new products and/or services that are successfully developed in KIC activities has surged in recent years

The creation of new products and/or services is an important element in progressing towards commercialisation. The new products and/or services form the basis of commercial activity that spurs out of the activities of the EIT Community. Naturally, the development of such new concepts takes more time than e.g. incubating business ideas, which is clearly reflected in the data that are collected by the KICs.

Nevertheless, the story is rather comparable to the achievements described above, only now the timeline has shifted more towards 2016.

**After the full implementation of activities in 2012, the KICs experienced a strong initial growth in the successful creation of new products and/or services between 2012 and 2013, which was continued in 2014. Between 2014 and 2015, growth was even stronger, with explosive growth in new products and services really taking off in 2016.**

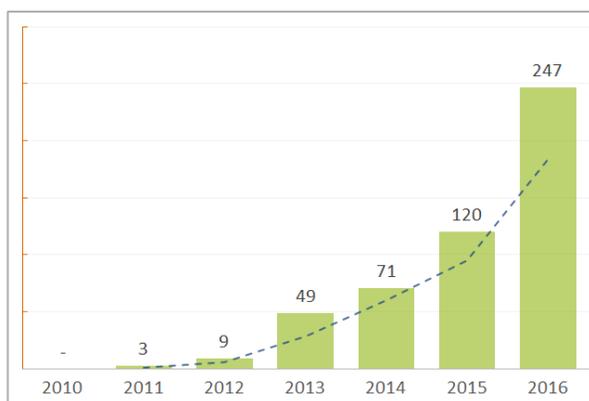


FIGURE 3-10: Number of newly developed products and services by the KICs (per year; 2010-2016)

The key difference between incubated business ideas and knowledge transfers is that new products and services are far closer to market. Being only a step away from market application, these products and services are ready to be commercialised. **With a strong surge in new products and services occurring in 2016, it seems likely that commercial activity enabled by the EIT Community will grow strongly in the coming years.** Moreover, the growth in new products and services will be fuelled in the coming years by particularly EIT Raw Materials and EIT Health, assuming they will experience a phase in period here from 2015 onwards similar to that of the first wave of KICs.

### The number of start-ups created by the KICs initially grew strongly, but has levelled off recently

One of the paths to reach economic value-adding activity – and ultimately commercial success – is through the creation of start-ups. The number of start-ups that are being created can thus be considered in part as a proxy of the innovations reaching the market. Looking at the trend in start-ups that are directly created by the KICs as a result of their activities, **we see strong growth between 2012 and 2013, followed by continued growth in 2013-2014. After 2014, the growth in the start-ups that are created has slowly levelled off, reaching an annual start-up figure of around 100 entities.**



FIGURE 3-11: Number of start-ups created by the KICs (per year; 2010-2016)

The recent trend in start-up creation can (in part) be explained by two factors:

1. **Start-up creation is not a goal of the KICs per se**, but rather one of the means of addressing societal challenges through commercialisation of newly developed solutions. More so, EIT Digital has set a goal of scaling up companies as opposed to setting up new ones, claiming that scaling

of businesses requires more urgent attention in Europe's digital realm. As it is only one element of the KICs' approach, there are more factors that drive start-up creation over time.

2. **KICs have changed their start-up creation strategy over time**, taking into account their learnings as well as their overall strategies. Focus of the KICs have gradually shifted from pushing for "more" (i.e. quantity) in favour of "better" (i.e. quality) start-ups. Also, a more focused approach of the activity portfolios (see section 3.3) has likely resulted in more focused start-up creation facilitated by the KICs.

The recent stagnation in start-up creation need not limit the potential for impact in the coming years. Fewer start-ups of higher quality may ultimately be more impactful than more start-ups that are e.g. unable to reach the scale of impact higher quality start-ups may reach.

Still, some growth in start-up creation of the EIT Community is expected in the coming years. **Assuming they deliver against their strategic goals, EIT Raw Materials and EIT Health will both contribute to the creation of start-ups in the EIT Community on the short to medium term.** In the foreseeable future, the same applies to the recently established EIT Food and the two KICs that will be designated to respectively added-value manufacturing and urban mobility. This ensures that at least an annual inflow of innovation is reaching the market through the creation of start-ups, in addition to the new products and services that are commercialised by existing businesses as well as (early-stage) ventures that are scaled up.

### The EIT educational activities delivered graduates with an interest in entrepreneurial activities, though many want to gain working experience before starting up their companies

One of the key focuses of the EIT is to create an entrepreneurial mind-set within the innovation communities in Europe, both by embedding such a mind-set across all actors and by training (future) actors with the right set of entrepreneurial skills. An important pillar of the EIT's approach is thus the educational services it provides.

After successfully developing and implementing the education activities in 2011/2012 (Section 3.3), the first cohort of students from the EIT-labelled educational programmes already graduated in 2013. EIT Climate-KIC delivered the first 10 graduates, which were followed by graduates from EIT Digital and EIT InnoEnergy in subsequent years. **The graduation of the first cohort marked an important achievement for the EIT Community, as it demonstrated that different top-level universities together with businesses, start-ups and public partners can successfully deliver highly educated people** with expertise for addressing urgent societal challenges.

With an entrepreneurial focus of the educational programmes, students are prepared and inspired to take up an entrepreneurial role in their (future) careers. A recent survey among EIT-label graduates revealed that **an average of 20% of the responding alumni were thinking of starting up a company at a later stage of their career.** Per comparison, the Global Entrepreneurship Monitor estimated that in 2016 approximately 12% of the population in the EU (aged 18-64) had the intention to start up a business

within three years.<sup>17</sup> The survey results confirm an entrepreneurial interest of the graduates that can be considered above the EU-average across all disciplines.

Nevertheless, despite their entrepreneurial interest, a relatively modest cohort of graduates have yet started up businesses since their graduation. On average across EIT Digital, EIT InnoEnergy and EIT Climate-KIC, **about 7.3% of the respondents had started up a business since their graduation**. A total of 5.3% of the surveyed alumni started their business within six months after graduation, implying that the start-up rate still grows over time.<sup>18</sup> To put these numbers in perspective, for higher education leavers in the UK as a whole, the percentage of students starting up a business within six months has varied between 4 and 5% for alumni classes between 2011 and 2016.<sup>19</sup> Moreover, start-up rates for European entrepreneurial degrees have been reported to be as high as 16%, although it should be noted that these alumni were on average already graduated for three to six years and that they come from business-oriented – rather than technical – disciplines as well.<sup>20</sup>

*Although only a minority of the graduates have already started up a business, about 20% of them on average are thinking of starting up a company at a later stage.*

The modest start-up rates can in part be explained by the preferences of the surveyed alumni to gain experience in the field first. Some specifically expressed that “**entrepreneurship is something you learn by doing**”, with many of them seeking working experience before starting up their own ventures.<sup>21</sup> Moreover, as the start-ups target the specific societal domains the EIT Community is active in, the start-up rates are difficult to compare. Specifically for societal topics for which a market is not yet well established, these kind of start-ups may face considerable more market risk. While the business development and support programmes have various tools in place to de-risk the investment and help attract capital, it may help explain a more risk-averse nature of alumni compared to their peers in more established markets.

Still, there is a sense of business acumen in the work carried out by the alumni. **About half of the surveyed graduates coming from the EIT Community indicated that they have developed or contributed to the development of new products and services.**<sup>22</sup> This suggests that within existing companies, a relatively large cohort of the EIT graduates end up at positions that require them to rely to some extent on the business skills they have acquired.

### 3.5 Getting recognised for what the EIT Community is delivering

With the EIT Community delivering on bringing ideas to marketable products at a growing rate, it holds a strong potential for delivering economic impact through successful commercialisation of these concepts. Over the past few years, it has proven its ability to (help) bring these concepts successfully to market.

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<sup>17</sup> Global Entrepreneurship Monitor (2017). Entrepreneurial Behaviour and Attitudes database, available at: [www.gemconsortium.org/data/key-aps](http://www.gemconsortium.org/data/key-aps)

<sup>18</sup> Percentages calculated using the raw Alumni survey data obtained for the Interim Evaluation of the EIT (conducted by ICF & Techopolis, 2017).

<sup>19</sup> HESA (2017). Statistical First Release: Destinations of Leavers from Higher Education (DLHE).

<sup>20</sup> EIM Business & Policy Research (2012). Effects and impact of entrepreneurship programmes in higher education. Report prepared for the European Commission - DG Enterprise and Industry.

<sup>21</sup> ICF & Technopolis (2017). Interim Evaluation of the EIT. *Forthcoming*.

<sup>22</sup> Calculated using the raw Alumni survey data obtained for the Interim Evaluation of the EIT (conducted by ICF & Techopolis, 2017).

Moreover, the EIT has increasingly gained recognition for its ability to empower the innovation and entrepreneurial culture in Europe, evidenced by recognition for the quality of the entrepreneurship that flows from the EIT Community, the economic impact it is already generating at this stage, and the KIC-model being copied outside of Europe.

## The KIC-model is recognised outside the EIT Community and has already been copied outside of Europe

The EIT Community has not only demonstrated clear progress in delivering (economic) impact in Europe. It has also inspired actors outside of Europe to have a closer look at its implementation method. The working principles and philosophy of the KIC-model were clearly recognised in Australia, **where at own initiative the Climate-KIC model has recently been replicated** to address climate change challenges in Australia.

*We will build links between the research community, government and commercial opportunity, being the catalyst to link ideas, commercial know-how and investment capital via a proven model from the European Union. – Climate-KIC Australia*

Following the same basic principles of the KIC-model, Climate-KIC Australia seeks to bring actors from the knowledge triangle closer together to develop and commercialise solutions that address climate change. They will focus on three priority

areas: reducing carbon emissions from energy production, the sustainable growth of urban environments and enabling regional transition away from carbon intensive industries to a more sustainable economy.

*“The EIT’s Climate-KIC Climathon can make a big contribution to training a new generation of entrepreneurs and innovators.” – Tibor Navracsics, European Commissioner for Education, Culture, Youth and Sport*

**KICs have also successfully explored initiatives that have active participation of stakeholders from outside their KICs.** The Climathon organised by EIT Climate-KIC is a clear example of this. This global 24-hour climate change hackathon takes place simultaneously in major cities around the world. Focusing on addressing the climate change challenges faced by the cities, it brings together public, private and

education stakeholders to create innovative solutions. The initiative has shown a fast growing interest from outside their community; in only one year time, Climathon increased involvement from 19 to 59 cities, operating across 6 continents, creating over 2330 ideas and reaching 16.8 million people worldwide in 2016.<sup>23</sup>

## A majority of the KIC partners acknowledge that the EIT Community has positively impacted their innovation capacity and culture

Partners of the **KICs acknowledge the positive role the EIT’s network has played in their innovation capacity and culture.** In a recent survey among the core partners of the KICs, about one third of the respondents (29-35%) reported that their involvement in one of the five KICs has had a “large impact” on their organisation’s innovation capacity. Another 19-36% of the respondents reported a “moderate impact”, suggesting that the **overall majority of partners experienced a positive influence on their innovation capacity from the EIT and its KICs.**<sup>24</sup> Dissecting the type of impact, partners claimed the KIC they are involved in has benefited them as follows<sup>25</sup>:

<sup>23</sup> <https://climathon.climate-kic.org/climathon-highlights/climathon-2016-highlights>

<sup>24</sup> ICF & Technopolis (2017). Evaluation of the European Institute of Innovation and Technology (EIT): Final Report. Commissioned by DG EAC of the European Commission.

<sup>25</sup> *Ibid.*

- The KICs enabled partners to **work with a wide range of organisations they previously did not collaborate with**. KICs have helped to establish partnerships across the Knowledge Triangle (i.e. business, research and education), but also within, opening up networks between businesses and between higher education partners as well. Respondents also clarified that such partnerships were also continued for non-KIC related activities.
- **The market-driven approach of the KICs has positively impacted the entrepreneurial mind-set of partners**. Partners particularly considered the KIC-initiated collaborative projects contributing to a change in mind-set. As these projects are typically more market-focused than collaborative projects in more research-oriented programmes, some of them felt encouraged to think about the commercial potential of their proposed solutions.
- The KICs have **contributed to building a culture of knowledge transfer**. By encouraging partners to engage in knowledge transfer activities to capitalise on the commercial potential of their research, partners felt stimulated to be more entrepreneurial. ICF & Technopolis (2017) concluded from their survey that this particularly holds for universities and research institutes that have traditionally not considered the commercial aspect of their research much.

## Alumni have high employability rates and face a relatively high initial remuneration, suggesting their skills are recognised

A different take on the societal impact of the EIT and its KICs is to consider the impact they have on empowering the European workforce with entrepreneurial skills. Training entrepreneurial skills not only affects the innovation capacity of Europe, it also affects career opportunities of the individuals that are trained. Compared to their peers, entrepreneurship programme alumni generally find employment more easily, are less prone to unemployment, are paid better, have more creative freedom in their work, and are more often starting up their own businesses.<sup>26</sup> **Progress of the KICs thus far indicates that EIT alumni are facing favourable career opportunities**, suggesting they do well on the labour market in general.

Across the KICs, the first wave of **EIT alumni is characterised by a high employability**. In the case of EIT Digital, internal data even revealed a near 100% employability, with external survey data validating that only a small proportion of surveyed graduates were indeed seeking employment.<sup>27</sup> Similarly, 9 out of 10 EIT InnoEnergy graduates typically find employment within 6 months of graduation. Moreover, their initial remuneration is about 15% higher than their cohort non-EIT programme graduates.<sup>28</sup> Stakeholders from within the KICs suggested that this can mostly be explained by the notion that EIT graduates typically end up at positions that are of more strategic and business facing nature. The commercial element in their work is valued by companies, resulting in a higher initial remuneration.

<sup>26</sup> EIM Business & Policy Research, (2012). "Effects and impact of entrepreneurship programmes in higher education. The study conducted empirical research on survey data obtained from 1,139 entrepreneurship alumni and a control group of 1,443 non-entrepreneurship alumni.

<sup>27</sup> Based on raw survey data that was collected in light of the Interim Evaluation of the EIT, conducted by ICF and Technopolis (2017).

<sup>28</sup> <http://www.innoenergy.com/bcs/innoenergy-highway/performance/>

Still, the alumni of the KICs are only at the start of their career. **Anecdotal evidence suggests that the master schools are at least bringing forth talent that is recognised on the labour market.** For instance, one of the early EIT InnoEnergy alumni was recently appointed as Executive Director of the World Bioenergy Association, implying steep career progression in only 3,5 years of working experience.<sup>29</sup> It remains to be seen how the alumni overall progress their careers. A follow-up study in a few years from now would be much welcomed to provide insight in the career progression of EIT alumni vis-à-vis their peers from other education programmes.

*Graduates from EIT InnoEnergy's educational programmes typically have a higher initial remuneration, which is mostly explained by the fact that they end up in more strategic and business facing positions than alumni from other programmes. –*

*Frank Gielen, Education Director EIT InnoEnergy*

Another form of recognition in the area of the EIT education programmes can be seen in the renewed award of the EIT Label to several master and doctoral programmes in 2017, after review by a group of external experts based on the EIT Label Handbook<sup>30</sup>. This independent review prior to renewing the award of the EIT label constitutes another form of tangible recognition of the quality of the programmes that were re-certified.

Anecdotal evidence **of EIT students being more-than-average successful in European competitions in their field of study**<sup>31</sup> is yet another indicator that the quality of EIT-labelled programmes is externally recognised. Also, the EIT Climate-

KIC Journey has been recognised as a best-case example in Higher Education by the OECD and has brought forth promising entrepreneurs, including some that have been listed on the prestigious Forbes 30 under 30 young innovators list.

## The entrepreneurial activity enabled by the EIT and its KICs is of high quality, evidenced by their market potential and international recognition

Arguably what is at least as important as the volume of the entrepreneurial activity (i.e. the delivered results in volume as described in section 3.4) is its quality. **Evidence was found across the KICs that entrepreneurial activity from the KICs is of high quality.** In the first place, this is apparent by the success of the business creation and development programmes in raising capital and generating revenue, as well as in terms of revenue forecasts and portfolio valuations.

From a more qualitative point of view, **business concepts stemming from the KICs receive high international praise.** Exemplary here is that the KICs have in recent years strongly increased their presence in the Forbes 30 under 30 Europe list. The list features the 300 best young innovators, entrepreneurs and game changers from Europe in ten categories to encompass arts, finance, technology and social entrepreneurship.

<sup>29</sup> World Bioenergy Association, (2017). World Bioenergy Association has a new Executive Director. Press release, available at [www.worldbioenergy.org/news/364/47/World-Bioenergy-Association-has-a-new-Executive-Director](http://www.worldbioenergy.org/news/364/47/World-Bioenergy-Association-has-a-new-Executive-Director)

<sup>30</sup> EIT (2017). "Quality for learning", EIT Quality Assurance and Learning Enhancement Model: Handbook for planning, labelling and reviewing EIT-labelled masters and doctoral programmes, Revised Edition (January 2017). [https://eit.europa.eu/sites/default/files/eit\\_label\\_handbook\\_01-2017.pdf](https://eit.europa.eu/sites/default/files/eit_label_handbook_01-2017.pdf)

<sup>31</sup> E.g. <https://masterschool.eitdigital.eu/about-us/news-events/article/master-school-students-excel-in-europes-biggest-hackathon/>

The 2017 list included 18 entrepreneurs from the EIT Community, which is more than triple the number of EIT Community entrepreneurs that made it to the final list in 2016 (5). The entrepreneurs came from four different KICs: EIT Digital (5), EIT Climate-KIC (10), EIT InnoEnergy (2) and EIT Raw Materials (1).<sup>32</sup> Spread across various categories, the young entrepreneurs are praised for their innovative ideas to deliver solutions to address needs in industry, society, technology, science and healthcare, and retail and e-commerce.



One of the entrepreneurs on the list is Matthias Meiner (EIT Climate-KIC), co-founder of **Lilium Aviation**. Lilium Aviation is exemplary for the kind of innovative concepts that are being developed by the EIT Community. The company focuses on designing the world's fastest and highest-range electric vertical take-off and landing aircraft that is commercially available. With a zero-emission aircraft, Lilium has the potential to significantly reduce pollution from traveling. Lilium joined the EIT Community in October 2014 after being accepted into the EIT Climate-KIC Accelerator programme, after which it has raised a total of 100M USD in external investments. Although the Lilium jet is yet to fly commercially, the team has already grown to 70 people.

### The EIT accelerators are recognised for their performance, with EIT Digital's Accelerator even ranked among the top 20 global accelerators

The EIT accelerators are gaining recognition for delivering the goods. With combined applications for the business creation services of the KICs exceeding 900 business proposals (i.e. the total number of business ideas incubated; section 3.4), **there is stark interest in the services on offer**. Moreover, for 2016, **Gust ranked EIT Digital's Accelerator on the 8<sup>th</sup> place among 579 accelerator programmes** they analysed in their Global Accelerator Report 2016.<sup>33</sup> Measured in level of activity, the EIT Digital Accelerator was also ranked 2<sup>nd</sup> in Europe in Gust's European Accelerator Report 2016, signifying the service delivery of the accelerator.<sup>34</sup>

Recognition for the quality of services is also evidenced by the willingness to pay of applicants. Whereas EIT InnoEnergy asks for an equity share in return for their services, EIT Climate Accelerator and EIT Digital Accelerator until recently offered their services based on competition rather than fees. In 2016, EIT Digital Accelerator changed their structure by asking a support fee for their scale-up services. Despite a change in fee structure, start-ups commit themselves to the EIT Digital Accelerator, both in the form of renewal of existing commitments and new business ideas being incubated.

Finally, users of the business support activities shared a general appreciation of the quality of services provided to them, indicating that they have substantially impacted their businesses. In a survey conducted by ICF and Technopolis (2017) among 233 beneficiaries, commonly appreciated the added value of the business support programmes. Looking across the different accelerators, over two thirds of the beneficiaries recognised that they had experienced impacts that include gaining a better understanding of the market, a better business model, conversion of a business idea into a viable business proposition, reduced time to market, and access to potential partners.

<sup>32</sup> EIT (2017). 18 EIT Community innovators and entrepreneurs in Forbes' 30 under 30 Europe list 2017. Press release.

<sup>33</sup> Gust (2017). Global Accelerator Report 2016.

<sup>34</sup> Gust (2017). European Accelerator Report 2016.

Moreover, almost all businesses reported that the accelerator had advanced their business to the next level, commonly from concept to pilot or pilot to posting revenue. Around 90% of businesses from both EIT Climate-KIC and EIT InnoEnergy reported the support had advanced their business to the next level, including going from pilot to posting revenue. In addition, **around half of the businesses had secured follow-on investment after their support programme.** The KICs' accelerators' support was recognised as an important factor behind this.

### The business potential of the start-ups and scale-ups is recognised by external investors, with €634 million in external investments secured

A defining moment for a start-up or scale-up venture is often considered its ability to raise external investment. External investment can be interpreted as a display of confidence from external parties in the potential of a business opportunity. Owing to the support of the different accelerator programmes, supported start-ups and scale-ups of the first wave of KICs have successfully raised **external investment in excess of €450 million** (as of 2016). If we include follow-on investment, i.e. subsequent investment rounds after the initial funding round, the first wave of KICs has **enabled a total of €634 million in external investments** for their start-up and scale-up portfolios.<sup>35</sup>

The external investments in the business ventures are also an important milestone in reaching impact at scale. With the investments providing the basis for companies to further grow, commercialise and expand their business, they provide the fuel for further economic and societal impact over time.

## 3.6 Scaling up the impact in the coming years

The EIT Community has made clear progression from mobilising stakeholders and resources - the first level in our impact model - all the way to gaining recognition, the fourth level in our impact model. These results have been achieved within the first 7 full years of operation of the first wave of KICs. As it was originally planned that the KICs would need about 15 years to reach their potential, our interim analysis suggests that the EIT Community is well on their way. Moreover, with the second and third wave of KICs expected to reach full operation in the next few years, more impacts similar to those described in this study are expected to emerge. Likewise, designation and development of the fourth wave of KICs will further fuel that growth.

Nevertheless, **the EIT Community will need to prove in the next seven years that it is not only able to gather more recognition for their work, but is also able to scale-up the impact.** With the EIT Community showing that they have successfully achieved results at four out of five impact levels of our model within the current timeframe, the fundamentals are there for achieving long-term impact at scale. Still, scaling-up will provide a challenge which will need to be addressed accordingly in the strategies of both the EIT and its KICs.

### Seven years into operation, the EIT Community is already generating jobs and revenues in the European economy

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<sup>35</sup> Aggregates based on data provided individually by the EIT Digital, EIT InnoEnergy and EIT Climate-KIC.

In recent years, **the EIT Community started to make a mark on the European economy.** The first wave of KICs (EIT Climate-KIC, EIT InnoEnergy, EIT Digital) have had some time to set-up their organisations and set the right conditions for the first set of innovations to hit the market. As section 3.4 showcases, the EIT Community put out a growing stock of results on the short and medium term, which all provide a solid basis for (further) economic impact. A glance at the early impact of these results **sketches a positive picture of the economic impact that is already achieved**, as well as what is still to come.

Measurable economic impact as of 2016 is made almost exclusively through the innovation, and business support and accelerator programmes the KICs have put in place. The aggregated economic impact of the business programmes of the first wave of KICs amounts to the creation of over 6,100 jobs. As some of the numbers are difficult to aggregate due to the intrinsic differences between KICs and the fact that not all of them report against the same statistics, the following economic impacts were identified at the KIC-level<sup>36</sup>:

- Between 2012 and 2016, EIT Digital **supported a total of 243 start-ups and scale-ups that created 3,200 jobs and a total revenue of €256 million.** Moreover, the portfolio of start-ups was **valued an impressive €1.5 billion** in 2016.<sup>37</sup>
- EIT InnoEnergy **supported 171 early-stage start-ups** and produced **83 new business ventures.** As of 2016, these ventures have **created over 960 jobs in Europe**<sup>38</sup> and have posted **revenues of approximately €21 million.** Moreover, EIT InnoEnergy's "Innovation Projects" and brought **64 new products and services to market** with total **sales forecasts surpassing the €3 billion** mark for the coming 7 years. The latter may create as much as 60,000 jobs<sup>39</sup>, further stressing the potential in the upcoming decade.<sup>40</sup>
- Between 2012 and 2016, EIT Climate-KIC has fostered **229 start-ups** that collectively generated **over 2,000 jobs.**<sup>41</sup>

In addition to the economic impact generated by the businesses they have supported, the EIT Community itself also creates employment. Aggregating the employment of the EIT HQ, the KICs and their co-locations results in another 429 FTE-jobs that were created within the European Union. In total, the EIT Community has thus far contributed to the creation of **approximately 6,600 jobs in the European Union.** **That means that in the seven years of the KICs' inception for every employment position at the EIT or its KICs (429), 14 additional jobs (6,100) have been created at private companies.**

Furthermore, examples of commercial activity scaling up are already emerging from the EIT Community. Three examples that illustrate this are found in KONUX (EIT Digital), Eolos (EIT InnoEnergy) and tado° (EIT Climate-KIC)..

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<sup>36</sup> Note: the total number of start-ups and scale-ups mentioned below (643) exceeds the cumulative number of created start-ups presented in Figure 3-11 (section 3.4; 375) as the former implies both start-ups and scale-ups not only created by the KICs, but also supported by their accelerators. The latter implies only the start-ups created as a direct result of KIC activities and is therefore considerably smaller.

<sup>37</sup> Based on internal data delivered to us by EIT Digital.

<sup>38</sup> <http://www.innoenergy.com/bcs/innoenergy-highway/performance/>

<sup>39</sup> Assuming a blended average salary of €50,000 for a total forecasted revenue of €3.2 billion.

<sup>40</sup> EIT InnoEnergy, (2017). 2016 Grant Agreement Report: Performance Report. Version dated 31.03.2017 (confidential).

<sup>41</sup> EIT Climate-KIC, (2017). Grant Assessment 2016. Version dated 31.03.2017 (confidential).



**KONUX** was founded in 2014 to offer their solution for integrating smart sensor systems and analytics to help industrial and rail companies switch to predictive maintenance. Their solution can decrease client's maintenance costs up to 30% and reduce machine

breakdown up to 70%. With the support of EIT Digital's Silicon Valley hub, they raised over 18M USD in funding in Silicon Valley, have grown to a business of 35 and are helping leading clients – such as Deutsche Bahn – to digitise rail networks.

**EOLOS Floating LIDAR Solutions** provides a new, more efficient, reliable, accurate and cost effective solution to current wind measurement and oceanographic data acquisition methods. The project was developed with the support of EIT InnoEnergy in one of their innovation projects program and is commercially available since the beginning of 2016. With the first commercial successes coming in, EOLOS is looking to further contribute to making wind power solutions more accurate and cost-effective.



**tado°** was founded in 2011 and provides an intelligent climate control solution for private households, small businesses and shops. It detects where the residents currently are and controls the temperature accordingly. As a result, it claims to offer a potential energy savings of 40%. With continuous

interest from external investors – following an initial investment round supported by EIT Climate-KIC, the company is now posting commercial success and has grown to employ more than 100 people.

The successes above illustrate that the EIT has made considerable progress in building an ecosystem that is able to bring innovative ideas to market at a commercial level. In other words, the products and services are recognised by the market as being of added value and provide an opportunity for further upscaling of their impact. As results are delivered at an exponential rate, it is within expectations that the economic impact will – all things equal – grow exponentially with those results as well.

## The first wave of KICs already have examples of how their supported businesses will drive societal change

We see a high potential for products and services that have been supported by the KICs to become commercially successful and, through their commercial success, have meaningful societal impact. Taking a deeper look at the products and services that have been developed with support of the EIT Community, a clear potential societal benefit is noticeable. Even though the business concepts need to be self-sustainable over time – i.e. address a market demand – many concepts can be identified that are not developed from a purely commercial interest. The entrepreneurs starting up these companies are best characterised as people motivated by change. Below, a selection of ventures is presented to illustrate the type of societal innovation that is already finding its way to the market as of today.



**Echy** is an EIT Climate-KIC supported start-up from France that offers indoor lighting during the day by capturing natural light via solar panels and fiber optic cables. Echy's technology has the potential to light 15 million square metres in Europe and could save 180 GWh of electricity generation annually – the equivalent of 82,800 tons of CO<sub>2</sub>.

**Eyra** is an EIT Digital supported start-up that developed an innovative, wearable device to assist blind and visually impaired people during the entire day. Struck by the struggles these people face every day, the founders were inspired to develop a way in which sensing technology could be brought to those who need it, instead of solely using it for robotics. The device analyses its surroundings, obtains useful information through text reading, objects and people recognition, road signs, and zebra crossing detection; and audibly communicates them to the user.



## WINnERS

As climate change and extreme weather events become more disruptive to food production and supply chain operations, new ways of providing insurance for farmers need to be offered. Extreme weather events can have an especially detrimental effect on the agricultural sector, and even more so when considering the social implications for such events in regions that are less well off. **WINnERS** seeks to build weather and climate resilient agricultural supply chains by modelling weather and climate risk exposure through state-of-the-art technology, investing in smallholder farmers to improve farming practices and credit worthiness, sharing risk across supply chain actors with weather and climate index-based insurance services, and promoting supportive regulatory environments for insurance products in developing countries. The project is supported by Climate-KIC and has been co-financed by The World Bank.

## The value of the business portfolios is growing rapidly, providing opportunities for scaling-up economic and societal impact

With evidence of emerging impacts of the EIT Community, **the trend in output at all impact levels already suggests that there is more to follow**. This was also acknowledged in the recent Interim Evaluation of the EIT and its KICs, where it was mentioned that we can “[...] *certainly expect to see economic impacts from the EIT’s activities in the future*”<sup>42</sup>. The question therefore seems to be more a matter of “when” we will see impact at scale rather than “if”.

The impact of the supported ventures and business ideas – and their respective products and services going to market – will also grow in multiple dimensions. First of all, **the start-ups already on the market are expected to mature and increase their economic impact** through their natural growth. Secondly, **a wave of products not yet on the market is already in the pipeline**, both within existing start-ups and with new start-ups relatively new to the accelerator programmes as well as within the partners of the KICs. Moreover, the innovation activities are considered to open up new markets, generating jobs and revenues on a potentially large scale in the (near) future<sup>43</sup>. This is also evidenced by the valuations of the portfolios held by the KICs<sup>44</sup>, which demonstrate the economic potential of bringing forth “game-changing” businesses from within Euro

<sup>42</sup> ICF & Technopolis (2017). Evaluation of the European Institute of Innovation and Technology (EIT): Final Report. Commissioned by DG EAC of the European Commission.

<sup>43</sup> ICF & Technopolis (2017). Evaluation of the European Institute of Innovation and Technology (EIT): Final Report. Commissioned by DG EAC of the European Commission.

<sup>44</sup> As described earlier in section 3.6 – Seven years into operation, the EIT Community is already generating jobs and revenues in the European economy.

## 4. Outlook for the EIT and its KICs

With impact emerging and clear progress being made, the EIT and its KICs are entering a phase in which their impact will be more and more recognised and scaled up. In order to increase and measure their impact as well as unlock the full potential of the EIT Community, the EIT seeks to address a number of priorities in the coming years. These priorities underpin the strategic directions of the EIT post-2021, for which they are currently developing their main strategic directions. A synopsis of their work-in-progress is presented in this chapter to provide insight in the outlook of the EIT.

### 4.1 **Becoming a global innovation leader delivering world-class solutions to global societal challenges that create jobs and improve the quality of life of citizens**

To address future global challenges, embrace the opportunities of new technologies and contribute to sustainable economic growth, jobs, competitiveness and the well-being of Europe's citizens, the EIT considers it as a key priority to further strengthen Europe's capacity to innovate. The EIT's strategy to achieve this mission is based on four key objectives and delivery avenues which form the basis of the EIT innovation model:

1. To **foster and strengthen sustainable innovation ecosystems** by connecting people, disciplines, sectors, organisations and resources;
2. To **bring solutions to global societal challenges to the market** by integrating business, education and research;
3. To **enhance and promote skills and competences** for a strong inclusive entrepreneurship and innovation culture; and
4. To **share innovative practices and learnings** widely and contributing to innovation policy design in Europe.

The overall approach towards these four objectives is described further in sections 4.2 – 4.5 below.

### 4.2 **Fostering and strengthening sustainable innovation ecosystems across Europe by connecting people, disciplines, sectors, organisations and resources.**

The integration of the Knowledge Triangle remains at the heart of the EIT's innovation model. In their strategic outlook, they have identified **two distinct pathways to foster and strengthen sustainable innovation ecosystems in Europe**:

1. By reinforcing the effectiveness of and expanding the EIT Innovation Communities; *and*
2. by supporting regions to excellence in countries that are modest or moderate innovators through the EIT Regional Innovation scheme (EIT RIS).

## Reinforcing the effectiveness of and expanding the EIT Innovation Communities

To further increase Europe's innovation capacity, the EIT will seek to enhance the efficiency and effectiveness of their existing innovation ecosystems and open up to new collaborations. Specifically, the following priorities have been formulated to achieve this:

- **Guide the first three Innovation Communities** – EIT Climate-KIC, EIT Digital and EIT InnoEnergy **towards financial sustainability** and ensure their continuous impact beyond EIT funding.
- **Scale up, mature and ensure continuous delivery of results and impact of the subsequent five Innovation Communities** (EIT Health, EIT Raw Materials, EIT Food, EIT Manufacturing and EIT Urban Mobility), of which EIT Health and EIT Raw Materials started operations in 2015, EIT Food in 2016, and EIT Manufacturing and EIT Urban Mobility to be designated in 2018.
- **Set up new EIT Innovation Communities** to address the challenges faced by citizens and realise Europe's innovation potential in areas such as security and resilience; inclusion, integration and migration; water, marine and maritime; and cultural and creative industries. To remain flexible and adapt to future emerging challenges and needs, the EIT is also exploring the option of an open call for societal challenges to be proposed bottom-up by innovation stakeholders.
- **Develop the innovation hubs and Co-location Centres into acknowledged drivers of regional innovation** in collaboration with Member States and regional authorities.
- Step-up **collaboration among EIT Innovation Communities on cross-cutting topics** to increase innovation opportunities, for example by aligning innovation hubs operating in the same region.
- Mobilising investors and providing specific **mechanisms for access to finance for innovative companies**. Continue **simplification**, for example through multiannual and results-based funding, a shared services centre, and adopting an investment logic for mature EIT Innovation Communities.

## Supporting regions to excellence through the EIT Regional Innovation scheme (EIT RIS)

To bridge existing gaps in innovation performance across Europe, enable talent and unlock assets, the EIT aims at **strengthening the innovation capacity of countries that are modest and moderate innovators**. To achieve this, the EIT intends to work with high-potential regions in a systematic, synergetic and sustainable manner, moving beyond the current approach of involving selected entities and individuals. Dedicated regional EIT hubs will be set up to serve as an entry point for interacting with local players, mobilising and internationalising the regional networks. By applying the Knowledge Triangle approach, the EIT seeks to strengthen local and regional innovation ecosystems through the following:

- Bring together actors and **create strong links between business, research and education**, as well as national and regional authorities and link them to the EIT's pan-European Innovation Communities.
- **Enhance the institutional capacity of innovation actors** through joint activities and transfer of good practices, learnings and know-how in entrepreneurial education, business development and innovation.

- **Coordinate with national and regional policy makers and Managing Authorities** to align efforts; and **facilitate synergies and complementarities** with other national or EU initiatives and programmes, such as regional Smart Specialisation Strategies and European Structural and Investment Funds (ESIF).

### 4.3 Bringing solutions to global societal challenges to market by integrating education, business and innovation-driven research

In business creation activities and management of start-up portfolios, high priority will be placed on **fostering disruptive and market creating innovations for the eight societal challenges** for which KICs have already been established, or for which they are expected to be designated in 2018 (see Table 2-1). Moreover, the EIT is considering the feasibility to have a dedicated mechanism for improved access to finance for innovative companies to scale up. In addition, **they are currently considering the following four societal challenges to be addressed by new EIT Innovation Communities** beyond the fourth wave foreseen in 2018:

1. European freedom of action with regard **to security and resilience related threats** to citizens, goods and organisations, including protection of critical infrastructures and cyber security;
2. **Inclusion and integration** in European societies given demographic and social changes, inequalities and migration trends;
3. Sustainable, circular and blue economies that are based on healthy **water and marine ecosystems**;
4. **Cultural and creative industries'** role in enhancing European identity and cohesion as well as European citizens' creativity, cultural diversity and values.

### 4.4 Enhancing and promoting skills and competences for a strong inclusive entrepreneurship and innovation culture

The development of 'human capital' with the competences and skills needed to become a smart, sustainable and inclusive economy is central to Europe and will be part of the EIT's renewed strategy. Building on their previous Strategic Innovation Agenda, the EIT will seek to:

- Strengthen and further **develop their flagship initiative in education** – the EIT Label – into an acknowledged European quality seal for excellent entrepreneurship education, improve its quality assurance and step up its promotion and design to make it available to partners outside the EIT Community.
- Refine and **widen their offers beyond higher education** inter alia to schools, **in line with the EU's 'New Skills Agenda for Europe'**, as competences for entrepreneurship, innovation and digital skills need to be developed on a much larger scale.
- Provide strategic knowledge and guidance to EIT Community stakeholders and **encourage the development of innovative forms of teaching and learning**.
- **Reduce skills mismatch and boost skills uptake** throughout the education chain, focussed on a higher participation of women, minorities and other underrepresented groups in

entrepreneurship, digital issues as well as scientific and technical specialisations and in geographies where they are currently underrepresented.

- **Strategically guide the EIT Alumni Community** to maximise its entrepreneurial and societal impact.

## 4.5 Sharing innovative practices and learnings and contributing to innovation policy design in Europe

To fully deliver on its mandate as an 'Innovation Institute for Europe', the EIT consider it vital to become a partner for policy makers and allow entrepreneurs, start-ups, SMEs and large corporates alike to benefit from the results of their innovation activities. In order to contribute to this, the EIT will seek to:

- Systematically **identify and codify innovative approaches** and concepts.
- Make **knowledge and experience available in a much more targeted and systematic manner**, including good practices, new or improved models for entrepreneurship, innovation and education, and thorough advice for policy makers on innovation, entrepreneurship and education.
- **Enhance the identification of synergies** with actors and initiatives at global, European, national and regional levels to reduce fragmentation, boost efficiency and effectiveness of EU innovation support instruments at large and thus to increase impact globally.

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# Annex B: Extended Impact Logic

The impact logic plots the intervention logic all the way from input to impact. At the input level, **the foundation of the model is its ecosystem**. The ecosystem builds on the partners and resources available and can therefore also be considered as providing the input. It is therefore depicted between the input and the activity level of our intervention logic.

Both the EIT and its KICs stimulate the development of the ecosystem through e.g. attracting partners, employing outreach activities to share best-practices and drive thought leadership, and create linkages between partners from all sides of the Knowledge Triangle. The ecosystem defines the degree to which the EIT and its KICs can conduct activities, which in turn translates to output, outcome and ultimately impact. Getting the fundamental right is thus crucial for maximising the impact that can be delivered.

Moving up from the ecosystem we have plotted **the integrated approach the KICs have taken at the activity level**. Also referred to as Knowledge Triangle Integration, these activities are best considered together. Strong interlinkages can be observed between the entrepreneurial education, (research-based) innovation and business development and creation activities. Education fosters talent that both possesses the relevant technical skills and industry knowledge to succeed, as well as being equipped with a set of entrepreneurial skills to drive commercialisation of technology.

Interaction between education and innovation takes place in both directions. On the one hand, education supplies talented and relevant professionals to further drive entrepreneurial innovation. On the other hand, the various research-based innovation activities as well as the in-depth industry knowledge feed in the educational system to ensure that students are taught the right set of knowledge and skills.

Following the activity level, it can be argued that the immediate output of the activities is to **make knowledge sharing and transfer possible, to train an entrepreneurial mind-set combined with relevant knowledge on societal challenges, and to open up networks**. These immediate outputs enable the creation of new or improved products and services, the creation of (entrepreneurial) talent that can make a difference in society (“change agents”), and access to finance and markets. In turn, **these outputs combined lead to the creation of new businesses or the strengthening of existing businesses**, e.g. by commercialising new or improved products and services. Again, we see the different aspects of the Knowledge Triangle coming together, e.g. in the form of new start-up companies set up by EIT-alumni that are supported by the KICs to raise investments and access markets.

The creation of new and strengthening of existing businesses, however, should still be considered as an output. Nevertheless, it is an output that already starts showing results outside the KICs’ environment, which is why it is presented to overlap both output and outcome. While the chain up till this point has already resulted in innovation going to market, **wide-scale impact will only be made if these innovations are (commercially) successful and widely applied**.

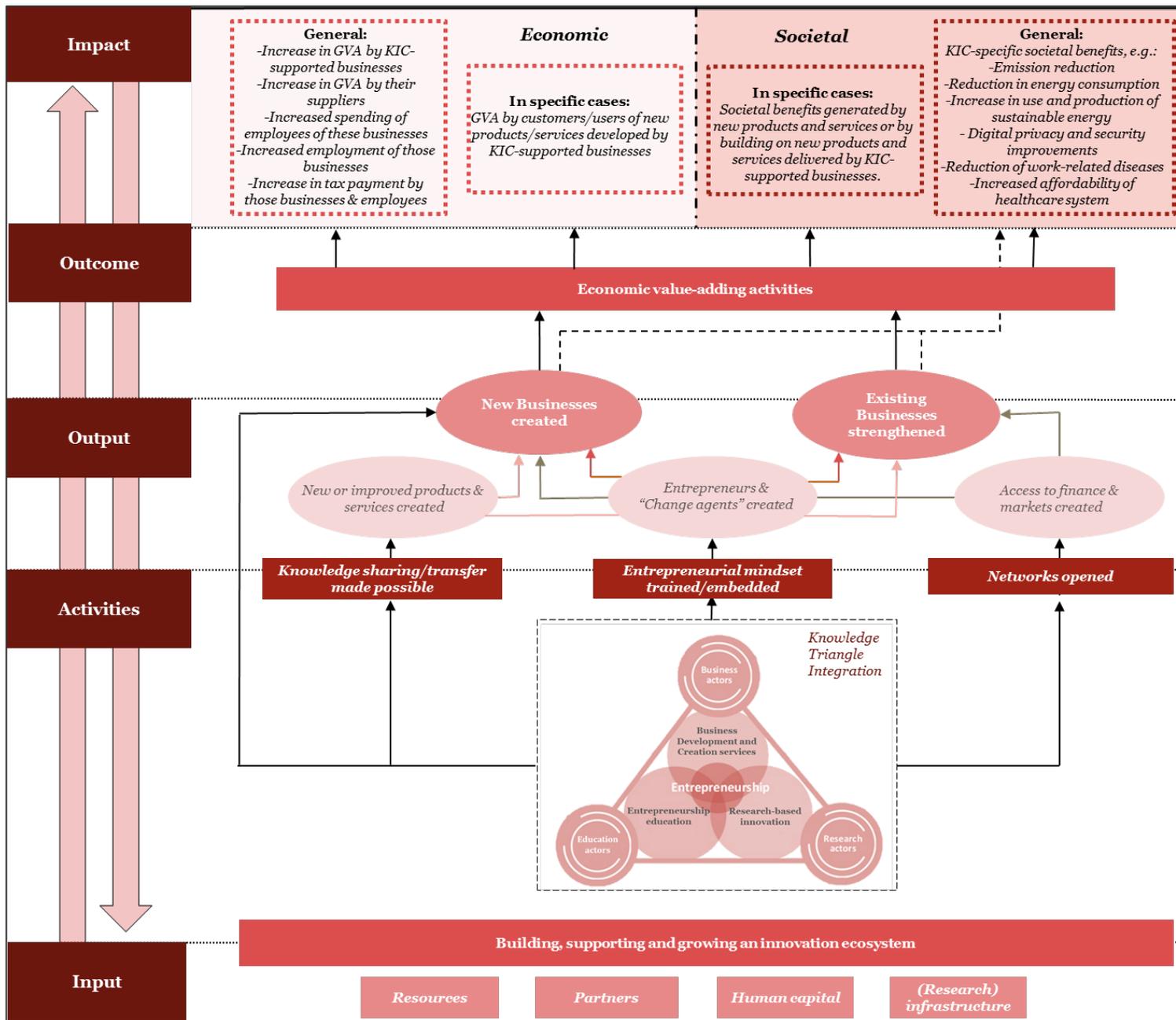


FIGURE B-1: Impact logic of the EIT and its KICs – how they collectively add value



Given the strong entrepreneurial and business focus towards innovation that the EIT and its KICs have taken, this element of **market application can be captured in the form of economic value-adding activities**. The philosophy behind this is that both new and existing businesses need to be financially healthy to survive, i.e. self-sustainable. This requires revenue streams, which are a direct result of their commercial success. The bigger their commercial success (“value-added”), the greater its economic impact will be (e.g. through creating European added-value and creating jobs).

**The actual application of the technology is what will eventually drive the (societal) impact**. Here it also generally holds that the bigger their commercial success is, the larger the application of their concept is on the market, ultimately resulting in a more substantial societal impact. In contrast, if the innovations are not commercially successful, businesses will not flourish nor will they directly impact society in a measurable way. It may still find a way in new concepts that are commercialised at a later stage, but that is subsequently captured in the economic value-adding activities of those endeavours.