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# CASE STUDY: EIT CLIMATE-KIC YOUNG INNOVATORS PROGRAMME

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## INTRODUCTION

### OBJECTIVES OF THE CASE STUDY

The aim of this case study is to discuss key features of the Young Innovators (YI) programme, which is a unique educational initiative aimed at secondary school students. It was introduced to raise their awareness of climate change and equip them with practical tools to tackle climate challenges.

The case study presents the programme and different modalities of its implementation. Particular attention is given to the potential for scalability and its adaptability to a wide range of local and thematic contexts.

### METHODOLOGY

Seven in-depth interviews were conducted with key persons responsible for the design and implementation of the programme:

- Co-Head Education & Learning at EIT Climate-KIC.
- Programme Manager.
- Programme Learning Designer.
- Coach providing the training to Delivery Partners.
- EU, Non-RIS Delivery Partner.
- EU, RIS Delivery Partner.
- Non-EU Delivery Partner.

In addition, policy documents and the EIT Climate-KIC reports on programme implementation were reviewed, with particular attention paid to:

- Methodology and educational approach.
- YI Theory of Change and intended learning outcomes.
- Evaluation and Impact Framework.
- Performance of YI.
- Development and fund-raising approach.
- Local delivery reports.
- Memoranda of Understanding, concluded by Climate-KIC with delivery partners.

### RATIONALE FOR SELECTION OF THE CASE STUDY

Young Innovators is a programme launched by EIT Climate-KIC, the EU's largest innovation hub and public-private partnership working to protect the climate and build a low-carbon economy. The KIC was established in 2010, alongside EIT InnoEnergy and EIT Digital, as part of the first wave of the EIT KICs. Therefore YI, the pilot version of which was launched in 2018, is an example of an initiative implemented by a mature KIC that has already had opportunities to test what educational interventions work best and learn lessons from its previous ventures.



YI has evolved from EIT Climate-KIC initiatives, including Pioneers into Practice, the Innovator Catalyst, summer schools and the cross-KIC programme Green Innovation@Schools. These initiatives were the first among KICs activities to use the innovation system approach to teach young people about environmental challenges and to develop their entrepreneurship skills in the area of the green transition. The enthusiastic reception of the methodologies used in these programmes by educators and students, and the belief that further work with school children is needed, prompted EIT Climate-KIC to continue the chosen path with YI activities.

YI is unique in terms of its target group and the way it is implemented through public education. Being primarily aimed at students aged 12-18, YI is a non-degree programme, which can be run outside the higher education institutions, where most of the other KICs initiatives are concentrated. This positioning allows reaching also underprivileged youth and those without an initial interest in climate issues. Most importantly, given the purpose of this report, the ready-to-use YI methodology has great versatility and can be used to transfer knowledge across disciplines, including health, nutrition, IT, and transportation.

## CONTACT INFORMATION

- Programme website: <https://younginnovators.climate-kic.org>
- Contact email: [younginnovators@climate-kic.org](mailto:younginnovators@climate-kic.org)

## INFORMATION ABOUT ACTIVITY

### RATIONALE OF THE ACTIVITY: VALUE ADDED AND BENCHMARKING THE ACTIVITY WITH OTHER ACTIVITIES

In 2018 in Sweden, young people took to the streets for the first time to protest the perceived inaction of political leaders to prevent climate change and move away from fossil fuels to renewable energy sources. These first protests soon grew into a global youth movement demanding climate policy based on up-to-date scientific knowledge and a just transition of the economy to reduce greenhouse gas emissions. EIT Climate-KIC was very timely with the launch of Young Innovators in 2018, targeting secondary school students and equipping them with the knowledge and skills needed to tackle climate challenges.

YI's goals are ambitious. Through innovative teaching methods, students gain an understanding of the complexity of climate change and the various systemic factors that influence the pace and quality of the green transformation. However, YI is not just about equipping young people with knowledge, no matter how elaborate. It is also about giving them the tools of change in their hands: young people learn how to identify and influence key stakeholders, who can support them in triggering widespread environmental and social change, also beyond the climate change domain<sup>1</sup>.

Overall, key programme's objectives include:

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<sup>1</sup> EIT Climate-KIC (2020), DEL 200216-D03 Report on programme structure and common approach, 31st December 2020. Internal material.



- Equipping young people worldwide with the competencies and skills needed to become change-makers and drive systemic innovation and climate action.
- Fostering challenge-based and experiential learning in schools, based on real life challenges from corporates and cities.
- Empowering future generations to lead us to a prosperous, inclusive and resilient society based on a net-zero carbon economy
- Transforming the education system by main-streaming climate change education and embedding systems thinking and challenge-based learning.

YI is one of the few programmes currently offered by the EIT KICs that targets the 12-18 age group, with other strategic initiatives focused rather on university students. In this way, the programme has the potential to influence the attitudes and choices of young people who are still at the stage of intensely shaping their identities and deciding on their future educational and professional development paths. Operating through compulsory education YI educators reach out to young people from all backgrounds and with different levels of climate awareness. Through this, it has the potential to lead to generational change. At a time of widening social inequality, including access to education, this egalitarian approach is particularly valuable.

Students are not the only target group of YI activities. The intervention also aims to educate a wide range of teachers in the 'learning by doing' methodology and give them tools to increase student involvement in learning activities<sup>2</sup>. In this way, programme impact is ensured beyond the period of EIT support. It is the teachers, seeing the effects of the programme, who begin to promote its objectives and tools and become agents of change, seeded by the EIT Climate-KIC.

## DESCRIPTION OF ACTIVITY

The Young Innovators programme is designed to consist of three learning blocks, with each one providing a deeper dive in climate knowledge and key challenges facing local communities<sup>3</sup>.

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<sup>2</sup> Ibid.

<sup>3</sup> Ibid.



- School Innovators - Learn skills on systems thinking. Teachers and students are trained on systems innovation and the use of problem-solving tools. At the same time, a dedicated challenge is developed with involvement of public and partners, including local governments, industry partners and schools themselves.
- Young Climathon - Apply skills to ideate projects. During a one- or two-day climate hackathon student teams work on finding and pitching innovative solutions to the challenges. Teachers act as facilitators and team coaches.
- Young Changemakers - Refine skills by developing projects further. Most ambitious students further develop their solutions in close collaboration with schools and challenge providers.

Educational activities within the programme are divided into four main modules (Table 1)<sup>4</sup>:

Table 1. YI programme learning modules

Module	Description
Module 1: Get ready for the challenge	Students are introduced to the YI programme and provided with basic knowledge about climate change and sustainable development. Young people are also introduced to the programme's main approach of systems thinking. The systems innovation method is then used to discuss the complexities of climate change.
Module 2: Explore the challenge	Students divide into teams and learn about the challenges prepared for them. Using system innovation tool, the teams prepare a system map of their challenge. Being aware of the complexity of the processes that led to the analysed challenge, the teams re-frame the challenge and choose their challenge path.
Module 3: Identify opportunities for change	Students reflect on stakeholders who may or may not want to see change. They try to identify who to get on board. They also look for other factors that influence the challenge path and begin to explore opportunities for transformation.
Module 4: Come up with solutions and share them with the world	Students generate many ideas for solutions. Then, they pick up one of them and prepare an action plan. In the next step, they share their plan with their peers, discussing the solution. Finally, they harvest insights and reflect on them.

Source: EIT Climate-KIC

The programme draws on innovative pedagogical methodologies to successfully navigate through the stages. The initiative introduces an active-blended learning format in which the acquired knowledge is immediately used to solve real life problems. The experience-based pedagogy encourages teachers to put the learning process in the hands of the students themselves. Young people decide for themselves which of the provided tools they want to use to address the problems presented, and they make autonomous decisions about the

<sup>4</sup> Ibid.



solutions they want to focus on. Throughout this process, visual tools developed by the programme designers are used, facilitating the rendering of complex dependency structures and mapping of students' ideas<sup>5</sup>.

The programme is designed for implementation in secondary schools by local teachers who have received training from the programme delivery partners. One of the greatest values is its collaboration with a wide range of stakeholders, including cities and private business that act as challenge owners. They are the ones who provide the real-life challenges that students work on in classrooms. They also accompany young people to find the best solutions and reward the most innovative ideas. As a result, young people see that making systemic change is a joint effort of many actors and learn how to collaborate with all the stakeholders to achieve their goals<sup>6</sup>.

Teachers involved in the project are provided with a range of ready-to-use educational materials prepared by the EIT Climate-KIC. These include, among others:

- Teacher Handbook: a comprehensive manual for teachers and educators with clear steps and practical facilitation tips, which, in combination with lesson plans, allow intuitive transfer of the programme to classrooms<sup>7</sup>.
- Toolbox: an innovative resource book with a set of dynamic exercises and visual tools to implement each activity described along the four modules of the Handbook<sup>8</sup>.

In addition, Young Innovators partners receive a:

- Community Handbook: a manual with structured guidance on how to engage with their local ecosystem and organise Young Innovators activities.

A major advantage of the programme is its flexibility and ability to adapt its content to different local contexts and areas of participant interests. More about how local delivery partners tailor the programme structure for the needs of their beneficiaries and delivery settings can be found in section 3 of this case study.

## DATES OF IMPLEMENTATION AND FUNDING ALLOCATED (INCLUDING THE EIT FUNDING)

The pilot edition of the Young Innovators programme was run in 2018/2019. Following the very favourable reception of the initiative by students and teachers, a full edition of the programme was held in 2019/2020. Since then, a new round of YI has been launched every year.

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<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> EIT Climate-KIC (n.d.), Young Innovators, Handbook for teachers and other educators, available at: [http://younginnovators.climate-kic.org/wp-content/uploads/sites/3/2021/04/Teachers\\_handbook\\_v1.0.pdf/](http://younginnovators.climate-kic.org/wp-content/uploads/sites/3/2021/04/Teachers_handbook_v1.0.pdf/)

<sup>8</sup> EIT Climate-KIC (n.d.), Young Innovators, Booklet with Visual Tools and Guidelines for Young Innovators, available at: [http://younginnovators.climate-kic.org/wp-content/uploads/sites/3/2021/04/Booklet\\_visual\\_tools-2021.pdf](http://younginnovators.climate-kic.org/wp-content/uploads/sites/3/2021/04/Booklet_visual_tools-2021.pdf).



In line with the overarching logic of the EIT interventions, the Young Innovators programme is bound to move toward full financial sustainability. Information on funding allocated, including the gradually decreasing EIT contribution, is in Table 2.

Table 2. Annual budgets for Young Innovators programme delivery, including EIT contribution

	2019	2020	2021	2022
Total costs (EUR)	175,900	344,535	330,360	450,000
EIT contribution (EUR)	113,977	261,126	222,958	185,000
EIT contribution to overall budget (%)	65%	76%	67%	41%

Source: EIT Climate-KIC

The following list provides an overview of the annual expenditure of the Young Innovators programme in 2021. It is important to note here that to a large extent, this concerns costs related to the introduction and design of the programme. It includes costs for methodology development, learning design, acquiring and developing a learning management system, and subgranting delivery partners. As the programme matured, it has been possible to significantly reduce the costs listed, particularly those associated with training educators and refining YI methodology (see subcontracting costs in the breakdown below). It should be emphasised that the organisation of subsequent local editions of the YI Programme by delivery partners increases the reach of the programme, while no longer requiring a significant commitment of resources at central level, at which the universal programme methodology is developed.

Breakdown of programme operation costs for 2021<sup>9</sup>:

<sup>9</sup> EIT Climate-KIC (2020), DEL 200216-D01 Programme Performance Report, 31st December 2020. Internal material.





- Personnel (0.5 full-time equivalents): 45,000 EUR
- Programme delivery: n/a (dependent on amount of partners/countries. 30,000 EUR/ partner would be a good start)
- IT, website, Learning Management System: 15,000 EUR
- Subcontracting (learning designers, experiments): 10,000 EUR
- Marketing and communication: 10,000 EUR
- Travel and subsistence: n/a
- Ecosystem workshop: n/a
- Materials: n/a

## INFORMATION ABOUT PLANNED KPIS AND OUTPUTS

Two of the 2021 targets set for EIT Climate-KIC’s Education Programmes (KAVA 4.1.2 for non-RIS countries and KAVA 7.1.2 for RIS countries)<sup>10</sup> are applicable to the Young Innovators programme. These are<sup>11</sup>:

Table 3. Programme targets<sup>12</sup>

Targets/KPIs	EITHW08.1 and EITHW08.2 # Participants provided with (non-degree) education and training activities:	CKIC05 # Education Support Participants:
2019 Target	n/a	800
2020 Target	n/a	2,000
2021 Target	1,400	1,400
2022 Target	1,400	1,600

Source: EIT Climate-KIC

The section 'Achieved outputs and KPIs' below shows the extent to which the KIC was able to meet these targets, including during the Covid-19 pandemic.

## PRESENTATION OF PARTNERS. KNOWLEDGE TRIANGLE APPROACH

The aim of EIT Climate-KIC is to build a network of committed partners who will work together to stop climate change and promote sustainable development across the world. The same goal is pursued by the Young

<sup>10</sup> KAVA 4.1.2 for non-RIS countries and KAVA 7.1.2 for RIS countries.

<sup>11</sup> EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021. Internal material.

<sup>12</sup> 'EITHW08.1 and EITHW08.2 are part of EIT Core KPIs - indicators defined by the EIT that reflects the EIT operational objectives for education, entrepreneurship, and innovation. See: EIT Core Key Performance Indicators available at: [https://ec.europa.eu/research/participants/data/ref/h2020/other/guides\\_for\\_applicants/h2020-core-kpis-kic-eit-2018\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/other/guides_for_applicants/h2020-core-kpis-kic-eit-2018_en.pdf). CKIC05 is an additional indicator developed by Climate-KIC.



Innovators programme, which brings together stakeholders with a particular interest in providing climate education for young people.

When analysing the YI programme's network of partners, two layers can be distinguished. The first involves the partners working directly with the EIT Climate-KIC and the programme management. This group includes renowned learning designers developing the initiative's methodology, experienced coaches who provide training in transferring these methodologies to classrooms and delivery partners, who are responsible for implementing the programme in selected countries.

In 2022 the programme was implemented in collaboration with 12 delivery partners, among which renowned HEIs and NGOs predominated (Table 4).

Table 4. Programme's EIT-funded partners in 2022

Country	Partner	Type
Bulgaria	Cleantech Bulgaria	Business
Chile, Colombia, Germany	2811 Social Enterprise UG	NGO
Cyprus	Technology University of Cyprus	Education
Latvia	Riga Technical University	Education
Malta	The Malta College of Arts, Science & Technology	Education
The Netherlands	Stichting Technotrend	NGO
Serbia	Climate Innovation Hub	NGO
Spain (Madrid)	Univesidad Politecnica de Madrid	Education
Spain (Valencia)	University of Valencia	Education

Source: EIT Climate-KIC

The second layer of the partner network consists of stakeholders working directly with delivery partners on the local implementation of the programme. This community includes municipalities, NGOs active in the field of sustainable development, private business and schools participating in the programme.

Table 5 presents an example of a local partnership built by a delivery partner Stichting Technotrend, implementing the programme in the Netherlands<sup>13</sup>.

<sup>13</sup> Climate-KIC (2021), Local Report: Stichting Technotrend, 31<sup>st</sup> December 2021. Internal material.



Table 5. Local partnership – Dutch edition of the programme



Partner	City/Region	Contribution
Arcadis	Amsterdam	Challenge owner
Creatieve Verbinders	Noord –Brabant	Local ecosystem network
De water ambassadors	National	Network of students who attend the Young Climathons as coaches
DSFW	National	Collaborating partner, ecosystem, attend as expert at Young Climathons
Fungi Factory	Utrecht, Zeist	Challenge owner
Gemeente Den Bosch	Den Bosch	Challenge owner
Gemeente Haarlem	NoordHolland	Network partner connecting a delivery partner to the local schools, financial support
GGD Hart van Brabant	Den Bosch	Challenge owner
Groene Plaatsmakers	Den Bosch	Collaborating partner (responsible for the Young Changemakers programme in Den Bosch) and local ecosystem
HAS	Den Bosch	Students who attend the Young Climathon as coaches
Holistic Development	Amersfoort	Challenge owner
Hoogheemraadschap Schieland en de Krimpenerwaard	Zuid-Holland	Financial support and delivered water expert for Young Climathon Rotterdam
ICGT	Uitgeest	Challenge owner
Jet-net & Technet	Zuid-Holland, Noord-Brabant	Local partner, local ecosystem of schools
KNVB	Utrecht, Zeist	Challenge owner
Kringloop Zeist	Zeist	Challenge owner
MAZE Subsidies	National	Helping with finance strategies and subsidies
NADO	National	Working on creating a systems innovation training for teachers
Natuurstad Rotterdam	Rotterdam	Challenge owner
Permanent clothing	Amsterdam	Challenge owner
Rabobank Rotterdam	Rotterdam	Financial support and local ecosystem
Rotterdams Weerwoord	Schiedam	Challenge owner



Partner	City/Region	Contribution
Rotterdams Weerwoord	Rotterdam	Financial support
Sympany	Rotterdam, Amsterdam, Castricum	Challenge owner
Teachers for Climate	National	Helping developing methodology of ‘futuring’
Utrecht Natuurlijk	Utrecht	Challenge owner
Utrecht University	Utrecht	Research partner in the project Transformation Through Imagination

Source: Stichting Technotrend

Similar partner networks are being developed by other delivery partners.

## PRESENTATION OF BENEFICIARIES

The focus group of Young Innovators programme is secondary school students. Most students are in the range of 14 and 17 years old, with the youngest participants aged 11 and the oldest aged 19. In 2021, participants came from 135 schools in 18 different countries. The gender distribution of students was well-balanced, with 53% females and 47% males being involved in all programme’s activities<sup>14</sup>. The beneficiaries of the programme also include teachers trained in Young Innovators methodology. In 2021, this group comprised 320 educators<sup>15</sup>.

## IMPLEMENTATION OF THE ACTIVITY

### PRESENTATION OF THE IMPLEMENTATION PROCESS

The Young Innovators programme is implemented through two parallel strands of activities.

At the EIT Climate-KIC Level the first strand includes workshops and training offered by EIT Climate-KIC to its delivery partners so they can successfully implement the programme in their local contexts. Activities include<sup>16</sup>:

<sup>14</sup> EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021. Internal material.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.



- Kick-off workshop and training. The aim is to familiarise partners with the programme's structure, the most up-to-date methodology and educational materials developed for educators. This meeting is also an opportunity for networking between partners, which may result in cooperation during the implementation phase of the project.
- Train the trainer. After the kick-off workshop, two training sessions are organised for delivery partners so that they can transfer the programme's methodology to on-the-ground activities. The training courses are run by experienced coaches and provide skills that delivery partners are then expected to pass on to local teachers.
- End of Year workshop. At the end of the calendar year, delivery partners meet to share their experiences of programme implementation and exchange good practice. Objectives for the following year are then agreed.
- Tool Training. To prepare partners even better for their delivery with teachers and students, four 1-hour tool trainings about specific tools is hosted, based on a survey with partners that indicates which tools they are most interested in further diving into.
- Masterclasses. To deepen partner knowledge and help them gain a solid basis of the core concepts on which Young Innovators is built, two Masterclasses were hosted:
  - Teachers as facilitators
  - Systems Innovation

At the Delivery Partners Level. After the training sessions, delivery partners start implementing the programme in selected cities and regions in their countries. The structure of the programme gives partners considerable flexibility so that the proposed activities are best adapted to the local context, the needs of the beneficiaries, and the organisational and financial capacities of delivery partners and relevant stakeholders involved in the implementation phase.

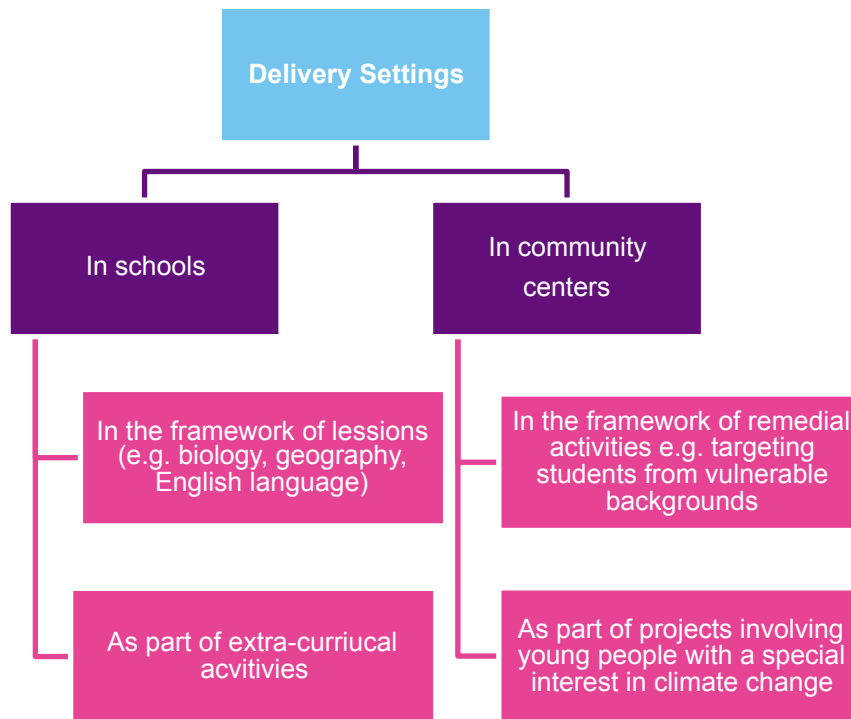
The programme schedule can be implemented in a variety of settings and by a wide range of facilitators, as shown in the charts below. The delivery of specific editions of the programme may also involve varied support of community partners: acting as challenge owners; providing context-related mentoring for students; connecting delivery partners with local stakeholders; sponsoring the programme<sup>17</sup>:

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<sup>17</sup> Interviews conducted with the programme's partners (December 2022); EIT Climate-KIC (2020), Local reports, 2nd March 2020. Internal material.

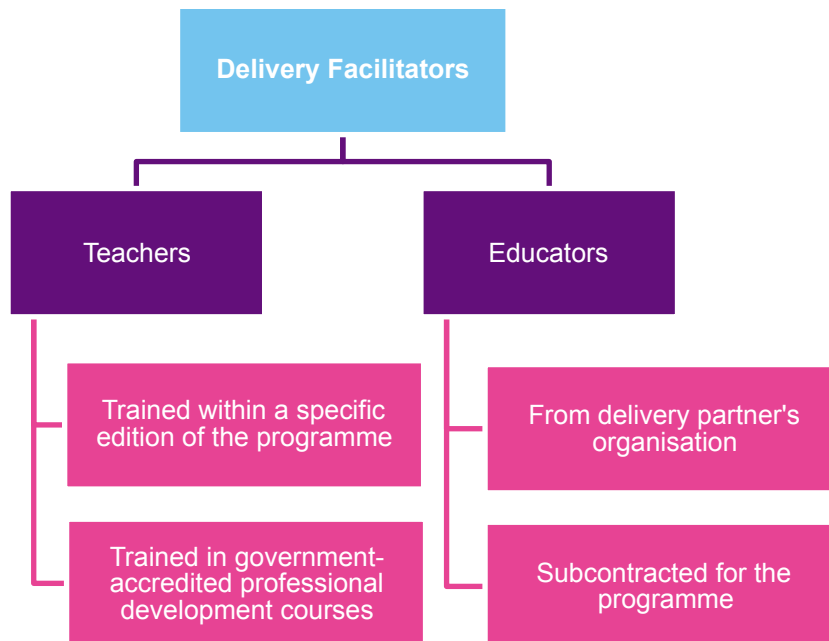


Figure 1. YI programme delivery settings



Source: Ecorys

Figure 2. YI programme delivery facilitators



Source: Ecorys



The programme may also be delivered with the varied support of community partners: acting as challenge owners; providing context-related mentoring for students; connecting delivery partners with local stakeholders and sponsoring the programme.

The YI programme has been successfully implemented in all the above-mentioned modes<sup>18</sup>.

## ACHIEVED OUTPUTS AND KPIS

In 2021, the Young Innovators, alongside other educational initiatives of the EIT Climate-KIC, exceeded the planned KPIs for the KIC, in the relevant areas, both regarding KIC Added Value Activities for RIS countries<sup>19</sup> and non-RIS countries<sup>20</sup>, as evidenced in Table 6<sup>21</sup> below. Significantly, even during the Covid-19 pandemic, it was possible to maintain the upward momentum of participation in the programme, despite the projected reduction in interest in online educational activities.

These positive results can be attributed to a participatory programme management model, in which the YI management team is in regular contact with partners and educators and can immediately implement the necessary changes in the way the programme is implemented throughout the delivery chain. At the same time, the team is highly receptive to ideas coming from programme's partners. This has resulted in the rapid development of digital skills and solutions across YI partnership for uninterrupted provision of programme's activities<sup>22</sup>.

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<sup>18</sup> Interviews conducted with the programme's partners (December 2022); EIT Climate-KIC (2020), DEL 200216-D02 Local delivery reports, 31st December 2020. Internal material. EIT Climate-KIC (2020), Local reports, 2nd March 2020. Internal material.

<sup>19</sup> KAVA 7.1.2.

<sup>20</sup> KAVA 4.1.2.

<sup>21</sup> The presented planned and achieved KPIs are defined for the Climate-KIC as a whole. The YI programme, as declared by programme management, is responsible for most of the fulfilled targets in the areas discussed. EIT Climate-KIC (2021), 210009-DEL01 Report on the strategic coordination and development of the Education programmes, 31st December 2021. Internal material.

<sup>22</sup> Interviews conducted with the programme's partners (December 2022) and representatives of Climate-KIC, EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021. Internal material.





Table 6. Programme targets and achieved KPIs<sup>23</sup>

	EITHW08.1 and EITHW08.2 # Participants provided with (non-degree) education and training activities:	CKIC05 # Education Support Participants:
2019 Target /Achieved	n/a	800 / 1,864
2020 Target /Achieved	n/a	2,000 / 3,667
2021 Target /Achieved	1,400 / 2,701	1,400 / 3,681
2022 Target /Achieved	1,400 / 4,623	1,600 / 4,623

Source: EIT Climate-KIC

A table 7 provides a summary of the programme outputs in 2021, showing the number of participants in each YI activity<sup>24</sup>.

<sup>23</sup> In their KPI's, delivery partners report all participants (both students and teachers) that participated in the programme. Differences in the total number of (unique) participants can occur when students participate in the workshops but not the Young Climathon, or vice versa.

<sup>24</sup> EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021. Internal material.



Table 7. Programme's outputs in 2021

Indicator	Value
Number of schools involved	135
Number of Challenge Providers involved	37
Average number of teacher/educators per teacher training	11
Total number of teacher/educators per teacher training	320
Number of teacher training sessions	132
Duration of teacher training sessions (in hours)	8
Average number of students per workshop	25
Total number of students in workshops	2,650
Age group from students in workshops	11 to 19
Number of student workshops`	351
Duration of student workshops per student (in minutes)	274
Number of Young Climathons	22
Number of Young Climathons participants	1,664
Average duration of Young Climathon (in hours)	8
Number of students in Young Changemakers follow up programme	56

Source: EIT Climate-KIC

## IDENTIFIED VALUE ADDED

From the analysis of the YI programming documents, evaluation surveys and interviews with key stakeholders, a clear value proposition of Young Innovators programme emerges. The programme's value added has been presented through the story of Elon, a fictional student, whose experience mirror the testimonials of teachers and programme participants.

### The story of Elon

Elon is 15 years old. He is interested in fashion and always hunts for sales at well-known chain stores. In the future, he would like to be an influencer advertising fashion brands and is annoyed that he must spend so much time at a school desk, learning things that seems to him useless for his ideal career. Sometimes, while browsing social media, he sees dramatic images of forest fires and floods, leaving thousands of people homeless. He recently heard of a protest by residents of a nearby village where a rubbish dump was set on fire. All these events cause him temporary anxiety, but he does not see much correlation between them.

One day, a YI edition takes place at his school. The programme's partner, a second-hand clothing shop, presents the problem of clothing production and its impact on the environment. Elon finds out how much water it takes to produce one pair of trousers - and where that water is taken away from. He learns about the typical garment



production chain. He also recognises that the fashion industry provides jobs for millions of people around the world, including in his own city. At the same time, he learns that used clothes often end up in a nearby landfill and the dyes used to colour them seep into the ground water. From week to week, he learns about the complex relationship between the environment and human activity. He hears about attempts by politicians to try to impose higher taxes on clothing factories and the interest groups that oppose this. He sees the rationale on both sides.

When he feels that the complexity of the subject is starting to overwhelm him, he and his colleagues get some drawings from the teacher - step by step, together they create a map of systemic relations in the fashion industry. They are then given the task of developing a small solution that can bring about positive change to this puzzle. Elon knows it's just a game, but somehow, he feels that the fate of the world depends on his inventiveness. He and his team come up with the idea of setting up a small tailoring business where all the clothes are made from second-hand materials. The tailor shop is supported by an app in which users themselves choose the pieces of material from which their new clothes will be sewn. The idea is welcomed by a challenge owner, a second-hand shop, who intends to examine the proposed solution and the possibility of implementing it within the business.

Students and educators see real-life challenges as the main value of the programme<sup>25</sup>. The challenge is often developed by local businesses and NGOs active in the area and students learn about the environmental issues in their immediate surroundings. The programme's focus on making a change allows the discharge of climate anxiety in action<sup>26</sup>, and gives students a sense of empowerment. Community work on solving local problems increases the civic engagement of participants and bridge the divide between various interest groups, represented by students with differing views<sup>27</sup>.

From the point of view of teachers and educators, the significant value of the programme is the availability of ready-made lesson plans and visual tools, making the transfer of knowledge more impactful<sup>28</sup>. Importantly, the educational aids discussed can also be used outside programme activities. Interviews with delivery partners showed that teachers use the programme methodologies in the various courses they deliver, with one college making the Young Innovators structure applicable to its entrepreneurship courses at various levels of instruction<sup>29</sup>.

From the educators' experience, the topics that move young people most strongly are fashion, travel, food, mobility, and e-waste. They are therefore often used as an example to show young people the complexity of climate challenges and the multitude of ways in which they can be confronted<sup>30</sup>. This awareness helps young

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<sup>25</sup> Interview conducted with a programme's partner (December 2022).

<sup>26</sup> Interview conducted with a representative of Climate-KIC (December 2022).

<sup>27</sup> Interview conducted with a programme's partner (December 2022).

<sup>28</sup> Interview conducted with a programme's partner (December 2022).

<sup>29</sup> Interview conducted with a programme's partner (December 2022).

<sup>30</sup> Interview conducted with a programme's partner (December 2022).



people to make responsible decisions about their own lifestyles, makes them more receptive to public policies aimed at climate protection and encourages them to choose products that are manufactured with consideration for the environment.

## HOW THE ACTIVITY HAS APPLIED KICS FINANCIAL SUSTAINABILITY PRINCIPLES

With the EIT's pre-planned, gradual withdrawal from funding KICs' programmes, finding external sources of financing for the programme is critical to their further development. 2022 was the last year that Young Innovators delivery partners received a EIT Climate-KIC contribution to implement the programme. Thus, the initiative is now at a crucial juncture as its ways to ensure financial sustainability are tested.

Some positive developments, that speak in favour of the programme business model, are already evident. In 2022, as many as 13 partners delivered the programme (as a whole or in certain parts) without any financial support from EIT Climate-KIC.

Table 8. Non-EIT funded partners

Country	Partner
Argentina	Circular Influence
Belgium	GAL Culturalité en Hesbaye brabançonne ASBL
Belgium	JesuisHesbayone
Germany	MyClimate
Germany	Klax Schule
Greece	Aristotle University of Thessaloniki
Hungary	Pontvelem / Sustainability Week
Israel	Green Network
Peru	Circular Influence
Romania	Aquatim
Slovenia	Junior Achievement
Switzerland	Eqlosion
Uruguay	Circular Influence

Source: EIT Climate-KIC

For partners who received EIT Climate-KIC support, a significant part of the funding (a minimum of 70% for non-RIS and 55% for RIS partners) was raised from other sources<sup>31</sup>.

<sup>31</sup> Interviews conducted with a programme's partner (December 2022).



Like the overall structure of the programme, Young Innovators fundraising activities have two dimensions. At a central level, EIT Climate-KIC seeks to engage with major donors and industry partners, presenting YI as a particularly valuable part of the overall EIT Climate-KIC portfolio of interventions<sup>32</sup>. The KIC also applies for funding from Erasmus+ programmes, submitting competitive project proposals that develop the YI methodology, many applications being successful (see more under 'Achieved impact' below)<sup>33</sup>.

Since 2020, EIT Climate-KIC has also been signing with partners Memoranda of Understanding which includes a voluntary license agreement. Upon signing the Memorandum, delivery organisations agree to contributing a minimum of 10% of raised funds over 30,000 EUR for covering the KIC operating costs related to the coordination of Young Innovators<sup>34</sup>. In addition, the introduction of paid courses on YI learning platforms and the sale of licences to use the programme's methodology are currently being explored<sup>35</sup>.

In parallel with these efforts, EIT Climate-KIC supports delivery partners in their fundraising activities. Thanks to the networking activities within YI programme, delivery organisations themselves are forming consortia which effectively apply for research and implementation grants<sup>36</sup>. The partners' record of success in attracting funding from non-EU sources is also noteworthy and most programme implementation business models present genuinely diversified revenue streams, including:

- Grants from NGOs active in the field of climate change and youth education in the country concerned.
- Subsidies from local and regional governments, including municipalities.
- Fees charged for professional development courses for teachers.
- Co-financing brought in by schools where the programme was implemented.
- Training and mentoring services offered pro bono by experts and senior students.
- Donations from private funds.
- Financial and in-kind contributions from sponsors and challenge owners<sup>37</sup>.

As delivery partners are not obliged to report financially on the funds raised for programme implementation from non-EIT sources, a detailed financial balance sheet of the individual programme editions cannot be provided. Having noted that, it is important to remember that Young Innovators is an education programme and as such cannot be viewed solely, or even primarily, through the lens of its financial performance.

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<sup>32</sup> EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021.

<sup>33</sup> Ibid.

<sup>34</sup> EIT Climate-KIC (2020), DEL200216-D04 Concluded Financial Sustainability mechanism document, 31st December 2020.; EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021.

<sup>35</sup> Interview conducted with a representative of Climate-KIC (December 2022), EIT Climate-KIC (2020), DEL 200216-D01 Programme Performance Report, 31st December 2020.

<sup>36</sup> Interviews conducted with a programme's partner (December 2022), EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021.

<sup>37</sup> Interviews conducted with a programme's partner (December 2022), EIT Climate-KIC (2020), Local reports, 2nd March 2020. Internal material.











The EIT Climate-KIC had the ambition to embed the programme within public education to extend its impact to underprivileged young people and leave no one behind. Public interventions of this kind cannot be evaluated based on the short-term revenue they bring to knowledge providers. While it is true that the implementation of the programme was possible in many cases without EIT funding, financial constraints are necessarily reflected in the scale and scope of the activities proposed to the young people.

## QUALITATIVE ASSESSMENT OF THE PROGRAMME AND ITS ACHIEVED IMPACT

### QUALITATIVE ASSESSMENT OF THE ACTIVITY

The structure and content of the YI programme reflects the state of the art in climate change and modern teaching methods. The methodology of the programme has been developed in the iterative process of continuous consultation with all target groups to best meet their needs. These needs include, first and foremost, providing young people with up-to-date information on the systemic interdependencies affecting climate change and equipping them with the tools to bring about change in the existing socio-technical order. Specific programme objectives, discussed in more detail under ‘Rationale of the activity: value added and benchmarking the activity with other activities’ above, have supported the development of planned learning outcomes, which enhance following competences (Figure 3):

Figure 3. Planned learning outcomes

							
<b>ENTERPRISING SKILLS</b>	<b>MOBILISING OTHERS</b>	<b>MANAGING UNCERTAINTY</b>	<b>BEING A CHANGEMAKER</b>	<b>CREATIVITY/ INNOVATION</b>	<b>SYSTEMS THINKING</b>	<b>PROBLEM SOLVING</b>	<b>LOW CARBON LIFESTYLE</b>
Moving from ideas into action in exploring solutions to climate change.	Understanding and developing social capital to engage others in ideas related to climate mitigation.	Being aware of the ambiguity, precariousness and sudden changes that define the climate change crisis.	Engaging and mobilising yourself and others for the greater good.	Generating innovative ideas and new solutions within a given context	Broadening thinking to identify aspects within a system, understand complexity and interrelations.	Gathering, analysing and interpreting information to solve problems through a negotiated solution within the area of climate change.	Analysing consumer behaviour, sustainability and product life-cycle and end-of-life treatment.

Source: EIT Climate-KIC



According to self-assessment surveys, students are generally positive about achieved learning outcomes<sup>38</sup>, as outlined in Figure 3. Teachers trained through the programme felt that they were able to effectively increase creativity and systems thinking in young people. However, the greater challenge for educators was to effectively manage student’s uncertainty and develop their skills to mobilise others. The degree and sustainability of the partners' involvement in the initiative<sup>39</sup> shows that the YI contains interesting value propositions and fulfils the hopes placed in it by actors involved in climate protection.

As the programme targets very young people, it is not yet possible to conduct a comprehensive evaluation of its impact - this will only be possible once YI activities participants have reached adulthood and made key decisions about their academic and professional careers. Nevertheless, it can already be observed that students note their increased awareness of climate change and feel empowered to tackle it as a result of their participation in the programme, which was clearly part of the programme objectives<sup>40</sup>.

What impressed us most is the extent to which students really followed up on the solutions that they came up with during programme activities. How they really try to bring change to their personal lives, to their families, to their networks. They really tried to make a difference in their communities.

Bram Drijvers, YI Programme manager

Table 9 presents an analysis of YI programme strengths (internal and external), weaknesses, opportunities and threats (SWOTs).

<sup>38</sup> The differences between the skills acquired in each type of competence, were not statistically significant in most cases. On a scale of 1-7, students rated their progress regarding specific learning outcomes as follows:

Creativity	4,6
Systems Thinking	4,6
Problem Solving	4,7
Low Carbon Lifestyles	4,7
Enterprising Skills	4,7
Mobilising others	4,4
Managing Uncertainty	4,6
Digital skills	4,6

<sup>39</sup> For example, the majority of KIC-funded partners collaborating on the implementation of the YI programme in 2020, acted as delivery partners also in 2022. See Table 7 and DEL 200216-D02 Local delivery reports, 31st December 2020. Internal material.

<sup>40</sup> Ibid.



Table 9. SWOT analysis of Young Innovators programme





Strengths	Weaknesses
<ul style="list-style-type: none"> <li>■ Ready-to-use programme materials (Handbooks for partners and teachers; Toolbox with canvases, visuals and lessons plans)</li> <li>■ Effective teacher trainings &amp; workshops scenarios</li> <li>■ Cutting-edge methodology, based on systems innovation approach and challenge-led learning</li> <li>■ Experienced and proactive delivery partners</li> <li>■ Tested in various national and regional contexts, both in EU and beyond, both with EIT financial support and without</li> <li>■ Covering the 12-18 age group, receptive to new values, ideas and lifestyles propositions</li> <li>■ Equitable nature of the activity covering the entire student population</li> <li>■ Ability to reach students with learning difficulties and from vulnerable background</li> </ul>	<ul style="list-style-type: none"> <li>■ Lack of cooperation with business at YI programme management level</li> <li>■ On the way to building a sustainable financial model (financial dependence on EIT)</li> <li>■ Lack of trust from schools' management and overloaded school curricula which results in occurring difficulties in entering educational institutions</li> <li>■ Need for better tools to assess the impact of the programme on changes in student knowledge levels (e.g. external surveys)</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>■ Methodology and learning tools easily adaptable to a wide range of topics</li> <li>■ Easy replication in other EIT KICs and non-EIT institutions</li> <li>■ Easy scalability and huge pool of potential beneficiaries</li> <li>■ Option to recruit delivery partners from a wide range of actors including, HEIs, research bodies, companies and NGOs</li> <li>■ Possibility of sustained integration into national curricula and professional development courses</li> <li>■ Relatively low cost for KICs to implement successive editions of the programme</li> <li>■ Opportunity to influence young people's early career choices in order to contribute to sustainable development in the EU and globally</li> <li>■ Potential for strengthening civic participation in local communities</li> </ul>	<ul style="list-style-type: none"> <li>■ Difficulty in raising funds at the EIT Climate-KIC level due to the association of the EIT with a strong, wealthy institution</li> <li>■ Openness of schools and local and national authorities to cooperation dependent on political fluctuations</li> <li>■ Reluctance of teachers to change their learning habits</li> <li>■ Implementation of the entire programme too time-consuming for schools and teachers</li> <li>■ Difficulty in maintaining uniform evaluation standards across delivery partners</li> </ul>



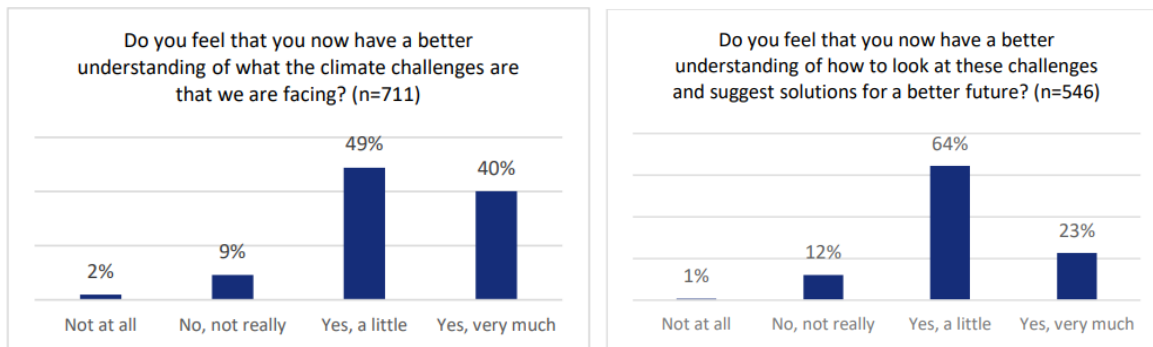
Source: Ecorys.

## ACHIEVED IMPACT

Over the four editions of the programme, 13,835 students and teachers have participated from over 20 countries in Europe and beyond. The programme boasts concrete evidence of achieving these learning outcomes. The post-programme evaluation showed that most students have a better understanding of climate challenges and, even more importantly, feel equipped to face them (Figure 4)<sup>41</sup>.

Overall, 89% of students believe that their knowledge of climate change has deepened as a result of participating in the programme, including 40% of students who feel that their competence in this area has significantly increased. A similarly high proportion of participants (87%) believe that they have been provided with the tools to bring about positive change on climate change - an outcome arguably much more difficult to achieve in a school classroom setting. However, a special effort should be made to ensure that strongly positive evaluations of students' acquired competencies outweigh moderately positive ones.

Figure 4. Student satisfaction with participation in the programme, 2021.



Source: EIT Climate-KIC

The programme methodology facilitates student engagement, which is especially relevant in the case of students with learning difficulties and young people from vulnerable backgrounds, who by themselves rarely become involved in class activities<sup>42</sup>. Based on interviews with educators, participation in the programme has brought a breakthrough change for many students with low levels of involvement in classroom activities and contributed to a reduction in school absenteeism for the duration of the programme<sup>43</sup>.

The international training of YI allows teachers to meet educators from other countries and create networks to learn and improve each other's skills<sup>44</sup>. Thanks to these collaborations, the programme's impact is extended beyond the duration of the YI activities and results in the development of new innovative educational initiatives

<sup>41</sup> EIT Climate-KIC (2021), DEL 2'10009-D02 Performance report Young Innovators programme, 31st December 2021. Internal material.

<sup>42</sup> Interview conducted with a programme's partner (December 2022).

<sup>43</sup> Interview conducted with a programme's partner (December 2022).

<sup>44</sup> Interview conducted with a programme's partner (December 2022).



by schools and delivery partners, such as Erasmus+ project TEDDY - Teacher's Experiential Development of Digital Skills Through the Young Innovator's Programme<sup>45</sup>, or D-game, an international project promoting sustainable education, community engagement and collective co-creation<sup>46</sup>.

Climate change experts, active in the programme's delivery organisation, emphasize that training school children system innovation approach, which is the foundation of the YI methodology, will have a long-term impact in the form of a future workforce able to bring disruptive changes to the current inefficient economic and social orders. Systems thinking involves reflecting on a range of private and public sector actors and the impact of their views and interests on long-term climate policy. It acknowledges transformations happen through a process of reciprocal interaction between the different elements and stakeholders in social, political, industrial, and ecological systems. According to this paradigm, the systemic change is possible only through "the development of a fundamentally different knowledge base and technical capabilities that either disrupt or complement existing competencies and technologies<sup>47</sup>", resulting in new cultural and natural landscapes.

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YI is revolutionary. It is innovative. The more we are involved in implementing the programme, the more evidence we have that it is a gamechanger for student progress. It's really helping to solve a lot of the problems the college faces, even things like dropouts and low engagement. Students are now motivated, they get an entrepreneurial mindset, and they have the tools to empower them. And you have all that content, all the programme methodology available, easy to access.

Gonca Kara, Senior Research Officer at The Malta College of Arts, Science & Technology,  
YI Delivery Partner

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Participation in the programme also brings concrete benefits for partners representing public authorities and industries. Providing challenges, watching the way young people approach them and tracking the solutions that students propose, stakeholders gain also unique insight into the values and views of young people<sup>48</sup>. Staying abreast of topics and trends that are key to young people allows programme's partners to design policies, products and educational activities in such a way that they best meet the needs and expectations of young people.

Indeed, sustainability and social responsibility are discussed as core marketing strategies in a coming year, according to Google: "People have been prioritising sustainability and they want brands to help them make sustainable choices more manageable. They also expect organisations to have an impact on society more than ever before and align promises with actions<sup>49</sup>". Building one's image on climate responsibility helps public

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<sup>45</sup> See project website: <https://stichtingtechartrend.nl/teddy-teachers-experiential-development-digital-skills-through-young-innovators-programme>.

<sup>46</sup> Project website: <https://d-game.org/>.

<sup>47</sup> OECD (2016), System Innovation in: Science, Technology and Innovation Outlook., available at: [https://www.oecd-ilibrary.org/docserver/sti\\_in\\_outlook-2016-9-en.pdf?expires=1671190233&id=id&accname=quest&checksum=B510198EC415958A561BDE0885FCB51E](https://www.oecd-ilibrary.org/docserver/sti_in_outlook-2016-9-en.pdf?expires=1671190233&id=id&accname=quest&checksum=B510198EC415958A561BDE0885FCB51E).

<sup>48</sup> Interview conducted with a representative of Climate-KIC (December 2022).

<sup>49</sup> Google (2022), Top digital marketing trends and predictions for 2023, November 2022, available at: <https://www.thinkwithgoogle.com/intl/en-ccc/consumer-insights/consumer-trends/digital-marketing-trends-2023/>.



authorities and private companies to raise the level of trust among the youngest recipients of policies and products and, in the long term, attract them to work in the respective sectors - impact which cannot be overstated, although it may only become fully visible several years after the young graduates have completed the programme.

Skills provided within the programme are invaluable for professionals working in sustainability, both in public institutions and in the industry. By engaging in the programme local and national governments, private business and civil society organisations are investing in versatile and agile workforce who will soon be able to face the biggest challenges of the future, for the benefit of all citizens and the profit of their economies.

## LESSONS LEARNT AND GOOD PRACTICES

Careful design of the YI methodology allows for its flexible implementation by diverse partners in different contexts. Close collaboration of the programme's management team with delivery institutions has ensured that partners had no major issues with the implementing the programme on the ground. Thanks to the in-depth interviews with key stakeholders, it was possible to distinguish several elements to which more consideration should be given so that the programme can achieve maximum impact.

### PRESENTATION OF LESSONS LEARNT FROM THE ACTIVITY IMPLEMENTATION

**Lesson learnt 1: Teachers are just as important beneficiaries of the programme as the students, and they are often the first to see its value in a local setting**

One teacher trained in the YI methodology will be able to teach hundreds of students and will likely continue to use the programme beyond the EIT Climate-KIC-supported editions. Therefore, the YI implementation strategy pays particular attention to promoting the programme among teachers and facilitating their participation in training courses. A dedicated learning platform has recently been launched<sup>50</sup>, through which teachers can learn about the programme's methodology without the mediation of delivery partners.

The development of the programme's methodology is carried out based on the needs assessment of both educators and students. Delivery partners are in constant contact with teachers throughout the implementation of the programme to respond timely to their concerns regarding the implementation of educational modules and the use of learning tools.

**Lesson learnt 2: Delivery partners should be supported in promoting the programme at the level of national ministries of education**

Running the programme within the regular schools' schedules can be a challenge due to the overload of school curricula in many countries. Establishing relationships with national ministries, particularly the Ministry of Education ensures that YI advocates are on the spot when curricula upgrades are being considered and can offer YI methodology as a ready-to-use solution that can be embed in curricula to bring the benefits presented in the

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<sup>50</sup> See: [yilearn.climate-kic.org](http://yilearn.climate-kic.org).



sections above. This is crucial, as evidenced by EIT Climate-KIC efforts to enhance climate innovation mindset in the education system of CEE countries.

According to the KIC's analysis of climate education system in Poland and Hungary 'local governments have neither the funds nor the legal competence to introduce substantial changes to educational policies<sup>51</sup>'. Thus, close collaboration with central government is often a must to change the curriculum and add new subjects to it. At the same time, efforts should be made to integrate the YI programme into the professional development training for teachers in the country.

### Lesson learnt 3: Fundraising activities should start at the launch of the programme, even when EIT contribution is still assured

Building relationships with future YI partners and sponsors can take many years. Therefore, it is worth deploying a long-term fundraising strategy with the launch of the programme. Experience to date has shown that sponsors may be reluctant to fund EIT Climate-KIC activities, as EIT is perceived by some as a prosperous EU institution. In such circumstances, delivery partners, many of them being national universities and NGOs, are more effective in raising funds for local editions of the programme. In addition, delivery organisations are best placed to know the local context and can obtain support in the form and amount they need to implement the programme. Therefore, EIT Climate-KIC pays special attention to supporting their partners' own fundraising campaigns, through training, sharing contacts and development of professional marketing strategies.

## GOOD PRACTICES FOR SHARING, INCLUDING KEY IMPLEMENTATION CONSIDERATIONS

### Good practice 1: Focus on 12-18 age group

The majority of KIC's interventions target higher education students, whose passions and views are often well established and who already share the values promoted by KIC. YI programme's focus on the 12-18 age group and its implementation in public schools allows for the development of knowledge and skills across a whole new generation and does so at a critical time for the development of their identities and interests. By having a presence in schools across the Europe and beyond, YI is building the EIT Climate-KIC and EIT brand among thousands of young participants, nurturing a talent pool that can join the 'adult' activities of the KIC.

- Selection of the right delivery partners

Getting into public schools with a new programme like YI can be a challenge for external stakeholders. Therefore, one of the key criteria for selecting a delivery partner should be evidence of their previous successful collaboration with schools, established relationships with local authorities or a strong educational reputation, guaranteeing facilitated access to school classrooms<sup>52</sup>. Such institutions can be recognised national universities and research centres. NGOs with strong relationships with local schools are also good candidates.

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<sup>51</sup> EIT Climate-KIC (2020), DEL 200216-D01 Programme Performance Report, 31st December 2020. Internal material.

<sup>52</sup> Interviews conducted with the programme's partners (December 2022)



- Selection of the appropriate course under which to implement the programme

Ideally, the YI programme can be implemented as part of a course on climate education. However, not in all countries is this course part of the school curricula or local authorities have the competence to introduce it. In such circumstances, it is useful to look in the curricula of existing courses for topics that can be covered using the YI methodology. Relevant content can be found in biology or geography classes, entrepreneurship courses or popular extra-curricular activities such as world clean-up actions. An interesting option is to run the programme as part of a foreign language lessons. Similarly, for areas other than climate science, it is important to discover how content that is important for a particular edition of the programme, can be conveyed within existing curricula.

- Selection of real-life challenges

At the heart of the YI approach is challenge-based learning. It is a good idea to start working with schools by jointly identifying the biggest challenges facing the community. Young people love working on real-world problems. They also appreciate it when their ideas are treated with attention and respect. By working together with school authorities, teachers, local business representatives and civil society organisations on innovative solutions to the most pressing problems, students increase their confidence in the institution and their engagement in the classroom. The whole experience also empowers them to become agents of change in the future.

### Good practice 2: Comprehensive methodology based on system innovation approach

Current school curricula often lack programmes based on systems thinking which would provide students with a multidisciplinary insight into major global environmental and social challenges, and equip them with the tools for systemic change. At the same time, a growing number of countries integrate innovation system approaches in dedicated green economy programmes or include them in their energy and industrial regeneration strategies. The paradigm is likely to soon become one of the dominant approaches to policy planning in the field of sustainable development<sup>53</sup>. Teaching today's teenagers a system innovation approach means having professionals 10 years from now who can plan and implement interventions bringing transformation of the existing socio-technical order.

- Application of systems innovation approaches in other disciplines

One of the biggest advantages of the methodology on which YI is based is that it can be used to analyse and solve pressing societal challenges from almost all fields of knowledge. The basis of the YI programme is to show students that a system is a structure made up of many elements and the relationships between them. And that a thoughtful influence on one element of this structure can change the shape of the whole puzzle. The systems innovation approach empowers students to come up with breakthrough solutions to drive the transformation of the system into something new.

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<sup>53</sup> OECD (2016), System Innovation in: Science, Technology and Innovation Outlook, available at: [https://www.oecd-ilibrary.org/docserver/sti\\_in\\_outlook-2016-9-en.pdf?expires=1671190233&id=id&accname=guest&checksum=B510198EC415958A561BDE0885FCB51E](https://www.oecd-ilibrary.org/docserver/sti_in_outlook-2016-9-en.pdf?expires=1671190233&id=id&accname=guest&checksum=B510198EC415958A561BDE0885FCB51E).



Students can also learn how to refine their ideas so that they have the best possible chance of succeeding in the real market for products and ideas, which is itself a complex system. The usefulness of the knowledge and skills discussed is by no means limited to the field of climate change. Sections of the YI methodology based on the systems innovation approach can be transferred one-to-one to other areas of teaching and research. Due to its sophistication, the approach can also be taught to students, for example in elective course – idea already tried and tested<sup>54</sup>.

- Securing time for comprehensive teacher training

The systems innovation approach is certainly a discovery for many students. However, it should not be forgotten that the same is true for teachers. Although YI designers have put much effort into developing training plans to bring the innovation approach system closer to educators, a good understanding of the paradigm may require more than attending a single workshop. Therefore, there should be an aim to continuously improve teachers' competence in this area and be responsive to the challenges signalled by educators in understanding the content and value of the method. In addition, delivery partners highlighted the need to increase accessibility to teacher workshops by providing more on-line opportunities<sup>55</sup>. Including relevant training in government-authorised professional development programmes for teachers can greatly facilitate the process<sup>56</sup>.

### Good practice 3: Ready-to-use and easy-to-adapt lesson plans and visual tools

Teachers are often overburdened with educational responsibilities, trying to run through demanding school curricula in the allotted time and, at the same time, find time for pedagogical duties: i.e., shaping the characters and values of the younger generation. YI acknowledges this fact and has therefore prepared ready-to-use lesson plans for educators, enabling them to implement the YI methodology to the extent possible in their local circumstances. The course scenarios are accompanied by innovative visual tools with which students can map system relationships, explore their challenge, and generate ideas. All materials come with comprehensive explanation and facilitator tips. The way the teaching aids are designed make it possible to use them to impart knowledge on a wide range of topics, in no way limited to climate change.

- Translation of training and learning materials

Delivery partners are usually responsible for translating all teaching aids themselves into the national languages. This is a key undertaking, without which many teachers and young people would be excluded from participating in the programme (unless it is delivered as part of an English lessons). Even so, the prevalence of English in many educational materials published online at KIC-level and similar monolingualism of the e-learning platform, may remain an obstacle. As the primary target of the programme includes teachers, it is important to be aware of average level of English proficiency in this

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<sup>54</sup> See: Young Innovators elective course at the Utrecht University: <https://students.uu.nl/en/academics/honours/young-innovators>.

<sup>55</sup> EIT Climate-KIC (2021), Local Reports, 2<sup>nd</sup> March 2020. Internal material.

<sup>56</sup> Interviews conducted with the programme's partners (December 2022)





occupational group across the EU. Translation and positioning of the main websites presenting the programme in national languages may be key to attracting more educators to the initiative.

- Awareness of students' age-related constraints

Learning designers emphasise that the novelty of the YI methodology and the attractiveness of the visual tools made them believe that young people would be able to concentrate for longer in lessons and absorb more information in a shorter time. Meanwhile, implementation of the programme has shown that many young people are unable to maintain focus for the entire 40–45-minute lesson duration and react with frustration at the overload of information provided. These results should prompt future delivery partners to unfold YI over a longer period throughout school year, with smaller sub-sets of knowledge delivered over the course of each meeting<sup>57</sup>. It seems that sometimes visual tools make more of an impression on teachers than on the students themselves, who are used to daily contact with many interactive tools. It is therefore advisable to be attentive to the students' reactions and experiment with different solutions, about which more in the next section.

- Opportunity to experiment

In the first phases of programme implementation, a participant can limit themselves to using only the ready visual tools available in the YI handbook. However, in the later stages, it is worth taking advantage of the unlimited development opportunities offered by the YI toolbox. Exploring and implementing different variations of the YI tools can be a great opportunity for NGOs active in the field of education as well as for universities and research institutions working on teaching effectiveness.

Many of the programme's delivery partners have taken this route and obtained funds for the development of YI methodologies. For example, in 2021 YI activities become part of a Participatory Action Research, conducted with two faculties of Utrecht University – Geosciences and Psychology. Within the Young Innovators trajectory three interventions have been implemented on the effectiveness of visual tools for the enhancement of self-efficacy and climate action among youth. Results will be published and converted to a toolbox for educators<sup>58</sup>. Similarly, Aalto University used the YI framework to pilot its “D-Game: YOUth play the future” tool, which enhances the competencies of youths and local communities to promote cultural, social, and behavioural change<sup>59</sup>.

Learning designers emphasise that the novelty of the YI methodology and the attractiveness of the visual tools made them believe that young people would be able to concentrate for longer in lessons and absorb more information in a shorter time. Meanwhile, implementation of the programme has shown that many young people are unable to maintain focus for the entire 40–45-minute lesson duration and react with frustration at the overload of information provided. These results should prompt future delivery partners to unfold YI over a

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<sup>57</sup> Interviews conducted with the programme's partners (December 2022)

<sup>58</sup> EIT Climate-KIC (2020), Local reports, 2nd March 2020. Internal material.

<sup>59</sup> See <https://d-game.org/>.





longer period throughout school year, with smaller sub-sets of knowledge delivered over the course of each meeting.

#### Good practice 4: Bi-weekly partners meeting

YI would not have achieved its success without its delivery partners. Partners become involved in the programme primarily because they share EIT Climate-KIC's values and its mission to educate young generations about climate. But this is not the only reason why the KIC's partner network is growing. During almost all interviews with partner organisations, there was a clear message about the huge networking benefit linked with being part of YI. Partners particularly valued the bi-weekly meetings, where they could share their local experiences, good practices of programme implementation and establish relationships with like-minded actors, which often developed into project consortia.

- Constant co-creation

The YI management team has adopted a philosophy of keeping the programme's partners very involved and supported in the process of designing and developing all programme's activities. Partners has always been invited to co-create and test methods suggested by the KIC. The consultation process is usually two-stage. Periodically, the YI team conducts a survey among the partners on the directions of the programme and most important issues encountered in the process. Then one-to-one meetings are held to develop solutions to specific challenges faced by individual partners<sup>60</sup>. During bi-weekly meetings, partners exchange experiences and difficulties in programme delivery on an ongoing basis and discover synergies between each other.

- Flexibility and rapid response

Taking care of regular meetings with partners may seem time-consuming at first glance, but it is an investment that quickly pays off. For example, when Europe was hit by the Covid-19 pandemic, close cooperation with partners has enabled the YI management team to rapidly adapt the programme format to the new digital learning reality. Both parties kept each other informed of their technical capabilities and shared suggestions for technological solutions that could facilitate programme delivery.

- Expanding the partnership experience

The programme partners greatly value the international environment of climate change experts that YI has given them access to. At the same time, they emphasised that they would like the same experience for their students. Some teachers independently put forward the proposal to organise international educational activities and Young Climathon editions, in which young people from different schools and countries across the world would participate. They agreed that organising such exchanges even in an online format would be of great value to their students<sup>61</sup>.

Participation in the YI Programme as delivery partners helped us strengthen ourselves as organisation.  
What is particularly valuable for us is the European network we now have. Very clear partners to

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<sup>60</sup> EIT Climate-KIC (2020), DEL 200216-D01 Programme Performance Report, 31st December 2020. Internal material.

<sup>61</sup> Interviews conducted with the programme's partners (December 2022)



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collaborate internationally on all specific topics. It's so important to have strong partners and develop together projects that are important to each of you.

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Patrick van der Hofsted, Stichting Technotrend, YI Delivery Partner

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## REPLICATION AND SCALING-UP

One of the key advantages of the YI programme is that its methodology and learning tools can be applied to a wide range of topics and in different local contexts. The systems innovation approach, which is the cornerstone of the programme, is a versatile approach that is well suited to analysing the challenges of ageing societies, digital transformation, and zero-emission transport. As such, the tools developed within the YI programme can easily be taken up and developed by other EIT KICs, schools, HEIs, NGOs and independent youth education providers.

Importantly, running consecutive editions of the programme on the ground no longer requires significant investment at the EIT Climate-KIC level. Instead, it is the delivery partners who are responsible for raising the funds to introduce the programme to individual schools, which is most often made possible by contributions received from local authorities and business partners.

Key conditions for successful replication to other KICs or institutions:

- International editions of the YI programme should be organised, with some activities open to teachers and students not involved in the full programme.
- Combined editions of the programme could be organized with workshops and challenges covering the areas of interest of different KICs/non-KIC institutions.
- Consideration should be given to publishing different language versions of YI educational materials, especially if the translation has already been done by partners. Equally important is the search engine positioning of the YI website in national languages.
- As the involvement and significance of NGOs in the programme grows, dedicated communication activities targeted at non-profit organisations should be introduced.
- The programme needs to create an evaluation framework to measure its impact and use the results achieved to attract new partners.

The programme's considerable potential for scalability is clear - it can be implemented in any school at any level of education, within a variety of course activities. A prerequisite for wide dissemination of the programme, however, is to have cooperation with the national ministries of education responsible for drafting school curricula and incorporate the programme's methodologies into government-accredited teacher training offerings. Efforts to do so have already started to bear fruit in some countries, including Slovenia, Hungary, and Israel<sup>62</sup>.

The versatility of the YI methodology has been recognised by EIT Food, EIT Manufacturing, EIT RawMaterials and EIT Urban Mobility, and they have incorporated elements of the programme into the cross-KIC Skills for

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<sup>62</sup> EIT Climate-KIC (2021), DEL 210009-D02 Performance report Young Innovators programme, 31st December 2021. Internal material, EIT Climate-KIC (2020), DEL 200216-D01 Programme Performance Report, 31st December 2020. Internal material, Interviews conducted with the programme's partners (December 2022)



Future initiative<sup>63</sup>. In particular, the initiative is based on a challenge-led learning and systems innovation approach model derived from the YI methodology. Additionally, some visual tools such as cognitive mapping were adapted. Skills4future's planned learning outcomes largely reflect the analogous objectives of the YI programme. However, a full-fledged transfer of YI learning tools to other KICs is still waiting to happen.

Key conditions for successful scaling-up of the programme:

- Good relations with ministries in charge of education and upskilling should be built from the beginning of the programme's presence in the country, so that in the long run the YI methodology can become part of the school curricula or/and vocational education trainings.
- Efforts should be made to include training on YI methodology in the provision of state-accredited professional development trainings for teachers.
- A clear value proposition should be presented to business partners and public authorities at a local level to encourage their participation as challenge owners and/or programme's sponsors.
- Data should be collected to prove the impact of YI activities on students' level of engagement in classroom activities, including the programme's impact on students' behavioural patterns, absenteeism and dropouts.

## CONCLUSIONS

Young Innovators programme has been launched by EIT Climate-KIC in 2018, as a response to the growing need for action to prevent climate change among secondary school students. The aim of the programme is to equip young people with the latest knowledge on the systemic causes of climate change and to guide them in the process of devising ground-breaking solutions to protect the planet. YI does this with a unique methodology that equips teachers with innovative visual aids and ready-to-use lesson plans, making the implementation of the programme in classrooms as straightforward for educators as possible.

The YI programme includes three sequential learning modules: School Innovators, where students gain skills in systems thinking and the application of problem-solving tools, Young Climathon, where participants apply their skills to ideate projects and pitch innovative solutions to real-world challenges, and Young Changemakers, the entrepreneurial stage, where selected participants develop their ideas further in close collaboration with the school, community and business challenge providers. Evaluations to date have shown that participation in the programme has particularly strengthened students' problem solving and enterprising skills and positively influenced their adoption of low carbon lifestyles.

A key strength of the YI methodology is its significant versatility - the prepared tools can be used to transfer knowledge on almost any topic covered by the EIT KICs. In addition, there is also considerable flexibility in the ways in which the project can be implemented. In addition to classrooms, YI activities can be carried out in community centres, either as part of extra-curricular activities for talented students or empowering sessions for vulnerable young people. Importantly, it is estimated that the adaptation of the programme to various thematic

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<sup>63</sup> For more information see: <https://eit-skills4future.eu/>.



areas and delivery contexts and its subsequent implementation on the ground does not need to entail significant investment at the KIC level.

Young Innovators is a powerful educational initiative that can be a formative experience for a whole generation of young people across the EU and beyond and can serve as a breeding ground for disruptive ideas that can be further developed through various adult KIC activities. By grounding the programme in real-life challenges, each edition of YI can engage not only students and educators, but entire communities. This obviously increases the scope of the programme's impact, but also leads to less obvious change, such as alleviation of climate anxiety among students, enhancing civic participation and increasing the visibility of the KIC in local setting.