

FIRST Impact Award - Team 4481

2025 - Team 4481

Team Number

4481

Team Nickname

Team Rembrandts

Team Location

Eindhoven, NB - Netherlands

Describe the impact of the *FIRST* program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in *FIRST* programs.

88% of Team Rembrandts (TR) members and alumni specialized in a STEAM major, compared to the national average of 24%. Currently all graduated team members have either started working at a company in our partner network, or have brought that company into our network after starting there. 80% of our members coach or volunteer within FIRST programs, with all coaches using TR created resources to help local teams. This adds up to a total of 144 FIRST seasons of volunteering & coaching experience.

Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.

Living in the Brainport region, Europe's Silicon Valley, we are surrounded by a wealth of STEAM knowledge and resources. However, travelling to the US for competitions puts a large logistical and financial burden on the team and our 75 members, who must pay for travel expenses themselves. Our robot design approach is made to fit into our specific team situation, co-developed by partners in our network. We create a competitive advantage through collaboration, locally and internationally.

Describe the team's methods, with emphasis on the past 3 years, for spreading the *FIRST* Mission in ways that are effective, scalable, sustainable, and creative.

TR believes in the importance of a strong FIRST presence in Europe. Supporting FTC with a 'quality over quantity' approach helps us to construct the necessary flow of students through FIRST programs to build a foundation for a sustainable FIRST presence. This is what our outreach program focuses on. In 2023 we ran the first European FRC scrimmage alongside the FTC Benelux championship. We are now working on a European FRC offseason event as a building block to help FRC make the jump to Europe.

Describe your team's goals and the progress you have made towards them to fulfill *FIRST's* Vision.

We believe in the saying that FIRST is the only sport where every kid can go pro. The accomplishments of FIRST students should be used as a force that draws in a new generation, a sustainable cycle we refer to as 'Youth Inspiring Youth'. With our support, FTC in the Netherlands, Belgium and Luxembourg has grown by 60% over the past three years. As more kids in Europe are exposed to FIRST, their achievements inspire an exponentially growing amount of other current and future STEAM leaders.

What impact has your team seen from your efforts described in the above question? How does your team measure impact?
61% of our members have participated in FTC before joining TR. Of these people, 85% got to know TR as FTC students and a further 60% say to have directly been helped by our team in the past. TR members form over half of the volunteer pool for all events in the Benelux, and co-form SteamUp, the FTC Program Delivery Partner for Belgium, the Netherlands and Luxembourg. We are seeing a growth of 60% in the local FTC scene and are actively working with FIRST to get to a European FRC regional.
Please provide specific examples of how your team and team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years. How do you share these best practices with other teams?
Our team prioritizes transparency by regularly sharing updates on our Open Alliance Build Thread and being open to meet-ups with other teams to discuss specifics not covered in our online content. TR realizes not every team has access to the same resources we do, so we proactively share our processes and results through multiple channels. We have worked on improving our own build thread, sharing the lessons we learned has now helped other teams to improve their own build threads.
Describe your team's initiatives to Assist, Mentor, and/or Start other <i>FIRST</i> teams with emphasis on activities within the past 3 years.
We mentor FTC through our initiatives such as the FTC Skills Academy where we prepare teams for their upcoming competition, and our FTC playgrounds where teams are provided access to our workshop and our members expertise. This support for FTC is broadened by working together with the partner high schools directly, additionally creating an inflow of students into our team. These schools have started 4 FTC teams. We have helped to start an FRC team in the Netherlands, hoping to compete in 2026.
What other initiatives have you created, grown, sustained, or participated in (<i>FIRST</i> or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?
Despite the 60% growth of FTC in our community achieved with our help, STEAM education in our country still isn't as big as we'd like. The Dutch education system hasn't been updated since 2006. Technology therefore still isn't incorporated into schools to the extent it should be, limiting STEAM exposure to young kids. Our government has approved a \$2.5+ billion investment plan, partly for this exact improvement. We are working directly with local government to ensure effective spending.
Describe the partnerships and relationships that you've created with other organizations (teams, sponsors, educational institutions, government, philanthropic entities, etc.) and what you have accomplished together, with emphasis on the past 3 years.
Our team is independent of any overarching educational institution. However, we collaborate with two partner high schools. This partnership is mutually beneficial, supplying us with students while giving us the ability to train these students through FLL and FTC at an earlier age, exposing more students to STEAM. Being independent requires us to raise finances from our partner network whom we collaborate with continuously, ranging from research & development to expositions and open days.
Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, <i>FIRST</i>, and your communities.
Joining an FRC team as a new student can be intimidating. We strive for every student to get involved as much as possible, for the third year in a row this has been done through our buddy system which pairs every new student with a more experienced team member. When kickoff comes around, we have already organized our annual team weekend meant to increase cohesion among team members. Our team has multiple trust persons, their role is communicated proactively and repeatedly to the entire team.

Explain how you ensure your team and the initiatives you have created will be sustainable.	
<p>To be a sustainable team we need two things: a solid structure and retention of the knowledge we gain. Our team is structured like an SME with different departments and clear growth paths from students to leadership. Alumni are also supported to grow into mentorship positions. To ensure knowledge is retained within the team, we set up online training modules this year with help from our partner network. This allows students to learn theory from home and turn that into practice on team evenings.</p>	
Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.	
<p>Robotics competitions in Europe are much smaller than in the USA. Hence we need to create a space where all students find a passion and put as much energy into growing FIRST in Europe as possible. There are students that fit right in the team, but unlocking every student's full potential requires us to provide tailored support. This is something we don't have enough time and knowledge for. Currently, students are encouraged to spend time with multiple departments and explore all their interests.</p>	
Briefly describe other matters of interest to the <i>FIRST</i> Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique, particularly noteworthy, or had a large impact.	
<p>We are a Dutch team. In a small country such as ours, we don't find the scale of competition we seek, and thus look further. Despite competing in the US, we are aware of the developmental needs of our community and the influence our team can have on a national level, including our department of education. All our work in growing FIRST in Europe is part of a multi-year plan. We are working to host a 2026 FRC offseason event with the end goal of hosting the first European FRC regional.</p>	
Judge Feedback	
	<p>Our question as an international team is: are there parts of our team that from these submitted materials are left unclear? Do we sufficiently explain our community in order for you to be able to put what we do into context?</p> <p>An area the team has an opportunity to improve.</p> <p>Something that really impressed the judges.</p>
Essay	
<p>Navigating uncharted waters has always been at the heart of our community. The Netherlands, a country where almost a third of all land lies below sea level, has mastered the art of turning challenges into opportunities. We proudly embody this philosophy at Team Rembrandts (TR), where we navigate these waters as one of the few European FRC teams. We pave the way for others, sharing every aspect of our journey, making it easier for them to follow in our footsteps.</p> <p>We are making an impact on three levels. Local, continental and global.</p> <p>Local Our team is located in the Brainport region of Eindhoven, Europe's Silicon Valley, the port of call for high-tech organizations creating the most complex and advanced machinery, products, and innovations in the world. The Brainport region, with a population of 800,000, is projected to face a shortage of 70,000 STEAM-trained employees over the next 10 years. While the Dutch education system offers high-level STEAM courses, it lacks the ability to enthuse and attract enough students to opt for this track. At TR, we control these waves on two fronts.</p> <p>First, we inspire those who are still deciding whether to plunge into the world of technology by showing them how</p>	

exciting and accessible the field can be. We gave demo's at 54 events, reaching 126,000 people over the past 3 years. On top of this, we support students who have already chosen technology-oriented paths. Unlike the American school system, ours does not facilitate extracurricular activities, making it challenging for students to explore STEAM outside the ordinary curriculum. These already curious students are given the chance to discover what they enjoy within the realm of technology at TR, by collaborating with highly skilled mentors in a multidisciplinary environment.

TR alumni believe in this mission and often rejoin the team to become mentors, attributing to the TR goals. These young mentors actively learn through the coaching of our new students. Internships at partner companies enable them to apply their invaluable experience and STEAM skills while providing our partners with exceptional employees. 85% of our working members work for one of our partners. This cycle strengthens and grows the FIRST network in the Netherlands and Europe.

We consider these companies our partners, not sponsors, as sustainable growth for our team and FIRST relies on collaboration. These partnerships drive innovation, like our Plug & Play modular design, developed with key partner MTA. This design philosophy allows us to easily transport our robot to the United States, saving us thousands in shipping costs and over a week of critical development time. We show how we tackle the challenges of being an international FRC team, offering other European teams our solutions to navigate the European waters. This lowers the bar of entry into the competition.

Continental FLL, being an accessible program, is well-developed across the continent. However, FTC and FRC teams remain far more widespread across Europe. There are only 19 FRC teams across Europe, compared to roughly 3,000 teams in the similarly sized USA. We believe a sustainable FRC presence in Europe requires teams to form independently. We want to achieve this by turning well-running FTC teams into FRC teams. To support this vision, we focus on strengthening the European FTC and FRC community.

-FTC- We facilitate FTC and FLL programs at our two partner schools. Every week, our team members serve as teachers and mentors for these teams, providing access to knowledge, resources, and mentorship that would otherwise be out of reach. Besides this, we are working to improve the FTC competition. We are deeply involved with STEAMup, the program delivery partner for FTC in three countries: Belgium, the Netherlands and Luxembourg (Benelux). Out of the ten people in the STEAMup organization, five are active mentors of TR. We have been playing a pivotal role in this FTC region since 2017, filling most of the key volunteer positions. We ran a total of 20 FTC events in the last 3 years.

We offer FTC teams a helping hand by giving yearly free masterclasses at the FTC Kickoff. FTC teams from all levels can take part in these sessions. These masterclasses range from 'Intro to FTC' for the rookies to 'Effective prototyping' or 'Team management' for the more experienced students. Apart from the official events, we give the FTC teams more opportunities and knowledge by hosting our very own free FTC playground sessions every year, with 40 FTC teams over the past 3 years, as well as a TR summer school: Skills Academy. During these four sessions, our build location is open to FTC teams to work in our workshop, practice on a full field and ask questions to our team members. TR Skills Academy starts off with a roadmap for the four sessions and writing down personal team goals, such as: 'better communication' and 'improved sustainability documentation'. Each session is focused on one hard skill, combined with a soft skill workshop. Five teams work on their projects, a season simulation, complete with judging and a match day during the last session.

All of these combined efforts have led to a major rise in tide in the level of FTC teams, as well as the amount of teams within FTC in the Benelux, which has grown from 50 to 92 FTC teams, nearly doubling in just 3 years. We seize this opportunity; TR will support STEAMup in organizing the first-ever European Premier Event for FTC, comparable to the FIRST Championship in Houston. This competition will bring together 96 winning teams from more than 50 different nationalities to compete in Eindhoven at world-level.

-FRC- We foster an environment that supports the growth and expansion of FRC in Europe, serving as a resource

hub for European teams. On top of this, we want teams to come together, learn and grow. We facilitate this by entering new waters in three waves.

The first wave is the first-ever European FRC Kickoff, run by TR and supported by STEAMup. FRC Teams from four European countries traveled to our build location, where they enjoyed a weekend filled with events, such as a partner company visit, a prototyping game and the game reveal. Afterwards, teams brainstormed and started prototyping with us, where we gave them the chance to utilize our resources.

Looking ahead, our plan is to continue to organise the Kickoff. Additionally, we will be organizing an official FRC off-season event, the second wave, which will give teams the opportunity to improve their skills and collaborate in a competitive environment. It will also serve as a stepping stone toward our final wave the year after: the first-ever European FRC regional event.

Global We recognize that not all FRC teams have the same level of resources as we do. We share our activities and progress with our partners, community, and the world. Social media helps us to reach beyond our network to inspire and enthuse those unfamiliar with STEAM.

Across all social media platforms, we have reached 12.6 million impressions in three years. We make engaging, informative content by sharing the knowledge we've accumulated in a digestible way, lowering the entry to FRC. We reach beyond our direct community through our partnership with REV Robotics where we share our experience in applying and testing REV products as a veteran team. These initiatives combined have resulted in well-maintained accounts, where we were able to answer questions for over 200 FRC and FTC teams worldwide.

Through our involvement with the Open Alliance and active posting on Chief Delphi and YouTube, we create meaningful impact for the FRC community. Every year, we document our journey from the early stages of prototyping to our final competition robot. We showcase every aspect of our team, ranging from robot design to how we write our impact essay and how our team is structured. By sharing the challenges we face, we provide other teams with the opportunity to learn from our experiences and build upon our concepts. Examples of our posts are 'unofficial cheat sheet', '3DM analysis', 'building the field', '3DM robot skills list', and, 'free CAD metric field design', and that was just one day of posting. When asked, almost 400 FRC teams replied that they had learned something from our build thread. Over 200 FRC teams have applied techniques or methods shared by us. Over the past three years, we have helped over 200 FRC teams avoid ineffective investments to maximize their resources, making it easier for resource-limited teams to compete at a higher level.

Our methodology is rooted in 'teaching to fish' rather than 'giving the fish'. We aim to encourage teams to engage with the engineering challenges independently, fostering innovation and critical thinking skills. When put into practice, this results in us sharing strategic design methodology, prototypes and control theory as well as weekly recaps with our lessons learned during Build Season. Last year, our thread had a total of 547 posts and at the end of each season, we shared full CAD and code. By sharing our build and thought processes, we foster global collaboration within the FIRST community. Last year, our Chief Delphi blog was the most-read build thread and reached over 120,000 impressions.

Navigating challenges at local, continental, and global levels requires innovative thinking and collaborative efforts that lead to tailored solutions. Locally, we address the shortage of trained STEAM employees by inspiring students and offering them STEAM opportunities beyond the traditional curriculum. At the continental level, we build a strong FTC foundation to foster a sustainable and self-sufficient FRC community in Europe. Globally, we share our knowledge and experiences with FRC teams around the world, enabling resource-limited teams to maximize their potential and compete at a higher level.

Local Operation. Continental Implementation. Global Inspiration.;

