

FIRST Impact Award - Team 4481

2023 - Team 4481
Team Number
4481
Team Nickname
Team Rembrandts
Team Location
Eindhoven, NB - Netherlands
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in <i>FIRST</i> programs as mentors/sponsors.
To measure the impact of the team, we have done a full internal data collection through which we found that 32% of members coach a combined 30 other teams across FIRST. Over 90% of our high school members graduate in the top 15% of the Dutch education system, 99% of which continued with a STEAM course. 57% of our working members work for our partner companies, with 46,67% being promoted to managerial positions within 5 years. We have 75 active members with 300+ years of combined experience.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Our community is known for our unparalleled innovative strength and our collaborative and multidisciplinary way of working. Extra curricular activities are uncommon, so we created two Skills Classes in order to teach students valuable skills and lessons on FIRST. When we work together, there are no limits. We help each other discover, grow and move forward to achieve the seemingly impossible. Our team creates an ultimate breeding ground for pioneers using our close-knit team community.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
Everyone has different skills and goals in life, which is why we have internal branches like Media & Branding. They create an extensive online presence, reaching over 4 million impressions. Our Youth Inspiring Youth methodology transforms this collaboratively by using examples of our peers to show what is possible for the next generation of STEAM professionals. This makes joining less daunting, increasing the amount of new students in the past three years by 116,7%.
Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years.
Everybody in Team Rembrandts shares the goal of becoming a role model to somebody. We embody Gracious Professionalism in our core and we help other teams as much as we can. This is demonstrated

by our extensive build-season documentation on YouTube and the Open Alliance. We showcase all of our prototypes, ideas, designs and progress for the community to see. In the FTC community, we act as role models by volunteering, coaching and fulfilling positions in the leadership of FTC Benelux.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

Assisting other teams has always been a core ambition of TR. Outside of the Open Alliance, we focus on rookies through our partnership with The Compass Alliance. Here we operate a 24/7 call center for other FRC teams. We post daily videos or prototypes to our YouTube. TR members have coached 9 FLL, 18 FTC and 3 FRC teams, helping them become self-sustaining inspirators and innovators in STEM. We mentor FTC team Lituanica X, who want to compete in FRC next year.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

To prepare new members for the coming season, we developed our Skills Class. This weekly course lasts from summer break until kick-off, covering FIRST topics & engineering subjects, presented by mentors who work in the field. We also launched our Skills Class 2 where members do a mini-competition, transferring theoretical skills into self-sustaining confidence, making collaboration between members very effective. This creates room for creativity, releasing the potential of the young mind.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

We believe that relationships create partnerships. We like to build upon many different relationships from our strategic high school partners to FTC NL and its community, from all our sponsors to our municipality. Together with our 16 sponsors we've built a 3 year roadmap and collaborative commitment to the team. We've moved to Strijp-S in Eindhoven to help create a Makers Community in the district area and build a FIRST Hub for other teams to visit, practice at and get coached.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

We promote equality through inclusion. Working in an international setting, different backgrounds never had an influence on the selection of members nor in the way we work among one another. Our team has had members from 9 different countries across 4 continents, and various members of the LGBTQ+ community. The number of female team members grew by 118% in the last year, and 500% since our first season. The most important factor within Team Rembrandts is that everyone can be their own self.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

During the pandemic, we used our free time to redevelop who we are and where we want to be within 2 and 5 years time. Clear goals and visions give us something to work towards instead of taking each year by itself. This future-based approach is carried into the collaboration with our partners, who have been thriving in our area for a long time, and teach us the ropes of sustainability. Through inspiration, collaboration and innovation, we grow the interest in FIRST throughout Europe.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

We collaborate with our partners as if they are our own team members. We all have one shared goal: Making a lasting difference in career interests and educational choices; preparing young people for a STEAM future. We currently have 16 partners of which 8 are financial and 8 are in-kind. We often need to source locally due to delivery times, which our partners are especially helpful with. We have set up multi-year agreements with all partners, offering room for extensive long-term collaboration.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

We are taking steps to fully define the core identity of Team Rembrandts. We have created full extensive documentation on all of our active seasons in FRC, divided into three main subjects: guidance & coaching, strategy & engineering inspiration and coopertition & team spirit. These three pillars form the plants from which we are bearing the fruits already, now the plan is to share that with other teams as well.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

The goals of our team can be divided into three parts. Firstly, Guidance & Coaching. TR is set up so every member can do what they are interested in, and can become a young professional in their field. Secondly, Strategy & Engineering Inspiration. New technological advancements such as Data Driven Decision Making or Plug&Play teach youngsters invaluable engineering skills. Lastly, Coopertition & Team Spirit. We teach new members the value of coopertition and our presence is unmistakable.

Briefly describe other matters of interest to the *FIRST* 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 or particularly noteworthy.

The fact that our team is based in Europe offers a very unique, noteworthy set of circumstances. These challenges give us the potential of making a true difference in the Netherlands and Europe alike. By working with high schools, we have our foot in the door of the Dutch education system, opening that door to FIRST, increasing popularity and eventually creating a European regional. Working towards these major events can and will change the lives of a generation so that spark can be carried on.

Essay

Throughout history people have aspired to be heroes. Not the flying vigilante type- more like a light that illuminates our path, showing us where to go. And us? We found our heroes in Eindhoven. They weren't

hard to find: they wear bright orange and loudly call themselves Team Rembrandts.

2023 will be our tenth season of competition, leading us to the roman numeral X. This year, we'll be rebranding to TR-X. But what is X? We see X as that which sets something apart from the rest, the X-factor, an essential part of success. For the goal of empowering others to achieve success, we will define what our X-factor is.

We believe there is no universal formula for success, but that doesn't prevent anyone from achieving success. This is our first pillar, guidance and coaching, meaning that we aspire to give everyone the skills they need to become who they want to be, making our students stand out with a touch of the TR X-factor.

We have the goal of a European FIRST event where FLL, FTC and FRC are unified, bringing the feeling of US championships across the Atlantic. In order to sustainably grow the FIRST pathway, we focus on the retention of students and experience in FTC. Together with the STEAMup foundation, we form FTC Benelux, the Program Delivery Partner for Belgium, the Netherlands and Luxembourg. We assist the program in multiple ways and are involved as volunteers, hosts, and organizers. Through masterclasses, we're trying to tackle the outflow of knowledge as students progress and grow. We have recorded several masterclasses on FTC topics to guide teams onto the right track. To make this tangible, we organize 'FTC Playground' sessions where teams come to our workshop and use our facilities and expertise. They will also get the chance to test out their systems on an official field and do practice matches against each other. These efforts have resulted in 35% growth in Dutch FTC teams and 350% foreign growth over the last three years. Together, we ensure that FTC in Europe will become a force to be reckoned with. Only such a strong base will offer the right foundation to build FRC teams upon, and well-founded FRC teams will be the first step in creating a sustainable, competitive FIRST progression in Europe.

27% of our members join as FTC alumni, and 42% join through our affiliate high schools. When joining the team as a student, you enroll in Skills Class 1. This is our internal curriculum teaching varying topics through interactive workshops and a mini-season. 14 weeks of lessons in both technical and non-technical subjects allow students to find their interests in the team. During build season every SC1 student is paired with an experienced team member through our buddy-system. After a year of Skills Class 1, the students can choose to join a department-specific Skills Class 2 program, where they learn more in-depth information and skills. Skills Classes are designed to help all participating students find and define their X-factor in the team.

We make this curriculum stick by integrating it into our team structure. In collaboration with our partner companies, we devised this structure to fit our organization, ready to create a sustainable future for the team and its members. The team consists of five departments, which are divided into sub-departments with different tasks. These have students, leads and mentors with different levels of experience. This sets out a growth path for students to follow in their field of interest, making sure everyone has an impact- uniting us as TR-X.

We have a responsibility to ensure equal access to make full use of what we offer. Statistical data shows that school selection is biased following the education and ethnicity of parents. Children of immigrants or lower-educated parents are more likely to be placed in vocational schools instead of pre-college schools despite what they are capable of. Vocational education has an unfoundedly "lower image" in our society.

The overall problem is that these children have a lower chance of reaching their potential if they are not guided to discover their talents, interests and competences. We are working on a curriculum that meets the education requirements of this school type in collaboration with a professional educational publisher. This material will be ready in 2023 and can be used starting in the 2023/2024 school year.

Within FRC, the Compass Alliance seeks to ensure equal access to knowledge and experience. Together with different teams worldwide, we operate a 24/7 forum where we help teams with any questions they have. In addition to this, the Compass Alliance is involved in creating a set of 101 documents for rookie teams that are set to be included in the FRC Kit of Parts.

Our second pillar is Coopertition & Team Spirit. Youth Inspiring Youth is one of the core building blocks of our X-factor. It is a sustainable concept describing the way peers can show new students their true potential. When they have achieved well past their wildest dreams, their enthusiasm inspires new students to join, completing the circle and making it sustainable. It works in three easy steps: inspiration, collaboration and innovation.

Inspiration is that first spark, the spark in a kid's eyes when they drive a robot. We spread these sparks as far as we can, reaching over 9 million impressions across social media. We attend and organize events in our area such as open days and partner events, where we safely let kids control our robot. From our own experience, such a moment can be life changing if the spark is kept alive.

Adding fuel to that spark is what we do through collaboration. With the experience of buildseason, students will gain the confidence to take on more responsibility, learning in the process. Our team structure spreads ownership of projects across the entire team, with students able to take on multiple roles and lead a prototype or subsystem development cycle. Eventually, most students take on a leading role where they learn to oversee a project. They will be able to spread their knowledge both internally and externally. This has a positive effect on Youth Inspiring Youth, as well as creating more sparks in our community.

The third step is letting students innovate our whole team. Their experience improves our team in and out, making YiY grow exponentially. It all stimulates our common goal of building robots in a fun and educational way.

Team Rembrandts is a year long commitment of 75 people sharing this common goal. As well as developing the driving philosophies behind the team, we are constantly evolving on a technical level. This is our third pillar, Strategy & Engineering Inspiration.

At kick-off, we do what we call Data Driven Decision Making. This is a game analysis tool that combines strategy and engineering. We consider previous games and current competitors to set our benchmark, the 'minimum competitive concept'. This strategic engineering leaves us with a well-understood system that allows us to theoretically 'control our fate' at week 1 and 2 regional events. The data from this methodology and the concepts determined are shared openly with the FRC community. In the 2022 season, 3DM showed that a simple robot and a good strategy can win against even the most intricate robots. This has impacted rookie teams at the events we attended, showing them what can be achieved with fewer resources than what would typically be required.

Efficiency with resources is especially important for us, being based in Europe where shipping times and

costs pose a significant challenge. Getting our robot to an event is another challenge. In the past we sent it out ahead of time, shortening our build season by 17%- a huge impact. Together with our partner network, we have developed a modular design methodology we call 'Plug & Play'. All subsystems are designed to fit into a suitcase and come aboard the plane. When in our hotel, we're able to put it back together in 30 minutes with limited tools.

On the other hand, being a European team offers opportunities. Our HQ is located in Eindhoven, the heart of the Brainport region. This high-tech area is also called Europe's Silicon Valley, where you'll find companies who are the driving force behind innovation. Our partners supply us with everything we need, ranging from materials and financial support to guidance and business advice. Our network is set up with 27 partners. With these companies, we have committed to long-term collaborations. Many of our team members end up working for these companies. 57% of our mentors work for our partner companies, and 85% of them think they wouldn't be working there if it wasn't for Team Rembrandts. Another partner is REV robotics. As a member of Team REV, we work on improving their products including beta testing and coding for the REV swerve modules.

We believe that ideas should be spread instead of contained. Inspiring others is deeply rooted within our team. We bring this to life by sharing every part of our design and build process through the Open Alliance. This is an effort of multiple teams where concepts and updates are shared on a regular basis, with varying topics. During the build season, we receive good responses to our modular prototypes that allow for rapid changing of dimensions and concepts. Last season, our build blog reached over 600 hours of reading time, causing us to be the 4th most read Chief Delphi post. The effect was seen throughout the competition where teams showed us how they made use of our ideas and developed their systems similarly.

This is what makes us tick, it's what we're passionate about, it's our X-factor. After 10 years, this team has grown into a year-round investment of 75 people, continuously focussed on spreading the benefits of STEAM. With an eye on ourselves, and an eye on our possibilities, we show no signs of slowing down. ;

