Xplore

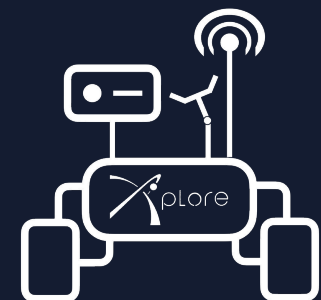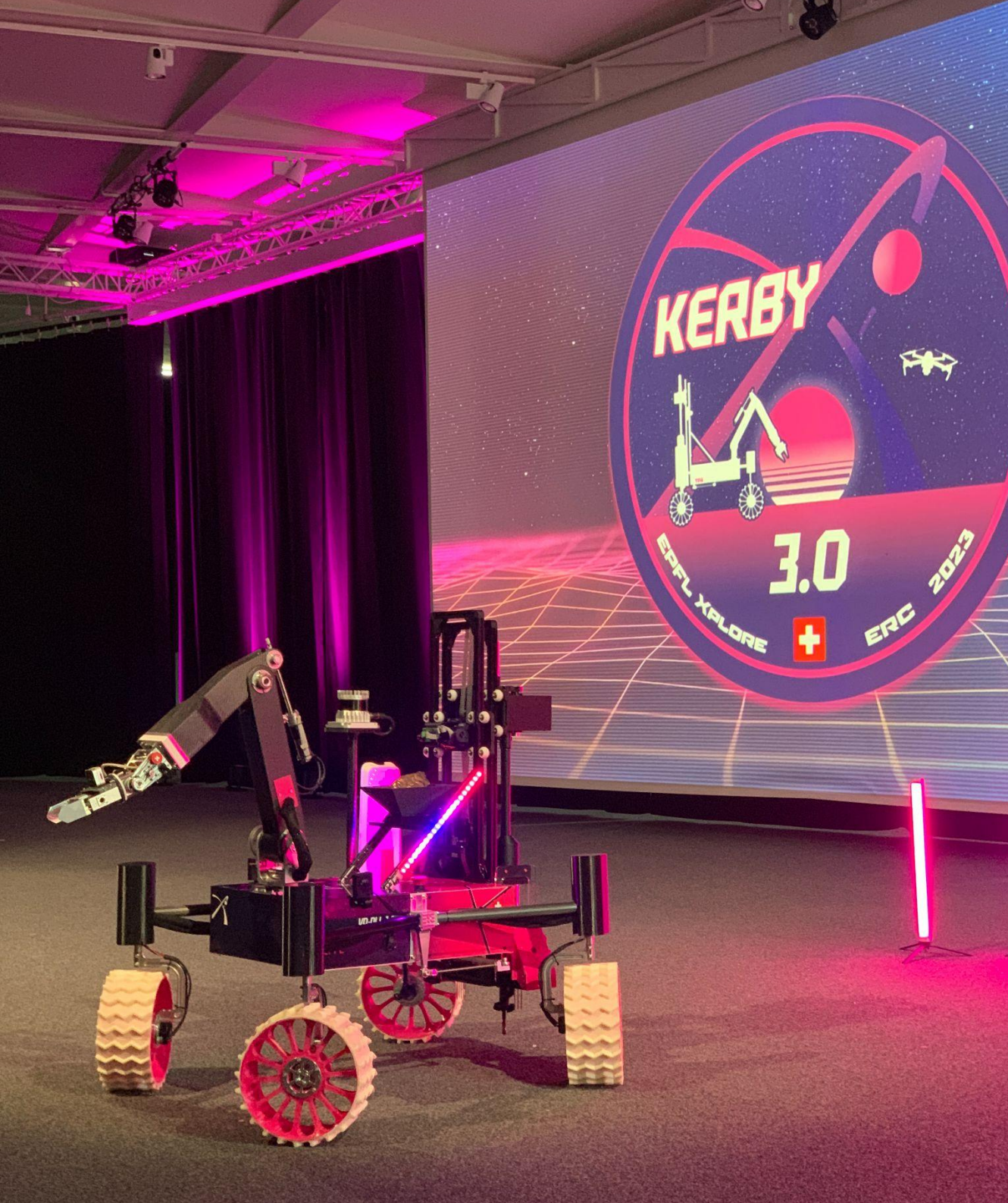## Sponsoring Dossier

Mission

Project Based Learning

EPFL Xplore is a student-led Space Robotics project from EPFL, part of the MAKE initiative in Switzerland. Our mission is to leverage project-based learning in the training of engineers at EPFL

Interaction with Research and Industry

Xplore is also considered to be an example of interaction between the student world, research and industry. We collaborate with research laboratories and partner companies to promote student contribution in the field of Space Robotics

Xplore

90+ students

The team is made up of Bachelor, Master and PhD students from EPFL.

40'000+ hours

The members can either work as part of credited projects or during their free time.

100'000+ CHF

Thanks to the support of our partners, we are able to acquire the funds for our activities.

2023-2024 Projects

Xplore Rover Challenge

European Rover Challenge

Research & Industry

RoverTräff

Awards

3rd Place

ERC 2021
ERC 2023

2nd Place

ERC 2022

Excellency Awards

Autonomous Navigation
Science
Probing & Collection
Maintenance

European Rover Challenge

Getting ready for ERC 2024

Based on the experience gained over the past year and our successful participations in the previous editions of the European Rover Challenge, we are currently developing our fourth Rover.
Our goal is to increase the degree of autonomy, reliability and modularity to have a platform on which the future team can iterate.

Science

As for most missions on Mars, our goal is to conduct in-situ scientific experiments. The data gathered will then help us verify prior hypotheses regarding the composition of the soil.

Navigation

Another aspect of Martian missions is mapping: the rover will be given target locations and will need to use onboard sensors to autonomously reach them.

Maintenance

Thanks to the on-board robotic arm, the rover will handle a control panel made of switches and buttons. The arm's precision is key to succeed in this task.
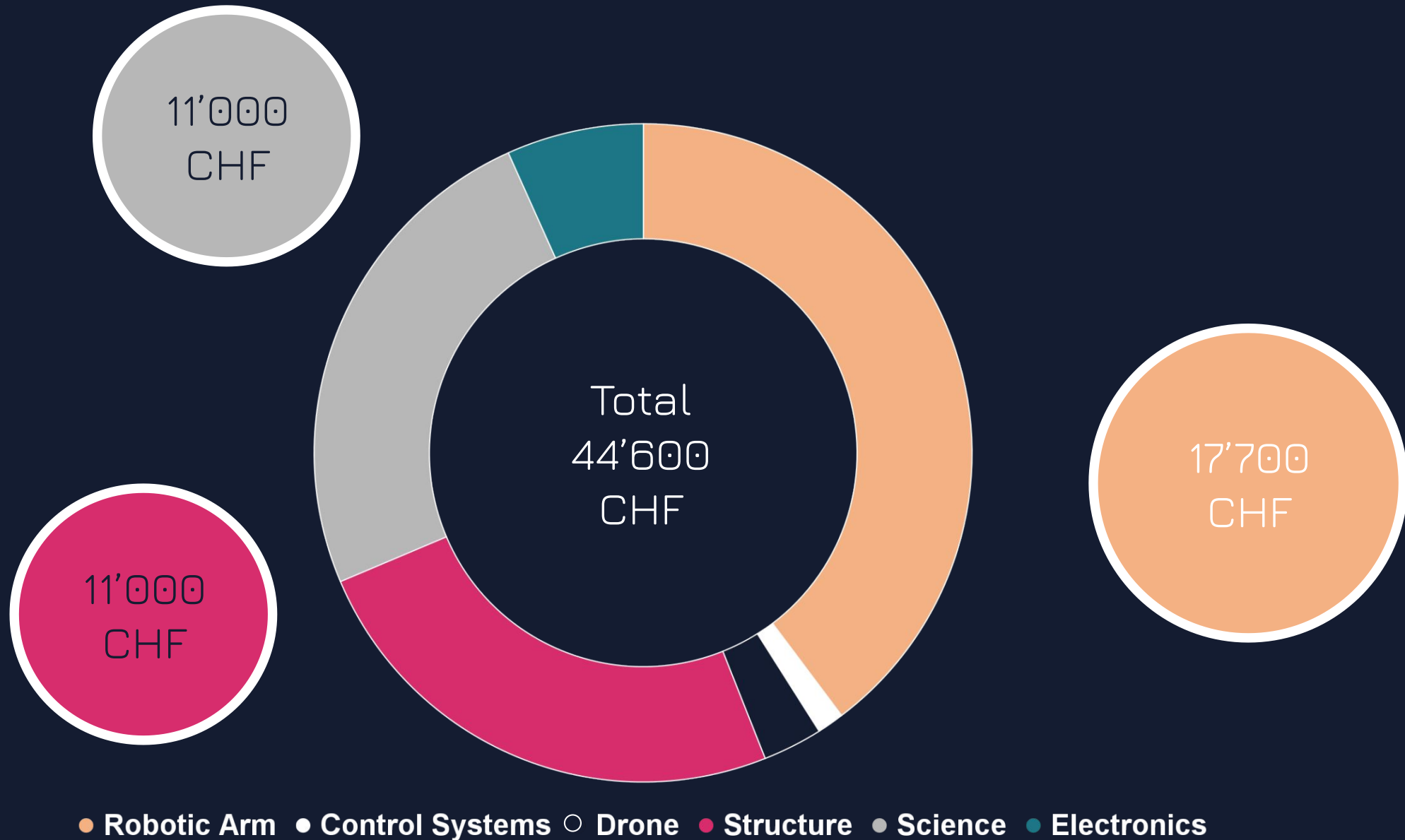
ERC Missions

To participate in the competition, the teams need to show technological readiness regarding multiple tasks. The teams will need to justify the designs based on the project development phases.

Probing

To simulate monitoring soil properties and soil-sample collection, the rover will place probes in the terrain and retrieve them, and collect samples by drilling into the soil.

Presentation

In addition to the technical missions, detailed and exhaustive documentation and a presentation of the project and its development are required.

ERC Rover - Estimated Budget

11'000 CHF

17'700 CHF

11'000 CHF

Total
44'600
CHF

- Robotic Arm
- Control Systems
- Drone
- Structure
- Science
- Electronics

RoverTräff

DE

A

CH

Missions

For the first time ever, the team is partaking in a student-organized competition in Brugg, Switzerland.
The purpose of this competition is to prepare for the ERC by testing our rover.

Obstacle Course

To test the rover's navigation and to put its structure and communication network under strain, the rover undertakes an obstacle course.

Coin Search in Sandbox

To simulate the ERC probing task and to test the new drill mechanism, the rover has to search for a coin, using machine Learning and object recognition for automation.

Tower of Cans

To test the functioning of the robotic arm and its precision, and to allow the arm operator to practice controlling the arm, the rover has to stack cans to build a tower.

Xplore Rover Challenge

2023-24 Competition

Total of 32 students from all EPFL faculties forming 8 independent teams to build 8 unique rovers by following our general guidelines.

Our Teaching Project

Aims to tackle the struggle of new members in learning the necessary basics to participate in EPFL Xplore.

Learning Teamwork

Aims to make students comfortable working in teams, by defining and respecting interfaces and project timelines.

Transferring Knowledge

Aims to summarize 3 years of experience into one guided project to maximize knowledge retention and transfer.

Simplified Rover Platform

Rover platform stripped down to the bare minimum to let new members concentrate on the core functionalities and interfaces.

Student Teams of 4

One Mechanical Engineer, one Electrical Engineer, one Computer Scientist and one Project Manager, all sharing knowledge on a day-to-day basis.

Documentation & Videos

Semi-guided project where core concepts are shared with students but students are left to creatively problem-solve them as they see fit.

Total
21'600
CHF
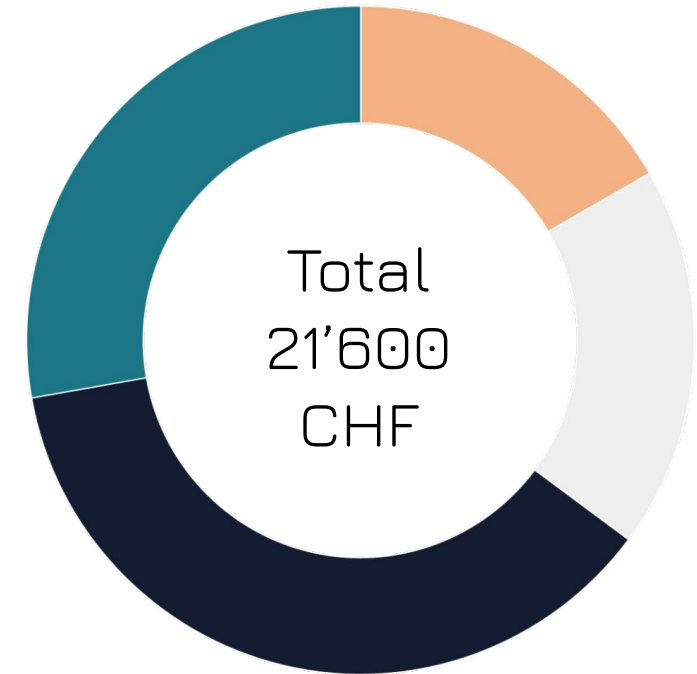
● Rover Parts ○ Consumables
● Teaching Budget ● Competition Organisation
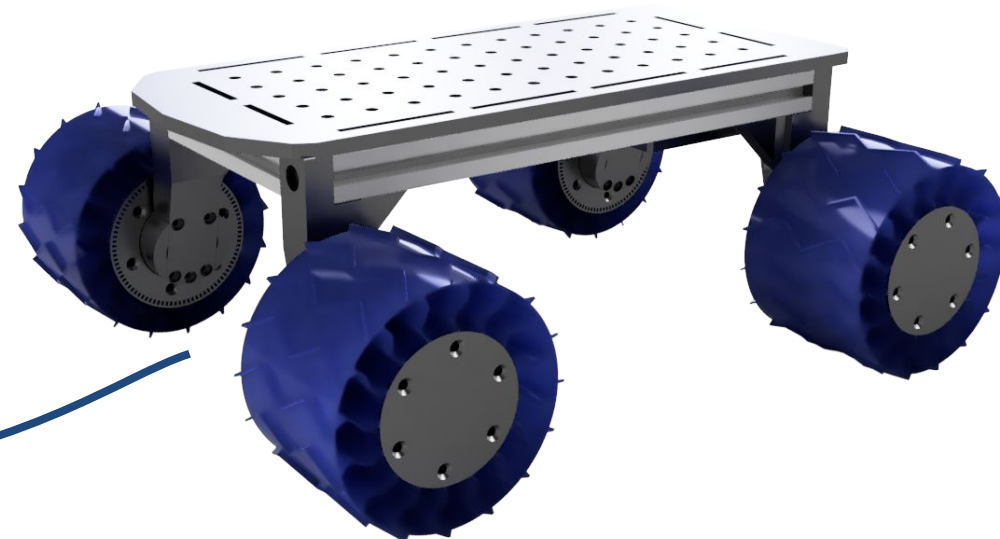
Xplore Research and Industry

To expand the association's field of expertise, new research projects are being undertaken. These projects encompass a range of objectives, from sustainability to AI in Space Robotics.
The key to the successful completion of these projects is collaboration among EPFL laboratories, companies, and Xplore research members.

Plastic Recycling

To minimize the environmental impact of Xplore, a PETG recycling machine will be constructed to repurpose unused 3D printed parts into new filament for prototyping.

Legged Robot

In pursuit of advancing hardware and electronic solutions for the ERC rover, a homemade legged robot is set to be designed and constructed.

Artificial Intelligence

To explore new opportunities in AI Space Robotics, a dedicated team is actively leading AI-based projects with the aim of implementing them into the ERC rover.

Research Projects - Estimated Budget

2500 CHF

18'750 CHF

Total 45'000 CHF

23'750 CHF

● Legged Robot ● Plastic Recycling ○ AI
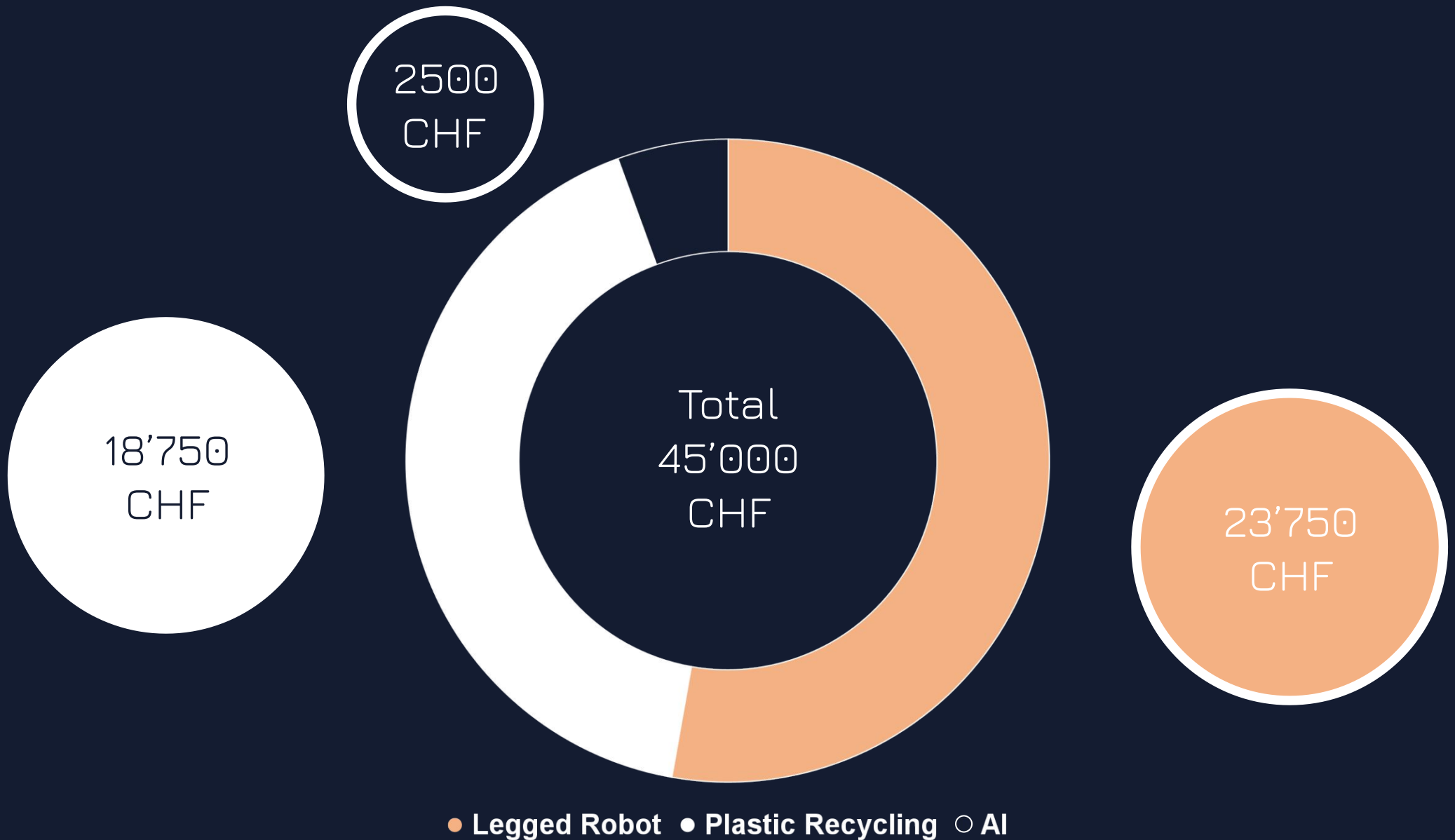
2023-2024 Budget Goal

In order to reach ERC 2024 and start working on the development of our interaction with research and industry, beyond the scope of student-competitions, we estimated the project costs for the coming year.

Technics

The rover and drone budget includes the cost of all parts to build it.

The research and education projects' budgets include the cost of materials and parts.

Management

In the management cost are included the cost for supervising the project by the school. It also relates to the communication aspect of the project.

Logistics

The logistical cost of the project includes all expenses related to the organization and transport for competitions as well as the events.

Estimated Global Budget

22'800 CHF

12'000 CHF

Total
140'000
CHF

105'200
CHF

● Management ● Technics ○ Logistics
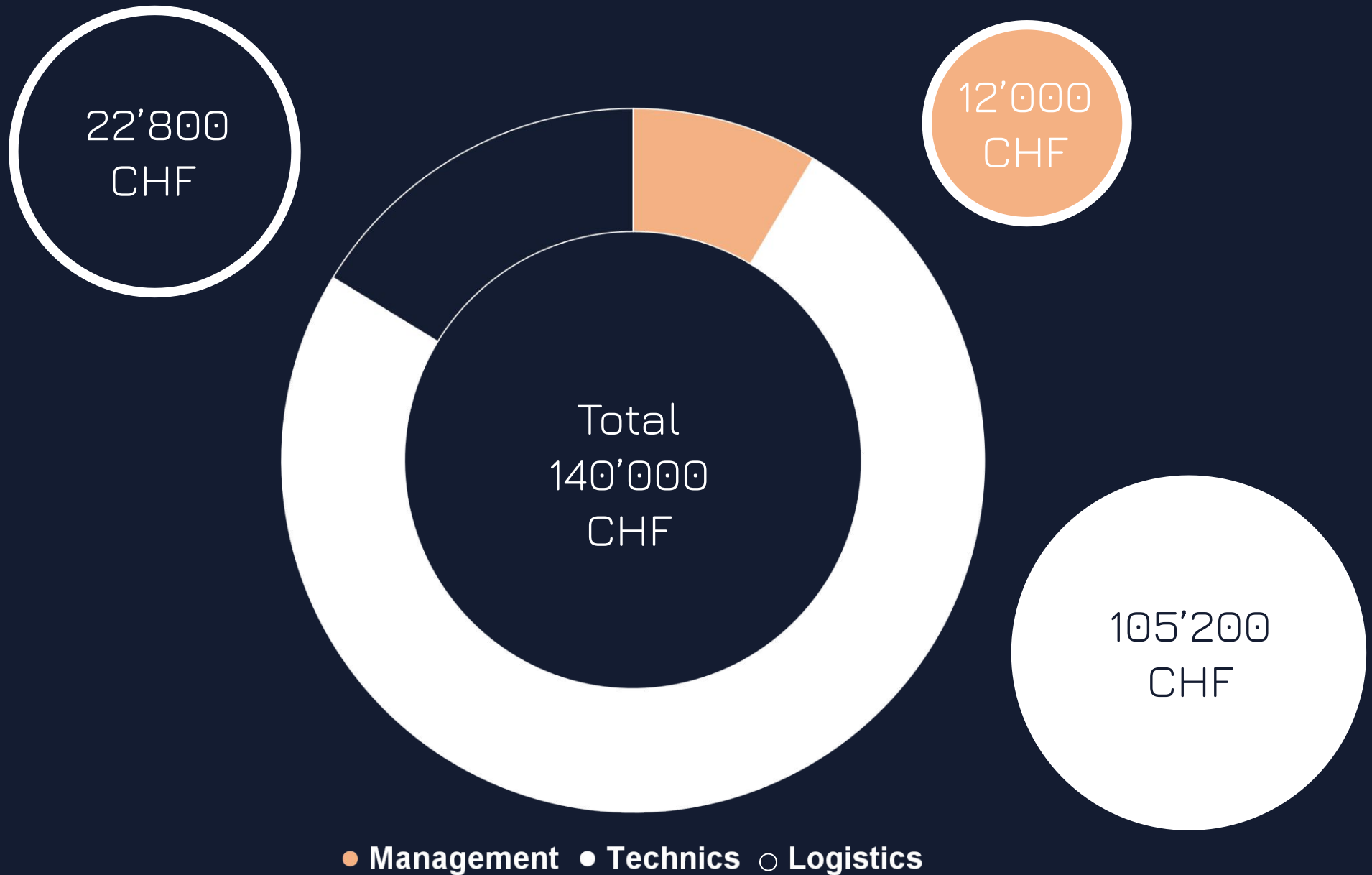
Sponsoring opportunities

Visibility

Be it on campus, during the competition or the events at which we participate (Swiss Robotics Days, EPFL Forum, EPFL Open Days, EPFL Association Days,...), your brand will be at the forefront of the project.

A bridge between students and the industry

The members of our team are the engineers and scientists of tomorrow. The skills that they are developing by taking part in the project are assets that could prove very useful to your companies in the future.
Whether it is through master projects or internships, these collaboration can lead to future talent acquisition that will benefit both the students and your companies.

Feedback at the source

Due to our short project duration, we are required to move extremely quickly through the project phases. This constraint pushes us to integrate your components faster than the industry, leading to rapid exchanges and feedbacks about your products.

Sponsoring Packages - European Rover Challenge & Research

	Main	Platinum	Gold	Silver	Bronze
Amount (CHF)	>25'000	> 10'000	> 5'000	> 1'000	< 1'000
On Website	Yes	Yes	Yes	Yes	Yes
On Promotional Video	Yes	Yes	Yes	Yes	Yes
On ERC Competition T-shirts (back)	Big	Big	Medium	Small	-
On Roll-up Posters	Big	Big	Medium	Small	-
On Rover	Big	Medium	Small	-	-
On Flyers	Yes	Yes	Yes	-	-
LinkedIn Post, Instagram Stories	2	2	1	-	-
Instagram Post	1	-	-	-	-
On PCBs (Printed Circuit Boards)	Yes	Yes	-	-	-
On ERC Competition T-shirts (front)	Medium	-	-	-	-
On Team Day-to-day Sweaters	Yes	-	-	-	-

*x1.5 cash multiplier

Xplore, beyond the ERC

1 Step into the state-of-the-art through collaborations with leading companies and research labs at EPFL and Switzerland

2 Eco-friendly and sustainable engineering, by design