We 2020 A

2020 ANNUAL REPORT



A Message From Our Co-Founders

In 10 years, when we look back at 2020, what will each of us remember? No doubt, the COVID-19 pandemic will reverberate in our collective memory. We will never forget that some of the most successful vaccines in human history were created faster than anyone dreamed possible. But we will also recall that many of the wealthiest countries hoarded these vaccines. We may look back at 2020 as the year that saw the most significant transfer of wealth in human history, entirely in favor of the 1%. Some of us will remember the rise to the largest global anti-racism movement in living memory.

As co-founders of WeRobotics, we will remember how the pandemic and the Black Lives Matter movement changed us in 2020 and showed us the path forward during a tumultuous year. It gave us the courage to accelerate our plans to shift power to local experts and organizations. We will not forget how genuinely grateful we felt towards each of our colleagues at WeRobotics. Though we had to learn how to distance ourselves physically, the pandemic brought us closer together during this traumatic year.

We won't forget the wisdom and the inspiration that so many Flying Labs colleagues shared with us and each other. The emphasis on mental health and wellbeing, from Namibia Flying Labs (breathing has never been the same since we learned how "to smell the flower and blow the candle"). The importance of authenticity, from Jamaica Flying Labs. The joy of the cultural celebrations, songs, and dances led by Flying Labs colleagues during our joint (virtual) retreat that July. The Power of Local taking center stage.

These are just some of the many gems that we will treasure for many years to come. In short, 2020 placed far more emphasis on the human part of "WeRobotics," than ever before, the "We," the humanity, and celebration of "We," the human race.

Sonja, Patrick, & Andrew

2020 At a Glance

286 Group meetings, discussion groups, virtual cocreation sessions and working groups between WeRobotics and Flying Labs.

31 Flying Labs bringing together **169** local leaders and experts.

36 social good projects initiated and professionals trained.

3 most frequent sentences throughout the year: "Can you hear me", "You are on mute" and "Wishing you and your loved ones good health".

What's Inside

Organization & Strategy	3
Operations & Impact	9
Flying Labs Network	10
Enabling Environment	22
Sector Programs	30
Team & Partners	34
Finances & 2021 Outlook	37

Ne Robotics

#Power of Local

Organization & Strategy

Anti-Racism

On June 3, we shared our solidarity with the Black Lives Matter movement. Like many other organizations around the world, we ran a full "diagnostics test" on WeRobotics during the height of the protests. The purpose of this reflection was to identify the fundamental changes that we needed to make within the organization (and within ourselves) to be the change we want to see in the world. As part of this process, we learned (and continue to learn) from the many discussions and webinars on anti-racism in humanitarian aid and development. We also continue to read the excellent contributions this manv on fundamental issue.

We followed up on July 13 by <u>publicly sharing</u> <u>our commitment to anti-racism</u>. As a team, we are deeply committed to diversity, equity, inclusion, and shifting the power. But we are far from perfect at living up to these commitments. WeRobotics must be anti-racist and contribute to systems change. WeRobotics must also "walk the walk" regarding the values and principles that we celebrate as part of our mission.



This is why we made fundamental organizational changes in 2020, which are continuing into 2021.

- Foster greater diversity and inclusion among our Board of Directors
- Implement a hiring strategy to meet our stated objectives on diversity, equity, and inclusion
- Accelerate the co-creation of FlyingLabs.org as its own independent entity and as the primary enabler of the Flying Labs Network
- Expand our Shift the Power strategy to actively learn from others while sharing our models
- Develop a new communication strategy that focuses more explicitly on our core mission: shifting the power

Shift the Power

We founded WeRobotics to counter the foreign-first, top-down, and technocentric approach that pervades the social good sector, from aid and development to health and the environment. International organizations (including small ones like WeRobotics) must have a transition plan in place, an endgame that is "centered around devolving power, money and voice to local organizations." In 2020, we finalized our "Shift the Power" strategy. We took the first concrete steps towards the future creation of FlyingLabs.org as an independent legal entity. The goal of this international organization deeply rooted in and led by experts from the Global South is to become the primary enabler of the Flying Labs Network.

As part of this strategy, we co-created the "Flying Council" in July. The Flying Council, composed of 8 Flying Labs based in Africa, Asia, and Latin America, has met multiple times since its inception. These strategy meetings included several co-creation sessions during which Flying Labs identified the key activities, roles, and responsibilities that FlyingLabs.org will take on in the coming years. Members of the Council also developed selection criteria to determine an appropriate country to incorporate FlyingLabs.org legally. In 2021, all Flying Labs will be invited to share their feedback on the proposed transition strategy and timeline after the strategy is presented for implementation. The transition to FlyingLabs.org will take time. Taking shortcuts won't work. We need to walk before we can fly. As was noted during the Flying Council meetings, "If you want to go fast, go alone. If you want to go far, go together." The Flying Council, along with several Flying Labs in the network, have expressed an interest in having WeRobotics remain engaged with the Flying Labs Network once the transition to FlyingLabs.org is completed.



In addition to FlyingLabs.org, we began exploring other related Shift the Power strategies, including the "Power Pledge" and the foundations for the "Inclusive Networks" strategy, which will be fully developed in 2021.

Review of the Board of Directors

When we founded WeRobotics in 2015, we needed a Board with strong credentials in robotics and the key sectors that would benefit from them. This Board's expertise enabled us to write the first foundational chapters of our story, and we are truly grateful for our Board's guidance and trust over the years. Thanks to their support, we reached the next chapter of our story. This new chapter is the very reason we founded WeRobotics: to shift power back to local experts across all sectors and technologies and thereby drive much-needed systems change. In June, our Board wholeheartedly agreed that writing this new chapter requires a new Board of Directors in line with our Shift the Power strategy and assisted with the transition process. To continue harnessing the extensive expertise and accumulated experience, all departing Board members will form an advisorv supporting council to continue WeRobotics.



2016 - 2017 PHASES FLYING LABS MODEL PROOF OF CONCEPT

WeRobotics founded to KEY Shift the Power through Systems Change

> WeRobotics develops Flying Labs model to Shift the Power

MILESTONES

First 3 Flying Labs cocreated using the Flying Labs Model

KEY WeRobotics updates Flying Labs model with key learnings

> First WeRobotics Conference to share Flying Labs Model and impact

2018 - 2019 RAPID GROWTH OF FLYING LABS NETWORK

WeRobotics launches Affiliate Program to scale Flying Labs Model

WeRobotics announces the Power of Local as it's core identity

WeRobotics and Flying Labs implement New Monitoring & Evaluation Strategy and Metrics

Flying Labs Network grows to 20+ countries

2019 - 2020 SHIFT THE POWER

WeRobotics announces Shift the Power as its core systems change strategy

Complete the Flying Labs Model to create gualitative growth across the network

Start transforming Flying Labs.org into independent organization

Flying Labs Network grows to 30+ countries

2021 SHIFT THE POWER STRATEGY IMPLEMENTED

FlyingLabs.org becomes independent entity to Shift the Power at scale

nizations to transform into WeRobotics launches local-first organizations Shift the Power Program to transform organizations WeRobotics drives adopinto local-first organizations tion at scale of the Power

Flying Labs Network grows to 40+ countries

> Flying Labs Network grows to 100+ countries

Shift Model to accelerate

Systems Change

Our 10-Year Strategy Timeline

We created a long-term strategy timeline from the very onset of WeRobotics, including a proof of concept phase, a growth phase, and a "building towards our endgame" phase.

2019 and 2020 have been significant years for both our organization and for the Flying Labs Network. The latter grew to more than 30 Flying Labs for the first time and saw a 25 percent increase in size in 2020 alone, despite the pandemic. In 2019, we announced our systems change strategy: to shift the power. In 2020, we accelerated our Shift the Power strategies development to start implementing them in 2021.

Looking back over our first five years and ahead to the next five, we summarized our 10-year strategy timeline in a concise document to share publicly.



SHIFT THE POWER LEADS

WeRobotics offers Shift

the Power as a Service to

enable foreign-first orga-

TO SYSTEMS CHANGE

2022 - 2025

Robotics

We

Financial Audit



After the 2019 Independent Accountant's Review of our 2018 Combined Financial Statements, we commissioned our first full audit in 2020 (2019 Combined Financial Statements). Being incorporated in some US states, the audit was based on the highest (California's) standards applied. We successfully passed our first Independent Financial Audit of our combined 2019 Financial Statements in June. The audit allowed us to improve internal controls, operational efficiencies, and proper regulatory reporting and compliance. It also allowed us to implement new accounting standards updates and received operational best practices.

Cybersecurity Audit



To complement the Financial audit, we commissioned our first Cybersecurity audit in 2020. The first results received in fall 2020 were very encouraging and allowed us to identify specific actions for improvement. After implementation of these actions, our final Cybersecurity Audit score achieved was A-.



COVID-19

For everyone around the world, 2020 was a challenging and stressful year. The pandemic and the resulting government decisions affected our organization, our team, Flying Labs, and their local teams personally and professionally.

The COVID-19 pandemic disrupted almost all revenue-generating activities for Flying Labs and WeRobotics, so our focus on self-sustainability and identifying diverse revenue streams has become even more critical.



2020 has taught us the following:

- Our digital setup allowed us to seamlessly continue our work and operations. However, the personal stress created by the pandemic begged additional care and attention to team members' physical and mental well-being. We launched a buddy system to foster a dedicated space for personal interactions and support each other during these challenging times.
- The Flying Labs Network model proved resilient to financial disruption. Flying Labs are a collaboration between existing local organizations with a common purpose and mission. While a year like 2020 with fewer revenue-generating opportunities resulted in fewer activities, this communal setup allows the local partners of the Flying Labs to shift activities depending on local economies and Covid-related restrictions.
- An ecosystem-driven approach allows us to maximize our impact with a lean core team and a host of external partners. This reduces the financial risk to WeRobotics (and that of Flying Labs, who similarly operate) while increasing our flexibility during challenging and uncertain years, like 2020.
- With the right mindset, times of crisis also offer opportunities. Both COVID-19 and the Black Lives Matter movement offered our organization meaningful opportunities to advance the value and importance of local expertise, creating new partnership opportunities for Flying Labs.
- We created <u>a dedicated section of our website</u> to showcase how Flying Labs' leaders responded to the pandemic and to educate international organizations, donors, and others on what meaningful roles drones can and cannot play in response to COVID-19. The latter content were some of the year's most widely read blog posts and most popular webinars.



Operations & Impact

Flying Labs Network



We co-create and facilitate an inclusive network of independent, locally-led, and demand-driven knowledge hubs across Africa, Asia, Latin America, and beyond: the "Flying Labs[®]" Network. Flying Labs strengthen local expertise in drones, robotics, data, and AI for positive social change. They are The Power of Local.

Quantitative Network Growth

Despite the pandemic-related challenges of 2020, the Flying Labs Network nevertheless grew by 25%. We welcomed six new countries to the network: Namibia, Malawi, Zimbabwe, Madagascar, Haiti, and Bangladesh. Local teams also continued growing, focusing on creating a better gender balance within the teams. This focus allowed women to make up 28% of all Flying Labs team members, over double the international drone industry standard (that lies at 13%). Thanks to Flying Labs' feedback, we improved the Flying Labs Local Model each quarter, creating strong feedback loops, streamlining the onboarding and annual renewal processes, and honing the value proposition of Flying Labs network membership.



Qualitative Network Growth: Network Governance

One of the Flying Labs network's key strengths is its diversity; the very diverse setup of each Flying Labs, the diversity of existing expertise, and the vibrant cultural diversity with over 30 Flying Labs being part of the network. This diversity is vital to growing the network. How reductive and limiting would it be to have a "one-size-fits-all" approach when growing a global network of local experts?

At the same time, diversity is also a challenge for network governance and measurable qualitative growth, a key success element when shifting power to a decentralized network. One of our key strategic investments in 2020 was to build and implement an additional model—the Flying Labs Global Model—that allows individual Flying Labs to understand how they can grow strong and thrive while contributing to the overall success of the network. We embarked on an extensive co-creation mission and a pilot project with 10 Flying Labs in spring 2020 to find answers and co-create this new model. By the end of the year, we have implemented the new model with all Flying Labs, allowing them to create their baseline evaluation, identify gaps, and set goals for growth in 2021.

Writing History for Drone Pilot Certification in Africa

Flying Labs continue to generate tangible value to their ecosystems and pave the way forward for future generations. One such story is how Senegal Tanzania Flvina Labs and successfully organized their first UK certification course and certified drone pilots from their country and region without the of UK physical presence certifiers. This was a historic step in certification at Flying Labs and in Africa in general.



Empowering Local Entrepreneurs and Youth in a Pandemic

Even though the country faced a prolonged lockdown for most of the year, the team of Panama Flying Labs innovated both on the entrepreneurship program vouth program level. and Tackling the difficult lockdown situation for youth in the country head-on, the team created a virtual program called "Geo-Nautas," inspiring girls and boys to participate in a drone-based STEM curriculum while staying safe and healthy at home. Uber transported the drones from one student to another, following the training program through live online sessions. Panama's first "Drones as a Service" entrepreneurship program, EmpreDron, was also adapted for virtual instruction.

Drones & Al Help Improve Conservation, Sustainability Efforts In a Protected Area

On March 8, Senegal Flying Labs completed a training course on drone piloting for the Ministry of Environment to better manage protected areas. The objective was to improve the monitoring and data collection system on biodiversity through innovative technologies and consisted of teaching drone data collection piloting, methods, and how to analyze the collected data. This project of partnership is part а exploring drones and AI for sustainable management of protected areas to remove constraints on migratory bird inventories and wetland mapping.



Drone Mapping Helps the Certification Process of Cocoa Cooperatives

The pilot project for using in the certification drones process of cocoa cooperatives was carried out by INVESTIV and Côte d'Ivoire Flying Labs in partnership with KINEDEN, a significant player in the cocoa export industry that bean sources its supplies directly from agricultural cooperatives in d'Ivoire. This Côte project included aerial mapping of 9,467 producers' plots through cooperatives for 28,744 9 hectares. Using the drone data, d'Ivoire Labs Côte Flying identified each producer, centralized their data. and created an updatable online database.

Smart Farming Improves the Livelihoods of Smallholder Farmers

То combat mounting unemployment in the Nigerian agricultural sector and improve productivity, Nigeria Flying Labs South West Hub, in partnership Federal College with of Agriculture Akure, co-created Smart Farming Center. The aims Center improve to smallholder farmer livelihood while creating job opportunities e-extension services for in youth. Flying Labs Nigeria Southwest Hub conducted a one-day seminar for more than 100 higher national diploma students on introduction to robotics, AI, data science, and remote sensing in agriculture, emphasizing drone technology for monitoring crop health.



Mapping 138km of Road with a Small Consumer Drone

Nepal Flying Labs provided project design and planning guidance to partners for the large-scale mapping of 138 km of roads using a single DJI Phantom 4 Pro drone. The project offered multipurpose outputs to the Department of Roads: construction monitoring (ensuring compliance to design criteria), a digital inventory of the road sections, and data to evaluate the health of the road in future years or bridge site investigation. The project took 28 days to complete and was fruit of successful the collaboration between several organizations.

Dedicated Knowledge Sharing Platform

Sharing and collaboration lie at the heart of the Flying Network. As the Labs network grows, so do the technical and manv operational resources, tools, quidelines, workflows, and use cases. Since Flying Labs directly create more and more of these resources for with sharing the open network, this allows for collective learning and growing.



We invested in creating a dedicated Knowledge Sharing Platform to harness this collective intelligence of the network and WeRobotics and share it in an accessible and digestible way with all local experts. This platform, appropriately named "WeShare" in a joint brainstorming session with all Flying Labs, was launched in June and continues to enjoy fast and constant growth.

Coming Together To Learn & Share

While we initially planned for all Flying Labs and the WeRobotics team to physically meet in Nairobi, COVID-19 had other plans. So like many other organizations, the Flying Labs Retreat went virtual. But by doing so, more Flying Labs members could participate, despite new challenges like managing timezones ranging from GMT+10 (for Papua New Guinea and Japan) to GMT-5 (for Latin America and the Caribbean). The 2020 Flying Labs Virtual Retreat underscored the shared friendships, struggles, cultures, and togetherness and set the tone for the following regular retreats to come.

This fun and productive four-day retreat, which took place in July, included:

• Fourteen sessions led by Flying Labs on AI and agriculture, leading through crisis, emotional and physical well-being, adaptation to COVID-19, and community engagement. Nepal Flying Labs shared opportunities, challenges, and insights running the Flying Labs for close to 5 years.



- 10+ vibrant and uplifting cultural celebrations
- Roundtable discussions facilitated by WeRobotics on the Flying Labs model, anti-racism, youth and STEM programs, data interaction, and literacy, engagement with Civil Aviation Authorities (CAA), operational safety, and more
- Four social hangout sessions to know each other more personally
- A guest speaker who shared insights and knowledge on cross-cultural communications

We followed up with more virtual celebrations for the 5th anniversary of creating the Flying Labs network on 25 September 2020. This virtual event featured a series of social media posts and a video co-created by Flying Labs.

South-to-South Capacity Strengthening

Strengthening local drone and data capacity and enabling Flying Labs to become dedicated capacity builders within their countries and communities is central to their mission and activities. In 2020, Flying Labs actively trained each other and exchanged knowledge and experiences across media, including:

 Pix4D Expert Online Course: Panama Flying Labs, Pix4D, and WeRobotics organized the first Pix4D expert online course, a 5-day intensive, to prepare Latin American Flying Labs for their Pix4D certification. Twelve people from Panama, Peru, Chile, and Dominican Republic Flying Labs participated in the course, and discussions with Pix4D are ongoing to organize another in English for other Flying Labs interested in becoming certified Pix4D experts. Pix4D kindly offered the entire training for free to WeRobotics and Flying Labs.



- eBee X Fixed-Wing Drone Online Training: Tanzania Flying Labs, in collaboration with WeRobotics, trained colleagues from Senegal Flying Labs on using eBee X fixed-wing drones in July. This hands-on training was held virtually with careful planning and trust from all sides. Trust is key to shifting power to local experts and paves the way for more remote South-to-South training sessions led by Flying Labs.
- South-to-South Support and Mentorship: One of the key strengths of the Flying Labs network is knowledge and experience sharing between its members. Flying Labs do this by creating and sharing use cases, coorganizing webinars, participating in regular regional calls, and having direct exchanges between each other for support and mentorship. 17

Impact

Leadership

Local leaders across Latin America, Africa, and Asia are independently leading the activities they choose to implement. Currently, the network brings together 186 local leaders, and women make up 28% of the Flying Labs network, more than double the average industry benchmark of 13%.





Local Solutions

Flying Labs have initiated 36 social good projects, trained 850+ professionals, and implemented 18 youth programs in 2020. In total, Flying Labs activities contributed to 12 Sustainable Development Goals.

Find more impact information on werobotics.org/impact

Impact



Local Ecosystems

One of Flying Labs' core activities is building facilitating and local ecosystems, bringing together all actors of the local drone sector (associations, pilots, authorities like CAAs, possible clients and beneficiaries, etc.), and engaging with the public. Flying Labs engaged with 6,500+ local stakeholders through various events, conferences, training, and workshops, both online and inperson. Currently, Flying Labs count over 150 local partners and supporters.

South-to-South

Collaboration

Flying Labs collaborate on different projects and coorganize events and training. They also support and train each other. In 2020, 32% of Flying Labs carried out joint training activities, and 64% provided support and advice to other Flying Labs members in their areas of expertise.





Opportunity Transfer

Co-creating facilitating and а vibrant, diverse, and alobal ecosystem allows us to transfer international opportunities to Flying Labs. WeRobotics has transferred 159 total of а opportunities to Flying Labs in 2020.

Find more impact information on werobotics.org/impact 19

Improved Monitoring & Evaluation Process

One year after the introduction of our M&E system using Google Forms and in-person calls to collect M&E data from Flying Labs, and after 12 months of learning, we evolved the system in 2020. The main goals of this evolution were to:

- Find a more comprehensive format to collect M&E data from Flying Labs
- Add a qualitative angle to the collection of data
- Find a format that allowed to share fascinating quantitative and qualitative data and learnings back with the Flying Labs network

The new format decided on, fitting all three criteria for improvement, was technical use cases for both projects and training. Implemented in Q1, 2020, this new format allowed us to publish a total of 20 project use cases and seven training use cases openly shared with the network and partners.



Microgrants

Microgrant The provides Program Labs Flying with to address grants specific challenges. In April, we launched a new edition of the Microgrant Program specifically designed to support Flying Labs' projects in response to COVID-19.

Read more on the microgrant recipients:

Chile Flying Labs

To contribute to telemedical response efforts with a custom lightweight, 3D-printed drone with long battery life capable of delivering medicine and light equipment to check patient vitals.

Malawi Flying Labs

To contribute to contact tracing efforts through drone mapping in densely populated informal settlements, peri-urban, and rural areas. This project also helped responders better understand communities' living and sanitary conditions.

Nepal Flying Labs

To capture high-resolution images of urban districts by drone in the Kathmandu Valley to support urban planning. Air traffic was significantly reduced due to COVID-19, improving visibility from the limited physical movement of people and cleaner air.

Papua New Guinea Flying Labs

To build and run an afterschool education program, "Coding against COVID-19," focused on participant wellbeing. This program introduced young students to aerial drones, digital tools, and algorithms while teaching public health practices to reduce the spread of COVID-19.

Enabling Environment



For the Flying Labs Network to thrive, it is dependent on several external factors: ecosystems, regulations, stakeholders, partners, knowledge resources, tools, and more. We call the combination of all these elements the "Enabling Environment."

Competitions & Challenges

We organize and coordinate international and national competitions and challenges to allow local experts to use robotics to tackle key problems sustainably and effectively. In 2020, we finalized our first international competition and, together with Flying Labs, launched two entrepreneurship programs.



"Drones as a Service" Entrepreneurship Programs

These 6 - 8 month-long entrepreneurship programs have a specific focus on strengthening local drone and data ecosystems with additional actors and new, innovative companies that harness the many opportunities of the drone and data sector. After Nepal and Tanzania, Panama Flying Labs launched their local version of EmpreDron in early 2020. In November, Senegal Flying Labs followed with their version called SandagaDrone. Both programs will end in January and June 2021, respectively.

Unusual Solutions

The Unusual Solutions competition was launched in 2019 to tackle challenges that local drone experts for social good encounter in their daily work. After developing their solutions with seed funding in 2019, <u>the nine selected finalists</u> coming from Zimbabwe, India, Cameroon, Tanzania, Argentina, Papua New Guinea, and Guatemala traveled the world to Nairobi to defend their prototype before a panel of international judges at the final pitch in Nairobi Garage on 25 February 2020. In addition to gaining experience in pitching at international competitions, the nine finalists highly appreciated that the competition allowed them to fund the prototype and test their concept, making obtaining further funding more feasible.

The many learnings made were summarized in our learning report and openly shared in summer 2020.

Technical, Operational, & Organizational Capacity-Building for Flying Labs

We are essentially a resource factory working behind the scenes to create and share hundreds of learning materials, much of which are exclusive to Flying Labs. In 2020, newly created resources included:

- Technical learning resources, such as software guides, drone pilot toolsets, and sectorthematic guides and workflows to strengthen the technical expertise of Flying Labs
- Operational guidelines, budgeting tools, communications resources, and handbooks to support Flying Labs' project management and communications
- Ethical guidelines such as an <u>updated version</u> of <u>our Drone</u> <u>Code of Conduct for Social Good</u>.



- Periodic, interactive virtual learning sessions called 'WeSupport' for deepdives into technical and operational resources. First introduced in January, we hosted 10 sessions throughout the year. Each session had a specific theme and was open to all Flying Labs. During live WeSupport sessions, the Drone & Data Systems team answered questions about hardware, software, projects, and training opportunities.
- Use case templates for projects and training, allowing us to co-create a library with Flying Labs. These technical use cases are short yet detailed descriptions of projects realized by Flying Labs. All project use cases contain essential information such as project scope, dates, location, software, and hardware used, details about data acquisition, processing, and analysis.

Capacity Strengthening Programs

In addition to our Sector programs, we introduced cross-sectoral capacity strengthening programs. Our first such program launched in May and implemented in November focused on "Turning Data into Action."

Data is a substantial part of our work, but turning it into action is often overlooked. In an ideal world, the data collected by Flying Labs leads to perfect understanding by the stakeholders involved in the project, resulting in action and impact.

Our technical team co-created the program with a select number of Flying Labs who added their expertise and experience. The program offers Flying Labs an easy-to-apply strategy and handbook on creating more project impact by turning data into action and forge stronger relationships with their key stakeholders and clients.

In 2021, a round of microgrants will allow further testing of the program and complement it with additional resources.

Online Courses

The goal of our Online Training Academy launched in 2019 is to share our expertise in an openly available format. While Flying Labs enjoy complimentary access to all online courses, the general public gains access through a fee. Scholarships are offered on a demand basis. In 2020 we reinforced our offering with the following additions:

- AidRobotics Drones in Humanitarian Action
- Introduction to Youth Training with Aerial Drones and Terrestrial Robotics
- <u>Community Engagement for Drone Projects</u>
- Cargo Drone Technical Course (using a DJI M600 drone).

We have also updated our HealthRobotics—Delivery Drones for Public Health course with several modules on the latest developments in the space and a dedicated module addressing opportunities and challenges using drones in response to COVID-19.



Impact



Knowledge resources

In 2020, we created and organized 33 resources, guidelines, tools, and learning sessions to strengthen Flying Labs' capacity. We have co-created and organized 52 use cases, online courses, and webinars, and Flying Labs. Today, Flying Labs have access to 66 dedicated knowledge resources on our internal knowledge-sharing platform.

Competitions

We organize and run various entrepreneurship competitions and technical challenges that allow us to add missing resources to the enabling environment. In 2020, we successfully organized two competitions.





Research & Development

While Flying Labs leads most projects and training activities, we initiate and lead specific R&D projects and training programs together with Flying Labs and organizational partners. In 2020, we led 3 R&D projects and two training programs.

Find more impact information on werobotics.org/impact

Participation in Working Groups

Participating in international fora and high-level working groups enables WeRobotics and Flying Labs to advocate for local experts' interests, priorities, expertise, and needs across the network. This helps to inform policy-making that recognizes The Power of Local and prioritizes diversity, inclusion, and equal opportunity. All time and expertise are shared on a pro-bono basis.

ICAO

We participated in the ICAO Task Force on Unmanned Aircraft Systems for Humanitarian Aid and Development (TF-UHAD). The Task Force supports ICAO's assembly in providing guidance and standards on UAS flight rules during disaster response. Our priority is to emphasize the role of local operators in rapid response and the need to consider local and social culture when planning global standards.

World Economic Forum

We are part of two advisory councils of the World Economy Forum: the "Minimizing Trade-offs in Technology for Good" panel (part of WEF's "Partnering with Civil Society in the Fourth Industrial Revolution" initiative) and the "Drones and Aerial Mobility" council (part of WEF's C4IR initiative). We co-led a workshop organized by WEF's Civil Society team in Montreal in March on "Minimizing Trade-Offs in Technology for Good."

LEF Robotics Working Group

We participated in the LEF Robotics Working Group weekly meetings over six months. The purpose of this working group, which brought together five experts from different disciplines, was to identify the most important trends in the robotics industry in the coming ten years. Participation in this Working Group provided us with crucial insights on the use of "Wardley Maps" for strategic planning.

EPFL T4I NGO Council

We participate in the quarterly council meetings by openly sharing our work, allowing other council members to learn both on technology innovation and the impact of drone applications and organizational model innovation.

Participation and Contributions to Conferences

In addition to participating in several virtual events and forums, we have actively contributed to following conferences:

- Drones & Unmanned Aviation Conference in South Africa: Zimbabwe Flying Labs Coordinator participated in the Drones and Unmanned Aviation Conference in South Africa as a speaker and promoted the Flying Labs network.
- Latin America workshop organized by GIZ and United Nations Department of Economic and Social Affairs: the model for Flying Labs was featured as one of the key models for multistakeholder collaboration, with Sonja Betschart facilitating a session on the first day of this 5day workshop.
- DRIVER+ EU Conference: Patrick Meier gave a keynote in Brussels. DRIVER+ is an EU-funded project that seeks to determine how best to leverage emerging technologies to accelerate humanitarian efforts. All participants were practitioners from the majority of EU Member States.

- ESRI DACH Conference: Sonja Betschart was a keynote speaker at this conference organized in Bonn in March 2020, introducing over 1,500 attendees to the Power of Local
- Forum des 100: Sonja Betschart gave a keynote at this prestigious Swiss event on September 25.
- AUVSI: Patrick Meier was a speaker on a panel on the use of drones in humanitarian action, September 28,



Flying Labs Collaboration at the Africa Drone Forum

Entrepreneurs, engineers, manufacturers, and a wide range of drone experts convened in February in Kigali, Rwanda, for the 2020 African Drone Forum (ADF). Joined by senior government officials, civil aviation authorities, and a slew of international organizations, ADF included keynotes, panels, training sessions, and live demos.



Tanzania, Senegal, and Kenya Flying Labs represented all of Africa's 10+ Flying Labs and, indeed, all 25+ Flying Labs around the world. Following up on the engagement at Lake Victoria Challenge in 2018, Tanzania Flying Labs again played a central role in organizing this gathering, this time joined by Senegal Flying Labs. And Kenya Flying Labs was one of the 10 African Drone Business Challenge finalists from nearly 150 applicants.

Activities of the Flying Labs during the ADF included booths in the exhibition area, training sessions for regulators and other interested parties. The practice-oriented information sessions covered the introduction of various applications of mapping drones, type of drones, flight planning for autonomous data acquisition with drones, data processing, data analysis, and elements such as SOPs, checklists, etc. The indoor sessions were complemented by short outdoor hands-on demo sessions of data acquisition with drones. In addition, Tanzania Flying Labs led a panel on Disaster Risk Management, Kenya Flying Labs held a short keynote presenting the Flying Labs network. Tanzania Flying Labs and Senegal Flying Labs conducted follow-up training for youth after the event.

We LRobotics

Sector Programs

Our sector-based programs channel our collective efforts to contribute to specific Sustainable Development Goals (SDGs). Through Sector Programs, Flying Labs implement locally-led solutions, coordination mechanisms, and customized training for NGOs, government agencies, universities, and institutions using robotics technologies. Focusing on humanitarian aid, sustainable development, public health, and environmental issues, including sustainable agriculture and fisheries, our programs address the specific needs of each sector and build learning and sharing platforms to accelerate actions.

Program Tracks

WeRobotics doesn't assign projects to Flying Labs. Instead, Flying Labs identify projects of interest, and WeRobotics shares relevant opportunities with them for consideration. As such, projects are always demand-driven, and they are also directly related to one or more SDGs.

In 2020, we launched the 5th program track: YouthRobotics.The backdrop for the YouthRobotics Program is the urgent need for systems change and radical inclusion. We want to shift power to local youth and transform the "West is Best" attitude into one that recognizes and celebrates "The Power of Local," their power, in the process.

Aid Robotics

Highlights of the AidRobotics Program in 2020 include the launch of <u>our new online course, Drones in</u> <u>Humanitarian Action</u>, and the Rapid Flight Authorization Pilot Project carried out by WeRobotics, Nepal Flying Labs, the Nepalese Civil Aviation, and local authorities.

Flying Labs in more than 30 countries across Africa, Asia, and Latin America see more and more organizations deploying to disaster areas without coordinating their drone operations. This lack of coordination can lead to hazardous interventions.

As such, there is a pressing need to coordination improve and accountability mechanisms to expand the positive impact of drones in humanitarian action. Support from Twilio's Impact Fund Grant allowed us to address the urgent need to improve safetv and accountability in humanitarian drone missions. This project led to developing a fully operational digital solution to accelerate and coordinate the responsible of drones in use humanitarian settings. We completed the rapid flight authorization platform (messaging and web interface) with Nepal Flying Labs and successfully organized a three-day virtual workshop involving more than 40 key stakeholders to discuss the process flight for granting drone authorizations and accountability.





Eco Robotics

WeRobotics worked with partners in New Mexico on a new release mechanism for ladybugs. Senegal <u>Flying Labs trained the Ministry of Environment to use drones</u> for protected area management (and on a bird conservation project in Senegal's national parks as a follow-up to their training). Cote d'Ivoire Flying Labs launched a <u>project on drone mapping to facilitate the certification process of cooperatives</u>. Nigeria South West Flying Labs launched its <u>Smart Farming</u> initiative. Japan Flying Labs initiated a project to support farmers using drone transport: the project will test and research effective drone use for farmers to transport crops (ex. Mandarin orange) and equipment to/from hillside orchards. Philippines Flying Labs partnered with the Masungi Georeserve Foundation to manage a conservation area to protect historic limestone formation and hundreds of native biodiversity: the project involved completing a 360° tour of the geo-reserve, allowing students to keep learning about the conservation area through an online platform despite the pandemic.

Health Robotics

The HealthRobotics Program's highlights in 2020 include Flying Labs' responses to the COVID-19 pandemic, the joint project with the Gates Foundation, World Health Organization (WHO), and the Center for Disease Control (CDC) in Ghana and Madagascar, the second phase of the World Mosquito Program, and the launch of two new online courses: <u>Online training on Delivery Drones for Public Health</u> and <u>cargo drone training on the M600 platform</u>.

The Gates-funded project with WHO and the CDC was launched in Ghana with Zipline as the primary technology partner. The purpose of the overall project is to catalyze WHO's use of drone delivery networks. The Ghana project entailed four weeks of drone deliveries in the country's northern region and the collection of extensive data to better understand the operational performance and advantages of drone delivery for the transportation of patient samples.





Youth _____ L___Robotics

Dev Robotics

Flying Labs have also carried out various projects and organized different training in this Sector Program. For example, <u>Nepal Flying Labs mapped some of the dense urban clusters around the Kathmandu Valley</u>. Tanzania Flying Labs organized its first <u>Online Drone Flight Training in June</u>. Senegal Flying Labs conducted a sharing workshop on a project on mapping salt lands of the commune of Loul Sessène by drone in its partnership with IPAR. In addition, the team also carried out a Monitoring of illegal dumping of sewage sludge in partnership with IPAR and DELVIC from July to October. Malawi Flying Labs completed a decongestant mapping project for UNHCR in December 2020. Benin Flying Labs mapped various areas to issue a map that enables the citizens to know the restricted and allowed areas for drone flyovers in Cotonou. The National Department of Transport contracted PNG Flying Labs to provide introductory training about drone use cases for rural economic activities.

The YouthRobotics Program was one of the most active programs in 2020. The highlights include <u>Youth Instructors Training</u> conducted by our partner, She Maps, for India, Philippines, and Nepal Flying Labs members in Manila, Philippines, in February. We launched the <u>online course on Introduction to Youth Training With Aerial Drones and Terrestrial Robots</u>. Flying Labs in different regions also actively engaged with youth in their countries and carried out various programs successfully. To mention a few, Panama Flying Labs launched their new <u>online youth program "GeoNautus,</u>" and Jamaica Flying Labs organized its first online youth program under the theme "GIS for disaster response". On the other side of the planet, Namibia Flying Labs organized an introductory training for university graduates. Kenya Flying Labs has partnered with the <u>Coding Summer School</u> <u>program</u> by ThinkYoung to offer children access to drones, coding, and robotics, empowering them to create a better future through technology. PNG Flying Labs offers hands-on training such as their "<u>Coding and droning training</u>" to local youth and school teachers. India Flying Labs conducted an online drone workshop, "Robots that Fly" with Goethe-Institut, for about 200 school students from 8 cities in 3 countries in November 2020. The team engaged students in operating their Tello EDU drones remotely to solve a real-world challenge.

We Robotics

Team & Partners

Team

As we clearly state on our website: It's Not About the Robots. It's About People. We sincerely believe in collaboration and ecosystems and owe our organization's success to our team members and the strong partnerships we built. We intentionally keep our team lean and engage as much as possible in meaningful and impactful partnerships that create value for all involved.

Our team's fundamental strength is its diversity. While our team is small by design, we bring together decades of professional expertise and first-hand experience across various sectors and topics, ranging from humanitarian aid, public health, nature conservation, and sustainable development to structural transformation, entrepreneurship, GIS, and engineering. Gender and age balance and equal opportunity are also key to our hiring practices, allowing our team to be well-balanced. In 2021, we will reinforce the team's expertise with gender justice & equality, intersectionality, and public policy with the reviewed Board.



Our team comprises the Core & Program Team, the Board of Directors, Interns, Consultants, and an Advisory Council. In 2020, our Core & Program Team and Consultants that support us for our Communications & Web activities had no significant changes. The most crucial change is planned for January 2021, with four new Board Members joining our Board of Directors and the four leaving Board members joining the Advisory Council.

Partners

Partnerships are indispensable to the work, impact, and success of WeRobotics and the Flying Labs. Our partners contribute with relevant expertise and technologies and are the key enablers that allow our organization and Flying Labs to create impact and lasting change. Our goal is to engage in long-time and strategic partnerships as we see our partners as an integral extension of our team.

In 2020, we had the opportunity and pleasure to continue working and starting new partnerships with the following partners, listed alphabetically.

Organizational Partners

- Beta Earth
- Global Drone Training
- Harvard Humanitarian
 Initiative
- MIT Solve
- She Maps
- University of Pennsylvania
- Zipline

Program Donors & Project Partners

- Autodesk Foundation
- Bill & Melinda Gates Foundation
- William & Flora Hewlett
 Foundation
- Inter-American Development Bank (IADB)
- Jansen PrimeSteps Foundation
- Omidyar Network
- Twilio Foundation
- World Bank
- World Mosquito Program



Technology Partners



- AerialMetric
- Amazon
- Animal Dynamics
- Avy
- D1
- DroneLogbook
- ESRI
- Parrot
- Pix4D
- Sensefly
- SPH Engineering



Finances & 2021 Outlook



Finances

For our detailed 2020 financials, please refer to our audited financial statements as well as our 990. You can find all our financial reports on our website under: <u>werobotics.org/organization</u>.



2021 Outlook

The new year represents a world of new opportunities for WeRobotics and Flying Labs based on the learnings, needs, and impact from 2020. Discover on the following pages our priority focus of 2021.

Shift the Power Strategy

We will develop concept notes and fundraising proposal for our three distinct Shift the Power strategies, focusing on:

- 1.FlyingLabs.org as an independent entity and primary enabler of the Flying Labs Network;
- 2. Inclusive Networks to co-create new networks of local expertise around other technologies and sectors;
- 3.The Power Pledge incentivize Western leaders of Western-based International Non-Governmental Organizations to shift their power.

In parallel to these strategies, we will continue to convene the Flying Council and plan to co-create Flying Committees to begin the transition process towards FlyingLabs.org. WeRobotics will also actively reach out to other key actors and coalitions in the Shift-the-Power space to contribute to existing initiatives and create new partnerships.

Flying Labs Network Growth



Our key focus in 2021 will be on the qualitative growth of the network. The introduction of the Flying Labs Global model and the first round of self-evaluation in Q4 2020 allowed us to establish the baseline and first benchmark. For 2021, we plan two rounds of self-evaluations as well as dedicated support to Flying Labs to support them in their growth strategies.

The fully organic quantitative growth plan will continue at its usual rate of approximately ten new Flying Labs per year.





Following the program's introduction in November 2020, we plan a round of microgrants for 2021 to learn from and with Flying Labs if and how the resources and tools of the program fit their needs and create the planned impact (action). We also plan to expand the program with more resources, including guidelines for government engagement strategies.

Youth 7

We officially launched the YouthRobotics Program in 2020. Thanks to multi-year funding from Fondation Botnar, we will work closely with 7 Flying Labs across the globe to motivate youth to explore STEM studies and careers and become the next leaders of Tech for Social Good programs. WeRobotics will also seek to expand the YouthRobotics Program to include a broader range of robotics solutions beyond aerial robotics. Last but not least, this program will carry out a proof of concept project for the launch of a children's book series to enable Flying Labs to engage with younger audiences as part of their youth projects.

Eco Dev L Robotics L Robotics

We will work directly with Flying Labs to identify and prioritize specific applications supporting climate change, development, conservation, infrastructure, and sustainable agriculture initiatives. Many Flying Labs already work on projects related to these topics. In 2021, we plan to take a collective approach supporting them with specific resources for these sector applications while creating opportunities for Flying Labs to implement such applications in their countries and communities.

Health Robotics

Drones and robotics in the public health sector offer substantial growth opportunities for both WeRobotics and Flying Labs. Our 2021 priority will be to meet this increasing demand with a number of new HealthRobotics Technology Partners to enable Flying Labs with their solutions and expertise. The key priority areas for our Engineering team will be our continued partnership with the World Mosquito Program (WMP) to develop droneoptimized, next-generation release systems for public health and food security and our collaboration with Pfizer to expand appropriate cargo drone solutions access for Flying Labs and other partners.

Organizational Structure

In pursuit to find optimal solutions and proven methodologies that address power (in)balances and dynamics within organizations, we plan on introducing and testing a Holacracy approach. While our organizational structure is already very flat, this learning experience aims to understand how a practice such as Holacracy could fit the independent organization for Flying Labs. In addition, the learnings will also contribute to our Shift the Power strategies.



ReleaseLabs

Together with the Engineering team, we explored the idea of a spin-off for the Engineering Team in 2020. The name of the possible independent organization is Release Labs. One of our priorities for 2021 will be to test the actual demand for Release Labs services and assess the viability and pathway of an independent organization.



werobotics.org

1209 Orange Street, Wilmington, DE 19801, USA Rue d'Italie 11, 1204 Geneva, Switzerland

flyinglabs.org