



**FAB** FOUNDATION

**Bridging the digital divide.**

**Consultancy, installation and services - 2018**

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To whom it may concern,

It is The Fab Foundation's great pleasure to share with you what our team can offer to establish one or multiple Fab Labs, and create meaningful projects and programs around education, business development and fabrication.

the Fab Foundation has extensive experience in procurement, packaging, shipping, delivering, and installing Fab Labs modeled on MIT's Fab Lab Project which uses the specific inventory as developed in the Center for Bits and Atoms.

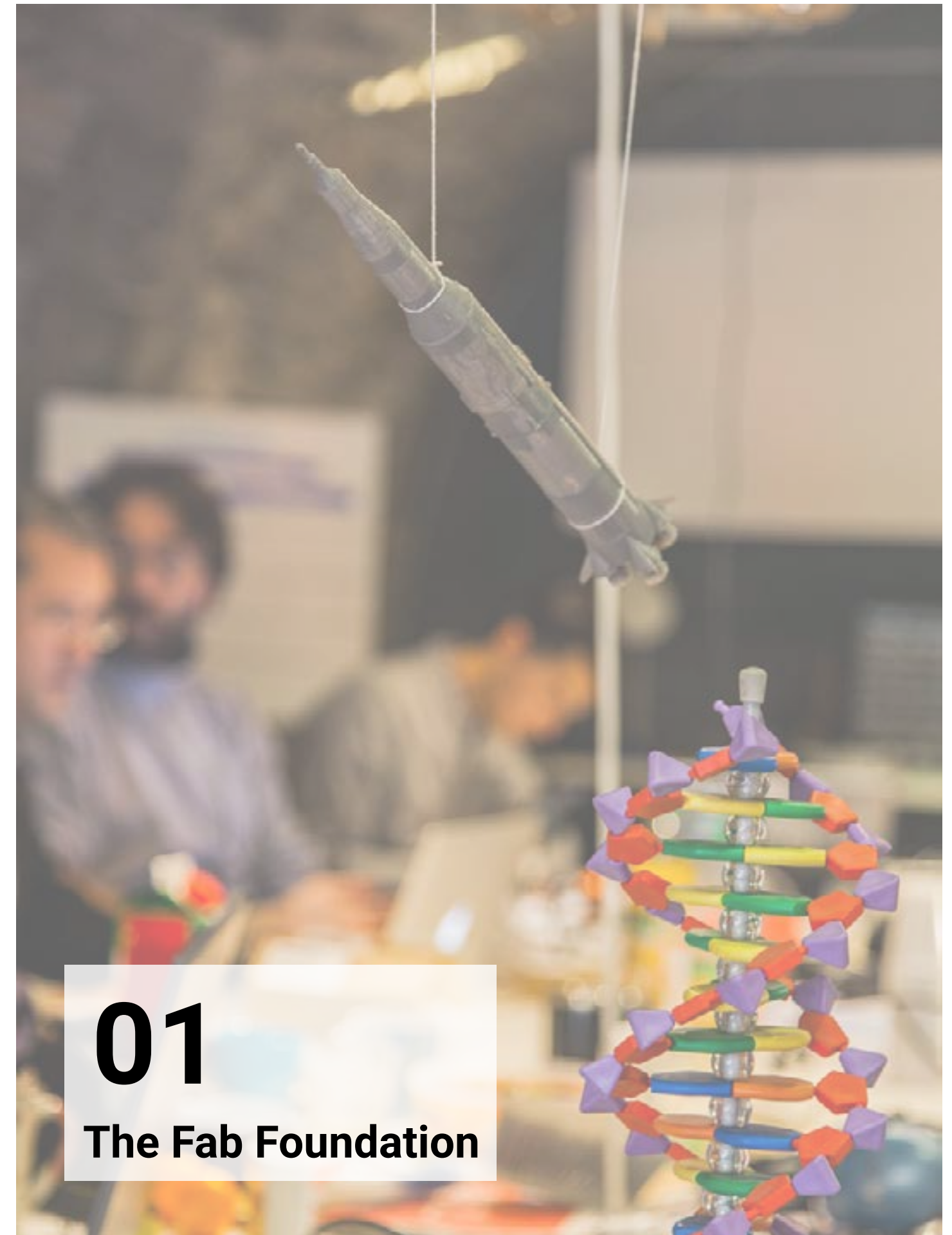
Upon mutual agreement, the Fab Foundation will be able to provide for on-site technical, safety and contextual training, as foundational platform for a long term training program that can be established with your team.

Similarly, longer term technical training and professional development for faculty and Fab Lab managers can be accommodated through the engagement of a top level Fab Lab mentor from the global Fab Lab network and the the enrollment of local students and faculty in the sessions of the worldwide Fab Academy program offered by the Fab Foundation.

Best regards,



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**01**  
**The Fab Foundation**

# About the Fab Foundation

MIT's Center for Bits and Atoms created the fab lab model and has mentored and assisted in the development of a global network of fab labs in 100 countries in schools, universities and community-based organizations.

As the global network has outgrown MIT's ability to support it, in 2009 the original architects and builders of the program created the non-profit Fab Foundation to handle the organizational capacity to scale. Since that time the Foundation has increasingly taken over the functions of purchase, installation, training and education in digital fabrication from MIT.

The Foundation, due to its non-profit status and educational outreach mission, has established preferred pricing arrangements with the equipment manufacturers and is able to deliver equipment (items over \$3,000 in cost) at a price below that of commercial distributors. Additionally, with a distributed infrastructure (with Foundation presence in multiple regions worldwide), the Fab Foundation is able to bring international expertise in digital fabrication to assist in the delivery, installation and training for organizations building fab labs.

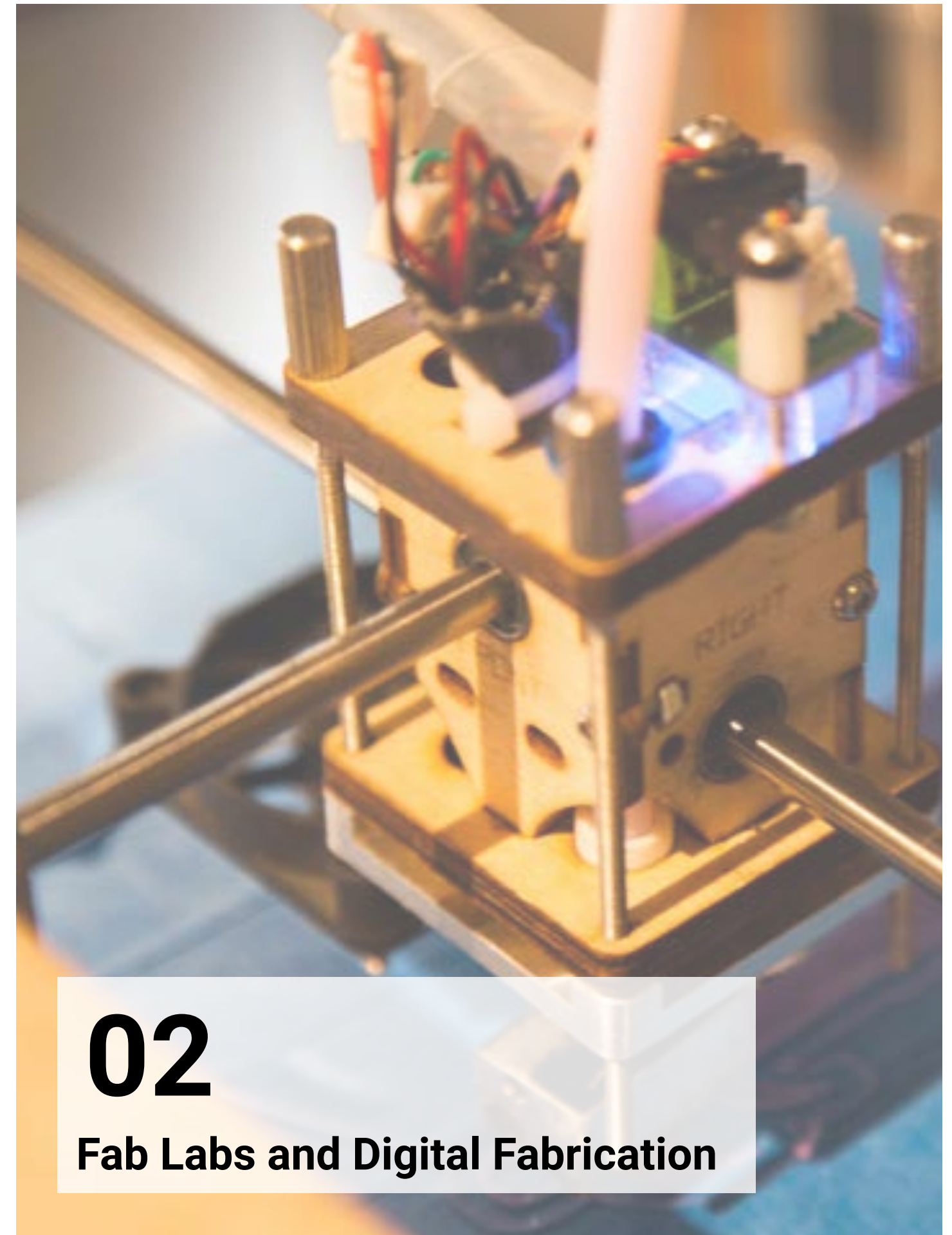


**1200 fab labs**  
**100 countries**

The Fab Foundation today includes the original architects of MIT's Fab Lab program. Fab Foundation personnel worked to establish and/or facilitate the building of approximately 150 Fab Labs in 100 countries and developed unique expertise in the physical resourcing and setup of Fab Labs.

The Foundation disseminates best practices in digital fabrication around the world from research and expertise coming out of MIT and other world-renowned institutions and works to develop formal education tools for interdisciplinary STEM education—developing specialized tools for target groups: teachers, students, education managers and informal education concerns. In that role, it created and runs the international, distributed Fab Academy which provides instruction and supervises investigation of mechanisms, applications, and implications of digital fabrication.

The Fab Foundation is the only organization who can bring all these factors together for the successful launch of fab labs in STEM school environments; that is, provide fab labs at an optimal cost, bring training and professional development in digital fabrication through the established Fab Academy, provide connections to the global network of Fab Labs, bringing global best practices, a cadre of world class engineers and scientists as well as state of the art research related to digital fabrication and computation into communities worldwide.



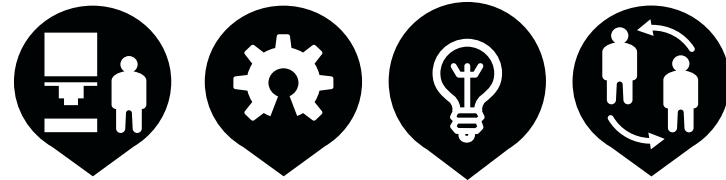
**02**

**Fab Labs and Digital Fabrication**

# About Fab Labs and Digital Fabrication

The tools and knowledge to Make (almost) Anything

Fab Labs are the educational outreach component of MIT's Center for Bits and Atoms (CBA), an extension of its research into digital fabrication and computation.



A Fab Lab is a technical prototyping platform for innovation and invention, providing stimulus for local entrepreneurship. A Fab Lab is also a platform for learning and innovation: a place to play, to create, to learn, to mentor, to invent.

To be a Fab Lab means connecting to a global community of learners, educators, technologists, researchers, makers and innovators- -a knowledge sharing network that spans 30 countries and 24 time zones. Because all Fab Labs share common tools and processes, the program is building a global network, a distributed laboratory for research and invention.



A Fab Lab is comprised of off-the-shelf, industrial-grade fabrication and electronics tools, wrapped in open source software and programs written by researchers at MIT's Center for Bits & Atoms.

Currently Fab Labs include a laser cutter that makes 2D and 3D structures, a sign cutter that plots in copper to make antennas and flex circuits, a high-resolution NC milling machine that makes circuit boards and precision parts, a large wood router for building furniture and housing, and a suite of electronic components and programming tools for low-cost, high-speed microcontrollers for on-site rapid circuit prototyping.

Originally designed for communities as prototyping platforms for local entrepreneurship, Fab Labs are increasingly being adopted by schools as platforms for project-based, hands-on STEM education. Users learn by designing and creating objects of personal interest or import. Empowered by the experience of making something themselves, they both learn and mentor each other, gaining deep knowledge about the machines, the materials, the design process, and the engineering that goes into invention and innovation. In educational settings, rather than relying on a fixed curriculum, learning happens in an authentic, engaging, personal context, one in which students go through a cycle of imagination, design, prototyping, reflection, and iteration as they find solutions to challenges or bring their ideas to life.





## Madagascar

On the island of Madagascar, we installed a fab lab inside an SOS childrens village for the Fondation Orange. This meant working with the local teams to assure materials and machines arrived in due time, even with the stringent local regulations and systems, and finding last minute solutions to local situations and difficulties.

Our teams handled everything from procurement to shipping to installation and training. We trained the locally selected team not only in the use of machines, but also to be able to design and produce new workshops and projects.



The lab is now being used by the local community and open to other people from the surrounding city as well, and they work on recycling of local resources, and teaching young learners about decentralized fabrication and electronics.

They recently won a competition with a bionic hand they locally designed and produced, so one of the users could play a local game again, he was not able to play before.



Fondation Orange



5 months



3 People



## Suriname



In Suriname, the Fab Foundation worked together with the government on a large scale fab lab project financed by the IDB. The Fab Foundation conducted research in and outside to country and developed a vision of the innovation and fabrication landscape in Suriname to offer a comprehensive report detailing the opportunities and possible stumbling blocks around the creation of multiple labs in several locations in the country.

Through interviews and visits, our consultants developed a vision that is both in line with the goals of the Fab Foundation and Fab Labs worldwide as well as with the team on the ground. Thus assuring that the projects and programs to run in the labs are locally relevant, while also being globally connected.

They only way Fab Lab's can thrive is by making them part of a local ecosystem - creating connections with the local educational bodies to upgrade or improve equipment, and finding local people who are already engaged in similar projects and ideas.



Government / IDB



1 year



4 People

# 04

## The Fab Foundation Team



**Sherry Lassiter**  
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**Luciano Betoldi**  
International Operations Director  
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Sherry Lassiter is one of the architects of the MIT global initiative for field on-site technology development, the Fab Lab program. A Fab Lab, or as users like to call it, fabulous laboratory, is a rapid prototyping platform for technical education, innovation and personal expression. The Fab Lab network includes over 1200 digital fabrication facilities in 100 countries. Lassiter is Director of the Fab Foundation, a non-profit organization committed to building technical capacity in a locality, improving individuals' abilities to develop themselves and their communities and bringing access to tools and knowledge that cultivate and support innovating practices.

After a two-decade career in science journalism as producer, writer and director for television series such as *Scientific American Frontiers*, *Discover the World of Science*, and *The Science Times*, she became a protagonist in science and technology, becoming part of the story, rather than just telling the story. As Program Manager for the NSF-funded Center for Bits & Atoms at MIT she has seen and enabled the personal fabrication movement as it has grown and evolved. Today she serves as Director of the global Fab Lab Program at MIT as well as leading the The Fab Foundation, the non-profit spinoff from MIT.

Luciano Betoldi has been involved in the Fab Lab Network since 2009, initially through his work at Fab Lab Barcelona and the Fab Academy program and most recently, by joining the Fab Foundation in 2016 as International Operations Director.

Initially trained as a Product Designer at IED Barcelona and as an Interaction Designer at Elisava Design School, Luciano's early work focused on the intersection of manufacturing and craft and the ongoing dialogue between them. Exploration of this theme inevitably led him discover digital fabrication and to the creation of projects such as the Made@EU platform, a collaborative educational platform focusing on the introduction of digital fabrication tools to craftspeople and artists across Europe and supported by the European Commission.

Since joining the Fab Foundation, Luciano has worked towards democratizing access to digital fabrication tools and education through the development and implementation of programs such as FabAcademy X and facilitating communication between regional networks through the Fab Foundation Forums initiative.



**Jean-michel Molenaar**  
Sr. Consultant, International Projects  
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As a senior consultant on international projects Jean-Michel works on creating ecosystems around labs and linking it to existing programs, organizations and systems. He has helped create labs in multiple countries on multiple continents, and is most excited about projects that use technology to help improve people's daily lives.

He has a diverse skillset, being able to work on installation, training and the design of new labs, as well as the development of overarching programs and projects, and the development of new educational systems.

Next to his work on consultancy projects, he also manages the Bio Academy, a globally distributed course on the implications and applications of synthetic biology, which includes faculty from MIT, Harvard, Ginkgo Bioworks, Epibone and more.

He also works as a professor of the practice in the department of biomedical engineering at Tufts University, where he teaches courses on digital fabrication. He lives in the French alps with his wife and their two sons.



**Norella Coronell**  
Fab Forum International Coordinator,  
Special Projects Consultant  
[norella@fabfoundation.org](mailto:norella@fabfoundation.org)

As a Product Designer from Universidad del Norte, Barranquilla (Colombia) and with a Master's Degree in Project Management from IEP Madrid, Norella's early approach in the Fab Lab World came when she discovered through a tweet what a fab lab was, she became an intern at Fab Lab Barcelona (Spain) in 2012.

Later in 2015, she became part of the Fab Lat Network (Latinoamerica), becoming the Regional Coordinator and finally, in 2017 she held the Fab Academy Diploma at Fab Lab Santiago (Chile), where she also co-organize the International Fab Lab Conference FAB13.

Norella joined the Fab Foundation team in 2017 as Special Projects Consultant where she aims to develop new tools and programs on how to work in a collaborative way among the network and facilitate communications between regional networks through the Fab Foundation Forums which she will coordinate based on her skills on Networking Strategies.

She currently lives in Barranquilla, Colombia and teaches the undergraduate course Technological Design on her former University.

Next to our main consultants, we have a large international team of guru's and collaborators who are available for training, installation and more during our projects. All of them have extensive experience in the fab lab world, be it from the Fab Academy or through multiple projects in different countries.

Because of our presence in so many countries, we are able to always make sure we can send you the right people, who know the local language and culture, for your projects.



**Francisco Sanchez**



**Fiore Basile**



**Sibu Saman**



**Klaas Hernamdt**



**Luis Carvão**



**Fabio Lopez**

# 05

## Offers and Solutions



## Consultancy and design

Making sure new labs are sustainable, and connected

Whatever stage your project is in, the Fab Foundation offers different solutions to make sure it is successful from the start and turns into a sustainable solution. We offer services on diagnostics and needs assessment, planning and design phases and on operation and sustainability solutions. No two labs or ecosystems are the same, and we always work with a local team we construct with you to assure the solutions are locally relevant while connecting to the global ecosystem.

The list below details some of the solutions we offer, and can be tailored to your needs.

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### Diagnostic and Needs Assessment

- Analysis of the operation of any current (Fab) Lab, including location, use, existing networks.
- Analysis of additional networks, including students, academia, entrepreneurs, inventors and other stakeholders.
- Location analysis for the current Fab Lab and the two additional proposed Fab Labs.
- Sustainability analysis, including long term financial requirements.

### Planning and Design

- Developing a Mission and Objective for the Fab Labs, in consultation with stakeholders.
- Identifying leadership teams and project leadership.
- Drafting a long term business plan, with financial requirements and possible sources of funding.
- Developing a common agenda, a communication strategy and a measurement protocol.
- Determination of who has access to the Lab, financial issues and location issues

### Operation and Sustainability

- Identification of available resources to reduce implementation costs.
- Identification of operational costs.
- Developing a strategy for obtaining commitment from stakeholders
- Institutional Design and training model.
- Identification of roles and responsibilities of individuals providing training
- Installation and operations procedures.
- Awareness and diffusion.
- Maintenance program and sustainability strategy.



# Training and Education

## Formal and informal education to fit your needs

Fab labs originated from the MIT, where professor Gershenfeld uses their tools to teach his course 'How to Make (almost) Anything'. The Fab Foundation manages the globally distributed version of this, known as Fab Academy. The intense 5 month long course is offered in countries all over the globe, and teaches all the application and implications of digital fabrication. From 3D printing to composite materials, from embedded programming to electronics design, we cover a wide range of subjects through project based learning.

Next to the Fab Academy, we develop educational programs surrounding synthetic biology, fabrics and wearables, and more. We also offer the development of specialized formal or informal education, adapted to the local needs. In periods ranging from a few weeks to several months, we can design and create meaningful educational packages surrounding digital fabrication that fit your needs and your ecosystem.

## Procurement and installation

MIT has curated the list of equipment and materials from many years of experience working with digital fabrication tools and equipment. This list represents what MIT believes are the best, most robust, capable machines and materials for the most reasonable prices on the market

Fab labs respond to their local community needs and interests, so many fab labs have more equipment than what we list in the standard inventory. However, most fab labs (especially those that work on collaborations and participate in the global Fab Academy program) include everything on this list. Conforming allows them to fully participate in any collaboration or educational program, such as the Fab Academy, or other global educational offerings in the network. Because of our work, the Foundation has preferred vendor status with the equipment manufacturers (items over \$3,000 in cost) and is therefore able to deliver at a price below that of commercial distributors.

We have shipped anything from single machines to 20 full labs all over the globe, and are able to assure secure and rapid transport to the final location, wherever you are.