

FAIR Danmark
2019



fair

— Knowledge is a bridge

Annual Issue #2 - Published December 2019



FAIR Danmark 2019

Annual Issue #2

Published October 2019

FAIR Danmark

Birkedommervej 31, 3. sal
2400 København NV
Danmark

www.fairdanmark.dk
info@fairdanmark.dk
Tel: +45 2990 0413

facebook.com/fairdanmark
twitter.com/fairdanmark

Contributors

Benjamin Balder Bach, Bent Blindbæk, Hanne Reck
Luiza Scalco, Reuben Moyo, Philip Douglass,
Pieter Vancraeyveld

Photos

Maria Nitzsch Hastrup
Benjamin Balder Bach
Bent Blindbæk

Layout

Thomas Elsted / elsted & co.

Contents

- 4 Introduction**
- 6 Our history**
- 14 What we do & why**
 - 15 Our vision: Knowledge is opportunity
 - 16 A workshop in Copenhagen
 - 16 Refurbishment process and standards
 - 17 Our reuse software
 - 18 Map of centres in Malawi
 - 19 Current capacity milestone
 - 22 Open Digital Learning Labs
- 26 Your company can help our mission!**
 - 26 Why? How?
 - 28 UN Sustainable Development Goals
- 30 Take part**
 - 30 Volunteering in Denmark
 - 33 Volunteering in Malawi
- 36 We need members! Support us in Denmark and Norway**
- 38 Right to Repair!**
 - 41 Right to Repair Europe
- 42 Malawi**
 - 44 Partnerships,
 - 45 Recent consignments
 - 46 First lab in Southern Region: Matapwata Secondary School
 - 47 Shared experiences: Evaluation studies and knowledge transfer
- 49 A proud volunteer**
 - An interview with Reuben Moyo
- 53 Activity pipeline**
 - 53 Campaigning for Reuse
 - 53 Internships
 - 54 E-waste disposal
- 55 Economy of reuse
Some things don't figure**
 - 55 Growth factors
 - 56 Balance 2018
 - 57 Result 2018
- 58 Supporters**
 - 58 Foundations,
Company partnerships
and Individuals

Introduction

FAIR Denmark is a Danish civil society and social enterprise working to bridge the digital divide: We support civic and secondary education in Malawi by giving schools and NGOs access to ICT equipment, and adapting solutions based on Open Educational Resources and Open Source software.

Our name FAIR is short for **Fair Allocation of Infotech Resources**. Since 2010 we have collected, refurbished and shipped computer equipment from Denmark to Malawi. We work with complete classroom solutions containing free and open source software and educational contents – delivered and maintained by partners in Malawi.

In our short time, we have sent 6 shipping containers of ICT equipment to Malawi. It's not a lot compared to the unmet need, so when we talk about our achievements, we emphasize the experience and potential that's been built - a capacity to scale our operation.

This is our modest contribution to bridging the gaps in educational opportunities caused by global inequality. It's not a lot compared to the unmet need, so when we talk about our achievements, we emphasize the experience and potential that's been built - a capacity to scale our operation.

As you can read more about in the following pages, our work and mission are depending on the support of members, volunteers, companies and foundations.

There are many ways to help us, but perhaps the simplest one is this: If you are working in an institution or know one that uses and replaces ICT equipment: Ask them what they do with their replaced ICT equipment and tell them about how FAIR works.

We'd be happy to hear from you!



FAIR Denmark
www.fairdenmark.dk
info@fairdenmark.dk
Tel: +45 2990 0413

Our history

When we talk about the future, we're excited and optimistic, when we talk about the past, we share our true experiences and reflect on the mistakes that we can learn from. Here's a brief overview of the important events that form and embody our experience and knowledge as an organization.

- **2002** **FAIR Norway** is formed and starts collecting equipment from Norwegian companies. In the following years, thousands of computers are sent to many different countries, including Zambia, Guatemala, Ethiopia, Kenya, Madagascar, Eritrea.
- **2008** **FAIR Denmark** is formed as a sister organization of FAIR Norway by Bent Blindbæk and 3 other current members of the organization. Small donations of equipment are received and stored for later. FAIR Denmark is from the beginning a membership-based association, and 50 members joined soon after the launch.
- **2009** The development of an **open source software suite for refurbishment** is launched, called "CoReSu" (Computer Recycling Suite) with volunteers from Aalborg and Aarhus in a collaboration with Danish Seniors Without Borders (Seniorer Uden Grænser). The software and an online logistics system is the foundation for all of the collection activities: Everything collected is tracked with a barcode.

- **2010** A pilot project is launched with support from the Danish government (CISU/Danida), the project is called **“ICT in education and democracy building in Malawi”**. The Malawian partner NICE (National Initiative for Civic Education) will establish 5 centres in the Central region, each with ~50 computers, and keep a supply of spare parts for maintaining the centres. FAIR opens its first workshop in Copenhagen and enough equipment is gathered to ship a 40’ container in November, thanks to a number of partners, not least IKEA Denmark.



- **2011** **The first container reaches Malawi** and the pilot project is implemented in March and an evaluation is carried out in November. The empty container remains in Malawi to receive discarded equipment for the take-back program. FAIR Denmark moves to a bigger workshop in Copenhagen’s NorthWest district. A campaign is tested with consumer equipment collected from a large Danish retailer, but more than half of the equipment is too old to reuse - this focuses FAIR’s energy on refurbishing business-grade equipment rather than consumer electronics. Three delegations visit Malawi in 2011, for planning, implementation and evaluation respectively.

The first centres include their own servers and off-line versions of Wikipedia, Khan Academy, a number of documentary films and the full library of Ubuntu software.



- **2012** Another container is shipped with NICE as the recipient for NICE's rural libraries. The project is commonly known as **"The NICE & FAIR project"**. The project is entirely financed by revenue from companies and FAIR. A team visits NICE to do training for the library process, but in a very irregular and unfortunate process, the equipment is held back for an extended duration by Malawi's customs agency and doesn't get distributed to the NICE offices until 6 months after the equipment's arrival. Both NICE and FAIR learn a lot from this experience in terms of planning and execution.

In May, a brand new version of the refurbishment software is released as **Large-scale Computer Reuse Suite (LCRS) version 2** with the slogan: »For the benefit of people and the planet, let us start re-using, repairing and refurbishing computers instead of creating more e-waste!«. It is implemented in FAIR Norway as well.



- **2013** A team of Malawian volunteers are sent for training at Mzuzu University (Mzuni), and the positive experience starts a new project between staff at Mzuni and FAIR. A delegation from FAIR visits Mzuni to initiate the project. The same year, a container is shipped from Denmark with support from the Danish government Danida via the “Recycling to the South” (Genbrug Til Syd – GTS) program. A team of trainers from FAIR visits and together with Mzuni staff and student volunteers, the first 9 school centres are established, and the university continues to establish further centres.

All of the involved schools contribute resources to a project unit at the university which provides maintenance, thus a sustainable model is formed.

- **2014** Another container is shipped with destination for Mzuzu, with support from GTS. The equipment from the container is handled entirely by Mzuni as a continuation of the 2013 project and is a successful milestone for the model: Equipment has been collected and refurbished in Denmark, then handled and distributed by a technically skilled partner in Malawi.



- **2015**

- **2015** The first update of ICT centres takes place with servers and software being renewed across all centres in the Northern Region. **4 of the 5 pilot centres from 2011 are upgraded**, one of them has entirely new equipment, 3 others are partly upgraded, and the last centre is decided to be taken down due to negligence of maintenance and absence of proper teachers in the previous years.

Mzuni announces that soon all the schools with steady electricity the Northern Region will have computer labs, therefore we decide to ship the 5th container to the Central Region of Malawi. A new project is setup with NICE and National College of IT (NACIT), with 9 secondary schools in mind and a further number of smaller ICT centers at NICE's district offices.



- **2016** The Northern Region of Malawi where the project is taking place is ranked by the Ministry of Education as **the highest performing in terms of ICT**. The shipment from 2015 arrives but is severely delayed by customs.

In late 2016, work is started in Large-Scale Computer Reuse Suite (LCRS) version 3, a completely new version of the open source refurbishment software. The former version LCRS v2 surpasses 11,000 processed computers.

Also late in 2016, a project for a transition phase receives support from InterKulturelt Center (IKC). A series of activities are started, not least a renovation of the workshop.

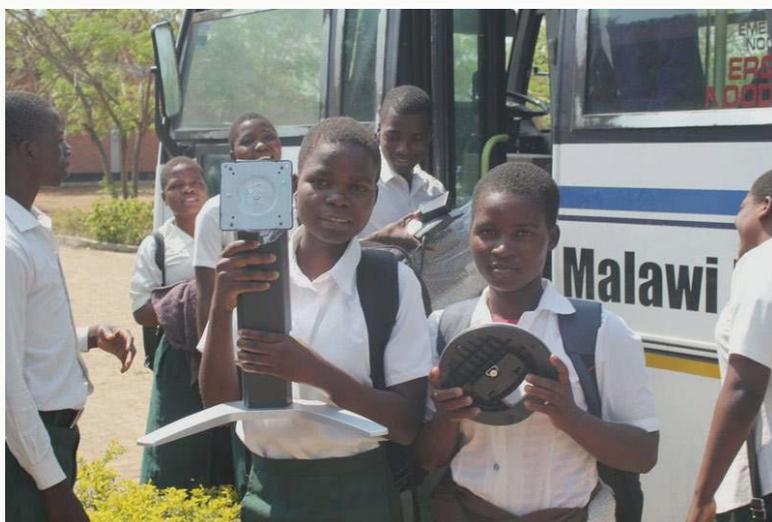


- **2017** In early 2017, a new workshop in Copenhagen is ready with improved facilities for volunteers and refurbishment. Mzuni completes the first program of training of teachers from local secondary schools benefiting from the project with the support of Google's program "CS for High Schools" (CS4HS). A new Society "tMinds" is formed by staff and students to do maintenance, internships for teacher training and youth entrepreneurship. FAIR trainers work together with a group of NICE volunteers to establish new centres at NICE's regional offices.

- **2018** A new campaign targeted Danish companies is launched, and over 500 companies are contacted through both printed materials and email. Malawi society tMinds completes monitoring and evaluation of most of the schools in Northern Malawi with financial support from a crowdfunding. After a longer process of engaging with other stake-holders

in Malawi, a collaboration with Malawi University of Science and Technology (MUST) is started. This means that MUST will receive equipment for 3 secondary schools in 2019. We launch our first annual report. tMinds conducts an evaluation study and maintenance trip of all ICT centers in Northern Region.

• **2019** FAIR ships its 6th container to Malawi. Equipment will upgrade and sustain at least 10 ICT labs in the Northern Region. Malawi University of Science and Technology (MUST) establishes the first pilot labs in the Southern Region. Some experiences from the evaluation in the Northern Region are addressed and the on-going activities from the past 6 years are consolidated in a program: **Open Digital Learning Labs** (described later in this Zine).





What we do & why

FAIR Denmark has worked as a volunteer association for a decade. In 2016, we established the following 4 key activities:

- ┆ Reusing ICT equipment for development (ICT4D) in an environmentally sustainable manner, through extending the life of equipment and responsible take-back.
- ┆ Encouraging companies to extend life-span and reuse of ICT equipment, perceiving the equipment ultimately as a resource rather than a disposable good.
- ┆ Raising awareness about the value of open source software and freely licensed educational resources.
- ┆ Implementing a project model with sustainable, local ownership and knowledge transfer for a fully localized service delivery.

Our vision: Knowledge is opportunity

FAIR's vision is to remove some of the root causes of poverty and global inequality, namely lack of access to education, knowledge and technology.

Therefore, we work in a global context to improve access to and use of education and information resources. This is done by redistributing ICT equipment, open source software, and educational resources for schools in developing countries.

We develop and customize software and teaching materials for the benefit of students in the world's poorest countries. We collaborate both at home and abroad to create a platform for more people to participate and share their skills through working as volunteers.

Our vision must be realized solely through partnerships that are mutually beneficial and long-term. Thus, we aim to ensure the sustainability of projects and local ownership.

In Denmark, FAIR seeks corporate partners, to provide depreciated, but otherwise functional ICT equipment and co-financing. Equipment that can be assumed to have a remaining lifetime of 5+ years is reused in Malawi. FAIR regards this equipment as a valuable resource to be used optimally and also takes full responsibility for ensuring that the equipment does not have a negative environmental impact upon disposal.

A workshop in Copenhagen

Our workshop in Copenhagen is furnished, designed and decorated for refurbishment. Provided we receive enough ICT equipment and have enough helping hands, we can gather equipment at our facility for a 20-foot shipping container at a time, supplying roughly 5-700 computers, or enough for 15-20 school centres. The workshop has the capacity to process at least 3 shipping containers annually, and given a higher engagement from companies, we are hopeful to see its full potential flourish.

We aim to increase the pace of our refurbishment activities. The previous rate was achieved by a small team of volunteers working roughly 1 day per week. Thus, it's easy to be optimistic that this figure can double. And with enough willing companies, we now know that our logistics and volunteer team are up to the task.

Refurbishment process and standards

The ICT equipment that we receive for refurbishment is constantly improving. At present, our **minimum requirements** for computers in our projects are:

- ┆ 2 GB of memory
- ┆ 64 bit processor: Intel Dual Core, Centrino, i3, i5, i7, Atom or newer
- ┆ Laptops or desktops + LCD screens
- ┆ USB mouse and keyboard



- ┆ Equipment **not** meeting this standard is stripped for spare parts to maintain or upgrade other equipment. The remaining components are disposed of by our local e-waste management partner, Stena.

Our reuse software

Since 2011, we have developed **Large-Scale Computer Reuse Suite (LCRS)**, our open source platform for refurbishing computers. We develop this not only for our own use, but with other organizations in mind as well. It's been used to process over 12,000 computers in Denmark and Norway. The project, currently in its second generation LCRS v2, will be released as LCRS v3 during 2020, boosting the refurbishment process with faster hard drive wipe speeds, better support for newer hardware, and stress tests for processors and hard drives.

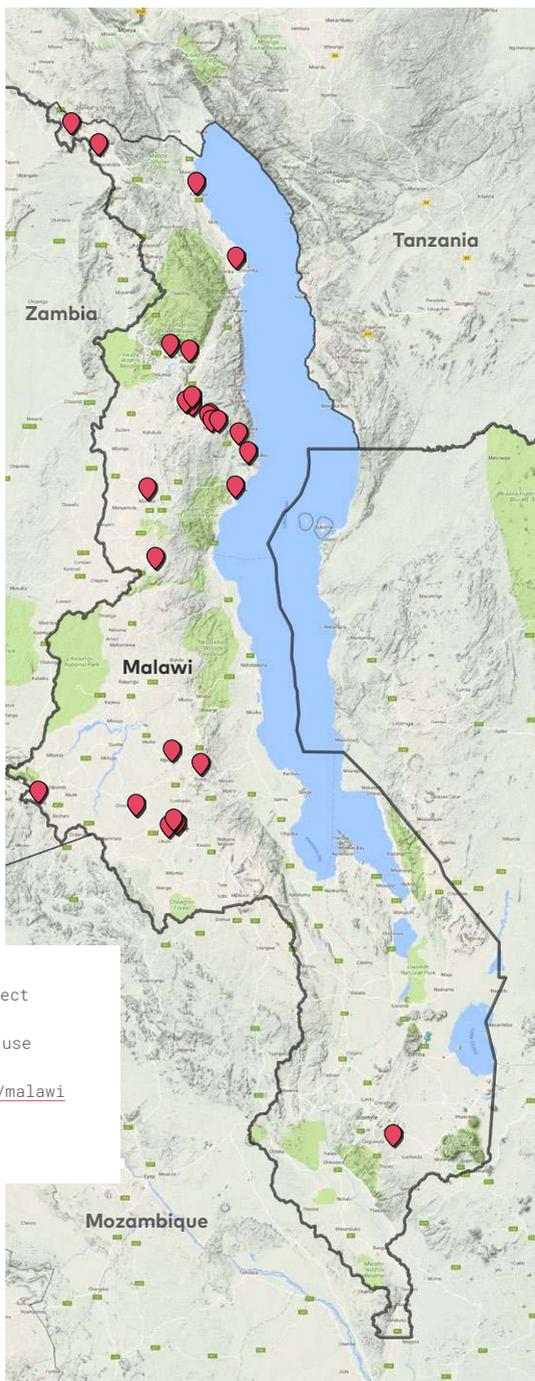
LCRS means Large-Scale Computer Reuse Suite and is our open-source software for securely wiping hard drives and collecting data for warehouse logistics and quality assurance during the refurbishment process. Read more on lrcs.fairdanmark.dk





To read more about the project partners, details about participating schools, and use our interactive map, go to: www.fairdanmark.dk/projects/malawi

(or scan that code)



Current capacity milestone

There are currently 23 established ICT centres in the Northern Region, a figure that is stable. The first were established in 2013, many of which have already received upgrades, and some of which are scheduled to do so in late-2019 and 2020. Having fulfilled a replacement plan for the 2013 centres, we are undertaking plans for more centres.

The following is a conservative estimate, considering our proven track record. This estimate doesn't impact or lower the ambitions for equipment intake, but sets out an ambitious goal for sustainable activities in Malawi, as there will be 30 school centres at the end of 2017. This means that at our current capacity, we can sustain around 80 school centres - our milestone!

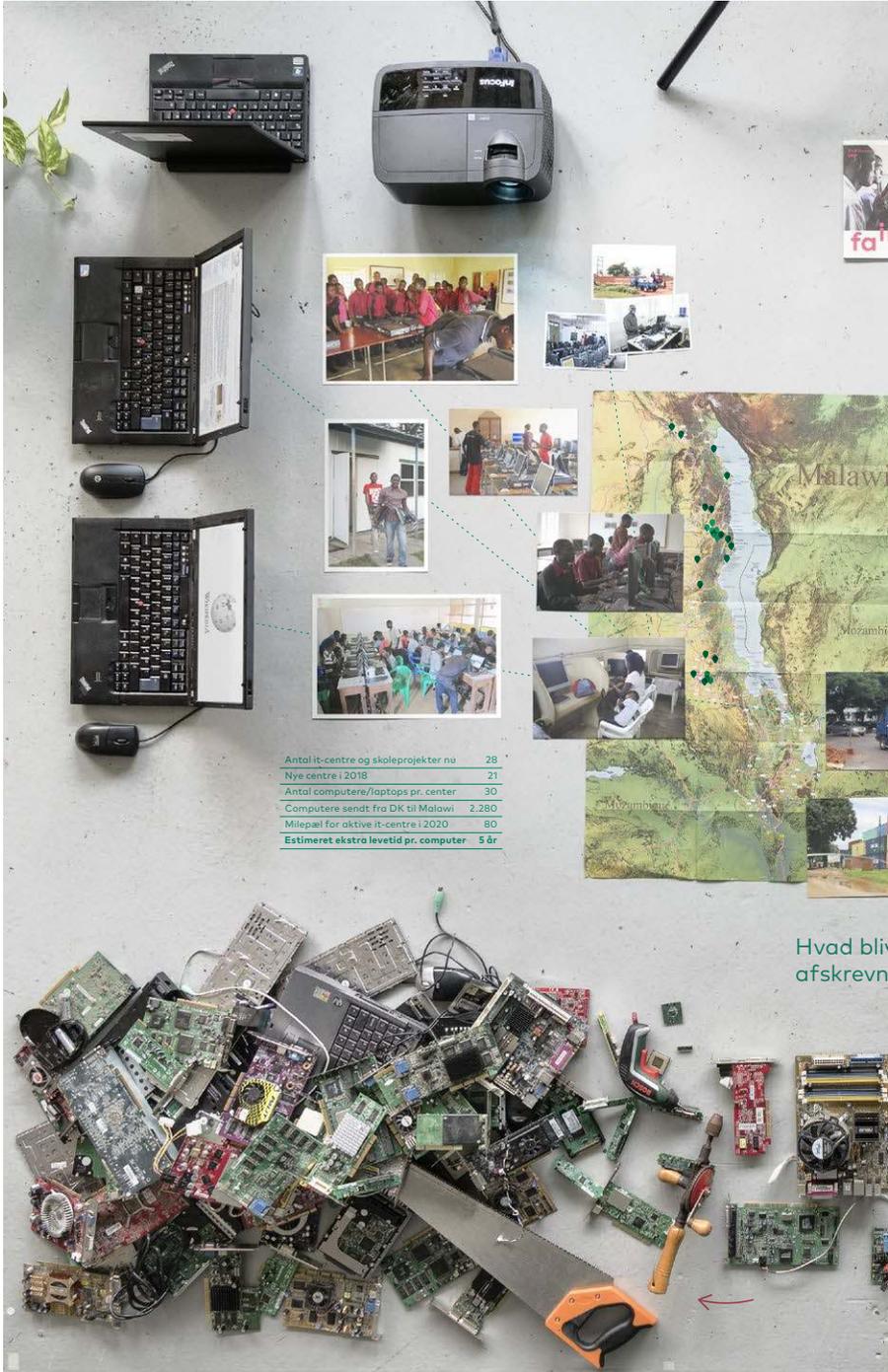
Numbers:

| | |
|------------------------------|--------------------------------------------------------------------------------------------|
| Computers per. school centre | 30 |
| Computers pr. container | 500 |
| Centres pr. container | $500 / 30 = 16,6$ |
| Avg. life span per computer | 5 years |
| Containers annually | 1 |
| Calculation | $5 \text{ years} \times 16,6 \text{ centres per container} / 1 \text{ container per year}$ |
| Total school centres | 83 centres |
| Total no. computers | 2490 computers |



What happens to your company's

Photo from our Danish company partnership information folder.
Please contact info@fairdanmark.dk for a printed version or visit:
www.fairdanmark.dk/r/intro-virkksomheder-pdf/ for the electronic version.



| | |
|----------------------------------------------|--------------|
| Antal it-centre og skoleprojekter nu | 28 |
| Nye centre i 2018 | 21 |
| Antal computere/laptops pr. centre | 30 |
| Computere sendt fra DK til Malawi | 2.280 |
| Milepæl for aktive it-centre i 2020 | 80 |
| Estimeret ekstra levetid pr. computer | 5 år |

Hvad bliver afskrevet

depreciated ICT equipment after use?



over der af virksomhedens
e it-udstyr efter brug?

Open Digital Learning Labs

A program for educational & civic ICT access
by tMinds, MUST & FAIR

As of 2019, FAIR works in Malawi through a program that all stakeholders participate in and contribute to. The program implements, sustains and develops educational & civic ICT access in Malawi, teaming up FAIR Denmark with tMinds and Malawi University of Science and Technology (MUST) in each their region: The Northern and Southern Region of Malawi.

The program sees participants as long-term engagements and commitment. An ICT Lab (for instance at a school) should not have ICT equipment until it breaks down, but should see itself use and benefit from ICT beyond the technical issues and hardware breakdowns that are guaranteed to happen over time. These issues are handled by tMinds, MUST and FAIR, such that other participants can safely pursue the benefits of having ICT access.

What does a Lab provide?

The program provides ICT equipment, such as desktop and laptop PCs, as well as maintenance, quality educational contents, training and take-back of e-waste.

Students, teachers and community members can use the labs to practice basic ICT skills and access free educational and knowledge

resources, in the form of tens of thousands of ebooks, videos and interactive exercises and millions of encyclopedia entries. None of these activities require an internet connection.



How does it work?

A lab consists of 30 (recommended) desktop or laptop computers. It is setup as a learning environment with one or two students per computer, and facilities for a trainer to instruct using a projector.

Each computer is equipped with the latest Open Source software, including modern office suites, programming utilities, satisfying the requirements of the MSCE syllabus. Digital contents from the server can be accessed from each computer via the local network.

The contents vary from elementary level up to tertiary level. It can satisfy both a self-driven learning process, as well as supplementing curricular secondary school activities. Contents include interactive exercises, individual learning programs (without internet requirements), thousands of videos, documentary movies and general access to over 60,000 book titles and over 5 million encyclopedia entries. All contents and software come with a non-commercial license.

Each participating Lab pays an annual fee of MK 5,000 per computer. For a lab with 30 computers, this amounts to MK 150,000 per year. Initially, payment is made for the first 3 years. The combined cost for maintenance for the first 3 years is comparable to the cost of a single new computer.



Roadmap

ICT equipment requires maintenance and upgrades to meet ever-improving standards. By participating in a program, rather than purchasing the equipment, the Lab will thus benefit from the maintenance services provided by the program. Participating Labs will be entitled to complete overhauls, once existing equipment is outdated. Updates to software and contents will be conducted on a frequent basis.

The Program will study its usage and impact and undergo continuous refinement. In addition, joint activities and training for Lab coaches, teachers and management will be provided to the extent that the economy of the Program and external actors support this.



Who can participate?

Open Digital Learning Labs target secondary schools and non-profit community-oriented organizations in Malawi. Participation requires a furnished and secure physical space, electricity and a passion for using ICT to its full potential.

Your company can help our mission!

Why?

As a company, you can take full social and environmental responsibility of your ICT resources by helping a humanitarian cause. It's quite easy and cost efficient with regards to social impact. And you will also have knowledgeable technicians perform the critical service of safely wiping your digital storage media.

We don't ask for much. You could also ask: Why shouldn't computers, about to be replaced, not get the chance to extend their lifespan by serving as school computers in Malawi?

If your company believes in education, refurbishment and sustainable handling of e-waste, **without having to worry about data getting into the wrong hands**, become a partner.

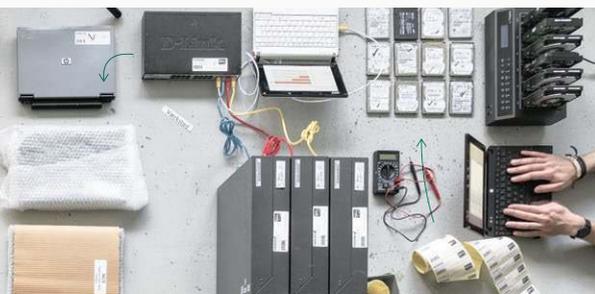
How?

By becoming a partner or contributing a one-time donation, FAIR will provide the following services:



We will:

- ┆ Pick up your ICT equipment at your location.
- ┆ Wipe all your storage media. Your data will be COMPLETELY wiped and unrecoverable. This will be done shortly after receiving the equipment and is verified and documented by our refurbishment software LCRS. You can request our procedure specification "FAIR Procedure for Sikker Datasletning" (Danish).
- ┆ All equipment is tracked, and we provide the transparency necessary to see what has happened with the equipment.
- ┆ A final report is provided through our website: You get a login and can generate reports necessary to, for instance, provide your employees or annual report with evidence of how the company is taking social and environmental responsibility of its ICT resources.
- ┆ Offer initiatives for awareness of reuse and better day-to-day handling of ICT equipment.



UN Sustainable Development Goals

By addressing global inequalities and providing access to technology and education, FAIR's mission is aligned with the United Nations Sustainable Development Goals:

DG 1: No Poverty

Access to technology means access to information and knowledge, and a potential tool to boost local development processes. The process of digital inclusion can empower and inspire individuals and communities, and help them find solutions and resist adversities.



DG 4: Quality Education

Access to quality education is the foundation to improving people's lives and giving them autonomy and access to information. FAIR provides quality education by supplying schools with computer labs, open source software, freely licensed educational resources, as well as teacher training.



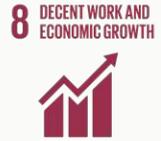
DG 5: Gender Equality

Promoting gender equality includes enabling the use of technologies and access of education by girls and women. FAIR Denmark provides female students in secondary schools with access to computer labs and relevant information, and internship opportunities for female university students through a partnership with tMinds.



DG 8: Decent Work

A wide range of jobs requires digital proficiency. FAIR Danmark provides access and knowledge about technology and digital literacy, a key skill that increases the capacity to obtain and maintain a job.



DG 10: Reduce Inequality

Bridging the gap of access to ICTs works towards reducing structural inequalities between countries and enables people within developing nations to have access to education, technology, knowledge and opportunities.



DG 12: Responsible Consumption

Businesses that collaborate with FAIR Danmark are able to increase the lifespan of its ICT equipment, thus reducing its environmental footprint.



DG 17: Partnerships for the Goals

FAIR Danmark works with local partners in Malawi, fostering global partnerships for sustainable development and working towards some of the technology targets of goal 17.



Take part

Volunteering in Denmark

We need help for both large and small tasks. It's easy to be a volunteer for FAIR and requires no special skills, only a willingness to give. We are looking for help with the following tasks:

- ┆ Preparing equipment
- ┆ Software development for logistics and school centres
- ┆ Creating, adapting and organizing educational contents and digital libraries
- ┆ Communication, fundraising and administration
- ┆ Engaging a broader public through social activities in Denmark



Preparing equipment

You do not have to be a computer expert to help when we prepare equipment. If you join our volunteer corps, we will notify you when you're needed and you will receive the necessary instructions.

Software development

During the preparation of equipment, FAIR uses its own software that automatically performs tests and wipes data from multiple computers at a time. We call this LCRS or Large-scale Computer Reuse Suite. You can read more about the software in this booklet.

We are also working on customizing Linux distributions to the needs of Malawian schools, so we're looking for ideas and help so our equipment can be sent with software that is free, easy and relevant to the recipients.

The work on software is constantly evolving, and it is therefore best if you contact us directly to learn more about the possibilities of helping.

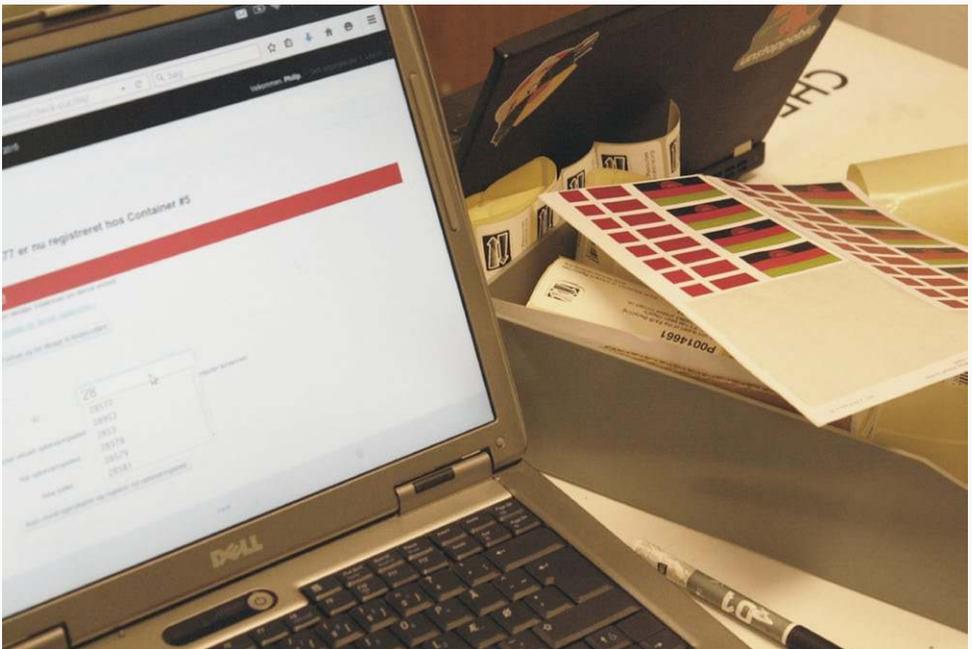


School work, pedagogy and IT training

If you have special expertise in our areas of work, we would like to hear from you. Our work consists not only of collecting and shipping equipment, but also actively supporting the projects we are engaged in.

Communication, fundraising and administration

In order to collect enough computers, marketing and contact with companies are an important part of our work. In particular we: develop materials such as posters, work on web-based media, make brochures, organize events and are open to other suggestions.



Volunteering in Malawi

Malawi has an 8-4-4 education system consisting of primary school, secondary school and university education. But because of an immense lack of resources, the number of seats in secondary schools and universities are too few compared to the demand for education. In the end, dropout rates are high and very few make it as far as the university. Most of the ICT access that we work to provide is targeted at the 4 critical years of secondary school, attended by students of roughly 14-18 years of age.

These secondary schools often request additional help for teaching and implementing ICT.

Access to new computers ensures that the subject of **Computer Studies** increases its popularity. In most schools, untrained teachers have to take responsibility for higher enrollment and new classes, and the overall pressure on the teachers means that schools welcome volunteer assistance.



ICT isn't isolated to the study of computers, it's a tool to improve understanding of all subjects. As the centres give access to massive amounts of knowledge resources and digital training, a huge potential is to be unlocked by someone with relatively advanced knowledge in ICT. Perhaps you can be that spark?

Therefore we have started an ICT volunteer program of **Global Contact** with ActionAid Denmark and ActionAid Malawi, for which trainers and ICT experts of all levels are offered the opportunity to help out where their skills can make the biggest difference. To learn more, visit globalcontact.dk ●



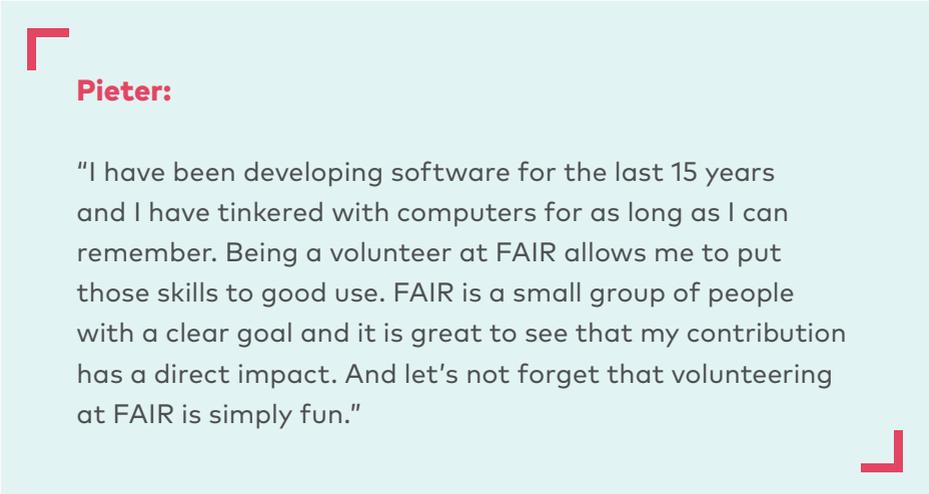
Younger kids fooling around outside a partner school in Ekwendeni.





Marthe:

"I am a volunteer with FAIR because I strongly believe that education is an important driver for development. As a student of African Studies I have focused on childrens' rights and what it means to be a child in Africa. When i first got to know FAIR it quickly became clear to me that my interest within childrens' rights, belief in education and overall interest in the African continent was combined in our ICT projects. As a bonus I have learned a lot about refurbishing computers and Open-Source software from my co- volunteers."



Pieter:

"I have been developing software for the last 15 years and I have tinkered with computers for as long as I can remember. Being a volunteer at FAIR allows me to put those skills to good use. FAIR is a small group of people with a clear goal and it is great to see that my contribution has a direct impact. And let's not forget that volunteering at FAIR is simply fun."



We need members!

Support us in Denmark and Norway

We are a civil society! If you become a member in Denmark or Norway, you can support us economically, not least participate in the daily work of running the organization.

As with any civil society, members help us to show our size and backing.

You can become a member online and pay by credit card.

Scan the QR code below, or use this link:

www.fairdanmark.dk/da/membership/create

You can also become an ambassador of FAIR by wearing our new signature t-shirts (we don't really profit from selling it, just so you know): www.fairdanmark.dk/merch





Mchinji, Central Region, Malawi.
A member of the membership-based
Mchinji ICT Centre maintaining
equipment in the yard outside
the centre.

EUROPE,

LET'S

+

RE

⊗

REFURBISH

+

REPA

Right to Repair!

REUSE ☹

H ☹

PAIR ☹



We believe in the visions from the Right to Repair movement and the criticism that it puts forward: If you cannot fix it, you do not own it, as the **Self-Repair Manifesto** from iFixit says.

www.ifixit.com/News/self-repair-manifesto

FAIR's key activity is refurbishment. We prepare used products for a new life. We need repair, as proper refurbishment cannot take place without the ability to introspect, dismantle, diagnose and fix products. We take out spare parts, we insert spare parts, we search and diagnose hundreds of different models of computers and laptops, we use screwdrivers and we tinker around.

Not only is the Right to Repair crucial to the refurbishment of computers: Of much more significance, people affected by poverty and inequality need a way to repair. Policy makers in Europe will not only affect product standards in the European markets, but also elsewhere.

This is the summary of reasons why we have asked to join the European Right to Repair branch, which is working to promote policies and awareness on a European level:

- ┆ Repair-friendly technology is crucial to the people hardest hit by inequality.
- ┆ Our experience is that equipment which we received through the past decade continues to pose new challenges to repairability and refurbishment.
- ┆ We believe that repair standards are possible and necessary for ICT to have a longer life-span.



Right to Repair Europe

The campaign that we have joined works to:

- ┆ Make the Right to repair as mainstream and inclusive as possible
- ┆ Ask for a "universal" Right to Repair: access to repair information and spare parts for all, not just professionals
- ┆ Bring urgency to policymakers on the need for more repairable and longer-lasting products, at national and European level
- ┆ Raise the profile of and integrate repair in wider debates such as climate change mitigation, circular economy transition, environmental justice, socio-economic inequality, and the Sustainable Development Goals.
- ┆ Obtain an EU-wide repair labeling system to guide consumers towards durable, repairable products
- ┆ Unleash the potential for green job creation in the social and conventional economy
- ┆ **Follow Right to Repair Europe:**
 - On Twitter www.twitter.com/R2REurope
 - On Facebook www.facebook.com/righttorepaireurope
 - On their website www.repair.eu

REPAIR

Malawi





Malawi

FAIR Denmark has a long-term commitment to Malawi. A commitment and a friendship which has lasted for a decade. As a civil society, made up of people who work with an aim and a passion, we are grateful for this relationship.

Partnerships

FAIR works in all three of Malawi's administrative regions:

Northern Malawi, **Central Malawi** and **Southern Malawi**.

All regions follow the same project model, but the partnerships are set up differently:



Northern Region

- Active since late 2013, 2 consignments. 20 centres established, upgrade process since 2015 (new software, hardware repairs).

Partners:

- Mzuzu University, Computer Science Department
- Northern Education Division (Ministry of Education)



Central Region

- ┆ Started in 2011:
 - Pilot project at 4 secondary schools (w/ Ministry of Education divisions)
 - NICE (National Initiative for Civic Education) civic education centres
 - Mchinji District ICT Centre (NICE/Mchinji DC)

Southern Malawi

- ┆ Pi New (2019) secondary school project centered around Malawi University of Science and Technology (MUST)
- ┆ • 3 secondary school centres established



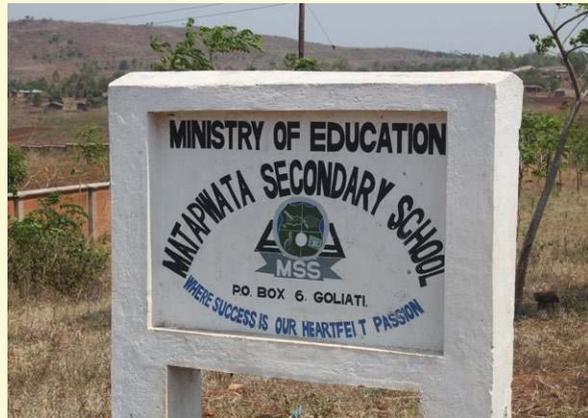
Recent consignments

In 2016, a consignment of 453 computers and laptops arrived in Lilongwe, equipping 7 of NICE's District Offices (Resource Centres) with small resource centers of 10 computers each and to upgrade existing secondary school centres in the Northern Region.

First lab in Southern Region: Matapwata Secondary School

In October 2019, FAIR and Malawi University of Science and Technology (MUST) established an ICT Lab in the Southern Region of Malawi, at Matapwata Secondary School. This was the first lab established jointly with MUST and starts a new chapter.

After 6 years of experience in the Northern Region, a team from **tMinds** and FAIR visited and trained with lecturers and student interns from MUST, a newly established university with a special focus on technology. MUST will establish another 2 secondary school labs in 2019, before equipment for 5-10 additional labs is shipped in 2020.



The Learning Lab in Matapwata Secondary School is the first lab to be updated with software and educational contents assembled for automatic deployment through the distribution of 1 TB hard drives customized for Ubuntu Linux. The setup contains, among other things, the **Kolibri** platform - an interactive digital offline platform with contents supplementing existing secondary school subjects as well as a broad range of life skills, DIY etc.

Setting up a new center is done in a day's work. The team can consist of just a few people and is a great learning experience for university interns from ICT-related studies. The experience gives valuable hands-on with networking and efficient unattended roll-outs of operating systems.

The automated setup of an ICT Lab is based on an open source set of scripts, referred to as the **Offline Digital Library**. During the past years, volunteers from FAIR have been developing these scripts as well as a **documentation handbook**.

Shared experiences: Evaluation studies and knowledge transfer



In January 2018, FAIR's members started a crowdfunding, supporting tMinds to conduct a tour and an evaluation of secondary school ICT labs in the Northern region. As previously mentioned, these centres had been running as part of a project since 2013, and an evaluation following up on 5 years of experience was due. The study was successfully conducted by members of tMinds, both lecturers, technicians and students. It produced an insightful report of actions and recommendations (available on FAIR's website).

After confirming and discussing progress and challenges with tMinds in the Northern Region, a joint conclusion was reached to stabilize a figure around 20 ICT labs, rather than establishing new ones. Since 2013, 6 labs have been taken down due to theft or collaboration issues with the schools. Existing and well-maintained labs have received software upgrades, and in some cases equipment upgrades. As of 2019, enough equipment has been transferred to enable a full software and hardware upgrade at all existing centres.

Seeing activities in the program as a loop consisting of setup => 2018 also saw **take-back activities** in order to handle the e-waste generated from taking down old and broken equipment.

The experiences in Northern Malawi have been communicated to MUST in the Southern Region. MUST has transported 100 computers through half of Malawi to complete the first 3 secondary school centers in 2019, following which they will establish another set of 5-10 centers in 2020.

In the bigger picture, FAIR will be supporting two similar university-based organizations of bright-minded and energetic ICT lecturers and students, doing social outreach in their regions by setting up secondary school and community ICT labs.

These two partnerships both provide a Program, now called **Open Digital Learning Labs**. The program collects the experiences and practices of these 6 years and seeks to consolidate an efficient and human-centered delivery of ICT access to secondary schools and civil communities. ●

Reuben Moyo, former FAIR volunteer and now assistant lecturer at Mzuzu University and co-founder of tMinds.



A proud volunteer

An interview with Reuben Moyo

first published in 2018, updated in 2019.

Reuben, 31 years old and previously assistant lecturer at the ICT Department at Mzuzu University, started at FAIR as a volunteer during his studies at Mzuzu University and later became a staff member at the university. He is now pursuing his graduate studies abroad. His experience at FAIR gave him the opportunity to put knowledge into practice, and ultimately shaped his career, by giving him important tools to work with ICT for development. This was a key inspiration to start a new initiative, the NGO tMinds (short for Tech Minds), a partner currently working with FAIR. We met Reuben back in 2017:

How did you hear about the project with FAIR?

How did you benefit from the experience?

In my 3rd year, in 2012, I had the opportunity to participate in the activities of a FAIR project. I was among the first that volunteered for the project, setting up activities in secondary schools, participated in network layout in 3 Secondary schools, among others. So I was a proud volunteer. In class was theoretical most of the time, and volunteering was a chance to put things in practice, it was quite fun.

During the implementation of the activities, I learned a lot, because at that time I had not interacted with Linux operating systems, it was the first time seeing Edubuntu, and it was also the first time to see Benjamin [a FAIR volunteer from Denmark] coding in Python. There was a lot of troubleshooting during the time we tried to deploy this, as we worked on getting the client





and server to communicate. Besides that, Benjamin trained us, gave us some basic tools on how to work with Linux and to code in Python. It was quite a good experience that I will not forget. I graduated in 2014, so I left the place, only to come back after a year not as a student, but as a staff member.

Can you tell us a story of how you ended up a lecturer?

I tried finding a job after graduation but it was impossible. I tried also establishing an organization focused on ICTs for Development, but it was too hard to find funding and difficult to operate without a physical office in town. So when I saw the calling for staff associate, I applied and was selected. It is also an opportunity to upgrade later, through a doctorate maybe in the future.

How many students are now enrolled at the campus and where do they come from?

The number has grown, it is now more than 2.500 students. I can't be exact on the numbers, but in the ICT Department I would estimate there are around 300 students, in both the weekend and generic program. The students come from all over Malawi, and also Tanzania and other neighbouring countries.

Do you have other projects, besides being a lecturer?

Having perceived a need to give continuity to some of the FAIR projects, a new society came to be. It is called t-Minds. As the volunteers come from the ICT Department where our focus is on innovation and technology, this name was then chosen to reflect our focus on technology. It has not been easy, as the bureaucracy to start an NGO is very long and complicated. The greatest challenge that we face at the moment is finding funding.

What is the role of the new society and which activities you plan to develop?

One of the activities we are planning now is to take students who are part of the society, and have them assist in implementing the FAIR projects. So we are planning to take some of the students to the Fair Denmark centres, so they can assist the teachers in using the ICT centers that we have set up, and assist them in motivating the students. But for now we don't have any resources. This is a very important activity. And we will be responding to a call from the head teachers from these centres, who have been asking for assistance in training in the students in how to use the libraries, and also the teachers themselves.

This society, the way we planned it, will play a vital role which is currently lacking to the community of the centres, and that will benefit the country as a whole. We believe that the society will always leave a legacy behind. And with the assistance of partners, we will really grow. So this is an opening for potential partners, and this is a vehicle for development, especially for education. We are happy to have the society and we are energised to start operating. We would like to benefit from the already existing link between the society and FAIR, and develop projects together. ●



In 2017, Reuben Moyo has co-organized a teacher training program called CS4HS. At the end of the training, teachers brought their own students and they taught them to program in a competition. The Head of the ICT Department at Mzuzu University, Emmanuelle Nganade presents the diplomas to the winners.



Activity pipeline

We have identified a number of activities as high priority for the remainder of 2019.

Campaigning for Reuse

We do domestic information campaigns in Denmark, and we are refining our communication assets and bringing them to communities in Denmark. Anyone can be interested in ICT reuse and make reuse a reality. Therefore, we will be connecting with companies, professional networks and educational institutions to offer talks and conference stands showcasing our work and vision.

Internships

If you are interested in an internship with FAIR, please get in touch. Working as an intern in FAIR is a well-tested path for shorter internships, and we have had many successful internships. You will be warmly welcomed by volunteers and will have all the facilities necessary for a challenging and exciting internship. Areas of interest include: Communication, fundraising and software development.

E-waste disposal

In order to fulfil our responsibility of at least 100% take-back of ICT equipment (similar or equivalent to the donated equipment), defective equipment has been collected in a depot in Lilongwe. We are planning to ship this equipment to an African e-waste processing facility, most likely in South Africa.

Interested?

Please get in touch with us:

info@fairdanmark.dk



Economy of reuse:

Some things don't figure

Since establishment, we have refurbished and shipped 2631 computers. This is one of the most important measurable results of our activities, but this activity doesn't figure in our conventional financial figures.

Some things don't figure!

Benjamin Balder Bach, board member from FAIR comments:

»The computers that we refurbish are hard to put precise price tags on. A very modest estimate would say that these functional computers (laptop or desktop+screen) that we assume to live 5 years more in Malawi have a market value of AT LEAST 500-1000 DKK. This sums our activities to roughly speaking DKK 1.3-2.6 mio (\$200k-\$400k).«

Looking at 2018 and 2019, the 559 computers and 312 screens refurbished can be valued at DKK 300.000-800.000. Looking at our financial results, we have managed to produce refurbished values that exceed our expenditures at least 2-4x. The summarized costs for the companies that have supported us, show that their contributions have produced values in a magnitude of 4-10x their financial contribution.

Growth factors

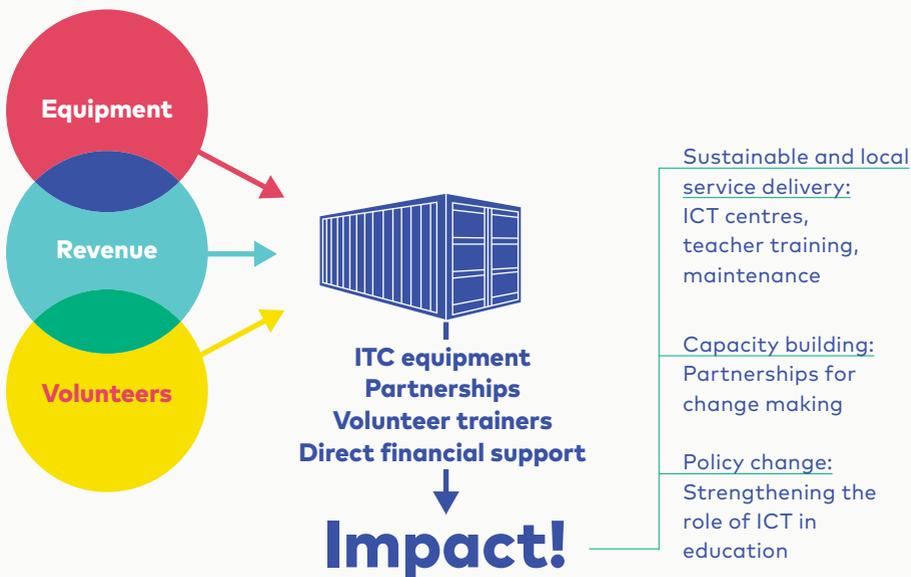
Our model targeted at businesses is crafted so that we can receive more equipment and grow our impact at the same time. It's easy to find discarded

ICT equipment, but much harder to build an organization that reconditions the equipment and sustains educational projects at the same time. This is why we have chosen a model as a civil society and social enterprise.

Balance 2018

As of 2018-12-31 our assets and liabilities were DKK 89.479, of which our equity was DKK 74.804. The goal of FAIR is not to own assets, nor to have an unstable economy. But we are insecure because of the lack of funds to cover up future uncertainties. The financial audit of 2018 was concluded without any remarks by state-authorized accountant Thorvald Rein and may be downloaded from:

www.fairdanmark.dk/da/om-os/aarsrapporter/



Result 2018:

| Expenses | |
|-----------------------|-----------------------|
| Workshop rent, DK | 121,205 |
| Projects | 49,589 |
| Audit | 5,000 |
| Other | 37,483 |
| | 213,277 |
| Income | |
| Memberships | 12,414 |
| Companies | 76,750 |
| Other donations | 39,461 |
| | 128,625 |
| <u>Result:</u> | <u>-84,652</u> |

Supporters

Foundations

In 2019, FAIR Received a Danish Ministry of Culture operational grant from the Fund for "landsdækkende almennyttige organisationer 2019". Since 2016, FAIR has had two grants from InterKultureltCenter (ikc.dk) which helped us to make plans and to improve and renew our capacity both in Denmark and Malawi. IKC has been vital to recent year's development in FAIR.

Also thanks to: **Genbrug Til Syd, Lauritzen Fonden, and Globalt Fokus.**

Company partnerships

We thank **Fredensborg Forsyningen, MissionPharma** and **NovaSol** for their long-term partnership commitments, and Aberdeen Asset Management, Arcon-Sunmark, BO-VEST, Business for Social Responsibility Nordic, Byens Netværk, Cbit, cBrain, Christensen & Co, Citelum Denmark, Dansk Kommunikation, DEIF, Fælleskassen, FAIR Danmark, FOA, FødevarerBanken, Frokost.dk, Kollegiekontoret i Aarhus, Kromann Reumert, Merkonomerne, Missionpharma, Møbeltransport Danmark, Pharmatronics, Thorvald Rein, Toms Gruppen and Trademark Textiles for their donations of equipment and operation costs in 2018 and 2019. Their interest and support have helped us, and we urge more companies to join them.

Thanks to all the activists participating in the daily work in FAIR: Marthe, Philip, Benjamin Balder, Pieter, Luiza, Jacob, Hanne, Ove, Nina, Anne and Maiken.

Thanks also to the many people who showed up for the reconstruction of our workshop, and people who have shown up for our refurbishment work weekends.

Morten & Kiss from K-O-N-T-O.dk for their incredible commitment to the new workshop.

Andreas Hammershøj for designing the LCRS logo, Thomas Elsted for designing this publication, and Zahi Asa from The Noun Project for the container icon used in the illustration on page 56.

LetsGo for their fantastic car sharing platform that enables us to pick up equipment and have flexible access to the vehicles we need.

Enavn.dk for web server hosting.

Stena Recycling for providing responsible e-waste management in Denmark.

Finally, a very big special thanks to our former chairman and executive director, **Bent Blindbæk**, who has retired from his position. Bent founded FAIR Denmark as a sister organization of FAIR Norway in 2008.

All in all, we are proud of what we have achieved and we thank all of our friends and partners that helped us make it this far. We are inspired to continue our work and hope that you will join us on this exciting journey into refurbishment, education and development.

Our name FAIR is short for **Fair Allocation of Infotech Resources**. Since 2010 we have collected, refurbished and shipped computer equipment from Denmark to Malawi. We work with complete classroom solutions containing free and open source software and educational contents – delivered and maintained by partners in Malawi.

This is our modest contribution to bridging the gaps in educational opportunities caused by global inequality. It's not a lot compared to the unmet need, so when we talk about our achievements, we emphasize the experience and potential that's been built – a capacity to scale our operation.

This little booklet is about what FAIR has done, and how we want to continue doing that & more. It has been co-written by volunteers, and in all modesty, its ultimate goal is to warmly invite partners, members, sponsors and volunteers to help us on our mission!



fair

Fair Allocation of Infotech Resources

www.fairdanmark.dk