

THERE ARE NO  
PASSENGERS  
ON SPACESHIP  
EARTH

# WE ARE ALL CREW

*(Marshall McLuhan)*



The POC21 Innovation Camp Report



In the late summer of 2015, housed in an ancient castle surrounded by lush fields and magic trees, about 300 makers, designers, scientists and geeks started an uncommon community.

They met at POC21, an innovation camp and proof of concept that the world we need can be built by our own hands. Governed by common values and mutual trust, they developed 12 open-source projects that pave the road into the fossil free, zero waste society.

***This is their story.***



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# ORIGINS

Climate change and resource depletion present a dire threat to our ecosystem, our societies and economies. To meet our basic human needs for food, energy, shelter and mobility, we rely on unsustainable industrial-era systems based on fossil fuels and waste, which exploit people and the planet. Scientists say our civilization is nearing collapse, unless we implement a swift and radical transition toward a low-carbon and low-resource economy. Meanwhile, for 20 years, diplomats have met at the UN's annual Conference of the Parties (COP) to address climate change. In the meantime worldwide emissions of CO2 have doubled. The 21st meeting was to be held in Paris in December 2015. We said:



*"At COP representatives from governments sit and talk about what to do.*

*With POC, the proof of concept, we are actually doing what needs to be done with our own hands.*

*It's basically the contrast between talking and doing.*

*I think people feel very frustrated by decades of talks with zero result and they really want to do something, to take matters into their own hands and build a better world."*

*Simon Kiepe, Co-founder Open State & POC21*

In time for the COP21 in December 2015, POC21 organizers OuiShare (Paris) and Open State (Berlin) decided to deliver the proof of concept that a sustainable society can be built by citizen pioneers. To do this...

1. we searched for the best solutions in energy, housing, food, water and mobility and selected the 12 most promising projects from nearly 200 applications
2. we gave these makers and inventors the space, time, tools, resources, and support from world-class mentors, during a 5-week "innovation camp" from August 15 to September 20, 2015
3. we promoted the results via international media, our traveling exhibition and step-by-step online instructions of all 12 projects

POC21 set out to create a space of possibilities where people who already work on sustainable solutions can access everything they need to scale and succeed.

# » OUR INDUSTRY DEAD END «

BY BENJAMIN TINCQ



CO-FOUNDER POC21



**T**he story behind the products we use every-day often goes like this: marketers and designers from a big company come up with what they think customers might want; design a product that might fit, then pass it to engineers and supply chain managers to make and distribute it. Then, through a complex assembly process involving a global network of third-party suppliers (often located in countries with cheap labor), products are standardized and mass-manufactured to achieve economies of scale. The different parts are moved between factories, before the final products get shipped in large containers to big cities, where they are shelved in huge commercial centers, waiting for consumers to purchase them, use them, and eventually dispose of them. This is the legacy of 200 years of industrialization, during which the acts of production and consumption have been geographically and hermetically separated.

Then, for any given kind of product, the whole process repeats itself within dozens, if not hundreds, of companies, every one of them patenting their designs and technology to protect themselves from competition, thereby limiting the possibilities to find spare parts and the knowledge necessary

to repair these products. The most successful of these companies can then hope to achieve the holy grail: a long-term economic rent that enables them to generate huge profits from their bestselling products, selling these (or slightly updated versions) over and over again, with few incremental improvements.

This global, centralized, patent-driven, mass production system that we inherited from the industrial revolution does not work anymore. Most often it produces trendy stuff that people do not need; stuff that is designed for the garbage, that consumes our world's diminishing resources, and that generates large amounts of carbon and waste along the value chain. Even when products are genuinely intended to cause less harm, such as electric cars, their development is still wasteful and problematic because it relies on proprietary, closed processes instead of pooling everybody's knowledge and efforts.

As climate change and resource depletion represent dire threats to our ecosystems, our societies and economies – so much that scientists say our civilization is nearing a collapse – we urgently need a radical transition towards a low-carbon, resource efficient economy.

*“While we manage natural resources as if they were abundant, our economic system enforces artificial scarcity on knowledge, creativity, and innovation. What if we could reverse this paradox and leverage digital abundance, to bring on better stewardship of our planet's resources?”*

Michel Bauwens



# HOW WE SEE THE FUTURE:

Open, decentralized,  
sustainable production

**P**OC21 happened because we shared a strong feeling that a more sustainable mode of production and consumption was not only desirable, but that it was already being tested by makers, designers and technologists around the world.

Decentralized fabrication, sometimes labelled a “new industrial revolution”, is a post-industrial production system that combines the online sharing of open source (patent-free) blueprints, 3D models and assembly manuals, together with democratized access to production tools, such as digital fabrication technologies (CNC machines, 3D printers), which easily make these open source digital files into physical objects. These tools and the communities that use them, can be found in “shared machines shops” such as Fab-labs and Makerspaces which are popping up everywhere around the globe.

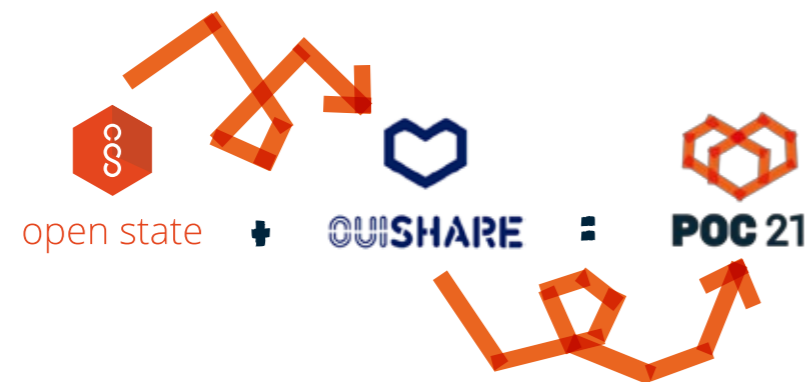
Simultaneously, an increasing number of citizen-pioneers are developing open source products and solutions that can heal the planet, from portable solar generators to water- and energy-saving showers, or snap-fit tools for growing organic food in cities. Others are feeling empowered again by the possibility to repair, customize or upgrade the products they use everyday more easily. If their blueprints are well documented, skills and spare parts can be found easily in their local surroundings. Yet others are craving for an alternative to the throw-away products that supermarkets offer them, eager to become the early adopters of a market for open sustainable products.

Our grand vision is to turn the passive consumers of today into active architects of a truly sustainable lifestyle, empowered by digital fabrication and collaborative action.



# ORGANIZERS

The idea for POC21 was developed between 2012-2014 by two collectives, Open State and OuiShare.



## [www.openstate.cc](http://www.openstate.cc)

This Berlin-based collective is organized as a “living prototype” for a collaborative and circular economy. Its main purpose is to design innovation camps such as POC21: fully immersive eco-systems of “what could be.” Together with international partners, it aims to set up a holistic, open tech infrastructure and to consult with big business to shape the transformation we need.

## [www.ouishare.net](http://www.ouishare.net)

Founded in 2012 in Paris by a handful of enthusiasts, OuiShare is now an international community exploring the edges and intersections of collaborative economies, emerging communities and digital transformations. 80 active community nodes connect innovators, thought leaders, professionals and citizens across Europe, the Americas and North Africa.

From early 2013 onward, OuiShare and Open State started brainstorming about how they could join forces and organize an innovation camp centered around open source sustainability solutions.

Their collaboration effectively started at the end of summer 2014, following the announcement that the 21st U.N. climate change summit (COP21) would be held in Paris. It was a perfect opportunity to amplify our message through mass media.

POC21 combined OuiShare’s global network and experience with large-scale events, together with Open State’s innovation camp methodology and their track record in communications and campaign design.



FOUNDERS OF OPEN STATE: Daniel Kruse

Simon Kiepe

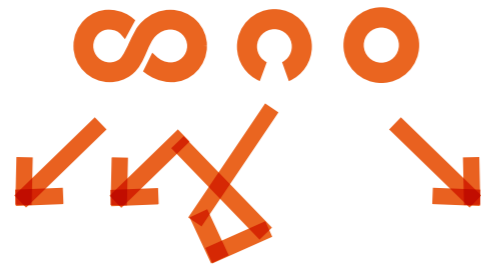
Dominik Wind

FOUNDERS OF OUISHARE: Benjamin Tincq

Justyna Swat



# PRINCIPLES



**SUSTAINABLE DESIGN** is a way of designing products that takes into account the sustainability of the materials used, the energy consumed and the waste produced during the entire lifecycle of the product. It aims to improve the durability of products, by designing for their repair, disassembly and the reuse and recycling of its components.

**OPEN SOURCE** was originally applied to the sharing of software code, before it then migrated to physical products (open source hardware) and even culture (Creative Commons). Open source projects share the designs and information required for their replication so that they can be improved, widely distributed and adapted to specific and local needs. With open source blueprints shared freely on the

web, and the growing accessibility of fabrication labs all over the world (known as distributed manufacturing), it is theoretically possible for ordinary people everywhere to build and modify these products.

**ZERO WASTE** commits to designing and managing production and consumption processes so that we can conserve and recover all resources, and not burn or bury them. On the path to zero waste, we aim to reduce the volume and toxicity of waste and materials. The "4R rule" here is: Reduce (at the source), reuse, repair/fix, recycle. "The best waste is the one we don't produce." Managing resources in a closed-loop system also generates new business models that are often referred to as the "Circular Economy".

*"In a situation where you have very limited time and a big problem, you really need to have the biggest team you can, iterating as fast as possible. So with an issue like climate change, the speed and efficiency of R&D makes Open Source the obvious way to go."*

Justyna Swat, Co-founder POC21



*"During the camp we gave each participant a reusable glass water bottle. We installed solar showers and used biodegradable soaps and shampoos so the grey water could be used in the gardens. We used compost toilets and thus saved around nine litres of fresh water from a standard toilet's flush. In our factory, we saved left-over materials for re-use. We sorted waste from the kitchen and living spaces for compost or recycling."*

Léana Msika, Zero Waste Manager



# PREPARATION

"About 30 people volunteered their time to come help us set-up. It was a lot of grueling physical work to clean and clear the space, to haul, to unload, to cut, to wire, to assemble..."

We were basically setting up a village. Now I can imagine how settlers in the early ages felt." *Justyna Swat, Co-founder POC21*

## 10-12 MONTHS BEFORE THE CAMP

- \* Secure camp location (*Château Millemont*)
- \* Develop brand & launch first website/landing page
- \* First rough budget estimate
- \* Identify & contact the first funders & partners
- \* Identify core roles
- \* Start outreach to collaborators and advisors

## 8-10 MONTHS BEFORE THE CAMP

- \* Develop & refine basic event format
- \* First assessment of technological & infrastructural needs
- \* Clarify story that will catch the attention of media outreach
- \* Fundraising: Send & follow up on grant proposals & other pitches
- \* Establish criteria for participation

## 6-8 MONTHS BEFORE THE CAMP

- \* Launch international call for projects, outreach to makers/fablabs
- \* Early design of the camp processes & program
- \* Refine media plan
- \* Awareness-raising events in Paris and Berlin
- \* More fundraising

## 5 MONTHS BEFORE THE CAMP

- \* First selection of 21 projects: share with advisors & conduct interviews
- \* Refine technical and infrastructure needs
- \* Outreach to high-profile mentors & experts
- \* Send invites to public officials and institutions
- \* Distribute press release
- \* More fundraising

## 4 MONTHS BEFORE THE CAMP

- \* Select & announce 12 final projects
- \* Call for volunteers and technical support crew
- \* Organize transportation & visas for participants, mentors & partner representatives
- \* Distribute & collect registration forms for all participants
- \* Send a survey to participants to prepare the accommodation plan
- \* Study and plan the required on-site improvements for electrical needs like water, sewage, waste, wifi, etc.
- \* Conduct feasibility study for fablab design (set-up, costs, safety)
- \* Negotiate in-kind & pro-bono contributions, especially fablab machinery
- \* More Fundraising

## 3 MONTHS BEFORE THE CAMP

- \* Produce communication materials
- \* Align program with event production team
- \* Develop food supply strategy and select chefs
- \* First list of furnishings needed
- \* Develop "Zero Waste Event" plan
- \* Official meeting with Millemont mayor and local authorities
- \* First draft of insurance and security contract needs
- \* Follow up with funders, partners, mentors/experts, volunteers & participants
- \* Main funder confirmed
- \* More fundraising (last 25%)
- \* Press conference at OuiShare Fest 2015

## 2 MONTHS BEFORE THE CAMP

- \* Create welcome packs for participants
- \* Finalize camp schedule, including open days for press and partners
- \* Validate accredited journalists with authorized access
- \* Make final financial decisions based on grants, crowdfunding, in-kind donations
- \* Finalize set-up (materials, schedule, volunteers, builders)
- \* Fine-tune the fablab equipment list based on projects' needs
- \* Identify doctors & emergency plan for site
- \* Secure insurance & security contracts
- \* Book remaining travel for participants

## 1 MONTH BEFORE THE CAMP

- \* Find/buy/borrow necessary furnishings (tents, beds, sleeping bags, lights, sofas, pillows, blankets, desks, chairs)
- \* Increase electrical capacity with high-voltage cable, and install additional power outlets all over the camp
- \* Set up fablab
- \* Set up co-working space (desks, computers, printers, wifi) and team offices
- \* Build shower structure
- \* Install professional cooking and refrigeration equipment in the kitchen
- \* Build dry composting toilets
- \* Set up tents & interior sleeping places
- \* Build floating architecture & furnishings (outdoor hangout space, firepit)

# POC21

## INNOVATION CAMP

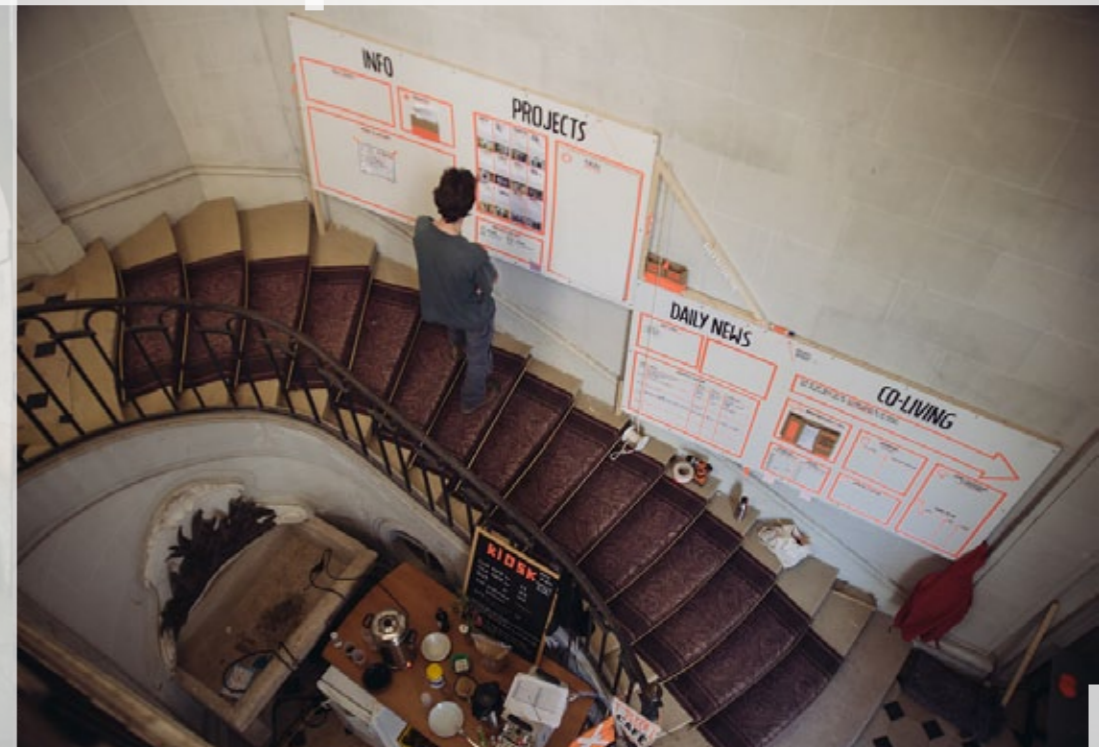
### AUGUST 15 - SEPTEMBER 20, 2015

Five weeks of a fully functioning micro-society, complete with housing, food provisions, working and living areas, sanitary facilities and many additional improvements suggested and implemented by the community.

# MILLEMONT









## 1st MONTH AFTER THE CAMP

- \* Take down tents, shower building, toilets
- \* Dismantle fablab
- \* Organize return transport for all loaned machines & stuff
- \* Sell or donate furnishings & materials
- \* Pack & store mobile exhibition
- \* Create documentary film about camp
- \* Create processes for ongoing participant/project tracking & interaction

## 2 MONTHS AFTER THE CAMP

- \* Prepare COP21 actions, exhibitions, workshops, & documentary screenings
- \* Distribute press release for POC21 @ COP21
- \* Prepare evaluations & reports back to funders & partners
- \* Finalize documentary about the camp

## 3 MONTHS AFTER THE CAMP

- \* COP21! Hold actions, exhibitions, workshops, & documentary screenings
- \* Maintain & support the camp community (using tools such as Facebook, Telegram messenger, Slack Channels or the beta Cobudget platform)
- \* Finalize evaluations, reports & next steps & future plans

# »» DIARY OF AN ECO-HACKER ««

ADAPTED FROM AN ESSAY  
BY TRISTAN COPLEY SMITH

CAMP PARTICIPANT,  
CO-FOUNDER OF AKER



**T**he geeks have officially stormed the castle: Over the past nine days, a small army of approximately 50 builders, makers, volunteers, organisers and media-folk have worked to transform the majestic old Chateau Millemont into a sustainable innovation hub: POC21.

The gold-trimmed interior of the castle, with its high ceilings and ornately painted features, has been loaded with beds, sofas, beanbags, 3D printers, and CNC-fabricated plywood tables. Thick wires carry voltage around every corner, while satellite dishes and transmitters pump precious data throughout the camp. The old servants' quarters have been converted into a media room full of cameras and video editing equipment. The gardens, surrounded by a sprawling 100 hectare forest, have been dotted with 30 large canvas tents, solar panels, and fairy lights to guide the way in night time darkness. An ancient cobwebbed hall on site has been transformed into a kitchen fit to feed and shelter 100 people during rainy mealtimes. Pallets of all shapes and sizes have been hacked together into recycling bins, shelves, and information signage, while neon orange strips of tape (POC21's signature prop) decorate everybody's personal belongings to indicate their rightful owner.

Most impressively perhaps, the old stables, previously filled with years of accumulated detritus, have been emptied and replaced with a wood shop, metal welders, and a catalog of high-tech digital fabrication tools to realize almost any project.

Several nights ago, a party celebrated the completion of the bathroom structure, built from scratch and equipped with five individual shower stalls, hot water and a lengthy communal sink. The group danced to samba and limbo'd under a taut length of fairy lights. Nights earlier, the Chateau owner unexpectedly arrived to a similar gathering (this time celebrating the completed

dry-composting toilets) and generously distributed a bottle of ancient Armagnac.

What has been achieved in this short time is impressive. Young, optimistic creatures from many corners of the world have congregated, for the most part unpaid, to create this space together. Brazilians, French, German, Spanish, Italian, Swiss, Americans and a couple of English boys and girls work together (all speaking fortunately — for me — in English) to dust off the old and install the new. The gender balance feels equal, and the theme of constant improvement and self-management is shared. New infrastructure is constantly being constructed and improved to raise the quality of life and efficiency of work. Special attention has been paid to practicing what the camp preaches — composting, low water usage and waste material re-use are all being embraced here as thoroughly and creatively as possible.

For sure, this experiment in co-living and co-making has not been without bumps. An intentional absence of hierarchy means POC21 attendees must learn to take responsibility for themselves and sometimes for others. If something is broken (a shelf for example) there is usually nobody telling you to fix it — there is the option to either act, or allow the problem to continue until somebody else acts. This creates a unique culture of pragmatism and shared responsibility throughout the camp. Unlike the outside world where everything has its assigned experts, roles, and structures of accountability, it is not uncommon to find people defying their category; a photographer emptying the compost toilet, a computer hacker pitching tents. The cross pollination of skills, knowledge, and purpose seems to nourish POC21 attendees, smoothing the community from a solid pyramid structure into something more like a shape-shifting sphere. Those who arrive fresh off the boat from the old world seem to take a few days to adjust to this informal structure and governance, but ultimately find exuberance.

# PROCESS

*"Each of us learned a lot from each other, so everyone will have a new perspective outside their profession or field. I have learned a little more about energy and a little bit more about biomimicry, and they probably have learned a little bit more about design-thinking processes and user-centered innovation. There is great value in this cross-pollination that's happening between all the people who are part of POC21."*

Mercè Rua, Supporter

While we were clear that the principles of sustainability and openness shaped the content of the projects and the program we provided for the participants, governing and maintaining our micro-society became another major aspect of the camp. After the participants had arrived and settled in, we held a session asking everyone to identify the values and vision that would shape how we lived together.

## Shared Values

- Openness
- Diversity (of cultures, backgrounds, abilities, opinions, etc.)
- Inclusion
- Trust
- Empathy
- Reciprocity
- Collaborative Intelligence
- Sharing (no competition)
- Gratitude & Showing Appreciation

## Division of Labor

We had to meet our basic needs with limited resources. There was no staff to cook or clean for us, so we had to do it ourselves. For some project participants, eager to spend their every waking hour using the awesome array of tools in the Factory, this came as a disappointment. As a social

experiment, POC21 challenged us to grow personally and as a group. We developed a set of social tools that enabled us to communicate well and hold each other accountable, especially coming from different cultures and backgrounds, while facing high-stress situations.

*"Reputation, background and status magically lose their power in this setting. Even senior guests and VIP visitors seem to instantly feel the altered reality, and instinctively start cutting vegetables to help the kitchen team or get involved elsewhere. It's peer pressure in its most positive form."*

Sven Stegeman, Supporter

## Social Tools

In the spirit of open source, we remixed hand signals from social movements like Occupy, adopted meeting structures from Agile software companies, and even took inspiration from natural systems. The goal was to develop shared understanding, make sure quiet voices were heard, and share our collective progress as we learned. Examples included:

- Public information boards that displayed people's needs, offers, schedules, and all daily maintenance tasks like cooking & cleaning
- Daily check-ins and check-outs with rituals around assigning tasks, and solving problems or conflicts. These evolved to include humor, entertainment, appreciation rounds, and physical gestures as effective non-verbal communication.
- Celebration and play to balance the work and stress

*"Looking back on the first week, POC21 seems less about the open-source, sustainable hardware innovations we set out to build, but much more a laboratory of human interaction, questioning our basic assumptions of life: How far am I willing to stretch? Where should I push and when is the right time to let go? Who will be left if I give away myself to others?"*

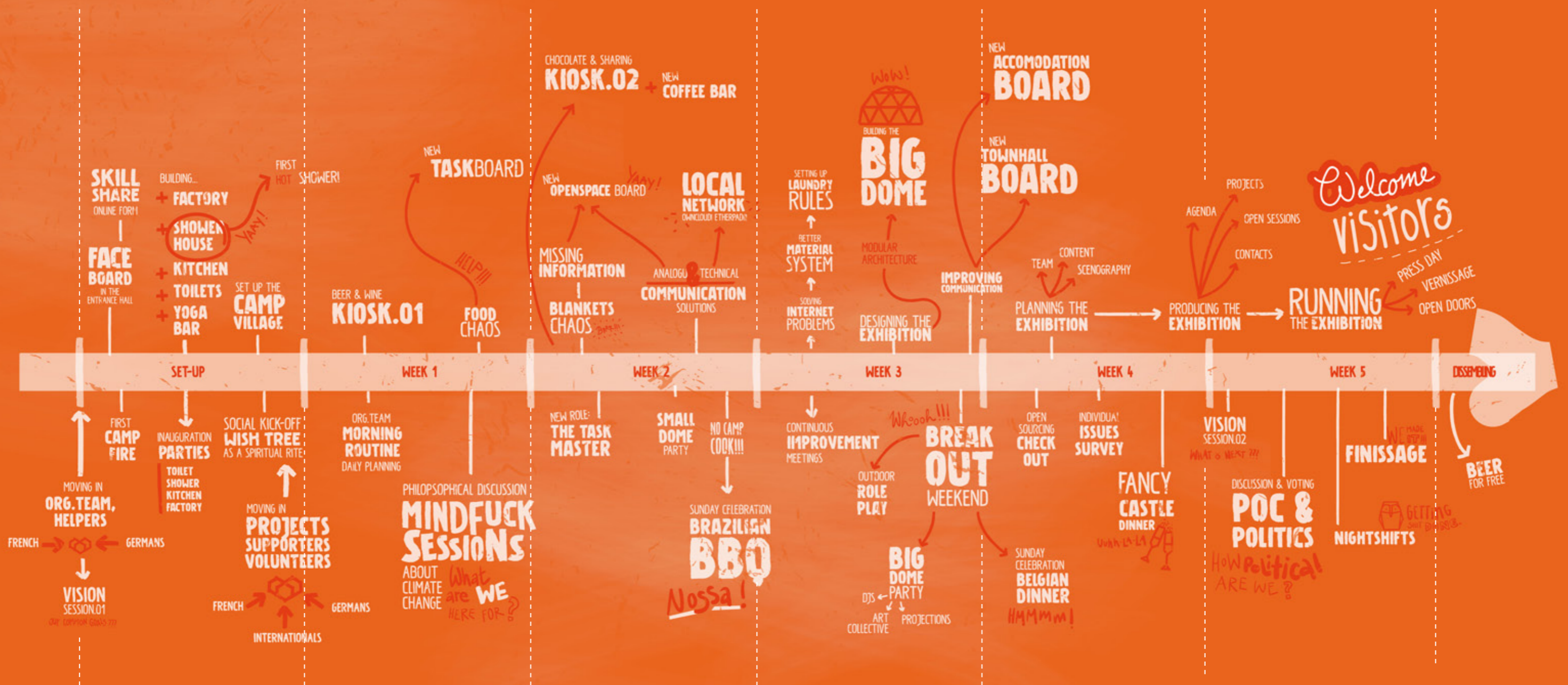
Daniel Kruse, Co-founder Open State & POC21





# MILESTONES OF THE CO-LIVING & CO-WORKING PROCESS

CREATED BY THE POC21 COMMUNITY



# PROGRAM

POC21 was built as a 5-week innovator's residency that blended strategic design, prototyping, co-making, and co-living. Participants experienced a unique creative process complete with mentoring sessions, work sprints, peer-to-peer teaching and learning, reality checks, inspirational keynotes, campfire chats, and more. The camp was equipped with all the tooling, machinery, and materials required for product development, ranging from digital fabrication to modeling and drawing, to wood and metal workshops, to an on-site electronics shop. Temporarily stepping out of normal life allowed participants total focus on the projects: speeding up and amplifying the design and development processes collaboratively, while exploring the intersections of the projects at the same time.

In the final weeks we helped the projects develop stories that we tested during pitch sessions, before presenting them to the public at our closing conference and exhibition. We also collected documentation of each prototype's development in photos, writing, and video, which we posted in a daily-updated web magazine. In the last week, all teams prepared prototypes and presentations for the Exhibition.

Each week had a different focus:

#### Week 1:

Onboarding, teambuilding, establish co-living, challenge projects on conceptual design

#### Week 2:

Iterative prototyping, challenge projects on economic models

#### Week 3:

Iterative prototyping, refine project visions, break-out weekend

#### Week 4:

Iterative prototyping, finetune project presentation for exhibition/final event

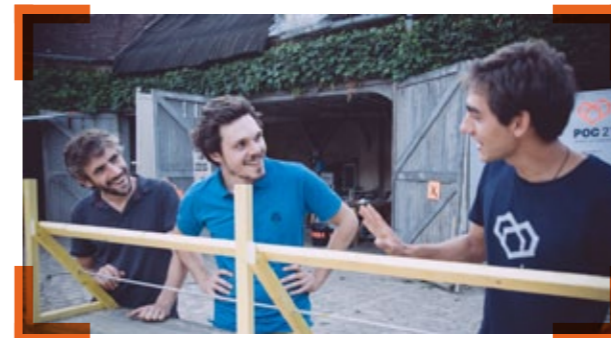
#### Week 5:

Finalize prototypes, storytelling, pitch, presentation, exhibition open to the public

*"In a nutshell, the one goal of the program and creative process design was to enable the emergence of an atmosphere shaped by fundamental openness, freedom, and mutual trust. On this basis everything else could happen."*

Dominik Wind, Co-founder & Program Director POC21

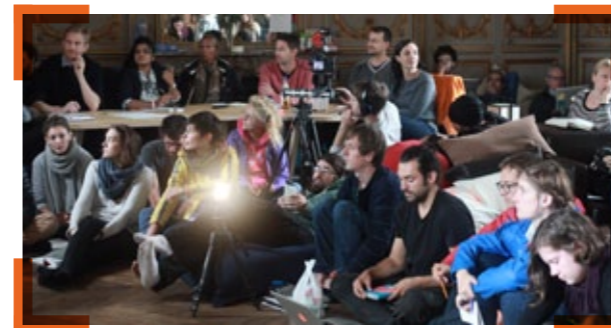
The design of the camp's creative process aimed to foster and support the program with various session formats:



**Peer-to-peer sessions** were self-organized to advance the projects and included all conceptual and design work, coding, building and prototyping sprints. Experts and the camp organizers jumped in when requested, to moderate, mediate, and facilitate.



**Reality checks** in week 2 and week 3 gave the teams the opportunity to present to a jury of outside experts who then provided feedback. This not only improved presentation skills, but also helped to keep the projects aligned with what real users need and what the world needs.



**Keynotes** were offered once a week to inspire participants and broaden their horizons. Speakers included science-fiction author and maker-guru Bruce Sterling and P2P foundation founder Michel Bauwens.



**Retrospectives** summarized the achievements and learning of previous weeks and focused on the tasks of the coming week.



**Check-outs** helped get the camp in sync each day. Project teams summarized the day's progress, the next day's program was presented and co-living tasks were distributed. Check-outs also provided a forum for questions, concerns, and a praise for people who helped each other out.

# » A DAY IN THE LIFE «

TRANSLATED FROM FRENCH  
AND ADAPTED FROM AN ESSAY  
BY OPHELIA NOOR

----->  
JOURNALIST & PHOTOGRAPHER

## 6am-8am / Awakening

Surrounded by open fields and forests, the Castle wakes gradually, amidst the morning mist. In the Orangerie, which has been transformed into a kitchen and dining hall, a team of volunteers prepares breakfast. They cut fruit and bread, arrange jams, butter, honey and cereals, and most importantly, make a huge pot of coffee, to nourish 80 – 100 people. Meanwhile, inside the Castle itself, *Anja* leads the morning yoga practice, open to all. Tucked beside the tent encampment is the shower structure. The five shower stalls, separated by thick black plastic sheets, are already all occupied. Garden hoses function as basic taps, and one long communal sink made from a piece of plastic-coated canvas runs the length of the building, opposite the stalls. Because the castle isn't connected to municipal sewers, we collect the grey water. The soap, toothpaste and shampoo are biodegradable and come as solid blocks, without any packaging. On the wooden deck of the structure, people wait for a stall to become available, amid the shoes, clothes, and towels left there to dry.

Back in the Orangerie, the breakfast is served, and people eat quietly under the great arches or outside on the sunny lawn. Each meal is a precious time for conversation between participants who come from all over the world. Some are already friends, other have briefly met at events like OSCE (Open Source Circular Economy) Days, the fablab Festival in Toulouse, or Ouishare Fest.

## 9am-10am / Check-In

In the Lounge, the main room of the Castle, the first meeting of the morning is led by *Dominik Wind*. This is the Check-In, where general news is shared, each day's program is announced (keynotes, workshops and visiting mentors), and the week's objectives are set. The organizers check on the morale of the twelve project teams.

## 10am-1pm / Morning Work

The teams from the various projects, the volunteers, the mentors, and the organizers scatter through different spaces of the Castle: the Factory

with its fabrication machines, the desks of the co-working space, the sofas and pillows of the Lounge, and the offices where the press and logistics teams are based. Some teams do brainstorming sessions to enhance their concept and design; others have personalized sessions with visiting mentors.

Under the supervision of *Damien Arlettaz*, the fablab Manager, some teams gather in the Factory to build and enhance their prototypes, while other still build infrastructure needed by the community, like an additional dry-toilet.

In the all-female logistic team, *Julie, Claudine, Hind, Donatienne* and *Maiwenn* bustle with activity from morning to dusk. They run shuttles to the Garacnières-La-Queue train station, buy the groceries for the coming days, distribute sleeping bags and Soul Bottles, account for all the arrivals and departures from the castle, and oversee the budget.

## 1pm-2pm / Lunch

The weather is fine, so tables and benches are set on lawn. Dishes are mainly vegetarian. Adjustments are made as well for vegans and those who are gluten-intolerant. Tomatoes, feta, avocados, bulgur, rice, lentils, omelettes, peaches, raspberries are in abundance. Some groceries come from Phoenix, a local group that gathers unsold items on their expiration date from the nearby supermarkets.

## 2pm-7pm / Back to Work

Everyone resumes their activities. *Tomàs Diez*, who directs Barcelona's fablab, talks to several projects about their possible synergies and integration into Barcelona's Smart Citizen Kit: *Yannick* from the Ve-loM2 team, *Trystan* from the Open Energy Monitor, and *Tristan* from AKER.

Each project must face a multidisciplinary team of designers, communicators, developers, engineers, makers, architects and entrepreneurs who challenge them to define and refine a clear strategy. They question every aspect of project design, communication, UX and production.

In the Factory, *Clément Chadeyron*, a regular at the fablab of Gennevilliers and the founder of the

LimouziLab, leads a Computer Aided Design and Fabrication workshop on laser cutting.

As courageous volunteers empty the dry toilets for the well-being of the community and the health of the plants, the kitchen team prepares a delicious dinner. At 6pm it's time to unwind, chilling on the Orangerie's lawn, or on the other side of the Castle by the campfire and its ring of wooden deckchairs. On the lawn a volleyball game spontaneously begins. While some participants sink into bean bags of the lounge space and dive into passionate conversations, others seize the chance to take a shower, and others still work tirelessly in the Factory.

### 7pm-8pm / Check-out

On the Orangerie's lawn, the master of ceremony, (a rotating position) calls everyone to join the circle of benches. "Welcome to the check-out session. How did your day go? Is there an experience you want to share with the community?" Complaints and appraisals are put in the open. Calls for assistance, lost and found, questions and ideas are shared with the community. This is the time and place for newcomers to introduce themselves, or those departing to take their leave.

Everyone must sign up on the tasks board for five operational tasks around the camp, from kitchen duty to toilet care to night watch. Who will volunteer? Goodwill makes POC21 go round. The task "Toilet Care" demands four people to empty the buckets of our dry toilets several times a day and add them to the compost. "Kitchen Clean" is a two persons job, to clean the huge stewpots and cutlery used in the kitchen for lunch and dinner. The "Garbage Crew" is a duo that empties all recycling bins, and two brave "Night Guardians" will patrol the grounds of the castle between 1am and 6am. Living in community is one of the most important challenges at POC21. Living together, doing together, without a rigid hierarchy, demands constant effort and adjustments. Everyone must fulfill their responsibilities. The camp doesn't function without everyday tasks shared between everyone; this is how people get to know and trust and listen to each other, giving a hand, taking initiative, taking of each other. This anchors the projects in simple humanity.

The check-out is one of those precious moment when anyone can come up with an activity, suggest informal meetings, or make alterations to the general program. Each listens closely, waiting for one's turn to speak, the circle applauds by waving their hands and asks for silence by raising a hand, an efficient and beautiful group language.

### 8pm / Dinner

Everyone grabs a fork and knife and conversations are rife while waiting in line. The main language spoken at POC21 is English. Participants come from all around the world, with a majority of French and German, but also you can hear Italian, Spanish or Belgian in the murmur.

After eating each person throws out waste in the appropriate bin, and cleans his own dishes, washing in one tray, then rinsing in a second tray. The system saves significant water: we consume 60L of water per meal for 100 people, while a dishwashing machine for a family of 4 to 6 people consumes 25 to 40 liter of water each cycle.

### 9pm-1am / Free Time

Night falls. People disperse. Some go back to the co-working area to work late. Some take a beer from the kiosk (run on the honor system, with what you owe calculated at the end of camp) and sip it around the campfire. Others continue their discussions in the Orangerie or the Lounge with a glass of wine. The evenings are free, except when a special guest presents a keynote, like *Michel Bauwens*, the peer-to-peer economy theorist, or *Bruce Sterling*, the famous sci-fi writer. Another evening, *Cassandra* from Own Food offers Lindy-Hop class in the Lounge, there's an improvised Youtube session with *Paul* and *Bilal*, and a celebration around the new dome built by the Quatorze collective.

### 1am-6am / Night Watch

After 1am, when most finally sleep, the Night Guardians start to patrol around the Castle grounds. In the guardian's log, they record the tale of their night watch, the position of the constellations, the concertos of the crickets, their haikus and epiphanies.

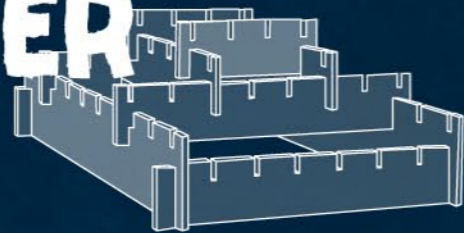


# PROJECTS



**KITCHEN  
B**

**AKER**



**SOLAR  
OSE**



**FAIRCAP**



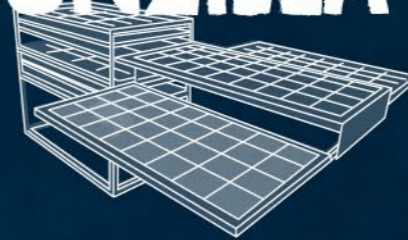
**VÉLO  
M2**



**OPEN  
ENERGY  
MONITOR**



**SUNZILLA**



**SHOWER  
LOOP**



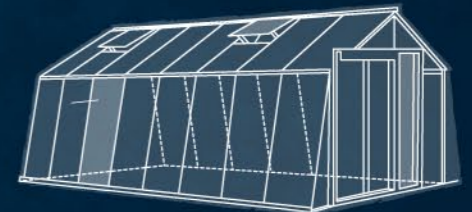
**30\$  
WIND  
TURBINE**



**BICITRACTOR**



**MY  
FOOD**



**NAUTILE**



## UNITED KINGDOM

30\$ WIND  
TURBINE

a low-cost and easy-to-build solution  
for individual energy harvesting

Generates 80W of mechanical power in a 25 km/h wind, or 1000W in a 60 km/h wind

Max. costs of \$30 per unit, mostly from scrap materials

Can be assembled by 2 people within 6 hours

The wind turbine can be built entirely from reclaimed materials and standard parts to provide free, clean, renewable energy in windy areas. The vanes are cut out of discarded aluminum offset printing plates and mounted on a reclaimed bicycle wheel, which provides a sturdy rotational axis. The three-vane version has been successfully tested against 80 km/h winds; while the six vane version works even with 105 km/h. The turbine is mostly aimed at the developing world because power expectations there are in tens of watts, whereas in developed countries, thousands of watts are used. The power generated is enough to charge a phone, which is essential for banking, communication, and business in the developing world; or for powering a refrigerator for vaccines or foods.

*"In our modern lives, everything at the complete core of our existence, meaning energy, food, shelter, and transportation, has become alien to us, a black box that you don't understand anything about. It is terrifying, unnerving, this feeling of complete dislocation from the basic, fundamental building blocks of your own world. I think anything that can be done to address that is healthy. With open source, everyone is a stakeholder. If you had a hand in making it, then you'll know how it works. You can fix it, and you can improve it. You can start feeding those improvements back into the global community around that thing."*



**Daniel Connell** is an open source technology designer. He is passionate about deconstructing complicated tech solutions and making them accessible and understandable for everyone. Born in New Zealand and currently a UK resident, he has traveled the world and taught himself everything he knows.

*"I'm not an engineer. I'm not a scientist. I make things badly, and I don't try to make things better, because if I can make things badly and they still work, then anybody can. If I was an engineer, I would design for engineers and then most people aren't engineers, so what would be the point?"*

## Tools needed at POC21:

Power drill, 4mm metal drill bit, craft knife/scalpel/exacto, 20mm x 20mm angle aluminum, about 1 meter long, tape measure, pop riveter, spanners probably 7mm, 15mm and 17mm – to fit your M4 nuts and the nuts on the bike wheel axle, bike cone spanner, marker pen, sticky tape, 4 clothes pegs (springy or the other kind), a small bit of wood for drilling into, computer and printer

## Website:

[www.solarflower.org](http://www.solarflower.org)

## Tutorial &amp; construction plan:

[www.instructables.com/id/Vertial-Axis-Wind-Turbine-from-30-Of-Scrap-Materia](http://www.instructables.com/id/Vertial-Axis-Wind-Turbine-from-30-Of-Scrap-Materia)

## Success stories since POC21:

- Invited to consult on wind power for the Earthship Institute
- The \$30 Wind Turbine is rebuilt all over the world, including a student group in Belgium
- Daniel recently launched the "Calais Refugee Camp Makers Rapid Response Group" as part of Makers Without Borders

# AKER

—  
snap-together kits to support urban,  
non-industrial agriculture  
—

Kits snap together in minutes with no skills required

Modular design that fits larger or smaller spaces on demand

A small upfront investment saves hundreds of dollars per year for food purchases

**A**KER is a modular growing system for producing food and increasing biodiversity in cities. Using a common design aesthetic and simple, snap-fit assembly, AKER is lowering barriers for city dwellers to participate in greening their cities. Envisioning a city where grey walls, rooftops and balconies are transformed into living ecosystems, the current range of kits includes a chicken coop, vermicomposter, three plant beds, and two kinds of beehives.

*"My secret motive is to spread the merciless idealism that will likely be emanating from the camp, along with the idea that the human ability to dream, create, and repair is alive and well amongst your fellow human beings – despite what you may have heard."*

Aaron Makaruk



**Aaron Makaruk and Tristan Copley Smith** are co-founders of AKER. The project evolved out of a citizen science project the two founded previously called Open Source Beehives. Both believe that digital fabrication can be applied to create innovative, snap fit solutions for the urban farming movement.

*"We see the projects express the synergies of their ambitions at POC21, and how they might work towards common goals. The energy teams for example, consisting of Solar OSE, the \$30 Wind Turbine, Vélo M2, and the Open Energy Monitor, have started to agree on standards that can be shared to charge lithium ion batteries. Similarly, the food projects MyFood, Biceps Cultivatus and our own project AKER are flirting around ways to integrate with each other."*

Tristan Copley Smith

## Expertise needed at POC21:

product designer, IoT coder, business model

## Tools needed:

4'x8' CNC router, computers and design software (Rhino, Sketchup etc.), electronics prototyping equipment

## Website:

[www.aker.me](http://www.aker.me)

## Tutorial & construction plan:

[www.instructables.com/id/Colorado-Top-Bar-Assembly](http://www.instructables.com/id/Colorado-Top-Bar-Assembly)

## Success stories since POC21:

- Successfully applied for the Shuttleworth Fellowship, funding and supporting AKER through 2016
- Selected as one of the "Top 10 Startups in Food and Water" by LAUNCH festival (given free tickets and exhibition space to the event)
- Creating Board of Advisors within the urban agriculture and citizen science communities
- Pivoted strategy and mission to reflect evolving goal to increase urban biodiversity and citizen stewardship of urban ecosystems
- Creating partnerships with ecologists and conservationists to inform this next stage of development

FRANCE



# KITCHEN B

modules to revolutionize the kitchen and reduce waste and energy use

Reduces the need for electrical appliances in your kitchen  
Each module is easy to reproduce with common hardware  
Reuses waste as natural fertilizer and for growing herbs

**K**itchen B re-imagines the modern kitchen for sustainable cooking. The three modules developed during POC21 help you preserve a variety of your food without the need of a fridge, turn your cooking waste into a natural fertilizer, and incorporate a mechanically-powered mixer for cutting, chopping, kneading. The system strengthens both your relation to food and your understanding of resource use.



**Yoann Vandendriessche, Antoine Pateau, Valentin Martineau and Audrey Bigot** are a team of friends. All four have a Master's degree in various areas of design and are interested in developing projects that have positive impact on our lifestyle and change the way we look at production and consumption.

*"As long as I remember, I've always wanted to work in the creation field. I wanted to create, do things with my hands, but I didn't know what to do or why to do it. I studied product design for four years. Five years ago, I started asking myself about the consequences of what I was doing. I realized that design has to be a path, not a thing for itself. So now I try to use my skills in order to have a positive impact. That's what we tried to do with Kitchen B: Because the kitchen is central in our houses, and because we all need to eat, it is a good place to start. Everybody can understand it and feel involved, from the kids to grandma."*

**Audrey Bigot**

## Expertise needed at POC21:

fabricators and artisans, experts in aquaponic cultivation.

## Tools needed:

wood, metal and clay tools

## Website:

[www.facebook.com/Biceps-Cultivatus-107519156275497/?fref=ts](https://www.facebook.com/Biceps-Cultivatus-107519156275497/?fref=ts)

## Tutorial & construction plan:

[www.dropbox.com/sh/o6160toa624gfv5/AAAAGmz8vmEVX5-WYW14-Nz0a?dl=0](https://www.dropbox.com/sh/o6160toa624gfv5/AAAAGmz8vmEVX5-WYW14-Nz0a?dl=0)

## Success stories since POC21:

- Exhibited during festival "eclosion urbaine" about urban farming
- Meeting set with industrial company to produce kitchen modules
- Finalist at the concours "Trophée Europe 1 de l'environnement"
- Selected as one of the 365 most inspiring initiatives in 2015 par Efficyclet





# BICITRACTOR

A pedal-powered alternative to expensive, large-scale industrial tractors

Your own Bicitractor V3 can be built in one week  
Total material costs of a Bicitractor range around €1000 only  
Works best on surfaces 5-10 cm deep and plot of 1-5 hectares

**B**icitractor is an affordable and robust pedal-powered tractor with electric assistance, adapted for small- and mid-sized farms. Made with tools and materials that can be found on a farm, it offers a low-tech alternative to carbon intensive regular tractors which are expensive and hard to maintain. The Bicitractor can operate tools for sowing, weeding, harvesting and more. Assembly and maintenance are easy, and the team offers workshops for farmers to build their own tractor.



**Mathieu Grosche, Jean-Pierre Comte, and Damien Barriere** are a part of the Farming Soul Collective, working together on the Bicitractor project. Their aim is to give farmers access to the necessary technology without requiring bank credits, while simultaneously reducing the carbon footprint of traditional machinery.

*"Bicitractor is part of appropriate technology: it's ecologically appropriate but also socially, economically, politically.*

*Say you're someplace where the power gets shut down, or you're in trouble with the government or you are in the middle of nowhere.*

*You need a way to continue producing and living.*

*Your legs provide more power than your arms.*

*If you use them to power machines, you can be much more independent."*

Mathieu Grosche

## Tools needed at POC21:

Metal saw, Metal brush, Marker, Allen key set, Metal drill set, Cutter, Protractor, Noise-canceling headphones, Safety glasses, Square, Adjustable wrench, Screwdriver, Caliper, Compass, Starting punch, Cutting and sanding discs, Level, Grinder, Magnet, Sliding arm clamp, Metal file, Locking pliers, Hammer, Wrench set, Metallic Ruler, Welding gloves, Welding mask, Square, Tape measure, Drill, Welding machine

## Tutorial & construction plan:

[www.instructables.com/id/BICITRACTOR-B300-POC21-Version/](http://www.instructables.com/id/BICITRACTOR-B300-POC21-Version/)

## Success stories since POC21:

- Exhibited to the biggest european fair about organic farming "Tech&Bio"
- Their online tutorial received more than 50,000 views
- Four prototypes were built by four farms in February in collaboration with Atelier Paysan, an organisation of farmers specialized in open source and auto construction
- Received many requests from farmers to send more information about the bicitractor and to develop bike-machines for more farming purposes

PERU/SPAIN

# FAIRCAP

Low-cost, reusable water filters that fit standard water bottles

Addresses a billion people who lack access to clean water  
Reuse of plastic bottles could potentially save tons of plastic waste  
Brings down the costs of filtering water to less than 1 cent per liter

**F**aircap is an open source antibacterial water filter, intended to provide clean drinking water for everyone. As a small portable filter, the Faircap can be screwed into a bottle, allowing safe consumption of clean water from any source: the tap, well, stream, lake or river; as a home filter, it can purify water for a family of four. The long-term goal is to distribute different models of the filter for the most common use cases to regions where clean drinking water is still not a human right.



**Mauricio Cordova** was trained in Economics and Finance at UT Austin and the LSE, worked for Intel for a few years and was always interested at applying technology to solving social and environmental problems, especially in poor countries. Born in Peru, he was inspired by the open source and maker movements to come up with a simple solution to clean contaminated water. He hopes to have the first Faircap filters ready by 2016 through a crowdfunding campaign supported by the community. He dreams of working in a collaborative space with other open creative projects.

*"When I read about POC21 I thought it was like a dream come true, because it combined everything that I value, like sustainability, making, co-living, and cooperating with other people.*

*Even though five weeks is a short time to actually produce something, I think it's important that the event will inspire others, from the exhibit, from sharing all the projects that we're doing.*

*If it inspires people to see there's a way to develop new technologies, new ways of working, living and collaborating, that can make an impact. That is worth everything."*

## Tools needed at POC21:

Metal saw, Metal brush, Marker, Allen key set, 3D printer (0.1 micron)

## Website:

[www.faircap.org](http://www.faircap.org)

## Tutorial & construction plan:

[www.instructables.com/id/Open-Source-3D-Printed-Water-Filt](http://www.instructables.com/id/Open-Source-3D-Printed-Water-Filt)

## Success stories since POC21:

- Received 100+ emails from people wanting to support the project, even people wanting to buy 1000 faircaps to give away
- The UN world food program reached out about potential partnership
- Faircap applied to the Global Innovation Fund, USAID's Development Innovation Ventures, Save the Children and the Humanitarian Innovation Fund (HIF), where Mauricio was approved to continue talks after the first screening
- Mauricio was interviewed by the city hall of Barcelona to promote their local fablab program showcasing social innovations

FRANCE/BELGIUM



Adapting nature's designs to a hot water kettle,  
to improve functionality and save energy

Reduction of heat loss saving 80% electricity

The interior distributes heat more evenly, like the architecture of termite hills

**B**iomimicry involves learning and adapting design elements from nature. The Nautille kettle was inspired by the isolation adaptations of polar bears and the lightweight stability of a toucan's beak. But during the camp the team found out that the technology required to produce it was too expensive for a mainstream production. They switched plans and are now concentrating on building a global design and engineering platform to encourage collaboration on bio-inspired sustainable products.



**Michka Mélo and Guillian Graves** collaborate across disciplines, inspired by biomimicry. Michka is a bioengineer and develops innovative sustainable technologies inspired by living organisms, collaborating with a whole range of organizations, from art collectives and open, citizen-driven laboratories to governmental agencies. Guillian is an industrial designer and collaborates with scientists and engineers from prestigious research centers, international companies and start-ups, designing innovative products, services and experiences in order to build a desirable future for people.

*"As a little kid, my biggest dream was to become a paleontologist. I was really excited about digging and discovering extinct species: dinosaurs, mammoths, trilobites, plants and other strange creatures which disappeared a long time ago. Every time I see fossils of ancient creatures, I am reminded of how surprising and inventive nature is. Biology never stopped creating innovative strategies and mechanisms to face changing environments, it's a 3.8 billion year history that should inspire us to create a more sustainable future."*

Michka Mélo

*"What's stupid about proprietary technology is that within most industries, companies work on their own, competing with each other, while trying to solve the same issue. If they had an open source platform, they would just work together solving these issues and go exponentially faster. The more you have the connections, the more you can solve the issues. Point number one. The second point is that then once you have the solutions, they can spread faster and wider through a network, rather than one manufacturer."* Guillian Graves

## Expertise needed at POC21:

mechanical design & simulation (finite elements), open hardware economic models, market access strategy, and legal issues like certification

## Tools needed:

Terracotta/Ceramics 3D printer, Access to physics simulation software (COMSOL) to simulate our structures prior to prototyping, Metal working tools (laser/plasma cutting, CNC machines) for the thermostat, video/audio recording material to document our process, Electrolytic baths to test metal coatings

## Website:

[www.guilliangraves.com](http://www.guilliangraves.com)

## Success stories since POC21:

- Co-writing a scientific paper on the methodology of design by biomimicry with Compiègne Technology University
- Release of the documentary "A natural kettle" in "Nature = Future!", a series of 30 short films about biomimicry in cooperation with the National Museum of Natural History, the Foundation for Research on Biodiversity, Planètes Sciences and many more
- Multiple speeches and workshops e.g. at Ecole Nationale Supérieure d'Architecture, the Green Week of Nantes, European School of Art in Britain and Les Ateliers
- Exhibition of Nautille at "The Bio'Inspiration"
- Exhibition: "observe nature and invent the future" at the Planetarium of Dijon

UNITED KINGDOM

# OPEN ENERGY MONITOR

Increasing & understanding home energy efficiency with accessible monitoring

Monitor electricity consumption, temperature and humidity

View data in real time via a phone, tablet or computer app

Built-in privacy: data is recorded only local, upload to the cloud is optional



The transition to a zero carbon energy system is often poorly understood, especially in terms of how it relates directly to our own lives and our use of energy. Energy monitoring is one of the tools that can help make it more real. By monitoring household energy consumption and production, it enables homeowners to review their needs on a tablet or smartphone, and identify concrete action points. Open Energy Monitor is the first entirely open source energy monitoring platform.



**Trystan Lea** started Open Energy Monitor project around 2009 by monitoring energy consumption in his own home, and was later joined by Glyn Hudson. Having backgrounds in physics and electronic engineering, the two share an interest in technology and the way it can contribute to sustainable lifestyles. Open Energy Monitor grew out of the desire to create an open source energy monitor to understand energy consumption patterns at home and make sense of how we could work toward living more sustainably while contributing to the open hardware movement. Trystan and Glyn want to continue working with open source monitoring solutions and plan to launch the open source heatpump monitor in the early 2016.

*"The challenges around changing our energy system and human behavior come because we can't see energy. It's intangible.*

*We might see the wind turbines, but we don't know when our power is coming from them.*

*I'm interested in how do we connect.*

*At POC there's a strong presence of designers, which is something we don't have such a strong*

*background in. So I'm really interested to get more design input on how we can better communicate the*

*data. How do we make the information more understandable and how do we link it to the bigger*

*picture? How can we make this something you can relate to?"*

## Tools needed at POC21:

a good electronics workbench and component supplies, connectivity for good software development

## Website:

[www.openenergymonitor.org](http://www.openenergymonitor.org)

## Tutorial & construction plan:

[www.github.com/openenergymonitor](http://www.github.com/openenergymonitor)

## Success stories since POC21:

- Working on a new version of the software to make it possible to turn on and off heating systems remotely
- Developing an open source heatpump monitor, a key component of zero carbon energy systems making it possible to provide heating efficiently from renewable energy
- New Android App released from the OS Monitor community

# MYFOOD

Inspiring food independence with a low-maintenance homé gardening permaculture system

With MyFood, a family of 4 needs only 24 sqm to grow the vegetables they need  
90% less water than a traditional garden, no pesticides, no fertilizers  
Connected system to monitor your garden from a distance

What if you could produce all the vegetables you need by gardening only 20 minutes a day? Minimizing upkeep by automating gardens, MyFood is an automated greenhouse which combines permaculture and aquaponics in one solution to increase food production. Out of the box and open source, it introduces you to gardening gradually, reconnecting you to the sources of your food.



**Mickaël Gandecki** (consultant and software engineer), **Johan Nazaraly** (engineer) and **Matthieu Urban** (marketing professional) collaborate on the MyFood project. Startled by how dependent we all are on the system when it comes to our food supply, the three decided to launch a project to help people attain food autonomy. They believe that often a very small piece of bright technology can have an incredible leverage for people.

"Having a team of designers at POC to sit down with us and talk to us about our project is so useful, because it gives us an outside perspective that is so important when you're working on a startup. If other people don't understand your idea, then how will you be able to communicate it to the rest of the world? The design team asked questions that really guided our process, from the perspective of an everyday person: Am I going to have to change my regular habits? How will it change my life? Do I have to be there all the time? These are huge concerns that any normal person would have before installing our product in their backyard. We need to make sure we answer it in order to get people to engage with us."

## Tools needed at POC21:

CNC machines, 3D Printers, wood, metal, tape etc.

## Website:

[www.myfood.eu](http://www.myfood.eu)

## Tutorial & construction plan:

[www.instructables.com/id/A-Connected-Greenhouse-for-Easy-and-Productive-Gar/](http://www.instructables.com/id/A-Connected-Greenhouse-for-Easy-and-Productive-Gar/)

## Success stories since POC21:

- The team was invited to present at EntrepreneurShip Festival Week, Festival Ecllosion Urbaine, ESCP Paris and Institut Polytechnique LaSalle Beauvais
- Publication in Les Echos, Bio à la Une, Aquaponiefrance.com
- Order of five complete MyFood systems for a pioneer citizen community
- Participation in the working group "Food" for strategic study "The Third Industrial Revolution Strategy" launched by the Chamber of Commerce in Luxembourg
- Launched a crowdfunding campaign to launch an aquaponic farm in Peru

FINLAND

# SHOWERLOOP

Minimizing water and energy usage with real-time shower water looping system

10 times less energy and water consumption compared to a normal shower  
Filtered water quality exceeds both USA and EU standards for drinking water  
Saves 33.000 liters of water and 650 kWh of energy per person and year

Showerloop offers a filtration system that cleans shower water in real time, reducing the amount of water and the energy used to heat that water by ten fold or more. Enjoy long, hot showers while saving water and energy with this open source, hot water recycling system for super efficient personal hygiene. The shower adapter captures the hot water from the drain, purifies it with an anti-bacterial filter, and pumps it directly back to the showerhead. The recycled water is of such high quality that it exceeds both USA and EU standards for drinking water. Using Showerloop every day would save an estimated 33.000 liters of water and 650 kWh of energy per person and year.



**Jason Selvarajan**, an environmental engineer from Finland with passion for long showers, started the Showerloop project. His vision was to create a water- and energy-saving solution for a guilt-free shower that could reduce pollution worldwide, as well as bring water and sanitation to people and places that don't have it. A jack-of-all-trades, Jason is doing almost everything around the project by himself, except for electronics design and coding, where he gets support from his friend and collaborator Eduard Kobak.

*"My long term vision is to include the whole water system in a home: connect sinks, toilets, dishwashers and washing machines. We save even more energy and water, and then we're more resilient. If you have this circular system in your house, then re-use becomes part of your consciousness: because we need to do that with everything, if we want to survive and continue to add more people on the planet. We can't keep just making garbage and thinking that burying or burning it is a solution. Even our recycling is not very good. We need to re-use stuff, not recycle it, or upcycle it."*

## Expertise needed at POC21:

Product and documentation design

## Tools needed:

CNC machine, 3D Printer, Laser cutter, basic hand tools like screwdrivers, pliers, etc. Basic electronics equipment and welding, Infrared camera, Vacuum forming equipment or things to work with plastic - alternatively fiberglass, Turbidity sensor, micro-biology lab equipment like incubator, autoclave, micropipettes

## Website:

[www.showerloop.me](http://www.showerloop.me)

## Tutorial & construction plan:

[www.instructables.com/id/Showerloop/](http://www.instructables.com/id/Showerloop/)

## Success stories since POC21:

- articles in France and a German TV crew came to Finland
- Built a new prototype to show at Autodesk University in Las Vegas; this "sink loop" is planned to be installed in a co-working space in Helsinki next year
- Requests from potential customers and humanitarian projects from around the world
- Made a new website, got two interns and got help with some modeling and design work

FRANCE

# SOLAROSE

An open source solar concentrator to provide thermal energy

Heat produces steam between 150 and 200°C

Useful for small-scale industrial processes

5KW peak capacity that can be used to cook for ten households

Entrepreneurs and ecovillages, small farms and artisans can finally produce autonomous thermal energy, harnessing the power of the sun for many applications such as cooking, sterilizing, distilling and more. With our solar concentrator, mirrors reflect and focus sunlight on a black pipe, through which water flows, and the concentrated light boils the water and turns it into steam. Part of the Global Village Construction Set by Open Source Ecology, this solar concentrator combines the most cost-effective technology and the lightest possible structure.

*"POC is great because it encourages us to think a bit further than the short-term objective of a working prototype, so: how to promote the technology and increase the use of solar heat in the solar industry, how to approach potential users, and how to set up a working business model."*

Hugo Frederich



**Andrea, Cyril, François, Hugo and Philippe** are the team who prototyped SolarOSE during the POC21 camp. They are part of the French association Open Source Écologie (OSÉ). A wider team collectively worked on this project for a year ahead of the camp. The SolarOSE team and all of the OSÉ members seek to contribute to the commons for a more harmonious and peaceful world. Most team members are engineers or researchers, but all of them define themselves as citizens, using their skills to contribute to the commons.

*"I remember when I was young my father always used to say: if I ever could get rid of my energy bill I would be the happiest man on earth, let me invent a tool to give me the energy. I grew up wanting to become a scientist, not for the publications they have to do but rather to experiment and better understand the world that we scarcely perceive. After all, that is what we are here for."*

Andrea Sannuto

## Expertise needed at POC21:

Legal consultants, Communication experts, Crowdfunding experts, Builders

## Tools needed:

drill press, metal cutter, electric arc welder or oxy welder, laser telemeter, workbench

## Website:

[www.osefrance.fr/?page\\_id=13](http://www.osefrance.fr/?page_id=13)

## Tutorial & construction plan:

[www.instructables.com/id/Solar-OSE-Solar-concentrator-for-steam-generation/](http://www.instructables.com/id/Solar-OSE-Solar-concentrator-for-steam-generation/)

## Success stories since POC21:

- Presented the Solar Concentrator in Paris at the "Village of Alternatives" and in Marbella, Spain, at event "Encuentro internacional planeta Tierra"
- Launched a crowdfunding campaign where more than 200 people contributed 8.000€ 8.000 views by now for open source documentation on [wiki.osefrance.org](http://wiki.osefrance.org) and Instructables
- Opened the collaboration for the next real size prototype #AlphaSole with BiciTractor team in south of France
- Solar Concentrator installed at local community and Fair Trade project "Compadre" in Peru

# SUNZILLA

Easy-to-use, modular and portable solar-powered generators to power remote areas

**MODULAR:** Amount of solar panels, batteries, converters inside the system is flexible

**PORTABLE:** Can be moved by a single person and fits perfectly on a standardized Euro pallet

**PLUG & PLAY:** Modules can be arranged as needed without any external help

Created to replace loud and carbon-intensive portable diesel generators, SunZilla provides a clean and easy-to-use alternative for off-grid energy production needed at outdoor events, remote areas, refugee camps or in case of emergencies. It's open source, portable, modular and built for plug-and-play use. All the parts for an off grid solar panel are in the box: solar panels, batteries; a charge controller, which converts the energy which comes from the sun to an energy form that fits the batteries; and an inverter that converts the voltage from the battery voltage to socket voltage.

*"SunZilla gives power back to the people in two meanings: literal power, like electricity, and also empowerment, believing in your capacity to make an important contribution to the world. We envision people all over the world collaborating with us to develop new plug-in modules, for uses such as water purification, heating, telecommunications and more."*

Leonie Gildein



Laurin, Jochen, Leonie, Joscha and Vivien are behind SunZilla. They are based in Berlin, where they studied at the Technical University. They have worked together for five years managing different projects, always with a playful but professional focus on environmental protection. Developing, planning and realizing these projects, they evolved a wide field of competencies (project management, fundraising, accounting, PR, etc.) on top of their professional engineering background.

## Expertise needed at POC21:

Product and documentation designer

## Tools needed:

Screwdriver and variety of basic tools like hammer, rasp, pincers, drilling machine, variety of screw for wood, screws with screw nuts, CNC machine

## Website:

[www.sunzilla.de](http://www.sunzilla.de)

## Tutorial & construction plan:

[www.instructables.com/id/Pop-up-Solar-Generator-SunZilla-30/](http://www.instructables.com/id/Pop-up-Solar-Generator-SunZilla-30/)

## Success stories since POC21:

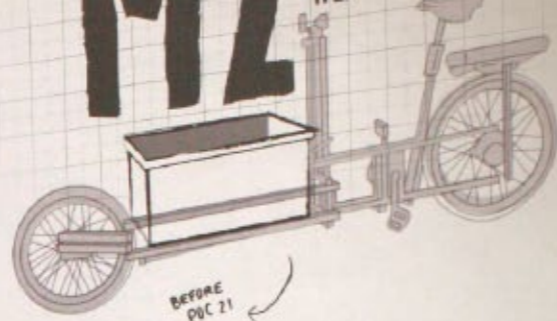
- Included in "The Year's Promising Prototypes 2015" by Engineering for Change
- Accepted by the INNEON program, a network for eco-innovation investment
- Invited to the Maker Festival Munich, the IGA 2017 in Berlin and to several Festivals in summer 2016
- Received many purchase requests, as well as NGOs wanting our help and people wanting to distribute SunZilla in their countries
- Email requests have risen enormously and we've met many interesting, inspiring people



BELGIUM

# VÉLO M2

Open space capsules



**REDUCING CAR USE IN CITIES WITH MULTI-FUNCTIONAL CARGO BIKE CAPSULES**

The cargo bike is a great alternative to cars in congested cities and Vélo M2 is a multimodal capsule system that fits all standardized cargo bikes. For example, it can carry energy modules that are charged by solar and pedal power. With a diversity of modules and prototypes shared on an open source platform, Vélo M2 cargo bikes can be used for much more than transportation, making us rethink how we interact, move and use energy.

- 1 BIKER = 100 WATT OF POWER PRODUCTION
- 1 CHARGED POWER MODULE = 4 HOURS OF OPEN-AIR CINÉMA

**RÉDUIRE LE POIDS DES VOITURES EN VILLE GRÂCE À DES MODULES MULTI-FONCTION POUR VÉLO-CARGO**

La vélo cargo est une excellente alternative aux voitures dans les villes congestionnées. Vélo M2 est un système de capsules multimodales qui s'adaptent à tous les vélos cargo. Par exemple, un module solaire peut être chargé grâce au pédalage et à l'énergie solaire. Avec une diversité de modules et prototypes partagés sur une plateforme open source, les Vélo M2 peuvent être utilisés pour bien plus que le transport, nous faisant réfléchir sur la manière dont nous produisons, déplaçons et utilisons notre énergie.

- 1 PÉDALAGE = 100W DE PUISSANCE ÉLECTRIQUE
- 1 MODULE ÉNERGIE CHARGÉ = 4 HEURES DE CINÉMA EN PLEIN AIR.

The cargo bike is a great alternative to cars in congested cities and Vélo M2 is a multimodal capsule system that fits all standardized cargo bikes. For example, it can carry energy modules that are charged by solar and pedal power. With a diversity of modules and prototypes shared on an open source platform, Vélo M2 cargo bikes can be used for much more than transportation, making us rethink how we interact, move and use energy.



*"I was in a civic movement to develop more public spaces in the city. So many people wanted to do projects based on a cargo bike. Somebody wanted to develop a local food chain, another wanted to bring documentaries to different places with a traveling cinema. So we said why not try to make a platform where we can use one bike with different modules?"*

Yannick Schandené

## Expertise needed at POC21:

Development in electrical engineering, Mechanical design support, Open source business model expertise, Exchanges on community building

## Tools needed:

Electronics lab, variable DC power source, soldering iron, Woodworking tools, chamfer machine, lasercutter, 3D modelling software, open source documentation platform

## Website:

[www.ciklic.wordpress.com/velo-m%C2%B2/velom2.be](http://www.ciklic.wordpress.com/velo-m%C2%B2/velom2.be)

## Tutorial & construction plan:

[www.instructables.com/member/Velo+M2/](http://www.instructables.com/member/Velo+M2/)

## Success stories since POC21:

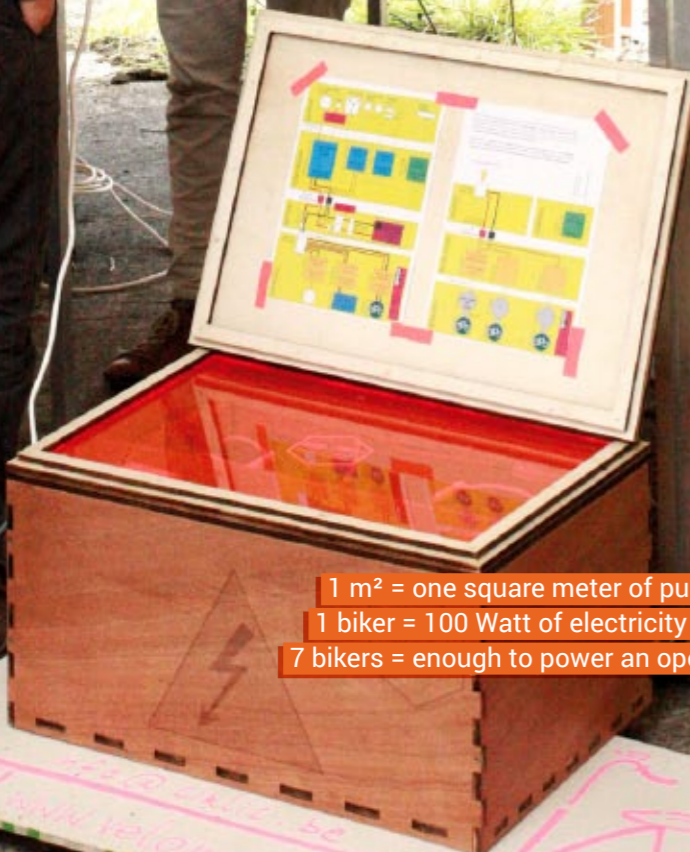
- ➔ New module in the Vélo M<sup>2</sup> project
- ➔ Project funded in Brussels with underprivileged children
- ➔ Attended Hackathon in Nancy, France and won a prize
- ➔ Approached the owner of Bonnefooi Brussels to co-create a central space with POC spirit
- ➔ Invited to the Maker Faire in India

The force of Vélo M2 comes from the complementary the civic movement with the engineering world. Yannick met Milena, Florent and Tom in the cross-fertilisation of public space and renewable energy. They are all civil engineers with their own specializations in the areas like energy, electricity, project management. Passionate about taking back the public space occupied by cars, the team is promoting wider uses of bicycle in the city. During POC21, the team focused on the design and logistics of the project, and plans to test their prototypes in 2016. They are also working on a web platform to center all the information around multi-usable modules for cargo bikes.

*"When I tell my school friends that Velo M2 will make it possible to organize spontaneous movie screenings outside in the park, they are amazingly supportive: 'Nice idea, when will it be finished?' When I add to the story that they will be pedaling to provide the energy to power the party, they're a bit less enthusiastic. Yet that's when my friends from my engineering studies gain interest: 'What's the efficiency of the system?'"*

Milena Sonneveld

- 1 m<sup>2</sup> = one square meter of public space
- 1 biker = 100 Watt of electricity production
- 7 bikers = enough to power an open-air cinéma



# » HERE COME THE MAKERS «

ADAPTED FROM AN INTERVIEW WITH  
DAWN DANBY

AUTODESK FOUNDATION

**W**hen I first started in the design field, the idea that you could just download design software, model something, fabricate it, market it, get it funded, and actually start a business with a manufacturing process: it would have been insane. The fact that you can do all of that right now completely turns the discipline of design on its head.

In the last 10 years the global maker movement has happened, spreading access to tools and knowledge. In the last year I have noticed that the attention of makers is now being turned towards design and solutions. It's less about just making for the sake of making. We are actually turning those skills towards something productive. Why? We grapple with the effects of climate change and the loss of fresh water, fertile soil, and biodiversity. Most communities lost their skills, their ability to address their needs, and have waited for big industries and governments to solve things. But now here comes this revolution in design and manufacturing. Here come the Makers. We suddenly have a more skilled population who can look around and say, okay what do we need right now? We need cleaner energy. This isn't working in our neighborhood. We need gardens to produce our own clean food. We should be dealing with water shortages and sourcing our own clean water.

Now we are building up the capacity to respond to disruption, to respond to change and changing circumstances and economic circumstances and ecological circumstances. We need to be able to come up with solutions to tackle those with a bigger distributed capacity and better understanding. We need more people making their own food. We need more people figuring out how to keep bees alive. We need more people looking at protecting ecosystems. We need the maker spirit applied to everything around us because the big systems that are supporting us are not doing as well as they have in the past.

Sustainable design is always a really significant team effort. What is needed at the core is communication: an ability to build connections with other people who have expertise. The most important thing you can do is be willing to go and ask questions and spend time looking at the context and really map out who you are working with and what is the system you are working within. Where are you? Where on the planet? Energy questions have everything to do with where the energy is being made and how it is being generated. Is it coal or is it solar? When you are looking at choosing materials: Can I get formaldehyde-free plywood or can't I? Can I be sure about the ethical sourcing of these materials or not? Are there recycling facilities or not?

Those are all highly contextual questions and you need to be able to ask those questions and start thinking about it. The principles are very simple but answering them is often a very local contextual set of explorations. My advice would be don't be afraid to get out into the community and start asking questions. Go and figure out who in the world has already done something like what you are doing. That is the thing there are tons of solutions out there. We can share and learn from what other people are doing. Get in touch with those people. Figure out what they did in that country that you can bring to yours.



# OUTCOMES

## FINAL EXHIBITION

@ Château Millemont  
September 19-20, 2015

About 1500 visitors explored the large geodesic dome we had constructed, showcasing all 12 projects as well as the community processes and social tools we developed over five weeks of co-living and co-working. Visitors also toured our kitchen, fablab factory, tents, toilets, and co-working space.



**THERE ARE NO PASSENGERS ON PLANET EARTH.  
WE ARE ALL CREW.** MARSHALL MCLUHAN



WHY POC21? / POUR QUOI FAIRE?

POC21 WAS CREATED BY A GROUP OF  
PEOPLE WHO BELIEVE IN THE  
POWER OF COLLABORATION AND  
COMMUNITY. WE WANT TO  
CREATE A SPACE WHERE  
EVERYONE CAN  
CONTRIBUTE TO THE  
COMMON GOOD.

WELCOME TO POC21  
WHAT ARE YOU HERE FOR?

**LET'S BUILD  
THE TOOLS WE NEED  
FOR THE WORLD  
WE WANT**

ENTER  
POC 21  
COMMUNITY  
↓  
CO-LIVING

**5 WEEKS / 157 PEOPLE**

21 ORGANIZERS / 30 PROJECT PARTICIPANTS  
14 REALITY CHECKERS / 19 MENTORS / 43 VOLUNTEERS  
27 PROJECT SUPPORTERS / 5 PART-TIME COOKS

**OPENNESS**  
×  
COLLABORATIVE  
INTELLIGENCE  
×

**INCLUSION**  
×  
**SHARING**  
VS. COMPETITION  
×

**LIVING  
DIVERSITY**  
×  
THE FREEDOM  
TO DISAGREE  
×

THE RECIPROCALITY OF  
GIVING & RECEIVING  
×  
GRATITUDE & SMILING  
APPRECIATION  
×  
TRUST & EMPATHY

*It's unbelievable what we achieved in such a short time. In the real world an exhibition like this would have taken at least four months. It took us less than three weeks, because we had every profession and technical resource that we needed on site at the camp. It was the ultimate example of the tangible results of interdisciplinary co-creation and fast iteration.*

## MORE EXHIBITIONS & EVENTS

@ Expo Paris de L'avenir  
→ November 18 – December 13, 2015

Paris De L'Avenir was a public initiative from the City of Paris that aims to showcase tangible climate solutions in the context of COP21. Inside a 18 square meter container located in public space near the Canal de la Villette in north-eastern Paris, we exhibited two prototypes developed during the camp, as well as educational materials about the role of open source in addressing climate change.

@ COY11  
→ November 26 – November 28, 2015

COY 11 is the 11th annual Conference of Youth, which mobilized thousands of young people against climate change. We hosted a conference on how open source and decentralized fabrication can empower young innovators to develop solutions against climate change. We also exhibited some POC21 prototypes.

@ PlaceToB  
→ November 29 – December 4, 2015

PlaceToB was a large hostel which housed hundreds of bloggers, influencers, storytellers and activists during COP21, so they could co-create new stories and messages about climate solutions. POC21 representatives stayed here during COP21 and contributed to the official program: presenting the POC21 results and prototypes, and contributing to the media factory.

@ ICI Montreuil  
→ December 5, 2015

In the middle weekend of COP21, citizens from around the world organized the Global Village of Alternatives in the city of Montreuil, next to Paris. POC21 held a big workshop and prototyping event at ICI Montreuil, a large co-operative maker-space. This was the ideal place for our pioneers to disseminate their ideas, tools and solutions.

@ Climate Action Zone  
→ December 7 – December 11, 2015

Located at Le 104, a stunning cultural center in the middle of a working-class neighbourhood north of Paris, the Climate Action Zone was a meeting space for climate activists and citizens made possible by Coalition Climat 21, which is a network of 200+ European NGOs working together to mobilize civil society against climate change. The POC21 team curated the "Maker Space," a 170 square meter area, and showcased our 12 prototypes. We invited local makers and fablabs to offer educational workshops to visitors about how the maker movement and open source can empower people in developing their own climate solutions.

*"Not everyone is familiar with the Maker Movement or open source. Broadcasting it on mainstream media channels allows us to reach out beyond our community, spreading the word to many more people. It's like a wave, and it's amazing. Of course not everyone would build every object by themselves, but the simple fact of knowing that this is possible, already shifts the paradigm."*

Manuela Yamada, Supporter

## MEDIA & PUBLIC AWARENESS

25.000.000  
media contacts worldwide

500.000  
downloads of our open hardware construction plans

100.000  
web video views + screenings of our documentary worldwide

180  
articles in French media

21  
pieces in international media such as:  
\* Le Monde \* El Mundo \* ZDF \* WIRED \* The Guardian \*  
\* National Geographic \* Le Figaro \* GEO \* TF1 \*  
\* Wirtschaftswoche \* TAZ \* Venturebeat \* Telerama \*  
\* La Tribune \* NEON \* Grazia \* GEO \* Slate \*  
\* MAKE Magazine \*



*"Bound together with the optimism and quiet courage to try something different, could this new network indicate the beginning of a people powered movement we so desperately need?"*

THE GUARDIAN



## CO-FUNDING & CO-BUDGETING

To continually support the people and projects of POC21, we rely on new online tools for collaborative funding and budgeting. We use the online platform "Patreon" to collect funds monthly from people who want to support the work of the community. Once the funds are collected, each supporter can choose how to distribute his contribution among several projects proposed on the collaborative budgeting platform "Cobudget".

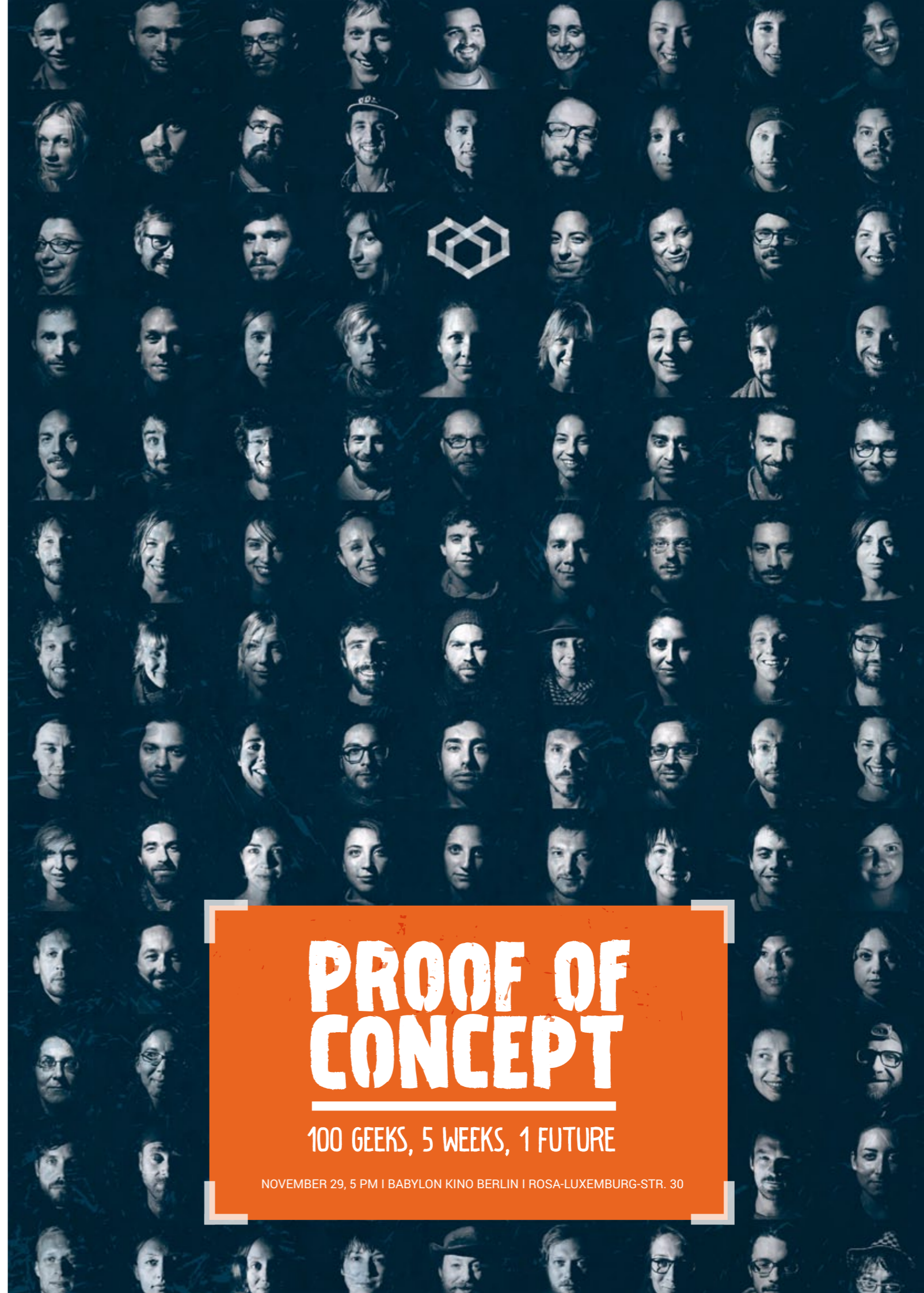
The strength of this approach is that it's easy to engage with. People simply give some money if they want to, and fund each other's ideas when they seem valuable. Most recently we funded a community goals workshop to be hosted online, funded travel expenses for Faircap to go to a clean water fair and community members to curate content to regularly update our Patreon supporters.



## THE POC21 DOCUMENTARY:

### 100 Geeks, 5 Weeks, 1 Future

During the camp, a video team produced weekly recaps and shorter videos on certain highlights such as keynotes or explaining our co-living or the creative process. All videos are freely available at [www.vimeo.com/poc21cc](http://www.vimeo.com/poc21cc). Our filmmaker **Sam Muirhead** collected extensive additional footage for our feature-length documentary "POC21: 100 Geeks, 5 Weeks, 1 Future." It premiered at Babylon Cinema in Berlin and Volumes Co-Working in Paris, and has been screened around the world, from Brazil to New Zealand. We are currently in conversation with film festivals to maximize exposure.



# PROOF OF CONCEPT

100 GEEKS, 5 WEEKS, 1 FUTURE

NOVEMBER 29, 5 PM | BABYLON KINO BERLIN | ROSA-LUXEMBURG-STR. 30

# » A POC IN EVERY SECTOR «

ADAPTED FROM AN INTERVIEW WITH  
MICHEL BAUWENS

P2P FOUNDATION



**W**hen you work on a challenge, when you're pioneering, you tend to have your face very close to what you're doing. It's hard to have time to reflect, and it's also hard to find time to dialogue with others. Yet no individual has a solution. We can only arrive at solutions by creating networks and exchanging information. We have to create this really transparent system where everyone can see what everyone else is doing. The aim of the POC21 camp, as I understand it, is to create at least five weeks in which all these people can talk to each other, see what they are doing, and discuss complementarities.

It's certainly hard to imagine doing sustainable production without sharing knowledge. Imagine that every company keeps its materials and processes secret. How can you create a circular economy where the leftovers of one process can be used by another one? This requires shared knowledge, that we can't do it any other way.

Another thing POC21 is trying to do is to talk to the mainstream media, to educate them that there's something really important happening. The world and the media are addicted to bigness, scale, multinationals. But what's happening now is distributed, meaning network effects. It's lots of small projects coalescing. Lots of small things pushing in the same direction can make a big impact.

I see POC as a seed form that should be replicated. I think we should have POCs in every country, and in every sector. Through open exchanges in every sector, we can identify successful protocols. We document them so that anyone anywhere can then take them over, apply them, change them to suit their needs. Otherwise we're always starting from zero, always having to repeat the same effort.

Everyone I'm talking to has the same questions for me, like "What kind of property arrangement should we have? What kind of licenses should we use to share the knowledge?" We should consolidate these kinds of information, make how-to workbooks, and show the models that work, so they can be replicated. I think this is the job we have to do.

I would like to see something I call open technology assessment, because right now we don't know what works and what doesn't. Of course, here at POC21, we can verify because it's a small community, and we can go and look, and we can see for ourselves. Plus, people here are very honest about what works and what doesn't. If you go online, however, you see, for example, all these potato tower designs, and the claim is it yields many, many potatoes by growing them vertically. Then I talk to a few farmers. They say, "It doesn't work." The video tutorials show the start of the process, planting these towers, but you never see the videos of the end, the harvest. So what we need is like a central repository with some verification, and testing, and comparing, so that we actually can know what open technologies really work, and what are their strength and their weaknesses.

# LESSONS LEARNED

**A**lthough the “big idea” of POC21 was clear to us, many of the details were fuzzy, from the logistics of the setup and administration, to social processes and decision-making. Intended as a complex solution to complex problems, POC21 was bound to confront us with some challenges.

## ✓ Adapting expectations

Our initial vision was to choose 12 projects that would cover all basic human needs including energy, food, shelter, mobility and communications. But in reviewing the applications we received, we found few solid applications in the areas of shelter, mobility, and communications. We also had to recalibrate our expectations that the projects would evolve into a symbiotic circular relationship with each other during the five weeks of the camp. There was not enough time for this to be realized.

## ✓ Fundraising

Raising money was an exhausting task that lasted until the camp began. Our goal of collecting 1 million Euros in 10 months for an idea that had never been manifested previously felt like a “mission impossible” in the beginning and could only be achieved by strong willpower and long working hours. Some confirmations from funders took months and caused delays in many project areas, especially team building and event production, due to postponed budget decisions.

## ✓ Team

Although our two core organizing teams in France and Germany complemented each other well in terms of skill-sets, we had never collaborated before in such intense conditions. Cultural as well as personal differences led to many stressful situations. We had to build consensus and improve our communications “on the fly.”

Our choice to avoid traditional hierarchical structures of leadership created some initial confusion about roles and decision-making. For instance, managing the budget in a horizontal organization turned out to be a real challenge while remaining an imperative for the functioning of the project. Thus, we were grateful for the facilitation in collaborative decision-making that the visiting team from Enspiral (New Zealand) provided. There remains a paradox regarding self-organization that we want to solve for future events: Many participants praised the horizontal structure as the proof that collective intelligence and radical democracy trumps hierarchical organizations. Yet backstage, the organizational, administrative and logistics team had to bear a tremendous amount of work and responsibilities on their own.

*“The idea was always to have social processes be developed by the community collaboratively, but I think having a bit more structure, kind of like a scaffolding for people to build with, would be more supportive. When we arrived here during setup week, people were stressed out because it was a ton of work to set this place up with basically no infrastructure and having to build everything and at the same time think about the program. Because we are facilitators, professionally, we were asked to step in. We introduced some structure and process to help them reduce stress and get the structure really working.”*

*Alanna Krause, Supporter*

## ✓ Logistics

POC21 planning started months ahead with the aim of better anticipating the challenges of the daily community life with 100+ people from over 15 different countries. Nevertheless, the reality of the event brought several unprecedented challenges. For example,

staying staying one day in the rain at the entrance of the castle to welcome newcomers and ensure security, managing food storage and supply, finding hosting solutions when temperatures dropped or ensuring that each participant collaborated for the co-living tasks.

*“POC21 felt both long and short! Short when I consider how much we achieved in so little time. And long because each day was as logistically-intense as a full conference. The whole event was somehow a hybrid between a festival and the maintenance of a small village. The stakes were double: providing for basic needs on a daily basis, and staying focused on implementing our vision and developing the 12 projects. We had to prioritize urgent needs: does building showers, toilets or the kitchen come first? Where should we focus our energy: building the fablab or creating living space? Signage or wifi? It was an endless stream of difficult decisions.”*

*Julie Braka, head of finances*



## ✓ Catering

We hired a chef to cook from 10am-9pm, five days a week, which turned out to be too intense for one person. The fact that most of the kitchen equipment was second-hand and not always entirely functional, created additional problems. The refrigerators and freezers we had were not large enough to store all the food for 100 people so we had to shop every other day, while lots of local and organic providers were closed in August. We benefited from free food that was technically expired, but still edible. This was aligned with our Zero Waste strategy, however sometimes we had to drive far to pick it up.

We underestimated the importance of cultural differences in terms of timing, quantity, and dietary restrictions. It was complicated to please everybody. For example, the Germans like a savory breakfast, while the French are fine with a smaller and sweet breakfast. Meat-eaters were sometimes dissatisfied, as we served mostly vegetarian food.

## ✓ People Management

More than 300 persons were accommodated at Chateau Millemont, ranging from a 1-day-visit up to a complete 7-weeks-stay (incl. setup and dismantling week). To provide the correct insurance and legal paperwork for people all participants was not easy, and we could have benefited from better legal advice.

To track these participants, we created an extensive spreadsheet with numerous dropdowns, to collect and track the required information from the 300 people that would join us. In retrospective, a professional CRM software might have saved a lot of headaches. Last but not least it was a big challenge to organize daily shuttles from the nearby train station to the castle and back. This required a lot of planning, adaptation and availability from volunteer drivers.

*“Every habit or tool, supposed to be normal, could be questioned, challenged, collectively rethought in a more responsible and adaptive way. And POC21 not only helped 12 open source projects, but it also started a particular community, gave a space to new encounters, energies, thinking and projects. I felt for those few weeks almost like living on an untouched land with norms and tools open to be built and thought by ourselves. And when I returned to “the not normal world,” it was with a bigger energy, brighter eyes and an inspiring and active community with me.”*

Manon Piazza, Volunteer

## Conclusion

An event of this scale, especially in its first iteration, naturally encounters problems at every stage. As organizers we often had to learn to release expectations and plans, and allow things to evolve. Many daily issues were actually solved by the ingenuity of our project participants, by their own initiative, when we stepped back and allowed this to happen. Besides the official program, which focused on prototype and project development, POC21 became also a “proof of living” where we experienced more sustainable ways of living and thus learnt more about ourselves. People left the camp questioning everyday routines and consumption modes, and the community life brought incredible positive impacts for each of us: tolerance, learning, self-improvement.



# FINANCES

For most of us in the team, POC21 was probably the most meaningful, but also most ambitious project we have undertaken. There was barely another area where this complexity was felt more strongly than in financials. As we went deeper and deeper into the organization, we were overwhelmed

by the number of things we had underevaluated such as setting up electricity and sanitation, the material and building of the geodome that would host the final exhibition, vehicle rentals and compensations for the rapidly growing team that was needed.

## COSTS



## REVENUES

Venue Rental & Construction	€ 198.396
Tech, Tools & Machines	€ 54.051
Camp & Exhibition Supplies	€ 25.018
Transport & Logistics	€ 23.500
Post-Camp Events & COP21	€ 5.960
Communications & Documentation	€ 6.328
Food, Drinks & Cooking	€ 59.168
Travel & Work Expenses	€ 30.902
Team Compensation	€ 243.657
Admin & Structure Costs	€ 47.242

**TOTAL COSTS** € 694.222

**IN-KIND CONTRIBUTIONS** € 256.000

Machines, Tools, Bedframes,  
Furniture etc.

€ 950.222

<b>PUBLIC PARTNERS</b>	€ 90.000
ADEME, Région IleDeFrance, La Fonderie (Région IDF), City of Paris	

<b>PHILANTHROPY PARTNERS</b>	€ 384.800
KR Foundation, Advocate Europe, Hele Avus Foundation, anstiftung ertomis, BMW Foun- dation, GLS Bank Stiftung	

<b>CORPORATE PARTNERS</b>	€ 185.000
Autodesk, MunichRe, Castorama/Kingfisher, CAMIF, SPIE, MAIF	

<b>SALES &amp; DONATIONS</b>	€ 25.000
------------------------------	----------

€ 684.800

# PEOPLE

<b>Aaron Makaruk</b> AKER project	<b>Arthur Hinfray</b> Co-living	<b>Damien Beslot</b> Dome Expertise
<b>Agustín Manuel Cuello Gutiérrez</b> Co-living	<b>Asmaa Guedira</b> Post-Camp Exhibition, Partnership	<b>Daniel Connell</b> \$30 Wind Turbine project
<b>Alanna Krause</b> Facilitation	<b>Audrey Bigot</b> Biceps Cultivatus project	<b>Daniel Huber</b> 3D Mapping & Interactive
<b>Alex Shure</b> IoT, Electronics, Open Hardware	<b>Aurélie Hornoy</b> Co-living, Logistics, Design	<b>Daniel Kruse</b> Facilitation, Communications, Live Magazine
<b>Amandine Hacquebart</b> Co-living	<b>Baptiste Nomine</b> Co-living	<b>Danielle Hitchcock</b> Graphic Design
<b>André Franz</b> Dome-Expert, Hacking, Making	<b>Benjamin Tincq</b> Partnership, PR, Project Advisory	<b>David Canat</b> Research
<b>Andrea Bauer</b> Communications, PR, Mentoring	<b>Bérangère Ameslant</b> Co-living	<b>Dawn Danby</b> Sustainable Product Design
<b>Andrea Sannuto</b> Solar OSE project	<b>Bilal Ghalib</b> Wellbeing, Project Documentation	<b>Derek Razo</b> Enspiral Facilitation
<b>Andreas Wörner</b> Co-living	<b>Björn Ruppin</b> Construction Support	<b>Dominik Wind</b> Process Facilitation, Supervision, Project Advisory
<b>Anja Adler</b> Camp Process Facilitation	<b>Camilla Malvestiti</b> Cooking and Co-living	<b>Donatienne Lavoillotte</b> Logistics Supervision
<b>Anke Streu</b> Camp Process Facilitation	<b>Cassandra Francis</b> MyFood project	<b>Edwin Mootosamy</b> OuiShare Advisory
<b>Anna Lena Schiller</b> Graphic Recording, Business Modeling	<b>Cécilia Ettlín</b> Co-living	<b>Ehab Elía</b> Tech & IT Management
<b>Anna Virginia Roratto</b> Materials, Products and Ind. Engineering	<b>Chloé Lequette</b> Co-living and Product Design	<b>Eli Breuing</b> Graphic Recording
<b>Anna-Zoe Schmidt</b> Live Web Magazine	<b>Christophe François</b> Product Design	<b>Elisa Guérin</b> Product Engineering
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# PARTNERS

Nearly 50 partners from across the world supported POC21. Many of them also visited the camp at Millemont to witness the process and provide fantastic expertise.

We are beyond thankful for everyone's support!

## ENABLING PARTNERS SPECIAL THANKS TO:



### KR Foundation

Our main partner helps to stimulate mind-shifts and encourage action on long-term challenges posed by current and future generations while living on a planet with finite resources, fragile ecosystems, and climate change.



### Autodesk

Autodesk builds software that helps people imagine, design, and create a better world. Their support of POC21 reflects their commitment to a design-led revolution, enabling projects to solve urgent sustainability challenges.



### Munich Re

One of the world's leading reinsurers, Munich RE stands for exceptional solution-based expertise, consistent risk management, financial stability and client proximity, and believes in sculpting the future through sustainable action.



### Castorama/Kingfisher

Castorama, part of Kingfisher group, is a leading home improvement retailer in Europe, investing in sustainable products, circular economy and the maker movement. Supporting POC21 with equipment and expertise in product and retail.



### anstiftung ertomis

One of Germany's leading voices and funders of subsistence culture such as repair cafés, DIY and urban gardening.



### CAMIF

Pioneering retailer of sustainable home products in France, CAMIF brings financial support and local supply chains expertise.



## La Fonderie

The digital agency of Ile-De-France region and historical partner of OuiShare will help us keep the maker spirit going after POC21.



## MAIF

The oldest mutual insurance company in France, embracing the collaborative economy and community-driven change.



## Île-de-France

Our venue Millemont castle lies in Île-De-France, or Paris Région, and they supported POC21 as part of their commitment to citizen mobilization ahead of the COP21 climate conference.



## BMW Foundation

Focusing on social innovation and entrepreneurship, BMW Foundation will send their representatives to POC21.



## Hele Avus Foundation

Founding partner of Open State, invests in pioneers with "character, a sense of justice and humility" - thanks for believing!



## City of Paris/Mairie de Paris

The City of Paris, host of the 21st U.N. conference on climate change, is supporting POC21 as part of their "Tous For Le Climat!" program.



## Advocate Europe

Advocate Europe is an annual idea challenge for innovative European initiatives and projects.



## MEDDE

The French Ministry of Ecology, Sustainable Development and Energy is one of the two official co-organizers of the COP21 climate change conference.



## ADEME

The French Agency for Environment and Energy Management supports us as part of their commitment for innovative solutions against climate change.



## GLS Treuhand

The foundation of Germany's largest green bank wants to develop a "gift culture" and especially supports the POC21 clean energy prototypes.

## TECHNICAL PARTNERS



## ACADEMIC PARTNERS



## COMMUNITY PARTNERS



# » WE ARE ALL CREW «

ADAPTED FROM AN ESSAY  
BY ARIANE CONRAD

CO-AUTHOR OF STORY OF STUFF  
AND FREE TO MAKE

**A** massive banner adorned the front of the Chateau at my arrival, reading: "There are no passengers on spaceship earth. We are all crew." This comes from Marshall McLuhan in the 1960s, a reference to Buckminster Fuller's book, *Operating Manual for Spaceship Earth*.

If I came to POC21 for the projects (12 lucky ones were selected from close to 200 entries to participate in the camp, representing various solutions primarily around energy, food, and water); I left impressed by the total experiment in responsibility, community, and democracy.

What the organizers managed to do here in a matter of days, with a tiny budget, was astounding. They took a vast, old, fragile rural property with insufficient infrastructure, and then made it function as a co-living, co-working, and fabrication facility. They organized work shifts that distributed the duties of cleaning and cooking. By the time I arrived, towards the end of the third week, the systems had evolved into a mostly smooth flow. To all of us interested in creating collaborative organizations, enterprises, and new ways of structuring society, communities and work, every single aspect of the experiment held questions and insights like this. Who takes responsibility for what? What do we do about the pieces for which no one takes responsibility? How do we manage people who overstep their leadership? How do we encourage people who never step up to do so? How do we reward initiative? How do we bring attention to or solve problematic dynamics? To address these questions, the systems of operation and maintenance at POC21 evolved every single day, as though they were living creatures too.

So here's what I figured out about what the stories of the 12 projects, and the "13th project" (the camp itself), represent.

For so long we've been so dependent. We don't know how to meet our most basic needs without the global, exploitative system. Most of us don't have the means to produce our own energy or our own food locally. We've become frightened of this dependency, yet helpless to break out of it, powerless to change such massive systems.

DIY (or better, DIT- Do It Together!) solutions give us a taste of empowerment and agency. When we start getting a handle on producing our own food and our own energy (and next, our own housing, our own tools, our own vehicles and communications devices, and then our own governance and finance systems), we stop feeling so dependent, and we become less afraid.

That is the true meaning and potential of POC21, even if it doesn't solve all our super complex global problems in these five weeks. It's about people participating in the solutions (whether you're chopping veggies, emptying shit buckets, caring for the babies, making how-to videos, or inventing a DIY tractor). It's about democracy as Black Mountain College defined it: leading a mature, self-directed life, prepared to face the threats and complexities of a critical age.

# ONWARD

POC21 was an intense experience for us all. During and after the camp, these new ideas emerged.

*"I think we need to be careful not to say that these five weeks will deliver the change that the world needs. I think it's like a process. This is the first step, and hopefully it will inspire many projects and many existing companies to take this open source sustainability route, and over time that will develop into a strong open source sustainability movement that will be delivering the scale of the solutions required."*

*Trystan Lea, Participant*

## 1. Active Community

Participants, mentors and visitors from the camp remain strongly connected by a variety of social technologies and occasional in-person reunions across the world. Spontaneous joint ventures are happening between project teams. Communities all over the world are sharing the POC21 documentary.

## 2. Permanent Space

You can achieve a lot in five weeks, but a lot more needs to be done. Many of us dream of permanent spaces that carry on the prototype development and testing that happened at the camp. There, holistic open projects like Wikihouse and Earthships could host and integrate the solutions developed during POC21. Also, our social processes could be fine-tuned.

The Open State team is involved in the acquisition of a huge natural park between Hamburg and Berlin and also cooperating with the Agora collective in Berlin to take over an abandoned brewery and turn it into a creative, cultural space including a green fablab. In Brussels, our participant Yannick is setting up a co-working space with similar values and goals to POC21.

## 3. Adapted & Improved Innovation Process

Moreover, we are developing new partnerships to adapt the POC21 process to refugee camps and co-create the vision of "Refugee Open Cities" as liveable places offering sustainable maker jobs and collaboration with the local community.

The 12 projects, the processes and the strategic design of POC21 are also wanted in the development sector and we're in touch with African projects and communities to setup innovation camp-like kick-offs, helping people on the ground with new jobs and clean tech ideas.

## 4. Open-source Market place

One of our main goals with POC21 was to reach beyond the community of open-source evangelists and reach a mainstream audience with products that are "sexy like Apple, open like Wikipedia." We imagine turning the POC21 prototypes into fully developed products, ready to "buy, build, or upgrade" by a growing community of users and developers.

While most of the POC21 projects have been documented and their plans made open-source, improved design, better marketing, and a stronger connection to global fabrication spaces are needed to reach the mainstream market. To get there, we're planning a web shop comparable to Etsy & Amazon, but with a fair distribution for all participants of the value chain such as inventors, fablabs, lenders/buyers and co-developers.

On top of that, the whole sector of open and decentralized technology needs more capital to thrive, so we've come up with the idea of the first "convivial tech investment fund" addressing the wicked, systemic crises of our times. This will be complemented by strategic design & consulting to transform the broader manufacturing landscape.

*"At POC21 we witnessed that when the setting is right, something beautiful can happen: When we get to know new people, we tend to be naturally goodwill and some kind of personal restart becomes possible. Although it probably started unintentionally for most, what we practiced at the camp, the way we interacted and lived together, changed our behavior and became a part of us: whether it's a running routine in the morning, less energy consumption, or a deep belief in one's own creative potential, all of it left the camp with us. This unique experience we shared will definitely have an huge impact on our future selves."*

*Dominik Wind, Co-founder Open State & POC21*



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# JOIN THE CREW

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As always, these ambitious next goals need fantastic partners like you! For updates or more information, please contact [ben@ouishare.net](mailto:ben@ouishare.net) or [daniel@openstate.cc](mailto:daniel@openstate.cc)



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