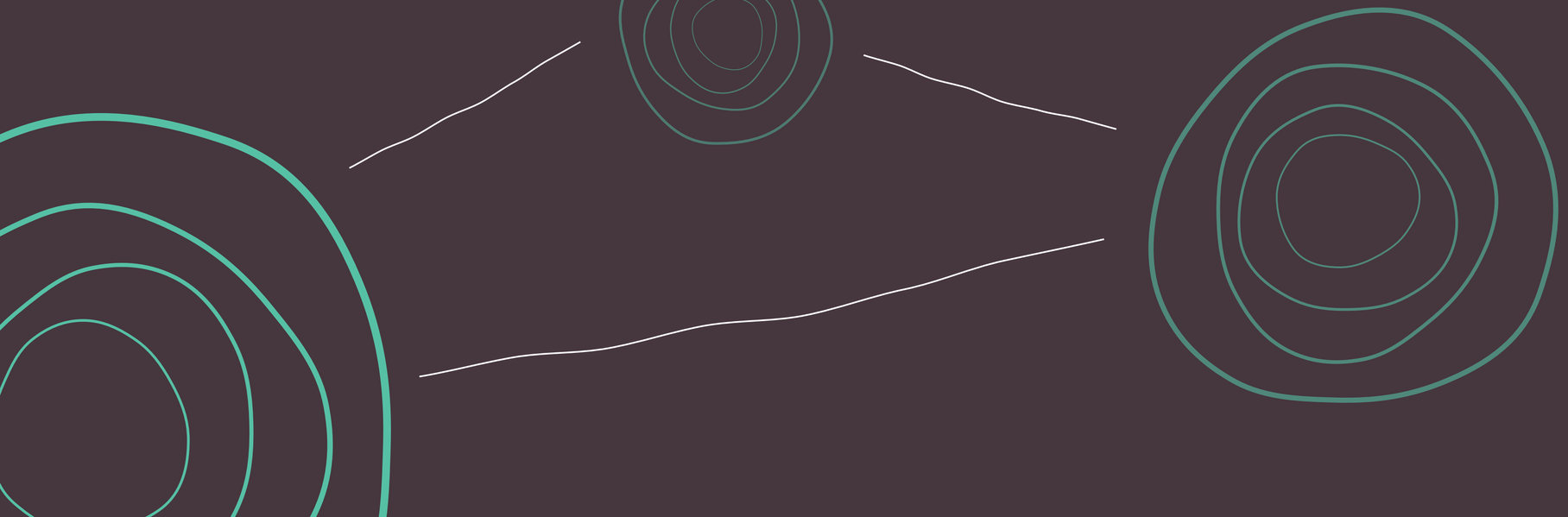
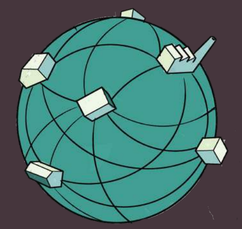
**COSMOLOCALISM** | design global, manufacture local

# Cosmo-local work

## Organisational practices for equitable and sustainable living





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***Contributors:*** *Chris Giotitsas, Nikos Exarchopoulos, Alex Pazaitis, Vasilis Kostakis*

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# Cosmo-local work:

## Organisational practices for equitable and sustainable living

Rising inequality and an unprecedented environmental degradation may be the most pressing issues of our times. Empowered by modern information and communication technologies, individuals and communities around the globe have engaged in activity that exceeds traditional forms of activism. Instead they have devised novel configurations of working and producing together within a framework of openness, equity and sustainability. This type of production is aggregated under the term commons-based peer production and the organisational model is codified as Design Global - Manufacture Local.

This handbook explores such practices through four indicative cases of communities, which engage in differing productive activity but are driven by the same values. It is not a comprehensive guide on how to do things. Instead it offers critical insight stemming from four distinct, yet similar in ethos and overarching goals, exemplary initiatives which utilise their respective local dynamics as well as globally produced knowledge and resources to engage in productive activity. This activity is unique both in organisational configuration and produced artefacts. More details on these cases will be offered in the handbook along with visual aids for their unique characteristics which may help re-shape how we work and produce in society.

First things first though! A certain level of disambiguation is in order.

# What is P2P ?

Peer to peer is a type of organisational architecture that partitions and distributes workloads amongst peers. The term originates in computer networks popularised by file sharing systems in the late 1990s (like Napster). Peers share resources and power without the use of a central administration node making this type of network more resilient and scalable. So it is fairly easy to see how this model has inspired the application of similar structures in other areas of societal activity as well as the creation of a philosophical movement for the creation of a social structure that is made possible through information and communication technologies.

# What is commons-based peer production?

Commons-based peer production (hereafter CBPP) describes a production system, powered by information and communication technologies, in which individuals are free to co-operate and co-create. Their creative output is a commons. Meaning communal resources, administered by its users based on mutually agreed upon regulations and customs.

The commons could potentially be considered “rivalrous goods” (like fisheries) that cannot be attained by more that one person at a time or “non-rival goods”, where use may be simultaneous by multiple individuals without any value depletion (in fact, value is increased like for instance open source software whose code is improved upon by multiple users). Here, the focus is placed primarily on the latter category. Meaning that the creative output of the cases presented is primarily digital commons.

There is a growing ecosystem of CBPP initiatives: from the free encyclopedia Wikipedia to open source software projects, to open hardware communities, which produce from low-cost 3D printed prosthetic arms to agricultural tools and machines, to small-scale wind and hydro-electric power generators. While the term was originally introduced to describe internet-based intellectual work, it has greatly expanded in scope over the years. Only one of the cases presented in this handbook engages in this sort of activity specifically. The rest produce predominantly (but not exclusively) open source hardware. This illustrates the adaptability of this model of production through various configurations. One of the configurations is presented next.

# What is Design Global - Manufacture Local?

Design Global - Manufacture Local (hereafter DG-ML) is an organisational and production configuration which encapsulates the common features identified in all CBPP initiatives. These features are briefly mentioned in its name. Contrary to the industrial logic of limiting intellectual property and transnational supply chains that enable massive economies of scale, it promotes global access to industrial knowledge and localised physical construction. Meaning that design of technologies and products may take place collaboratively, with the assistance of information and small-scale fabrication technologies (both precision tools like 3D printers and laser cutters and traditional low tech equipment), in a global scale while at the same time adapted for local manufacturing according to specific needs and preferences.

This type of configuration is complementary to the concept of circular economies as it makes smaller, regional cycles or production/repair/recycling possible. Furthermore, it rejects the decontextualisation of inputs – outputs in the industrial process and their related externalities,which may harm communities and the environment alike, as it is geared towards sustainability and well-being rather than financial growth.

# Case studies

As previously mentioned, the cases presented here are not exhaustive of all possible organisational practices associated with DG-ML. Instead they provide some unique, real world exemplars of alternative organisational structures. Their experience allows for the envisioning of a wider structural shift in society with a focus on sustainability, autonomy and well-being.

However, national, regional and local political and economic conditions as well as cultural factors in the cases presented need to be accounted for. Each unique set of conditions in combination with the special characteristics of the initiatives allow their emergence in the first place, so the re-creation of identical or even similar initiatives in different contexts would be quite a difficult task.

So here, rather than providing a how-to guide with one size fits all proposals we aim to elicit certain insights stemming from these diverse configurations with regards to the qualitative factors that made them possible, the entrepreneurial ecosystems developed around them, as well as policy recommendations that would allow more of them to  not only emerge but also thrive.

Each case will be briefly described followed by a discussion which attempts to pinpoint the lessons learned. Namely these are Farm Hack, L'atelier paysan, Sensorica and Enspiral.

# Farm Hack

Farm Hack is a network of farmers, primarily in the USA, that develop and openly share designs for agricultural tools, methods and machinery. It was originally conceived as an event/gathering of farmers, engineers, designers, activists to brainstorm ideas and form partnerships to tackle certain farmer problems.

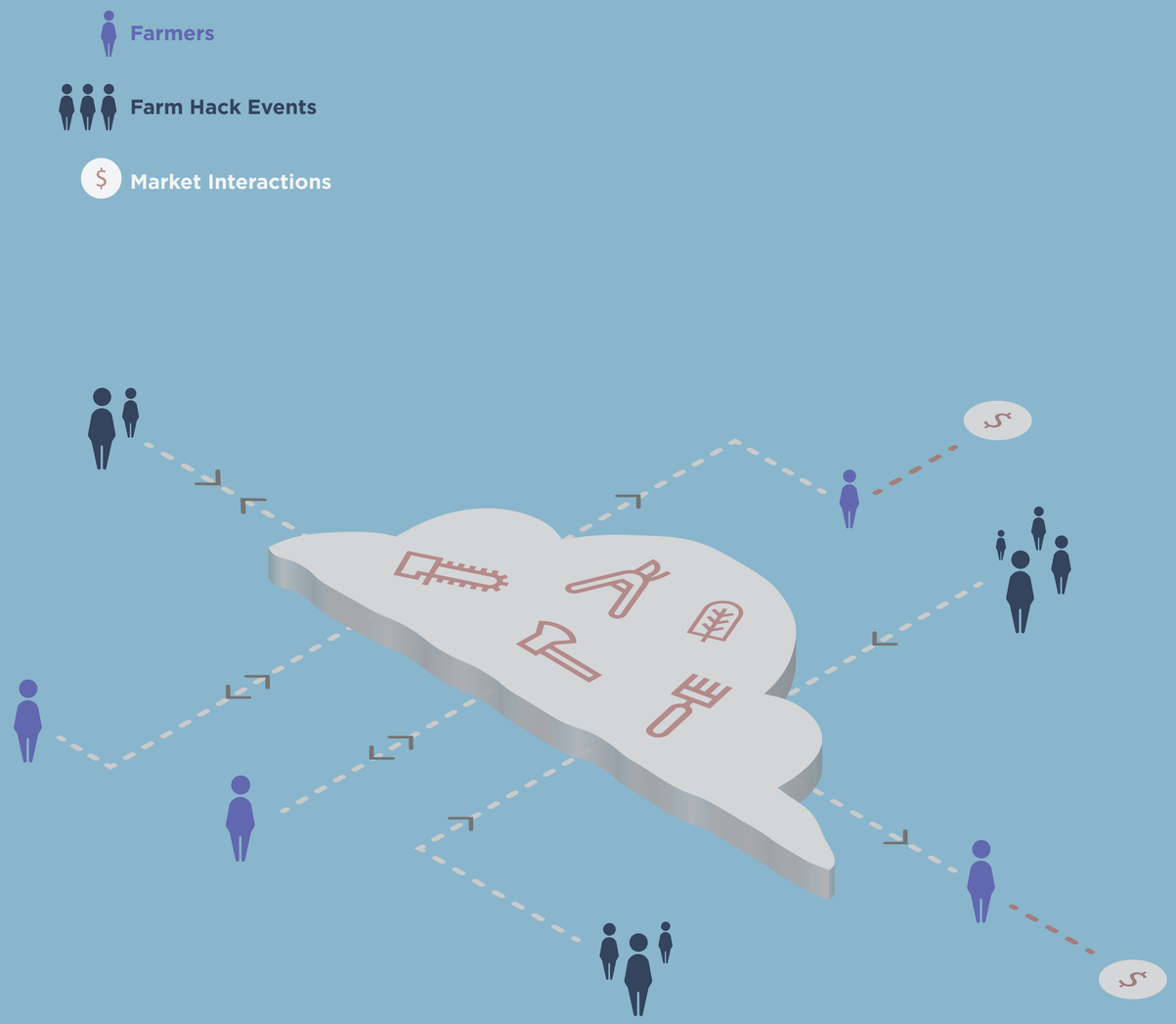
Its success led to further events, which were supported by certain sustainable agriculture non-profits, as well as the creation of a wiki-like platform that acts as a tool library of open source solutions as well as a point of convergence for the large and widely distributed Farm Hack community. Farmers active in this community have access to the tool designs and know-how of their  peers and similarly share their own inventions and adaptations of tools. In that sense, Farm Hack is emblematic of the DG-ML framework.

While originally lacking any legal organisational form, over time Farm Hack became an non-profit itself with the goal to bring farmers and non-farmer allies together in order to create the tools for open, autonomous and sustainable practices in agriculture. Having said that, there is no formal organisational structure. As a non-profit there is a board of directors, however its role is largely nominal. Instead, all members of the community are free to contribute in decision-making processes.

Practically, this means that the members most engaged in Farm Hack end up being the ones most involved in the organisational structure - a do-ocracy of sorts. As far as the productive processes are concerned, given the limited availability of monetary resources, activity takes place when and where possible.

Practically this means the community is highly decentralised. Farm Hack events are organised independently across the US (but also across the globe) by members or affiliated organisations. The platform, as the point of reference, provides a blueprint for these events as well as the templates for the documentation of the technological output of these events. In this sense, Farm Hack follows closely the peer production processes of open source software.

At the same time, certain members of the community are more active in the development process than others and

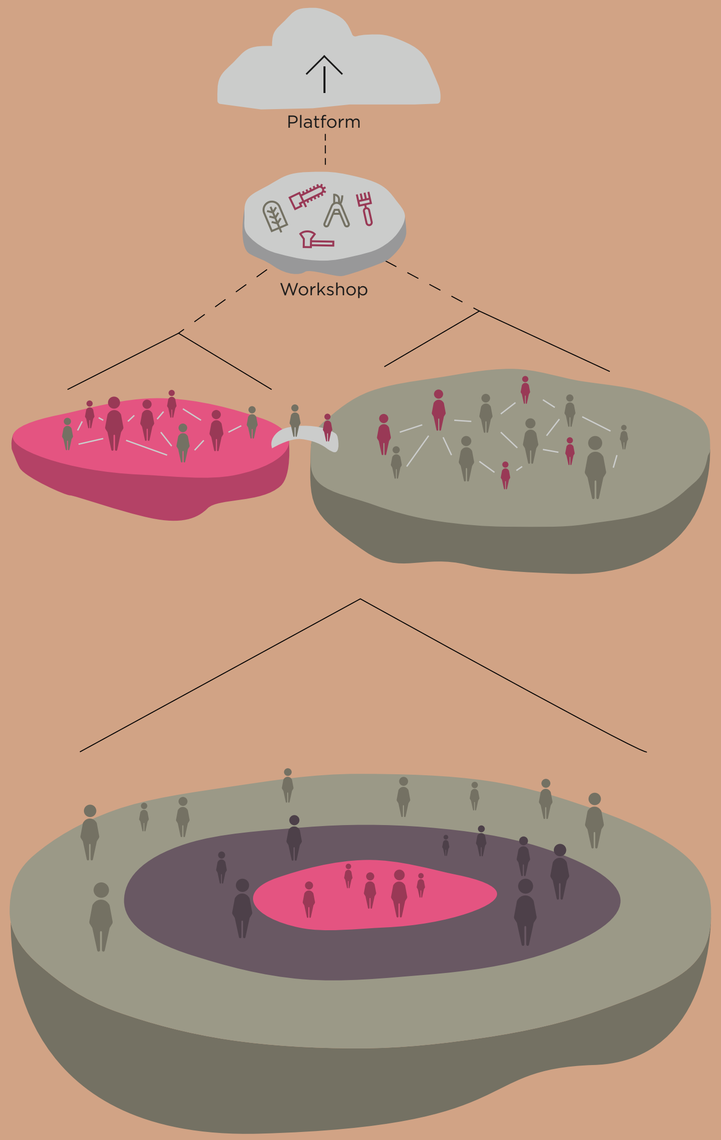



contrary to software, hardware requires significantly more resources to develop.

In order for them to secure the necessary resources for their activity but also achieve personal sustainability an entrepreneurial ecosystem is emerging around within the community. Methods include crowdfunding campaigns, training workshops, manufacturing or repair services to other farmers, bidding for support grants for agriculture, selling the tools themselves or partly assembled kits.

This is a side of Farm Hack which is still being developed and a best course of action has not yet been determined. The methods are not always successful, making sustained activity in the community a struggle. However, engaging in alternative/social entrepreneurial work within a community is viewed preferable to doing so alone.

For instance, it would be a worse business plan to solely take the development costs up for a tool rather than sharing it with its users. Furthermore, if there are multiple designs on Farm Hack an entrepreneur/farmer may offer to manufacture designs other than their own. Also the platform enables the capacity for feedback to further improve on their tools. Either way, the organisational peculiarities of the Farm Hack case allow for entrepreneurial activity that is not driven by profit maximization but rather on a relationship which is based on mutual values, understanding and support.




Farmers

Co-op

Operations Group

# L’atelier paysan

L’atelier paysan is another farming initiative, in France, which similarly to Farm Hack develops and openly shares tools for small scale, organic agriculture. It began as a subgroup of an organic farming association but after activities intensified, it became an non-profit cooperative. This means its shareholders receive no dividends and the shares are not re-invested.  Any positive balance the cooperative has every year is transferred into an indivisible reserve which funds their activities. Acquiring a share provides the shareholder with the capacity to participate in the decision-making and visioning of the coop, not much else.

While the technological output as well as the values of Farm Hack and L’atelier paysan are indeed similar (if not the same) they organisational structure and operational capacities are quite different for a number of socioeconomic and cultural reasons.

Let’s explore an example. Being in France, which has a social welfare net (albeit one that is deteriorating due to austerity) with various support structures, means that the organisation manages to secure state funding to a large degree. That may be through EU, national and regional structural funding for agriculture. Or a special mutualised state fund for vocational training and skill development, as well as crowdfunding and donations from other social solidarity groups active in the country.

Activity is boosted by those resources. Training workshops which are conducted throughout France with the assistance of three fully equipped trucks that function as mobile workstations. These workshops last three to five days take place in farms, warehouses or any other suitable space. The nature, location and time of the workshops are defined by the farmers themselves at the end of each year according to their specific needs and time availability.

The workshops involve learning of manufacturing skills through the build of certain tools and machinery (for which farmers can provide funds for the materials and get to keep the machine(s) at the end of the workshop) or the collaborative prototyping of new tools.

Either way, they are always initiated by the farmers. At least a group of 5 people need to be assembled with a specific solution in mind. Then l'atelier paysan provides assistance in the development of the solution in the form of individuals which act as guides or "Sherpas" in the process. Typically they provide design, engineering or similar skills which the farmers themselves may lack.

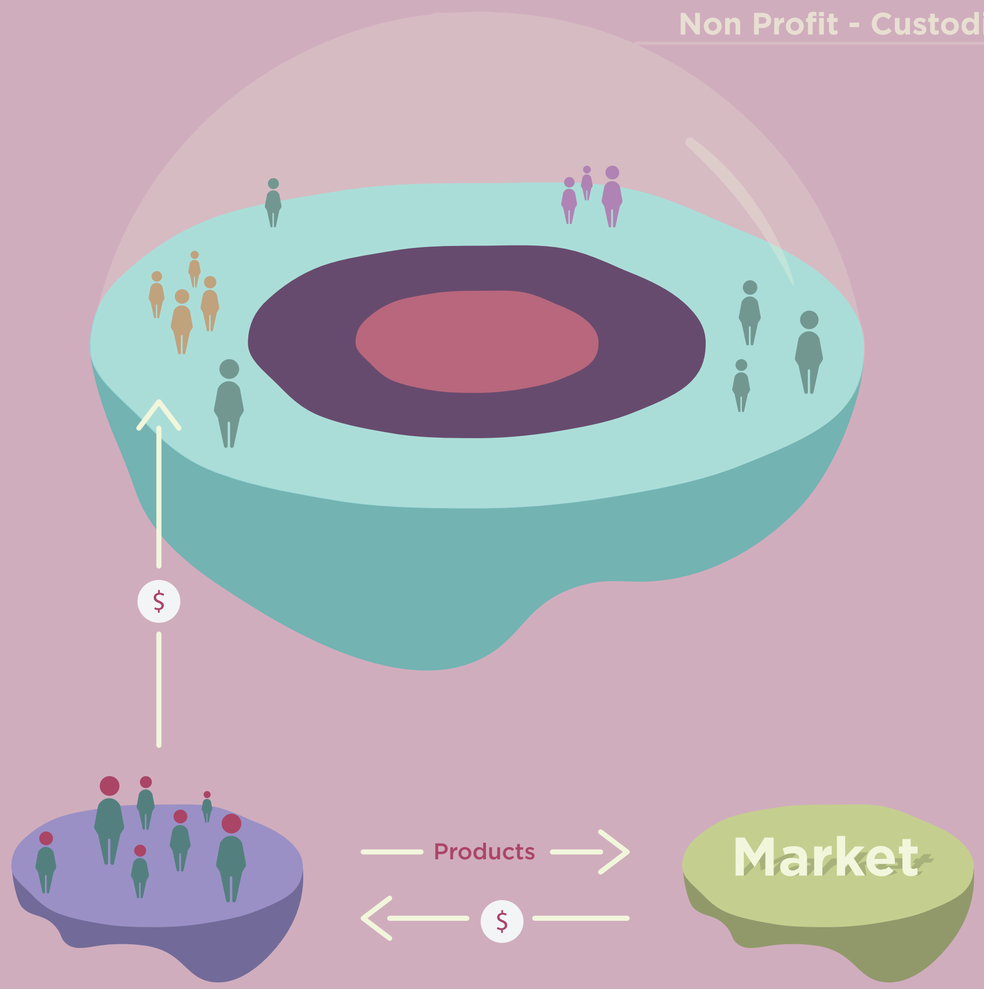
The aforementioned vocational training scheme allows L'Atelier Paysan to charge for attendance in these workshops and then secure reimbursements for most of the contribution each farmer makes.

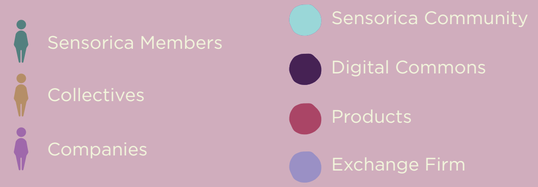
Furthermore, the state funding enables the coop to hire an operational group, which involves engineers and community workers, in order to facilitate/assist the collaborative design, manufacturing and testing of new technologies as well as other community dissemination activities like gatherings, expos etc.

This allows for the fruition of an enhanced collaborative development mode which is entirely driven by farmer input and facilitated in every step by individuals with the necessary skill sets (engineers, designers, developers etc)

All this leads to a significant volume of technological output and community mobilisation as well as superior quality of tools and comprehensive documentation compared to the frugal and autonomous activity in Farm Hack. However it also means that there is a certain degree of professionalisation and centralisation of activity. Which ultimately reduces independent initiative. The coop acts as a conduit which permeates all levels of activity.

At any rate, the coop's business model is unique to the specificities of small scale organic agriculture and adapted to the opportunities and resources available in the French context. It allows them to engage in intensive research and development without having to rely on an aggressive commercialisation model but rather to extract market resources and redirect them into socially driven goals.




# Sensorica

Sensorica is an open collaborative network, formed in 2011 in Montreal (Canada). Their work revolves around the design and deployment of open source sensors and sense-making systems. These are typically equipment used in laboratory research, though not exclusively. Like many initiatives of this type, sensorica draws inspiration from open-source software projects and its vision has been to devise an appropriate business model and support infrastructures to make such forms of production economically sustainable.

Sensorica is an enterprise of significant complexity compared to typical commercial ones. It is both a production network and a commons-oriented community, but also a commercial operation. The individuals (software developers, engineers, researchers, lawyers etc) and organisations within the network that pool resources and develop projects are driven more by intrinsic goals than financial remuneration.

“Exchange firms” introduce these innovative projects to the market in order to generate incomes. These are independent internal or external business entities that support all relevant operations, like marketing, sales and logistics, but also hold legal, ethical and quality standard responsibility for these commercialised projects. These operations are fully transparent to the community and they are entrusted with serving the interests of the network as a whole.

The Sensorica community defines itself as an “Open Value Network” (OVN). It is an adaptive, decentralized and based on distributed decision-making processes organisation. It is built on three principles: open membership; transparency and variety of contributions. Open membership means members (which may be non-profits, government entities, enterprises or even other OVNs) can join or depart from the network freely and/or join, acquire or form their own enterprises. Transparency means access to information, knowledge and processes. And variety of contributions

reflects the broad spectrum of what is defined as a contribution.
Like materials (resources, tools, consumables, etc.) or immaterial inputs (time, effort, information, etc.) or capital (investments, physical spaces, infrastructure, etc.).

Its economic system is based on large scale collaboration and customised production to create economies of scope that offer innovative solutions and reduced time-to-market for their output, making the model competitive in market terms. Simultaneously, it provides a way for open source projects to capture, manage and distribute financial rewards to the contributors; deal with trust related issues; support a formal legal structure, brand and effective business strategy.

The OVN's infrastructure is supported by three main interconnected systems. A contribution accounting system, which records and evaluates member input and revenues in proportion to every contribution, a reputation system, which accounts for the behavior within the community and evaluates merit according to collective interest; and a role system, which dispenses varying activities among agents, based on skills and interests.

Value here is, of course, more broadly defined than simply profit. The various conceptions of value in the systems are made commensurable through a value equation system, which offers a percentage of the gross revenue to each contributor in the form of 'fluid equity'. When exchange value is created in the market, the accounting system redistributes the revenue to the contributors. Typically government grants or market operations generate income. Through the system, revenue flows to contributors according to quality of contribution. The quality is determined via peer review techniques and self-logging, which eliminates rent-seeking tactics but also supports the network's operations and its contributors.

Sensorica utilises a unique management/planning structure to manage the complex operations of an OVN. It collects and interprets data from the varying activities in the network and links them to specific resources, events and agents to follow the contributed value on resource level. Every component is connected with everything else. Economic agents are associated with other agents and participate in differing processes, exchanges or transfers. These alter the state of resources by using, citing, consuming, creating or transferring them. One resource may be an output from one event and then an input to another. And all connected to a resource flow.

Overall, this completes the functionality of the accounting system by enabling the re-use of resources in different contexts. As far as CBPP is concerned, this is particularly relevant as it is built upon (the by definition abundant) digital commons which may tapped be upon simultaneously. This continuous utilisation increases the overall use value for the network as well, as it taps into the advantages of network effects as it sustains the diverse underlying structures.

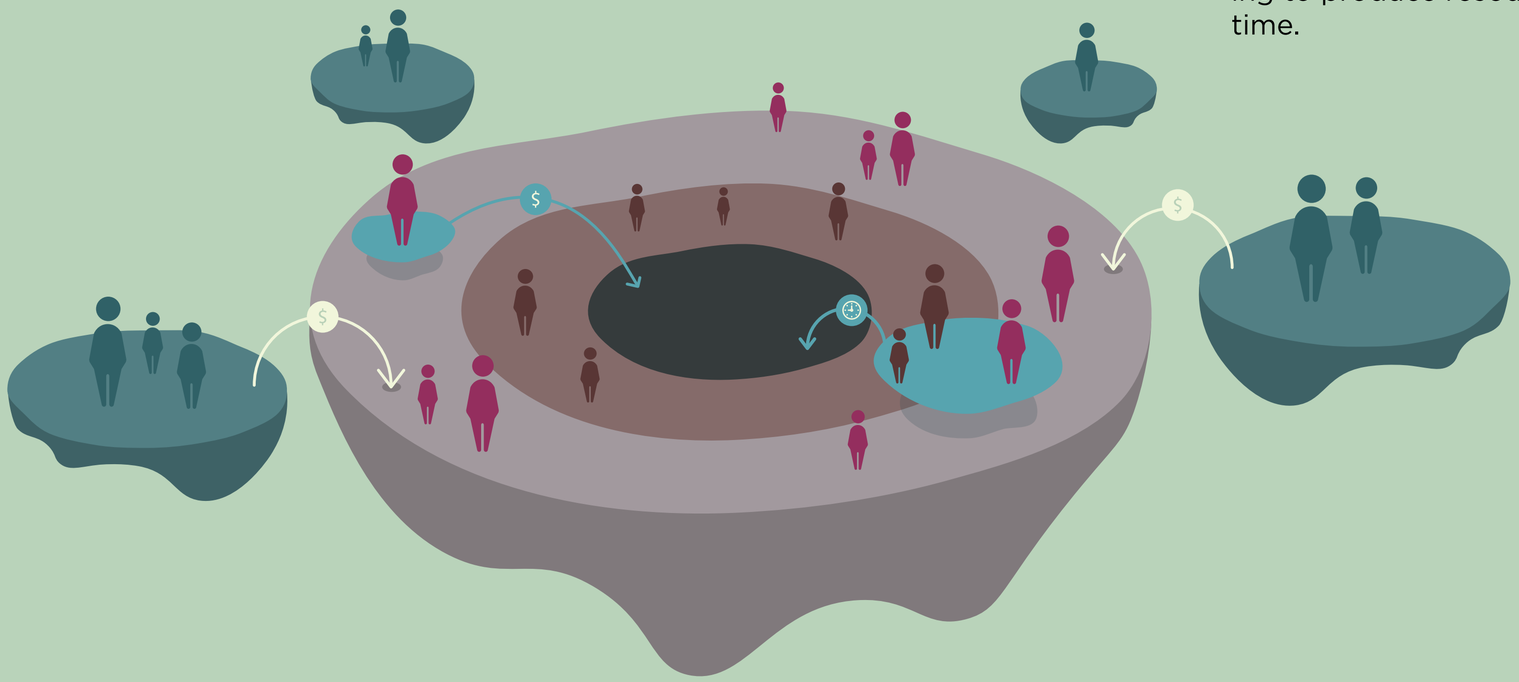
Enspiral Foundation

Members

Affiliates Partners

Clients

Ventures



# Enspiral

Enspiral is community of companies and individuals whose work focuses on “stuff that matters”. The network was initiated in 2008 with its first motivation being to create the space for individuals of various skills to invest time and resources on socially oriented projects. To this end, initially a small group of freelancers, inspired by open source software, started experimenting with different modes and structures of cooperating to produce resources and manage time.

Over the years, Enspiral has expanded significantly to include professionals from various fields (like lawyers, finance experts, software engineers, trainers etc) which aggregate resources to create digital and knowledge commons. Its organisational structure and tools have been changing and evolving constantly with successes and failures.

For instance, it started out as a single company and at some point enspiral became a freelance collective. Which it no longer is - instead it is a cluster of initiatives. It also used to have a physical space, though that was also replaced with multiple spaces. At any rate, however, the core elements of self-organisation, distributed coordination, communal resources for the initiation and support of the network social projects are constant.

On top of Enspiral’s commons foundation is built an ecosystem of business ventures which offer a variety of services and open source tools tailored to communities and organisations similar to Enspiral. Meaning distributed and horizontal governance organisations with a social profile. Such a tool is Loomio, an open source platform which

helps communities engage in participatory decision making practices, currently being used by diverse organisations across the globe.

The Enspiral foundation is the core of the community. It is a for benefit/non profit association that was created to provide support to the whole network and further promote its mission. It manages and maintains the network's infrastructure, collective assets and is in charge of its culture and visioning. It also serves to delineate the varying levels of commitment in the network. Core members receive a share at the foundation and are collectively considered owners. Like in L'atelier paysan, shares do not represent financial dividends as it is a non profit. The ventures sustain the foundation by offering a percentage of their incomes.

Those in the periphery of the foundation are considered contributors and newcomers require the consensus acceptance of the core members. Contributors may attend and offer insight in all decision making processes, but ultimately the responsibility falls to the members. While a wider network of friends and collaborators surrounds these groups. All these positions are subject to change and can be altered after self-evaluations that take place a couple of times every year.

Now as mentioned, Enspiral ventures produce revenues by offering their software tools and services. They, in turn, distribute them to contributors and to the foundation. The remaining funds are invested collaboratively in project proposals from the community. These processes are supported by relevant digital tools, often the same the Enspiral ventures offer to clients, such as Loomio. Internal ones are also used, like the "my.enspiral" platform that handles the distribution of revenue and "co-budget", a collaborative budgeting tool which is utilised for the investment of the Foundation funds.

Overall, Enspiral culture is geared towards societal value creation rather than solely for the shareholders. Project ideas may come from anyone within the community or around a surrounding group of friends, and if deemed worthwhile, teams are brought together from multiple sub-groups to work on solutions. Financial support for new projects may come from within via the co-budget tool or through external sources (which Enspiral aspires to increase given its dedication to social value).
Several mechanisms are in place to subsume external (perhaps extractive) capital and transform it into cooperative capital which can then be invested into the social mission. Such a practice is capped returns, which introduces a cap to the total returns investors receive for the equity of a venture. To do so, a company's shares are coupled with a matching call option which requires the re-purchase of shares at a pre-agreed price. Once the shares are redeemed, the company may invest all future profits to its social goal. Thus supporting the original vision behind enspiral.

# Lessons learnt

These cases have, hopefully, illustrated the various innovative ways that initiatives geared towards the commons and the social good manage to navigate the often hostile environment in the markets. To be sure, these tactics are highly attuned to the regional and national socio-economic context of either case. But, if we peel away some of the contextual layers, we can pinpoint certain core elements that are compatible with CBPP.

These can be summarised as follows:

- Farm Hack illustrates how communities can communicate and collaboratively develop technologies in distributed and autonomous ways which simulate structures similar to the P2P ones found in open source software production. They do so by leveraging the tacit knowledge of farmers with a robust political orientation and unique information and communication infrastructure.

- L'atelier paysan shows us how such an initiative may tap into any potential resources in a national context to design and implement highly participatory technology development and collaboration processes by empowering the users of the technology itself to shape it.

- Sensorica introduces a broader definition of value in market activities. The OVN model, more specifically, has obvious applications for commons-based projects. It may assist alternative forms of organisation that allow communities to interface with the public and market sectors.

- Enspiral is an emblematic case for innovative business and organisational practices which are geared towards social goals. It also showcases relevant tools which are designed to assist initiatives active in the field (enspiral being one of them).

Commons based peer production as a production mode and DG-ML as an organisational framework present an optimistic vision in a seemingly desperate time. It is not only a different mode of economic relations with regards to resource allocation but also, potentially, a radically different way to exist as a society.

For this to happen, however, novel tactics for the transition from the destructive capitalist mode need to be devised. This handbook hopefully offers a gimple on how these might proliferate.

# Further reading

Giotitsas C. (2019) Open Source Agriculture: Grassroots Technology in the Digital Era, Basingstoke, UK: Palgrave Macmillan

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Pazaitis, A., Kostakis, V., & Bauwens, M. (2017) Digital economy and the rise of open cooperativism: The case of the Enspiral Network. Transfer: European Review of Labour and Research. 23(2): 177-192.