



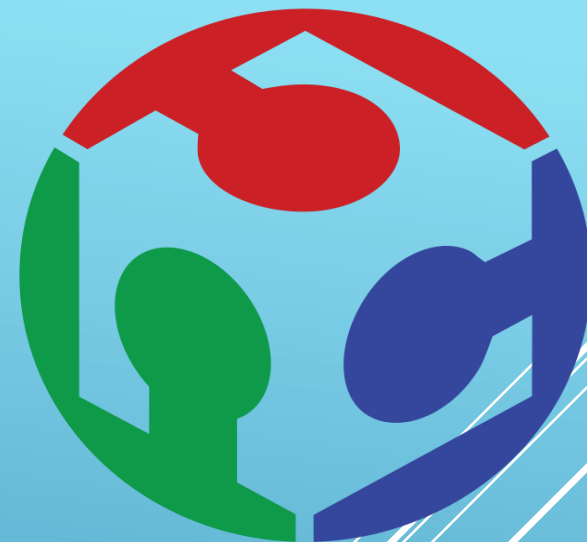
Laboratoire en Innovation, Technologies, Economie et Management



FABLABS & ODD

Cédric Gossart, Beyza Coşkun

Webinaire organisé par le Conseil Scientifique du Réseau Français des Fablabs, 27 mai 2021.



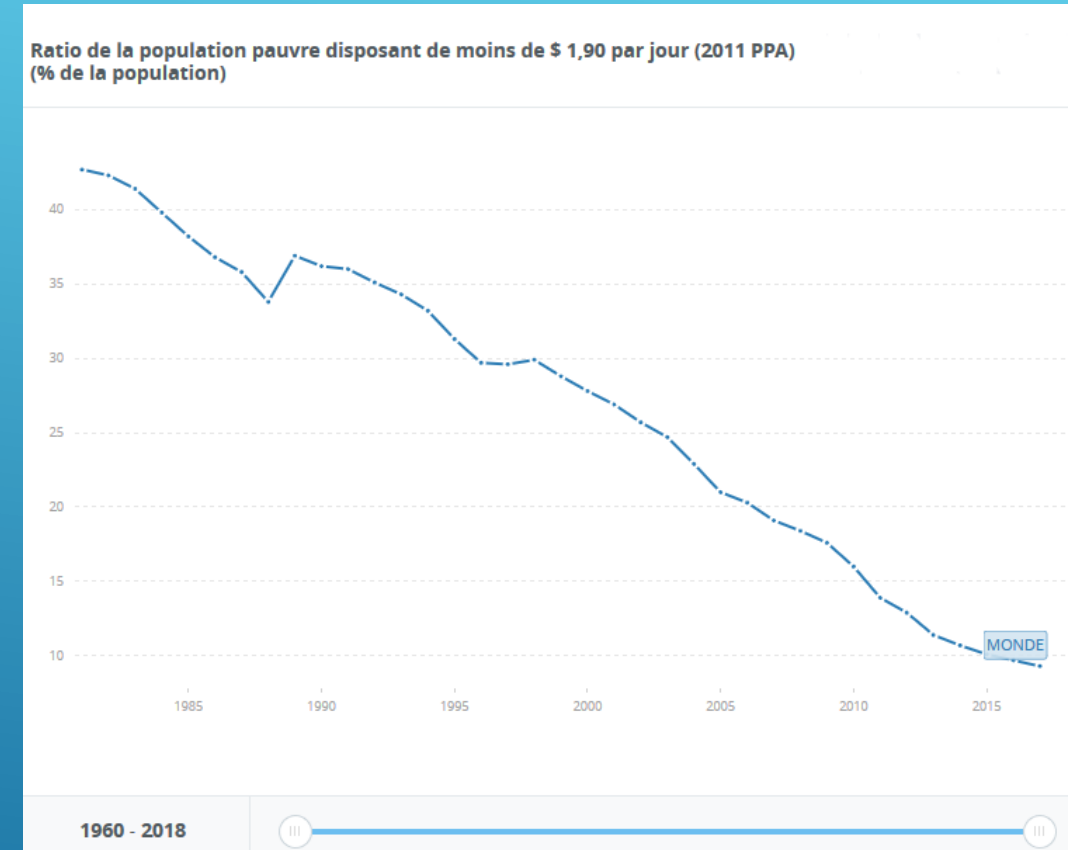
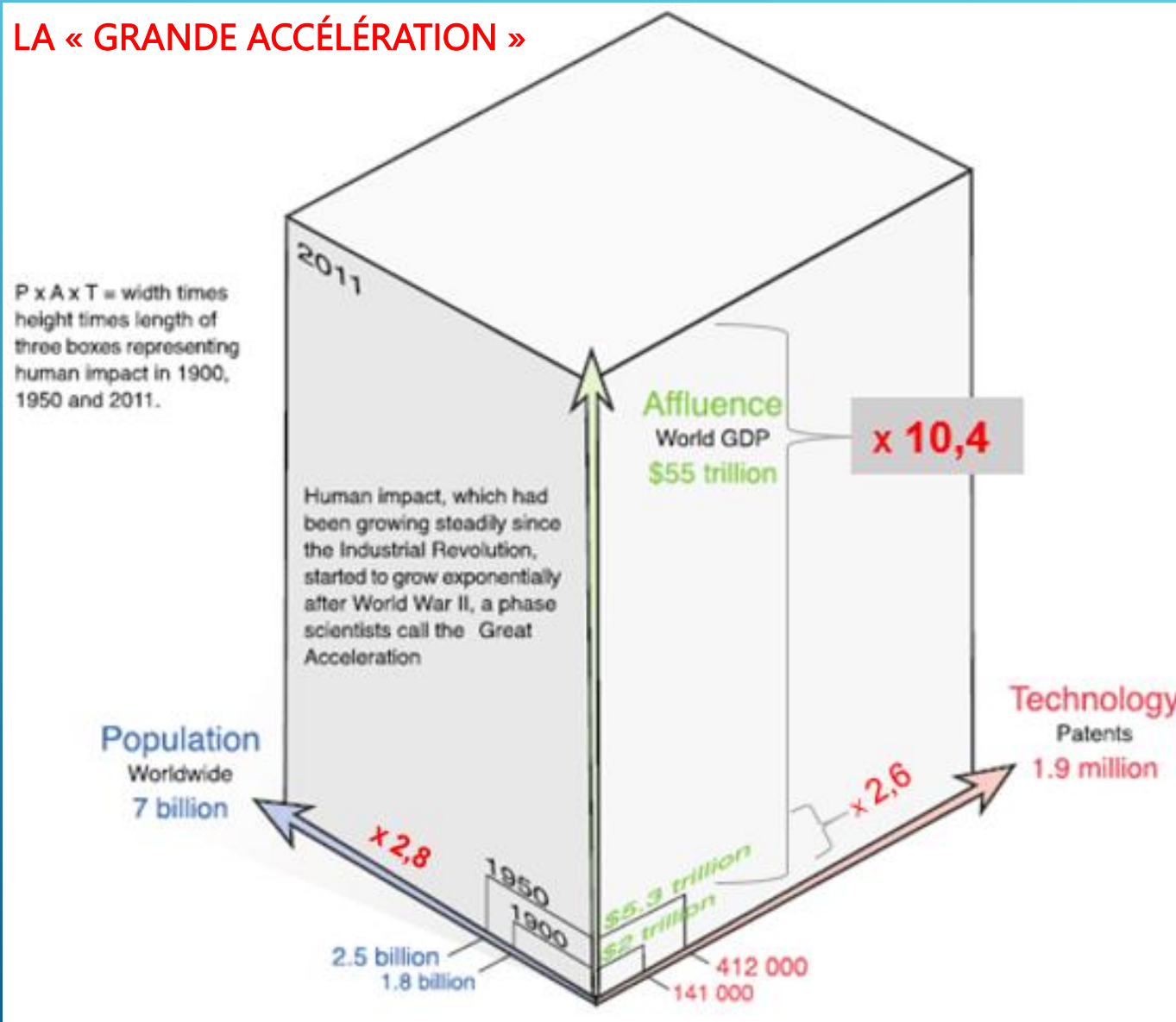
FAB LAB

LAB LAB



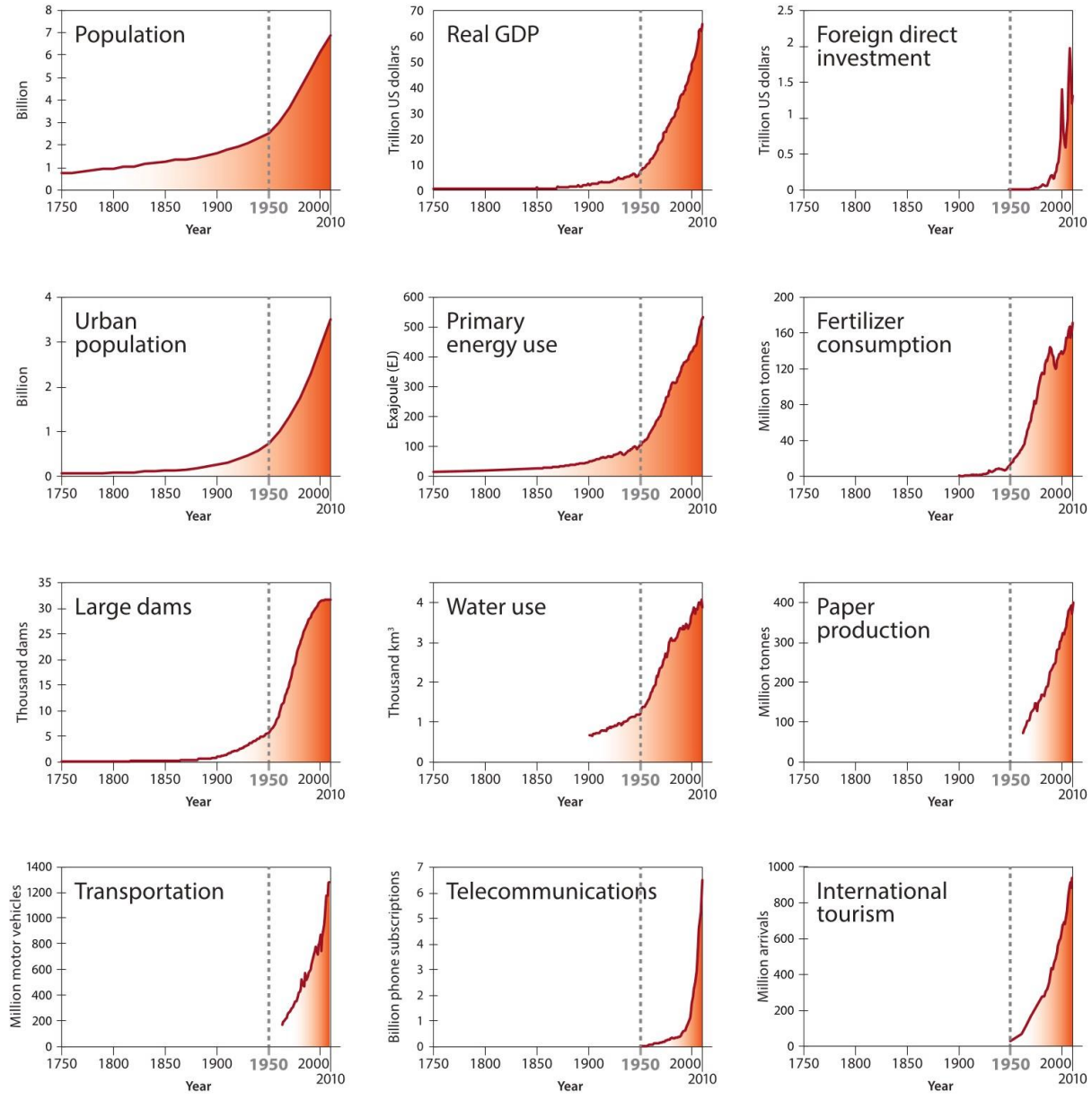
LES GRANDS ENJEUX DE L'HUMANITÉ

LA « GRANDE ACCÉLÉRATION »



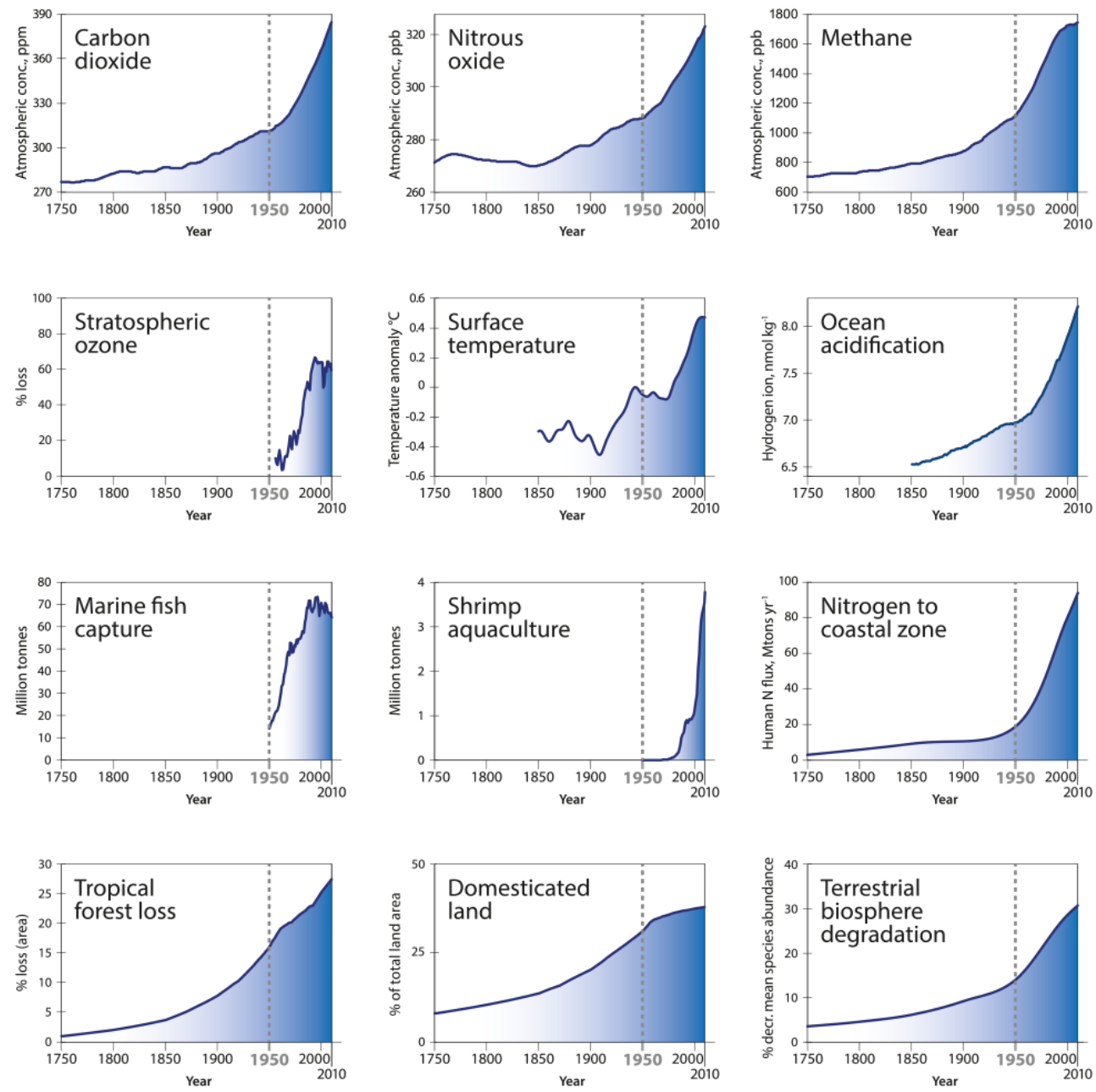
<https://donnees.banquemondiale.org/theme/pauvrete>

Socio-economic trends



Earth system trends

Steffen, W. et al. (2015). « Planetary boundaries: Guiding human development on a changing planet », Science, vol. 347, n° 736, p. 1259855.



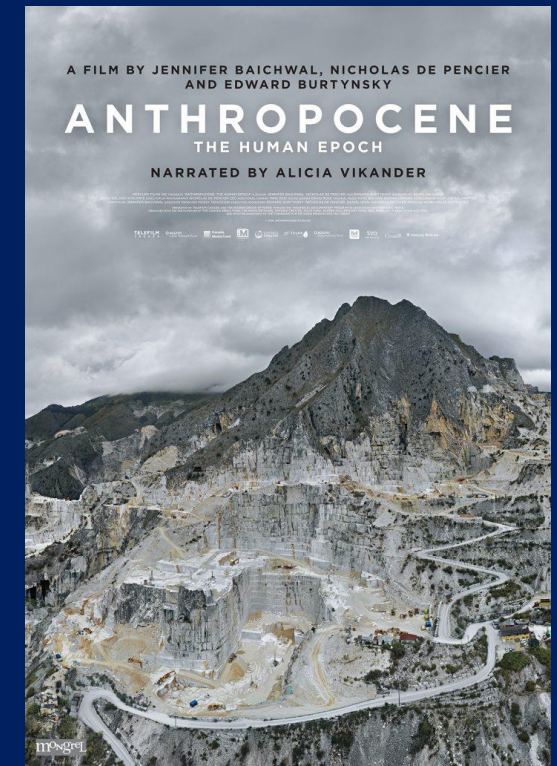
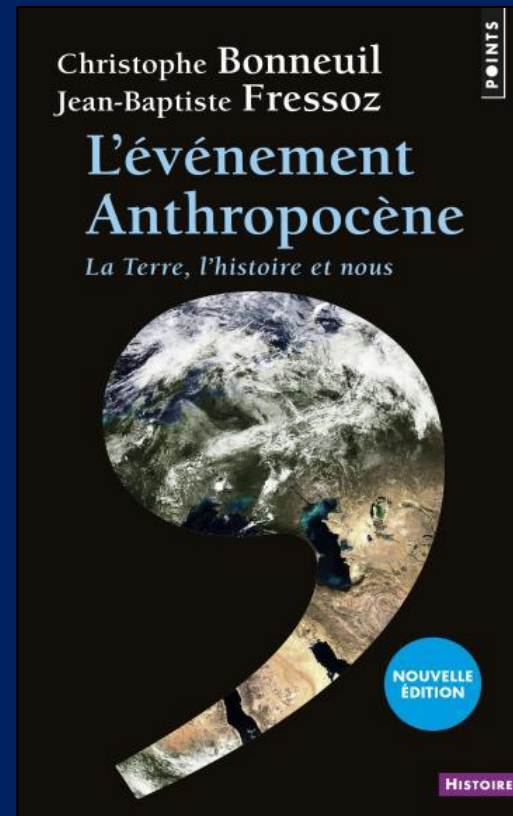
Une nouvelle époque ?

"L'Anthropocène est la *période*, dans la chronologie géologique, où les humains ont sorti la planète de ses limites écologiques".



Paul Crutzen (1933-2021).

Paul Crutzen (Nobel 1995)



<https://theanthropocene.org/film/>

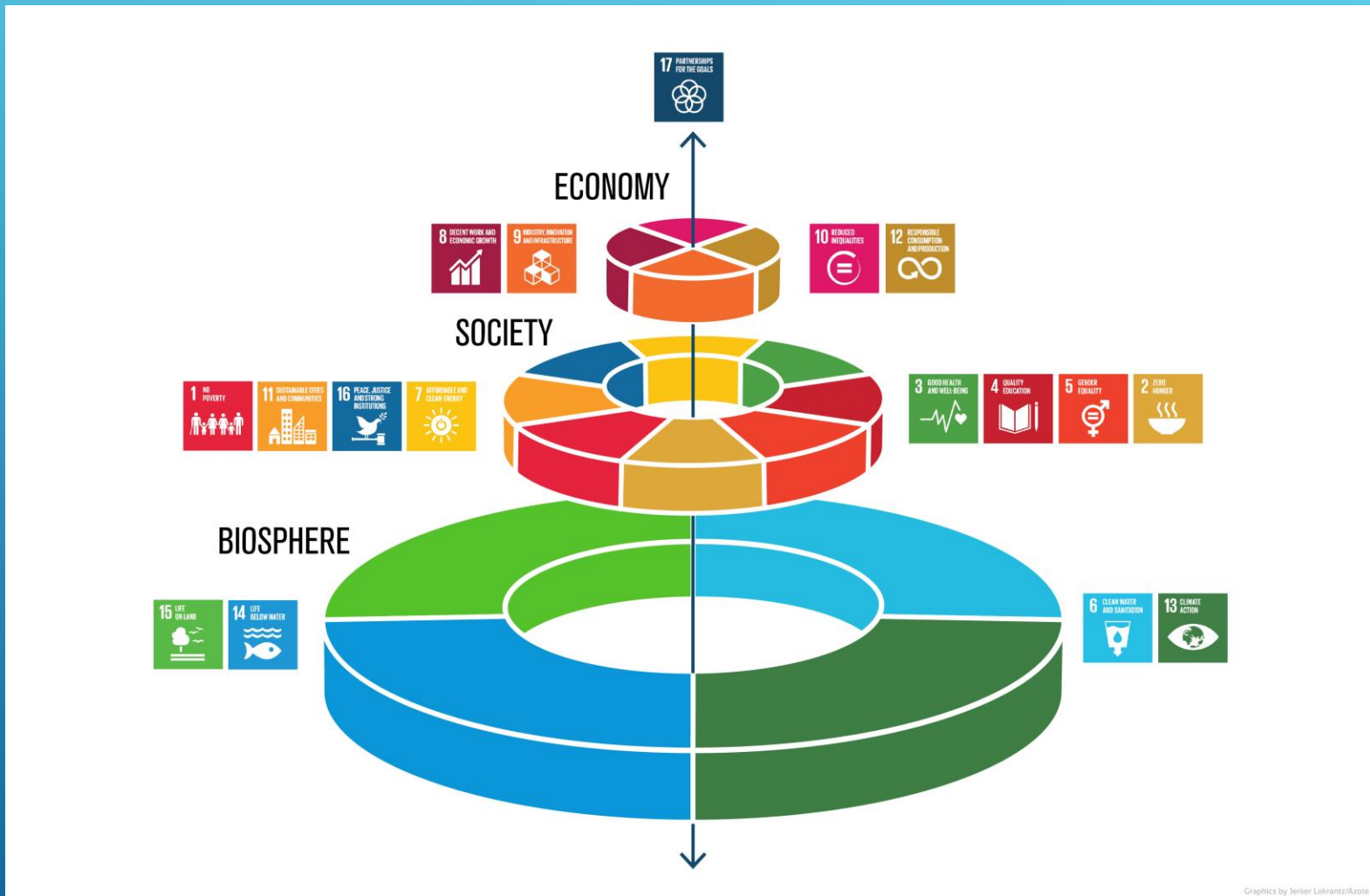


<https://www.anthropocenemagazine.org/>

LES ODD



<https://gossart.wp.imt.fr/teaching/odds/>



Graphics by Jenifer Lokrantz/Azote

<https://stockholmresilience.org/research/research-news/2016-06-14-how-food-connects-all-the-sdgs.html>

FABLABS ET ODD ?



Beyza Coşkun

<https://www.linkedin.com/in/beyza-co%C5%9Fkun-153443185/>

~250 fablabs en France
~20 en Turquie

L'étude en France :

- 3 University Hosted
- 5 Grassroots
- 1 Government
- 2 Private Fablabs

Enjeux des ODD pour les fablabs ?



UN Meeting on "fablabs and SDG"

Réponses au questionnaire en ligne (60 réponses sur 294)

Comment se définissent les fablabs français ?

	tiers lieu	community	education & formation center	prototyping center	citizen laboratory	economic development center	incubator	member of international network	arts and crafts center
first of all we are	23%	22%	22%	19%	5%	5%	3%	2%	2%
we are also	11%	20%	14%	22%	17%	8%	5%	0%	2%
and also	20%	13%	11%	10%	13%	8%	2%	13%	3%

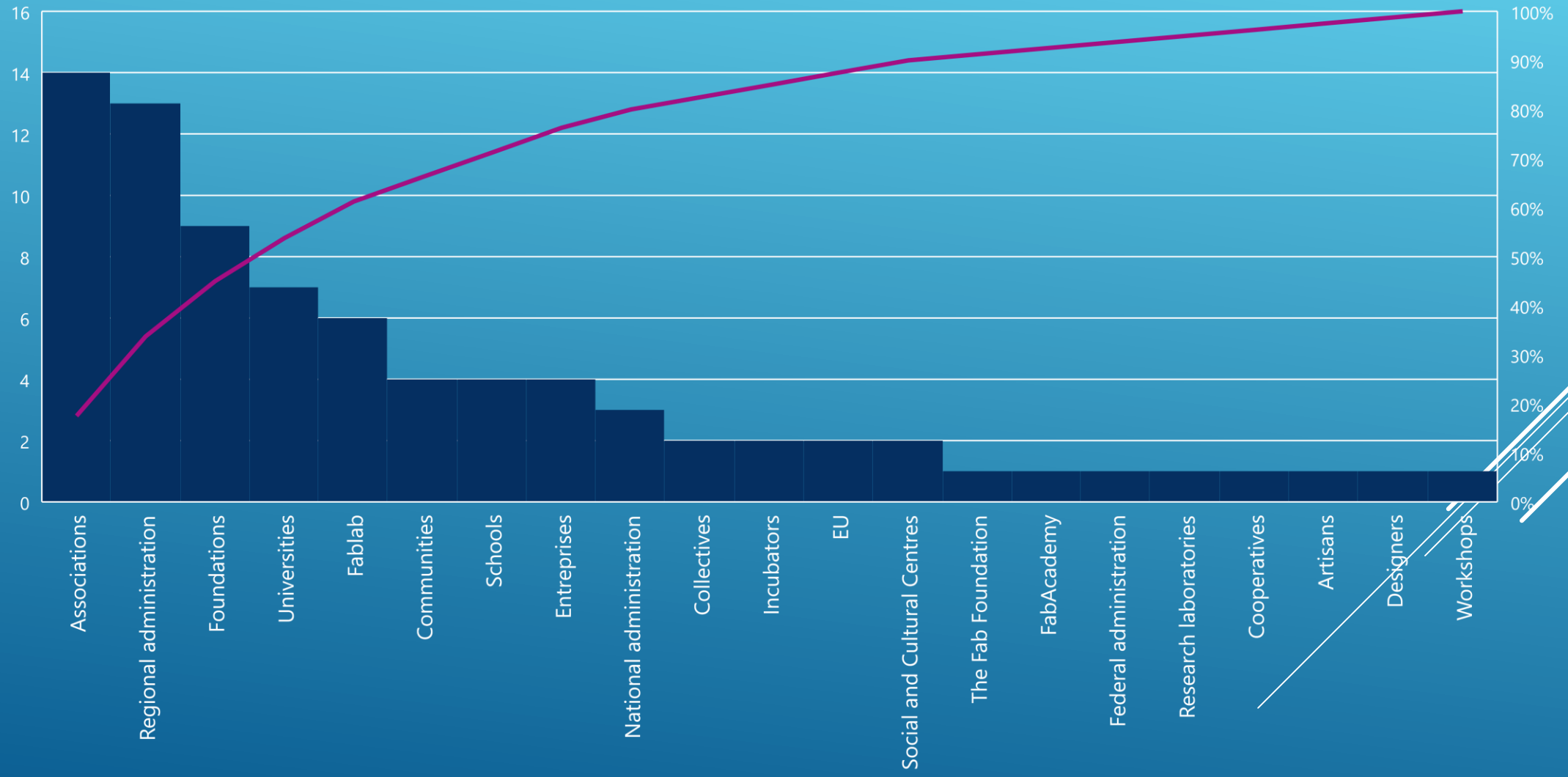
2) Sources de revenu

Services provided	58%
Donations	38%
Other	33%
Contributions	25%
Space rental fees	21%
Machine access fees	8%

3) Type d'activité

Non for-profit	74%
Other	20%
For profit	6%

4) Types de partenariats



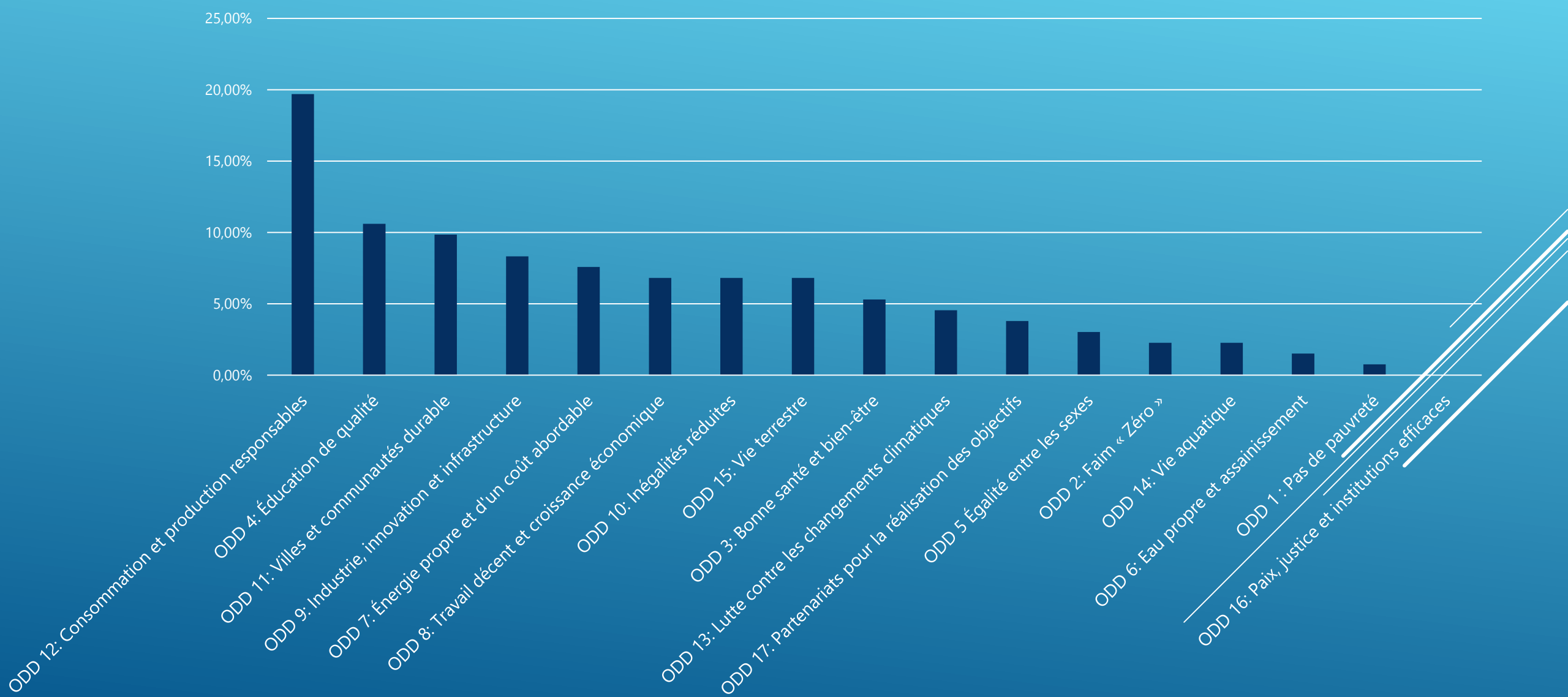
5) Types de licences

Attribution	15%
Non Commercial	13%
No derivative works	0%
Share alike	17%
Aucune licence demandée	56%

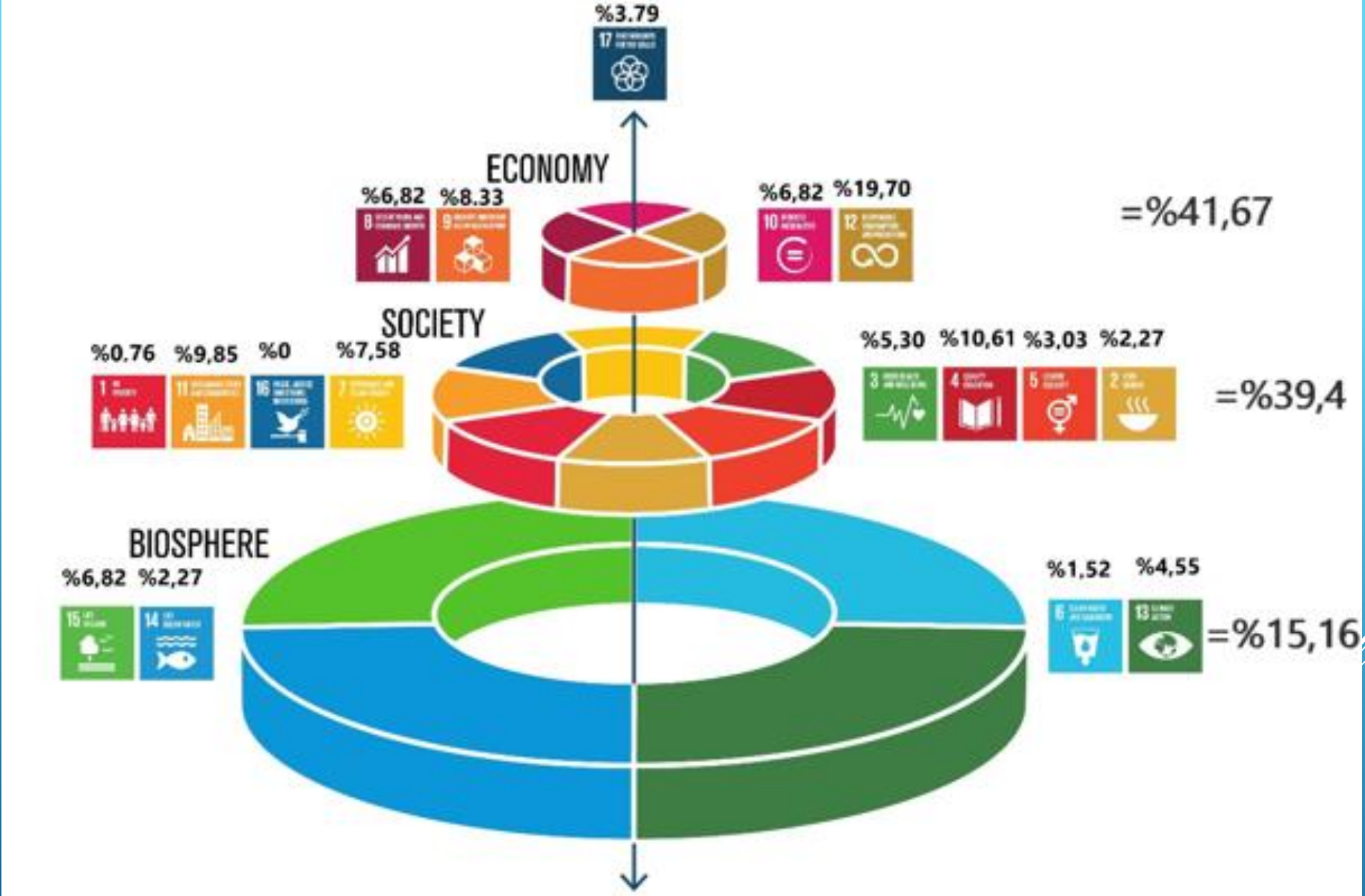
partage à l'identique (one can share, copy and redistribute the material in any medium or format and make adaptations for any purpose, even commercially)

Fablabs et ODD : quelles contributions aux ODD ?

« fabmanagers are very sensitive to sustainability issues »
« way too many items »



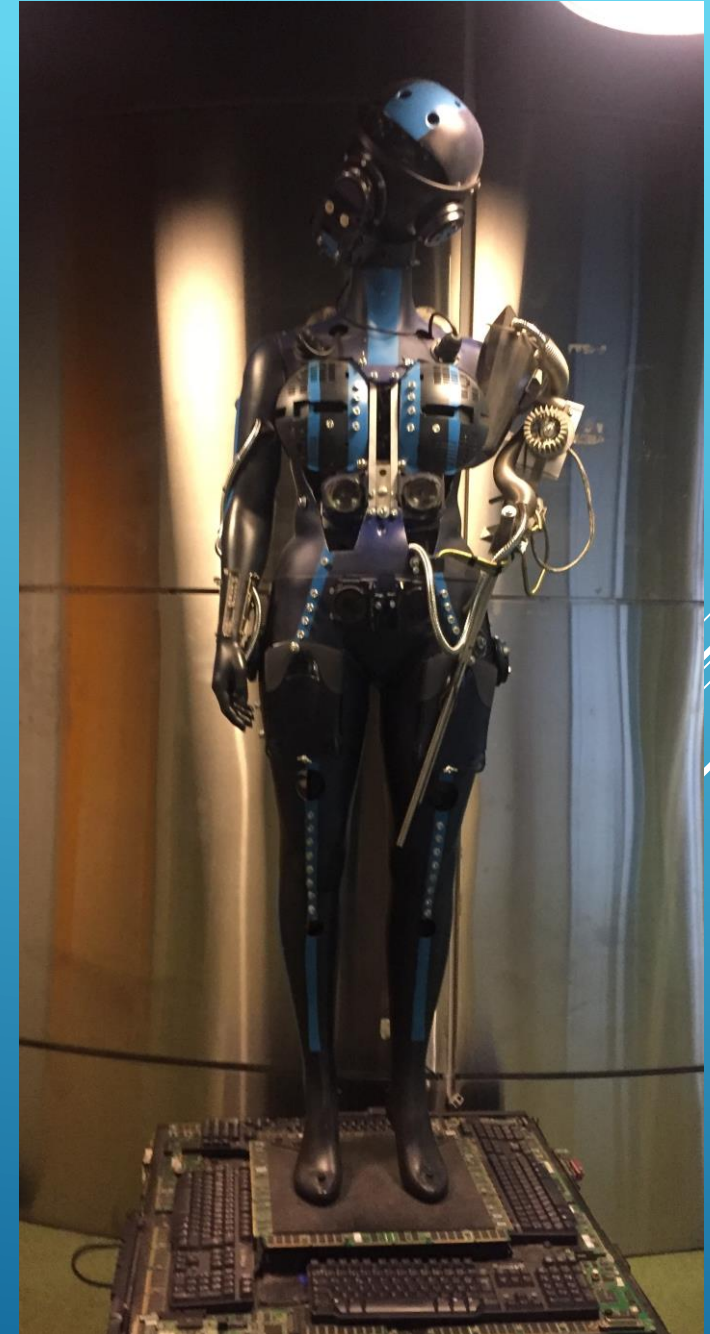
Fablabs et ODD : quelles contributions aux ODD ?



Responsible Consumption and Production Practices

- Build ecologically beneficial artefacts,
- Eco-design them,
- Facilitate 3-R principle (Re-use, Re-cycle, Re-pair).

- Social Inclusion,
- Skills Building,
- Targeting vulnerable groups.



Agrilab

(un capteur
détecte la plante
pour réduire les
intrans chimiques)



Simplon



<https://preciousplastic.com/>

Reuse

French Fablabs are seeking many ways to increase the re-use practices. There is a tacit control (auto-control) (pushed by Fablab staff) in many lab to practice re-use if it is convenient. Users are guided and convinced to re-use a material before using a new raw material.

«The reuse, if you can take out parts, they're going to do something else. The remanufacture. It's tricky, but you can recondition materials into bigger ones, to mill it, to laser cut it. It's tricky, but it's a knowledge that will be valuable»

«We are discussing, well first this should be maybe in their daily habits. Which means: how do you recycle fabrics? How do you see your activity inside the makers? Who is working with the 3 R's cycle, the 3 rules, that we have to use, and then we are challenging them into co-creation, new ways to collaborate with all the other ones. Because what we are organising is efficient. We have to highlight this aspect of the work»



Recycle

Great majority of the interviewed fablabs are practising to recycle the material scraps resulting from the implementation of other projects. They mostly reserve spaces for storage of the materials to be recycled. These materials can be collected from donators or even streets and supermarkets. The big issue is to separate and manage this waste to be re-used when it becomes huge amounts because the users are not interested in this separation process and the fabmanagers may not have time and proper resources to do that.



Aside from these daily practices the French fablabs implement tangible projects for recovering electronic waste or local recycling of untreated plastic waste or small low-tech wind tribunes made of recycled materials.

Repair

Fablabs train and make people responsible for what they consume and help them to better choose their products in order to move towards more sustainable options.

« We host the repairing organisation two or three times a year. And it's like 200 or 300 people who come with some object to repair.»

«We recover computers, equipment that no longer works, things like that. We repair them and put them back in service, us here.»

«once a week, we have some specific workshops where – when we work with people too – understand how they can make a diagnosis of some problem on the object, and try to repair it.»



Waste Management

The excessive waste is a problem to address within French Fablabs.

They try to utilise the reuse the proper materials as much as possible however the industrial waste is expensive to recycle. Special companies can do it, and most of the Fablabs cannot afford this.

Eco-design and Ecological Projects

Many best practices in this field are observed (from interviews + surveys):

Projects seeking carbon-free transportation such as **hydrogen-powered electric bicycle**, by working together with the local municipalities for networks of hydrogen fuelling stations.

Projects for **reducing the use of pesticides** by allowing small plots of land to be worked without chemical process and enabling mechanic systems to decrease the synthetic chemistry for vegetable preservation is another example.

Environment-friendly materials and processes

There is a great intention to **use more environment-friendly materials** and processes however there are obstacles.

As a raw material most of the Fablabs prefer PLA filaments (Polylactic Acid) which is corn-based recyclable, biodegradable and compostable compared to ABS (Acrylonitrile Butadiene Styrene) which is mostly widely used in market and cheaper.

- ❖ However, due to the lack of infrastructure, it is difficult to compost PLA industrially or to recycle it. Contrary to current opinion, PLA also emits substances that are harmful to health, but less than ABS.

« As an ecologist in my personal life, and a FabManager... I see different perceptions, what the market asks for, and mainly, if you ask around, most of the people are driven by the market. So while the mass market has introduced certain processes... so as to put more things on the market, well you can't do much.. »

Partnering and Networking Effects on Sustainability

Many fablabs participate in common projects or initiatives contributing to SDGs. They collaborate rather than compete. The most salient example of collaboration for sustainability is **Fab City Grand Paris** in which the aim is establishing a local network of makers, designers, architects, urban farmers and innovators engaged in the rise of the circular and collaborative economy in the Parisian urban area.

On the other hand they avoid artificial alliances and «greenwashing».

The associations and regional administration institutions are the main partners of Fablabs. We observe the positive effect of policy set by Central and Regional Governments. Even EU Policy Schemes and EU funded projects are triggers for sustainability related projects. EU Directives for Eco-Design may have a positive effect on those projects.



CONCLUSIONS

- Les fablabs **contribuent fortement aux ODD** ...
- ... mais ces contributions pourraient être mieux valorisées en faisant référence aux ODD, ...
- ... et leur contribution reste surtout forte sur la **dimension économique** du développement durable.
- Cela permettrait de renforcer la légitimité de leurs demandes de soutiens publics, qui pourraient focaliser leurs aides sur les contributions sociétales des fablabs.
- Les fablabs pourraient contribuer à **changer le système dominant de production & consommation de masse**, mais ils manquent de soutien des politiques publiques pour en faire les fers de lance de la production et consommation responsables.
- Les fablabs citoyens (« grassroots ») ont des contributions aux ODD plus fortes que les autres. Ils bénéficient d'une **culture de l'engagement** citoyen forte en France (avantage % à la Turquie e.g.).
- Pourraient renforcer **collaboration avec pouvoirs publics** au-delà des demandes de financement.
- Les réseaux et le parcours des **fabmanagers** sont essentiels dans la réalisation d'activités collaboratives.
- Un renforcement d'**activités en réseau** pourrait aider les fablabs à mieux répondre aux ODD (e.g. projet Vulca).

