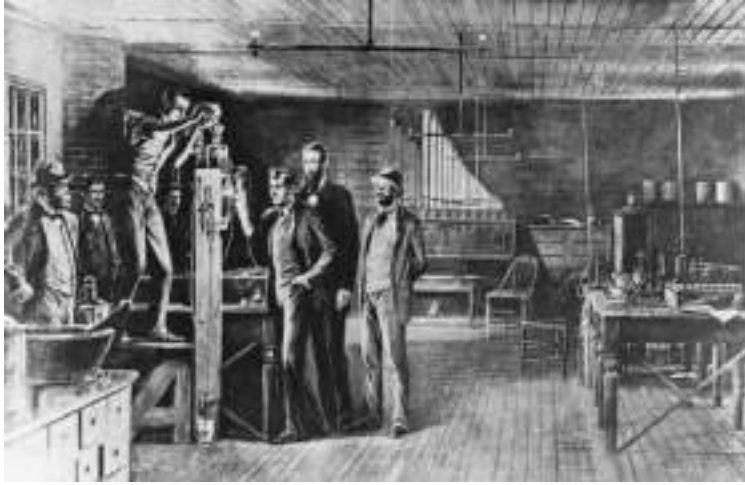# Milieux innovants et construction de communs

CREASXB Mardi 7 novembre 2023

Patrick Cohendet, HEC Montréal, Mosaic et Luc Sirois, Conseil de l'innovation du Québec

Invention Factory, Menlo Park, New Jersey

Garage de J. A. Bombardier, Valcourt, Qc.

Homebrew Computer Club, California

Quelques espaces d'innovation collaboratifs

Le Bateau-Lavoir, Montmartre

Daimler workshop, Stuttgart
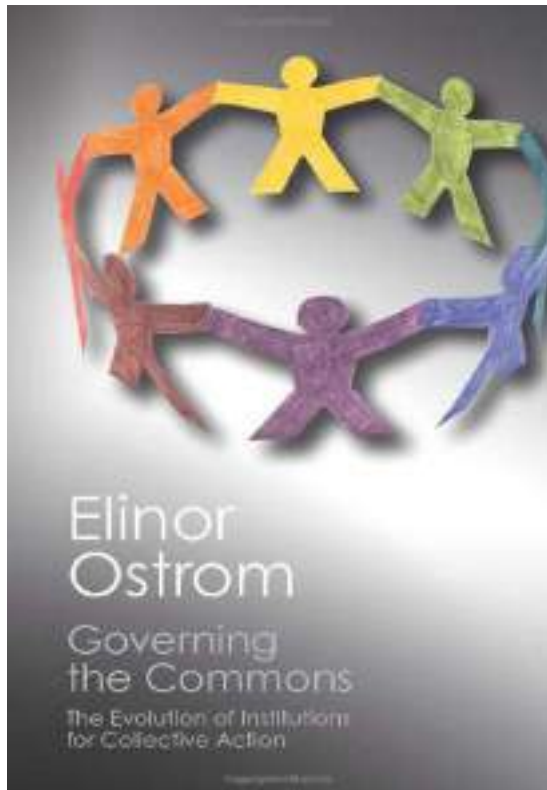

El Bulli Restaurant, Catalogne

Espaces d'innovation collaboratifs : quelques caractéristiques communes:

➢ Ces nombreux espaces collaboratifs emblématiques ne sont pas issus d'entités formelles existantes (entreprises, unités administratives publiques, etc.), mais plutôt d'une communauté d'individus passionnés (d'origine professionnelle diverse) qui sont parvenus à partir de ces milieux collaboratifs à transformer leur idées créatrices vers des applications commerciales ou sociales.

➢ Chacun de ces espaces collaboratifs est à l'origine de l'émergence d'un écosystème d'innovation qui s'est développé d'abord à l'échelle locale avant de devenir global.
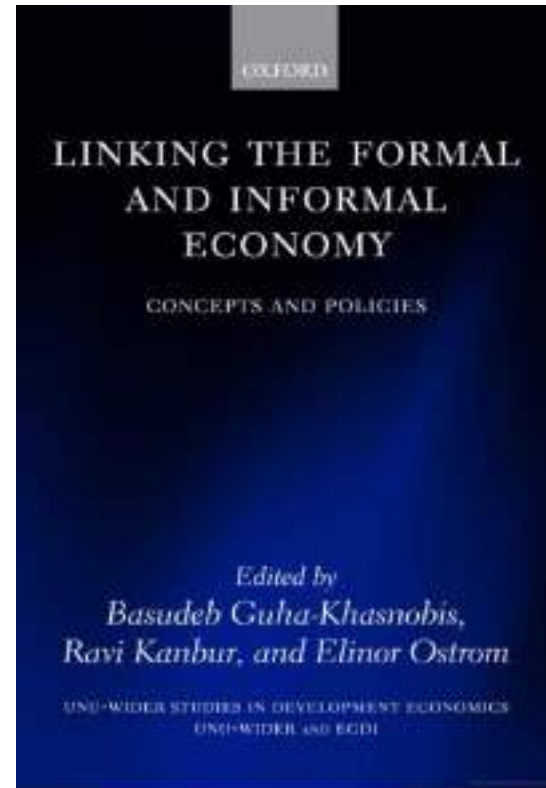
➢Comment ces différents groupes d'individus passionnés sont ils parvenus à orchestrer de tels processus innovants ? Qu'est-ce qui est réellement mis en commun/partagé dans ces espaces collaboratifs ? Comment ces ressources partagées sont-elles constituées, exploitées, gérées, entretenues, renouvelées, gouvernées ? Comment leur projet collaboratif a réussi à conduire à la formation d'un écosystème global d'innovation ?

➢ **Hypothèses:** la notion de "communs" (Oström, 1990) offre une perspective clé pour répondre à ces questions. La formation de l'innovation dans de tels espaces collaboratifs résulte d'une séquence dynamique de différents communs d'innovation orchestrés par une communauté d'acteurs passionnés (les "commoners") qui s'engagent dans une action collective et développent des règles pour générer et gouverner des ressources d'innovation partagées.

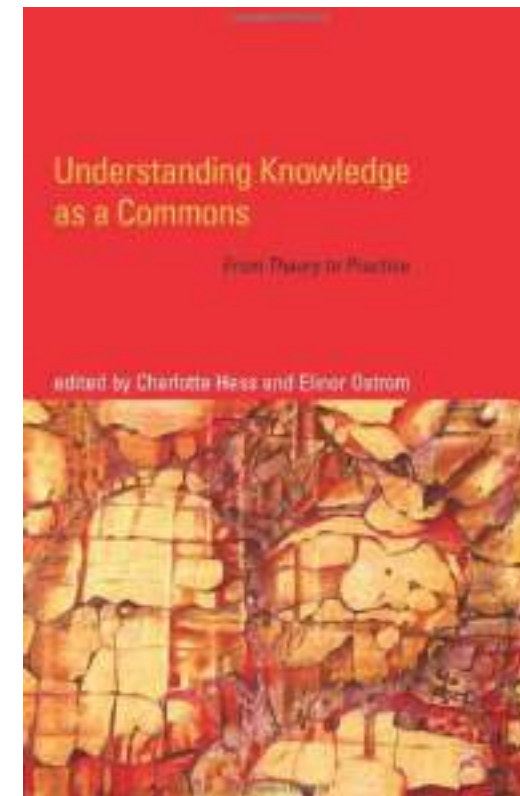# Le rôle central des "commons" dans les processus d'innovation

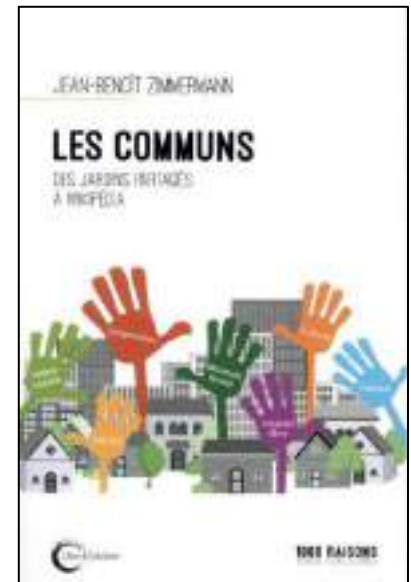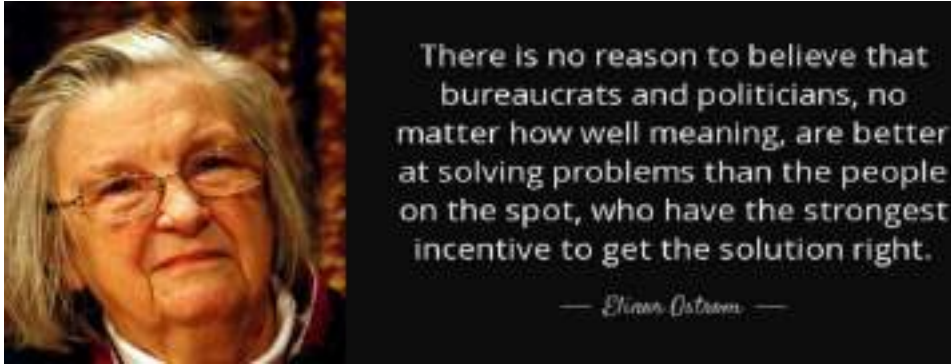**Cf. Elinor Ostrom,** Nobel Prize in economics 2009

1990

2007

2007

2012

Les "Commons": définition

There is no reason to believe that bureaucrats and politicians, no matter how well meaning, are better at solving problems than the people on the spot, who have the strongest incentive to get the solution right.

— *Elinor Ostrom* —

JEAN-BENOÎT ZIMMERMANN

LES COMMUNS

DES JARDINS PARTAGÉS À WIKIPÉDIA

1000 RAISONS

" À travers une action collective, mécanisme de gouvernance d'une ressource commune partagée par les membres d'une communauté ("les commoners") qui gèrent conjointement l'utilisation et l'accès à cette ressource ainsi que sa préservation ou son développement (Jean Benoit Zimmermann, 2020).

« There are **3 dimensions in a *commons* »** (Oström):
- a resource pool (some stuff shared, used in common)
- a community of people (contributing to, drawing on and depending on the pool),
- a frame of regulation, governance and equity enacted by that community around those common resources

Commoning: Commoning is a practice of collaborating and sharing to meet everyday needs and achieve well-being, of individuals, communities and lived-in environments.

(Natural) Commons : Elinor Ostrom (1990)

Remise en cause du concept de **"Tragedy of the commons"** (Hardin, *Science,* 1968)

> La tragédie des communs est une situation correspondant à un système de ressources partagées dans laquelle des utilisateurs individuels, agissant de manière indépendante selon leur propre intérêt, se comportent à l'encontre de l'intérêt commun de tous les utilisateurs en épuisant ou en détériorant la ressource partagée par leur action collective.

Caractéristiques:
- Un système de droits et d'obligations développé par une communauté pour gérer cette ressource à accès partagé.
- Les individus ou les communautés ont le droit d'accéder à ces ressources et de les exploiter.
- Un mode de gouvernance qui assure également la reproduction à long terme de la ressource

Propriétés: Les arrangements institutionnels visent **l'inclusion** alors que les droits de propriété traditionnels sont conçus pour installer **l'exclusion**. Concept multidisciplinaire (économie= nature de la ressource, droit= règles d'accès à la ressource, gestion= mode de gouvernance de la ressource, etc..)
Droit de propriété décomposé en: droit d'accès, droit d'usage, droit de prélèvement, droit d'exclure, droit de préserver, droit de reproduire, etc..

Knowledge Commons : Ostrŏm and Hess (2007), Frischmann et al. (2014)

Remise en cause de la tendance à une « marchandisation » croissante de la science ouverte (privatisation des publications, initiatives d'extension des droits de propriété intellectuelle comme le Bayh Dole Act, etc.)

Caractéristiques:
- Les biens communs numériques et du savoir sont constitués de biens non rivaux, ouvrant la possibilité d'un accès universel
- L'objectif de la gouvernance n'est plus de contrôler l'accès et le prélèvement, mais de gérer les droits d'addition et d'enrichissement, c'est-à-dire le droit d'ajouter de nouvelles informations et connaissances au pool commun.

Propriétés:
- Qu'ils soient qualifiés de biens communs « numériques », « électroniques », «informationnels », « virtuels », « de communication », « intellectuels », « Internet » ou « technologiques », tous ces concepts abordent le nouveau territoire partagé de l'information distribuée à l'échelle mondiale. »
- Les communautés peuvent gérer et maintenir efficacement les ressources communes s'ils disposent de conditions appropriées, telles que des règles appropriées, de bons mécanismes de résolution des conflits et des limites de groupe bien définies.

Les "communs d'innovation" (Allen & Potts, 2015; Potts, 2019)

Remise en cause de la « vallée de la mort »: Les « Innovation commons » (sous-catégorie des knowledge commons) = solution institutionnelle émergente dans laquelle les entrepreneurs résolvent un problème d'action collective (« comment traverser la vallée de la mort ») en mettant en commun les ressources d'innovation (c'est-à-dire les intrants du processus d'innovation). L'existence des communs d'innovation découle de leur plus grande efficacité à révéler des opportunités d'innovation en réduisant l'incertitude dans les processus entrepreneuriaux.
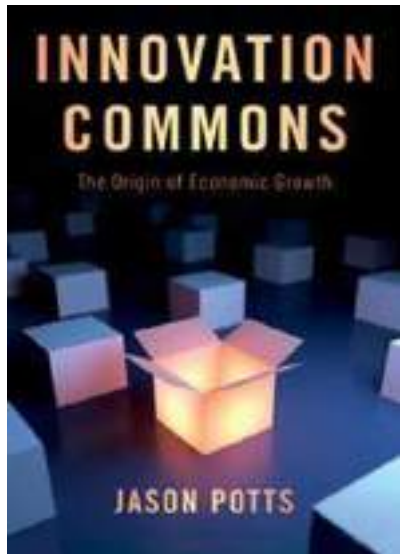
La difficulté avec les communs d'innovation est que pour parvenir avec succès à innover, les communautés impliquées doivent articuler plusieurs ressources communes partagées:

- Mise en commun des connaissances techniques (et ressources physiques associées) qui décrivent la nouvelle idée ou technologie
- Mise en commun des connaissances managériales sur les opportunités entrepreneuriales associées aux connaissances techniques
- Mise en commun des connaissances en termes de business models associés aux activités innovantes
- Mise en commun des principes de répartition des droits de propriétés

Allen, Darcy and Potts, Jason, The Innovation Commons – Why it Exists, What it Does, Who it Benefits, and How (June 11, 2015). Available at SSRN: https://ssrn.com/abstract=2617141 or http://dx.doi.org/10.2139/ssrn.2617141
Potts, J. (2019). Innovation Commons. The Origin of Economic Growth. Oxford University Press.

Exemple d'articulation de communs d'innovation à la SAT de Montréal

«Société des arts technologiques» (Ubisoft staff + communautés de techno-geeks+ users)

Exemple d'articulation de communs d'innovation au laboratoire d'imagerie et orthopédie (LIO) du CRCHUM (Pr. Jacques de Guise)

Le rôle clé des "commoners" dans l'orchestration des communs .

Comme le souligne Coriat (2015 : 14), « les « communs » sont une construction éminemment sociale. Ils mélangent des règles formelles et informelles, des relations marchandes et non marchandes, des normes et des conventions, et derrière « un commun » se cache une communauté ». Nous soutenons que les processus entrepreneuriaux/d'innovation réels nécessitent une orchestration dynamique d'une série de « communs » par une communauté d'entrepreneurs passionnés (une « communauté d'innovation »). Plus précisément , Oström fait référence aux « **commoners: "the members of a community who take care of the shared common resource**", groupe généralement composé d'individus passionnés.

Exemples;
- Homebrew Computer Club (environ 40 membres) : Fred Moore, Lee Felsenstein, Bob Marsh, Bob Albrecht, Alan Baum, Stephen Wozniak, Gordon French, Steve Jobs, Li Chen Wang, etc.
- Communitech (environ 30 membres): Iain Klugman, the Communitech CEO; Tom Jenkins from OpenText; David Johnston from the University of Waterloo, Mike McCauley, Garage Capital, Michael Litt and Devon Galloway from Video Analytics, etc.
- elBulli (environ 25 membres): Adria, Lutaud, Casanas, Xatruch, Soler, Chartier, etc.

La mise en place d'espaces collaboratifs performants: l'orchestration d'une séquence de communs par les *commoners*

1. Construction de communs sociaux

2. Construction de communs symboliques

3. Construction de communs d'innovation

1$^{\text{ère}}$ phase: La construction de communs sociaux.

- Au départ, existence d'une communauté professionnelle active reflétant un collectif local fort (Amin et Roberts, 2008) qui combine "la confiance institutionnelle basée sur des normes de conduite professionnelle, le partage d'expériences et de valeurs communes, des connaissances spécialisées acquises au cours de longues périodes de recherche et de formation, l'intérêt pour l'innovation radicale stimulée par le contact avec d'autres communautés, etc.

- Construction principalement axée sur l'ouverture active et le croisement des réseaux personnels (la construction d'une communauté dont les membres partagent les mêmes intérêts et échangent des connaissances). Les *commoners* forment un noyau au sein de cette communauté.

- L'activité de cette communauté professionnelle nourrit un **commun social** (Helfrich et Haas, 2009) en tant que mécanisme de gouvernance de l'action collective sur une ressource commune de relations denses, d'entraide entre les divers membres de la communauté, d'ouverture active des réseaux personnels et sur la conceptualisation et la promotion des relations entre les divers membres de la communauté.

2ème phase: La construction de communs symboliques

- Les **communs symboliques** expriment le défi principal, l'objectif, les valeurs partagées de la communauté et l'intention de les mettre en œuvre afin de créer un environnement propice à l'innovation.

- Afin de "mettre en scène" ces communs, la communauté (les *commoners*) choisit une plate-forme d'interactions comme terrain de jeu emblématique pour créer une infrastructure pour sa mission.

- Le hub/plateforme est façonné par les valeurs de la communauté et équipé des différents mécanismes (lieu, espace, événements, projets) qui permettent et activent la dynamique des idées

- Cette construction d'un middleground vise à intéresser les participants de l'upperground à investir dans la plateforme et à attirer des entreprises aussi bien locales qu'extérieures.

3ème phase: la création de communs d'innovation

- Création d'un patrimoine commun de connaissances et d'innovation (règles de mise en commun des informations, des connaissances techniques et des compétences distribuées dans un nouveau domaine d'activité) et d'un patrimoine commun d'entrepreneuriat et d'innovation qui combine et relie ces connaissances scientifiques, technologiques et techniques à la connaissance des utilisations, des coûts, des problèmes, des opportunités, du potentiel de croissance du marché, des concurrents potentiels ainsi qu'à l'ensemble des intrants et des services nécessaires au lancement d'une nouvelle activité.

- Au fur et à mesure que la communauté réussit à articuler une série de communs (sociaux, symboliques, innovation de la connaissance, etc.), le développement de communs d'innovation relatifs à la stratégie, au marché et au modèle d'entreprise (y compris les questions de droits de propriété) peut devenir un obstacle majeur.

- Cependant, cette dynamique unique de l'innovation orchestrée par la communauté au cours des étapes précédentes entraînent d'importantes retombées d'apprentissage pour d'autres agents de l'économie régionale et déclenchent l'émergence de nouvelles communautés et la formation d'un écosystème innovant.

# L'orchestration des communautés par les *commoners*
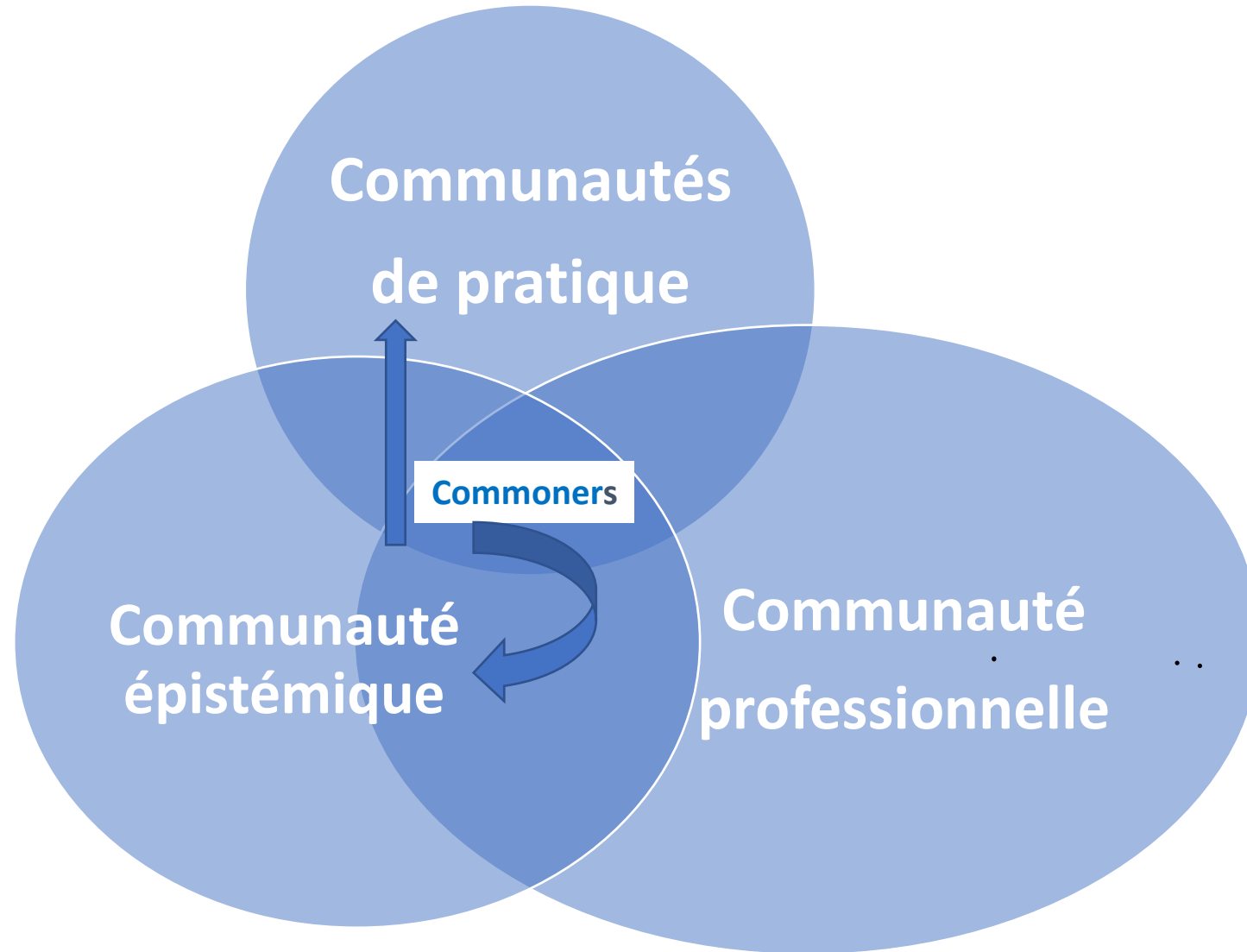
Cas: Communitech, Kitchener-Waterloo, Ontario

- As an association founded in 1997 by prominent local high-tech actors from the Kitchener-Waterloo area (a population of about 137,420). It rallied more and more members through the years, starting with 43 (reaching now more than 1400).

- Communitech is considered as one of the most successful startup ecosystems in the world.

- Over the last few years, the development of the Kitchener-Waterloo cluster in digital technologies, (even with the demise of its once flagship tech enterprise Blackberry), has generated:
    - more then 2000 new technology start-ups
    - more than 1 $billion in investment
    - about tens of thousands of jobs

1. The phase of emergence of Communitech :
"professional community" and "social commons".
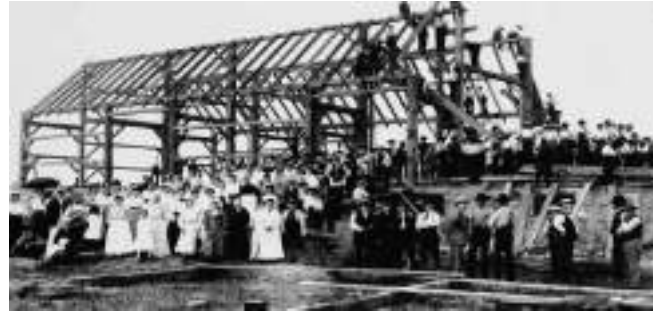
The Kitchener-Waterloo region is characterized by a local culture based on mutual help from Mennonite roots. A professional community of local entrepreneurs progressively emerged taking care of a social commons in form of an active opening of personal networks and on the conceptualization and promotion of relationships between the diverse members of the community. The establishment of the Communitech Association in 1997 is one of the main expressions of this social common. Communitech was first and foremost a business association, created by high profile entrepreneurs, to focus on ecosystem building. It rallied more and more members through the years, starting with 43 (reaching more then 1400 now!).

Such membership base provided a strong political clout and credibility to the organization and triggered/ensured public (government) support. It created/creates a virtual circle of support, engagement and attractiveness as members grow a sense of responsibility towards the success of the organization and its hub, a clubhouse that they somewhat see a bit of "their own" as "members of a unique club". This generates a sense of belonging, a sense of community, and can create a number of ecosystem dynamics between "members" unified by a shared purpose, communication, platforms, events, that would have most probably not happened otherwise.

2. The choice of the collaborative space: the development of an "epistemic community" and the formation of a "symbolic commons".

- After the fall of BlackBerry, the main cognitive objective of the commoners shifted toward initiated an **epistemic community** (Cowan et al., 2000) with the elaboration of a common vision ("Develop in the Waterloo region one of the most successful tech ecosystems on the planet by helping tech companies start, grow and succeed") accompanied by a declaration of intent, expressing the breaking of established rules in order to collectively produce radical new knowledge.

- The epistemic community initiated the building of **"symbolic commons"** (Bowers, 2004), which expresses the main challenges, the purpose, the shared values of the community, the intention to put them into action in order to create an environment conducive to innovation.

- The choice of an iconic space (the Old Lang Tanning building) to "stage" this commons is part of the common vision proposed by the commoners. Such spaces of collective learning and experimentation combine inviting physical infrastructures, an emotional dimension based on mutual trust, symbolic rituals, and a culture of belonging in order to favor spatial mobilization and alignment of participants in pursuit of the innovative objective of the community.

- This recognition of the community gave confidence to potential investors, both public and private, in projects that often seemed too risky to finance. There were key moments where the deliberate creation of a local buzz contributed to generating global pipelines (Bathelt et al., 1984) as foreign corporations, attracted by the potential of these collaborative spaces, started investing in the innovative hubs.

3. The implementation phase of the collaborative space: the development of "communities of practice" and the formation of diverse "knowledge commons"

- Once the collaborative space chosen, the commoners initiated diverse **communities of practice** to exchange ideas and best practices

- The commoners initiated the building of a **Knowledge Innovation Commons** (shared rules to pool distributed information, technical knowledge and competences in a new domain of activity) that combines and relates such knowledge about science, technology and engineering with knowledge of uses, costs, problems, opportunities, market growth potential, potential competitors as well as the whole set of inputs and services required for launching a new activity.

- The design of the place and the artefacts found in the Hub carefully reflect the culture of the association focused on collaboration by facilitating communication, by providing aesthetics visual components, and by eliminating walls and traditional closed-in offices as much as possible in order to make the colocation fluid. In the beginning the focus was more on helping start-ups by sharing common knowledge
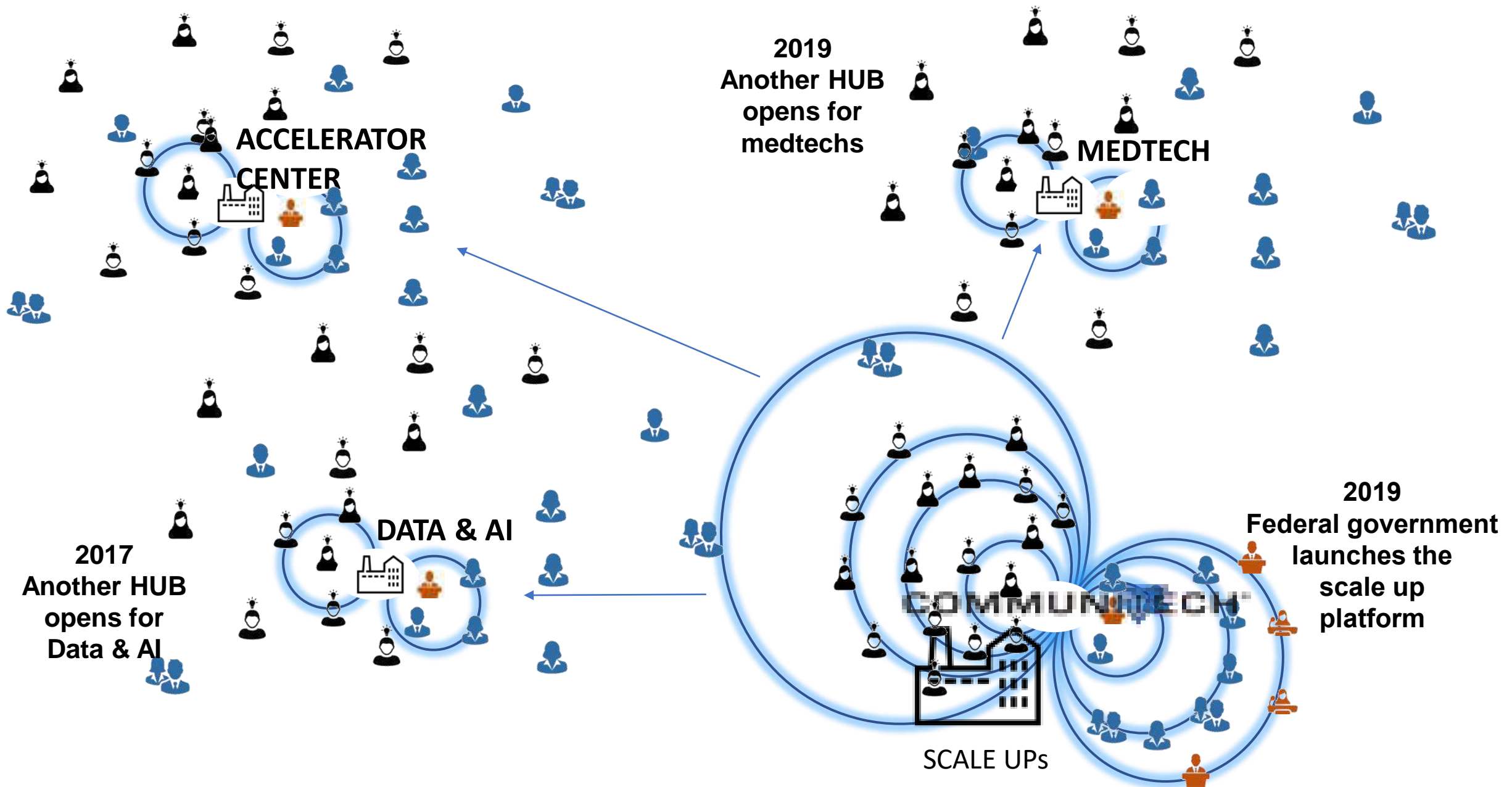
25M$
FEDERAL
FUNDING

Communitech, 2021. Challenges and limitations:
The difficulties to switch from start-up to scale-up

- In 2019 a 30% funding cut followed by layoffs at Communitech

- "I think it is a wake-up call to the tech industry," said Soltys, the editor-in-chief of tech industry website BetaKit.

- He said the cuts are a sign to the entire innovation economy that when it comes to the province making cuts, they won't be spared..

- "I think the real thing to look for is not the cuts that are happening now, but the notice that these organizations have been given that they're under review for go-forward funding and how that might affect it," he said in an interview with CBC Kitchener-Waterloo.

The generative power of Communitech to form new collaborative spaces

2019
Another HUB opens for medtechs

ACCELERATOR CENTER

MEDTECH

2019
Federal government launches the scale up platform

DATA & AI

2017
Another HUB opens for Data & AI

COMMUNITECH

SCALE UPs

Questions

- Annexes

Case 1: The Homebrew Computer Club

The Homebrew Computer Club (HCC), was an informal group of young enthusiasts who met from March 1975 to December 1986 in Menlo Park (California) and played an influential role in the development of the microcomputer revolution: several computer entrepreneurs emerged from its ranks (such as Steve Jobs and Steve Wozniak). The Club, which was at the origin of the creation of many software and personal computer companies (such as Apple), is considered as the local epicenter of the digital revolution in California ("the crucible for an entire industry"),

Source: Levy, S. 1984. *Hackers: Heroes of the computer revolution*. Vol. 14. Garden City, NY: Anchor Press/Doubleday.

1. The emergence phase of the Homebrew Computer Club
The development of a professional community and the formation of a social commons.

The Homebrew community emerged through the informal gathering of local talents belonging to a broader community of technically minded hobbyists who were at that time in California sharing a hacker culture that protested the war, and anything related to the war, such as the computer labs funded by the US Department of Defense.

According to Levy (1984) these hackers were "adventurers, visionaries, risk-takers, [and] artists" rebelling against centralized computing and bringing together different types of competencies and knowledge (electronic enthusiasts, computer amateurs, technically minded hobbyists, digital hackers, engineer-hippie professionals, etc.).

Such a diverse gathering of activists who challenged the centralized computing status quo shared the same professional interest to trade parts, electronic circuit, and information pertaining to "do it yourself" construction of personal computing devices.

The hacker culture is a subculture of individuals who enjoy the intellectual challenge of creatively overcoming the limitations of software systems to achieve novel and clever outcomes. The act of engaging in activities (such as programming or other media) in a spirit of playfulness and exploration is termed hacking

2. The choice of a collaborative space by the Homebrew club: Development of an epistemic community and formation of a symbolic commons:

first the Gordon French Garage, March 1975

then Stanford University Lean Accelerator (SLAC) amphitheater, up to December 1986


Gordon French Garage

The common vision of these individuals, all of whom were passionate about hardware, was to collectively build computers and make them more accessible to everyone, so that people could get computers into their homes to study, to play with, and to create with. The gathering generated so much enthusiasm that the community decided the group should meet every fortnight.

The Homebrew Computer Club's newsletter was one of the most influential forces in the formation of the culture of Silicon Valley . Created and edited by its members, it initiated the idea of the personal computer and helped its members build the original kit computers, like the Altair.

The Homebrew Computer Club in SLAC accelerator Amphi

3. The implementation of the collaborative space: the development of communities of practice and the formation of knowledge commons
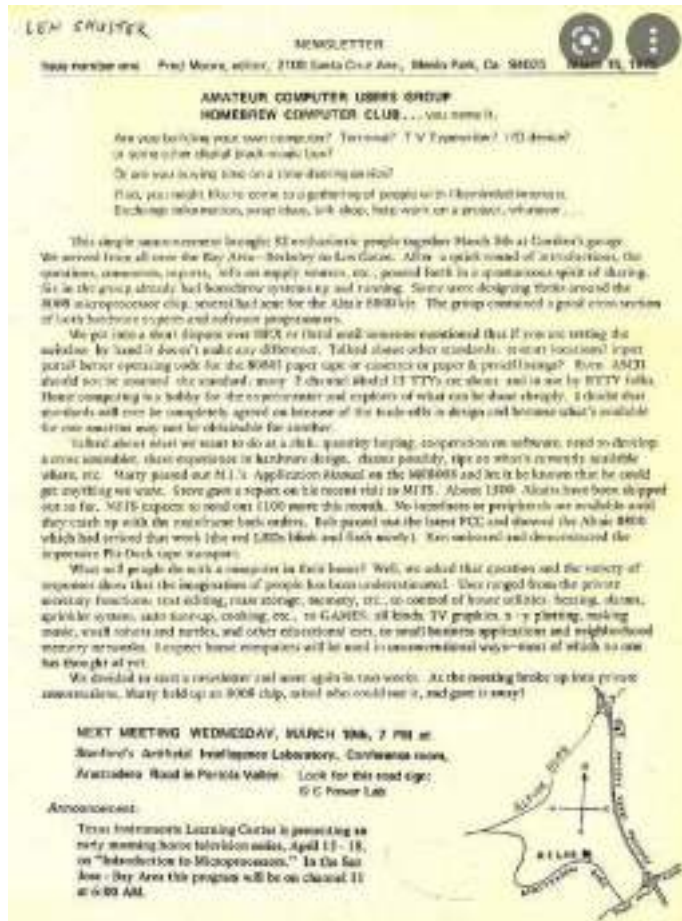
The members of the HCC developed key intermediary platforms of interaction (places, spaces, events, projects), which enabled the ideas developed by informal communities to find opportunities to develop innovative outputs (such as start-up formations), and vice-versa, to allow companies from the upperground (such as Atari) to challenge informal local communities in order to find new business solutions.

4. Homebrew as a temporary collaborative space (the Homebrew closed in December 1986).

- Difficulty (conflicts) in implementing some types of innovation commons close to market achievement (in particular property rights, cf Bill Gates, "letter to hobbysts")

- Some of those who succeed (new start-ups) left the community (without "giving back" to the space they benefitted from).

- Cognitive fatigue

- Competition between sub-communities

- etc.

Bill Gates's «Open Letter to Hobbyists» and The answer from the Homebrew (Li-Chen Wang)

The hobbyists took a "share-alike" approach to software and thought nothing of copying the BASIC interpreter for other hobbyists.

Homebrew members after obtaining a pre-market tape of the interpreter made 25 copies and distributed them at the next Homebrew meeting, urging recipients to make more copies.

Gates responded in 1976 with a strongly worded "Open Letter to Hobbyists" that accused the copiers of theft and declared that he could not continue developing computer software that people did not pay for. Many hobbyists reacted defensively to the letter
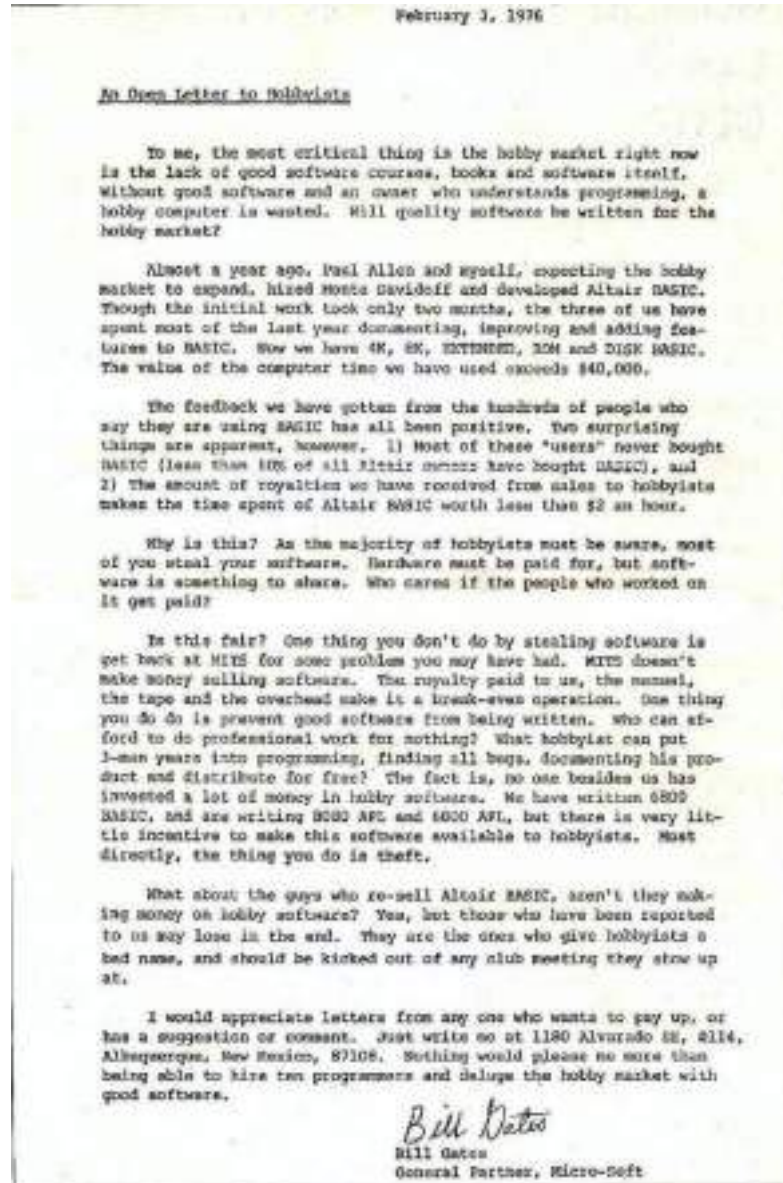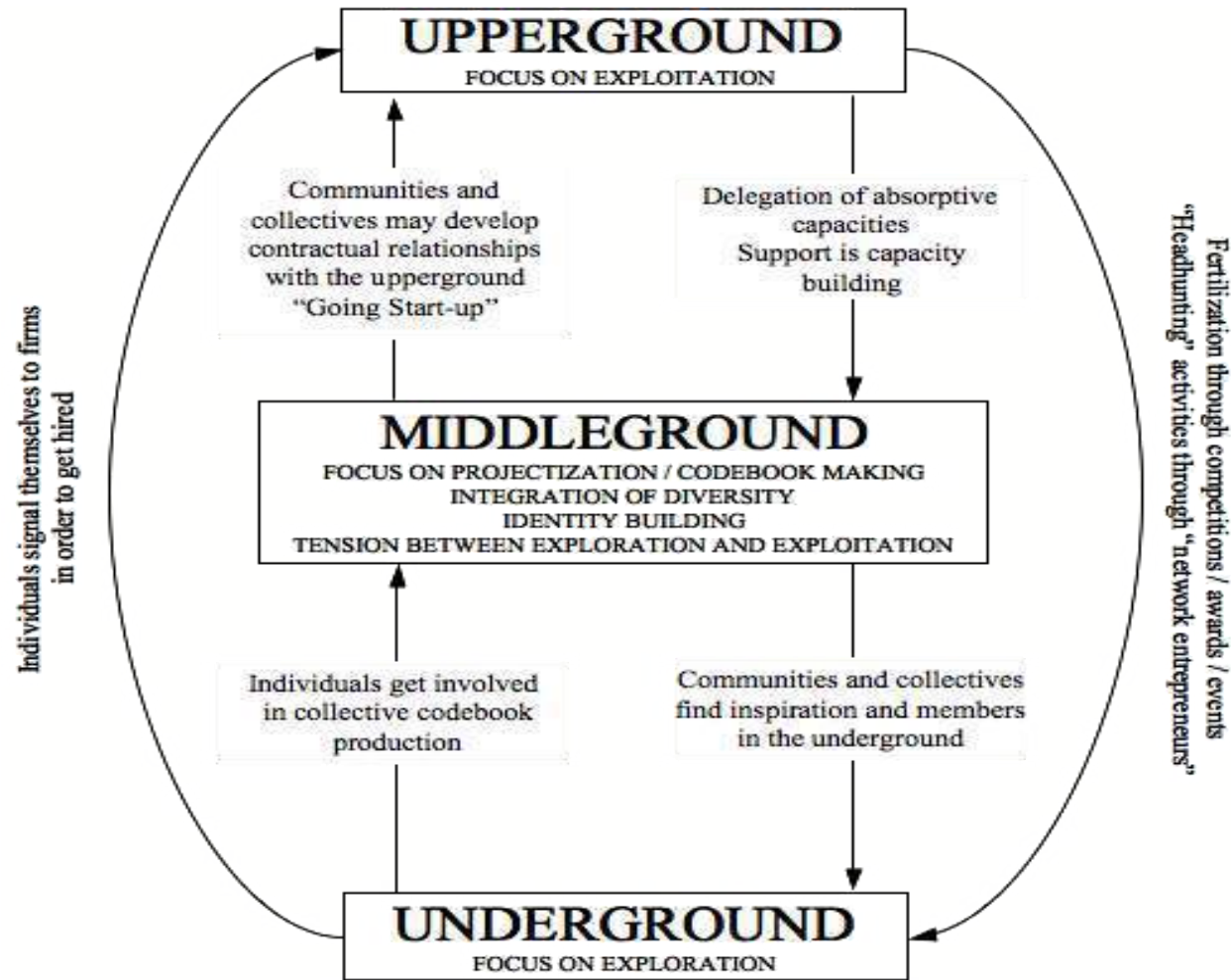

« Altair Basic has a bootstrap loader of twenty or twenty one bytes long. In principle, you can use this bootstrap to load in your own loader which will then load in your program. However, since Mr. Bill Gates claims that he did not yet payed [sic] enough and is in the mood of calling people thieves. (See HBCC newsletter '12-1.) I decided to code one myself. What comes out is a bootstrap of sixteen bytes long. This is still too long, maybe our professional experts can make it shorter".
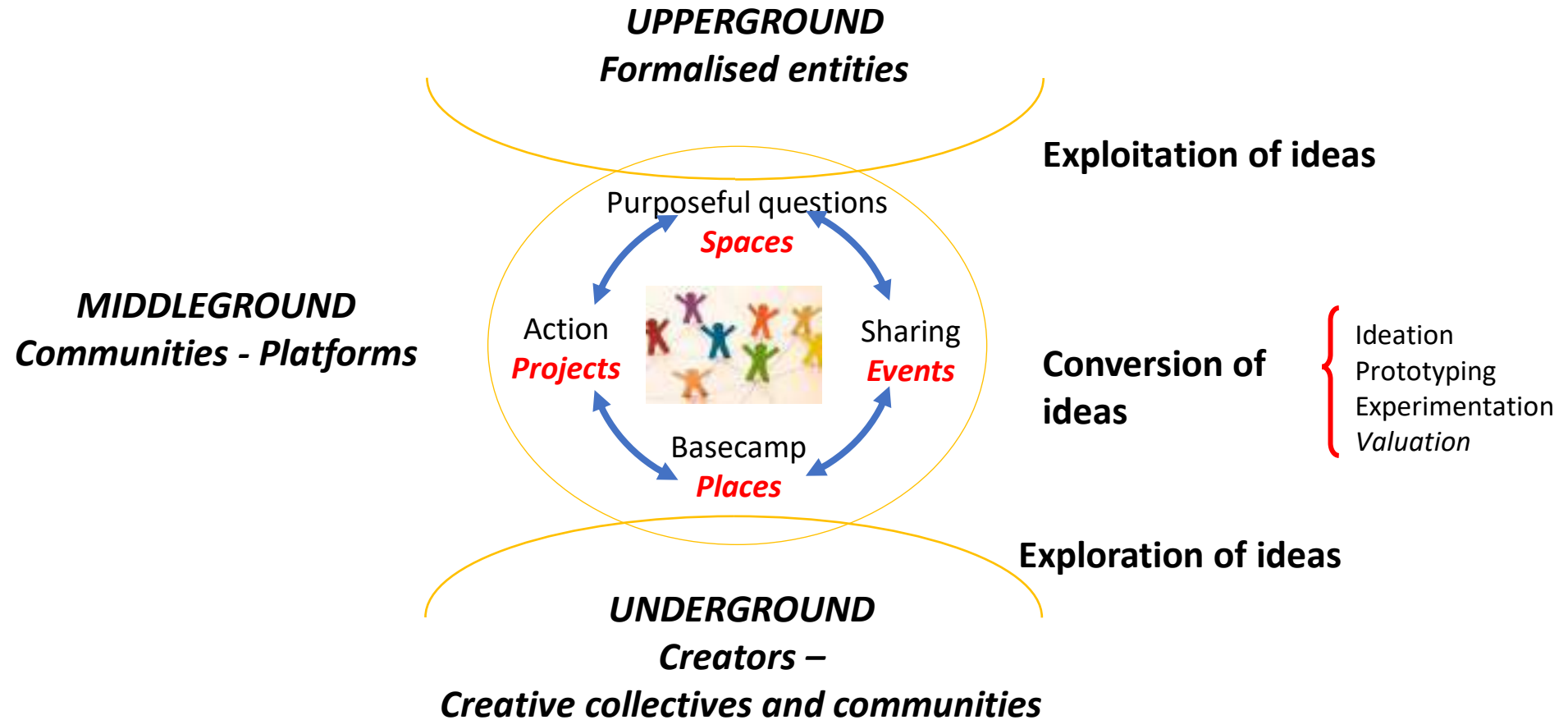
For the time being you are welcome to copy mine and I will not call you a thief !!!!!! (this includes Mr. Gates). »

«The hacker ethic prevailed at the Club. Software was freely exchanged at the club and the idea of proprietary software was anathema to the club members (except Bill Gates!!!) » (Levy, 1984)

Homebrew as a middleground

Source: Cohendet, Grandadam, Simon, « The Anatomy of the Creative City », *Industry and Innovation*, 2010

Dynamics of the Middleground

UPPERGROUND
Formalised entities

Exploitation of ideas

MIDDLEGROUND
Communities - Platforms

Purposeful questions
Spaces

Action
Projects

Sharing
Events

Basecamp
Places

Conversion of ideas

Ideation
Prototyping
Experimentation
Valuation

Exploration of ideas

UNDERGROUND
Creators –
Creative collectives and communities
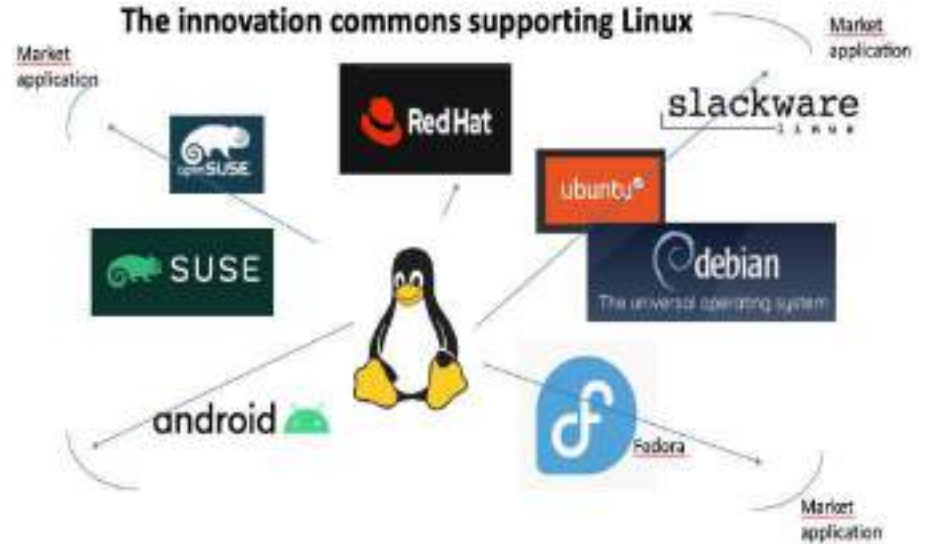
Homebrew at the origin of ecosystems of innovation

Open-source Community:
(Li-Chen Wang, Stallman, Torvalds, etc.)

The innovation commons supporting Linux

Silicon Valley
Ecosystem
of innovation
in micro- computing

The *Homebrew Computer Club* at the origin of a local ecosystem (Silicon Valley), then global (Microsoft, Apple, …) and the Open-Source community.

Hobbyist Hackers Community (Moore, McCarty, Wozniak, Jobs, etc.)

Case 3: The restaurant elBulli, Catalunya

The restaurant named elBulli in northern Spain, perched over a cove named Cala Montjoi, in a remote corner of the Mediterranean Sea, became the epicenter of a gastronomic revolution that changed the face of haute cuisine (Svejenova, Mazza & Planellas, 2007; Opazo, 2012; Capdevila et al. (2018).

The creative work of Adrià and his colleagues led to elBulli earning three Michelin stars in 1997 and the title 'Best Restaurant in the World' from Restaurant Magazine in 2002, and from 2006 to 2009.

1. The emergence phase of elBulli.
The development of a professional community and the formation of a social commons.

In the 1980s, a community of passionate Catalan chefs (Adria, Lutaud, Casanas, Xatruch, etc.), among whom Ferran Adria from the restaurant elBulli in Cala Montjoi was the most enthusiastic, was aiming to adapt and recreate traditional Catalan and Spanish recipes with a new *haute cuisine* approach. Convinced of the high value and potential of the Catalan gastronomy and culture, their objective was to challenge the hegemony of the *Nouvelle Cuisine* that emerged in France in the 1960s and gained worldwide acclaim (Rao et al., 2003). As a community, these passionate chefs respected high standards of professional conduct and shared common experiences and values. They started accumulating specialized knowledge acquired through extended periods of research and training by regularly visiting French restaurants as customers to get inspiration. Then, through the social contacts gained in those gastronomic trips to France, they undertook in-service traineeships in some of the best three-star French restaurants, willing to learn, test and create.

2. The choice of a collaborative space, the development of an epistemic community and formation of a symbolic commons ("techno-emotional gastronomy")

The new common vision shared by the team of chefs at elBulli began an intense period of creativity and research, with an in-depth exploration of the connections between science (in particular chemistry) and cooking, supported by a manifesto that highlights the breaking of the rules and a departure from former practices of gastronomy.

This "techno-emotional" new movement in cooking also led Adrià and his team to explore new relationships between artistic disciplines and gastronomy in order to find inspiration and offer unique experiences to customers, such as using deconstruction principles from architecture to invent new ways of presenting dishes.

Catalunya thus became the epicenter of a revolution in gastronomy that had a world-wide influence. The creative work of Adrià and his colleagues led to elBulli earning three Michelin stars in 1997 and the title 'Best Restaurant in the World' from Restaurant Magazine in 2002, and from 2006 to 2009.

3. The implementation phase of the collaborative space: the development of "communities of practice" and the formation of diverse "knowledge commons"

- The team of chefs thus invented new practices and new ways to organize the activities of a restaurant through a form of organizational ambidexterity (O'Reilly & Tushman 2008) that had a strong impact on the way innovative restaurants are managed. In the elBulli restaurant, the intense period of creativity and research triggered by the "techno-emotional" new movement led to the creation of a multitude of new recipes (more than 1,500 within 10 years)

- The team of chefs working with Adria exchanged new ideas and best practices on a regular basis. These exchanges of knowledge were facilitated by cataloguing and systematically classifying recipes created by Adria (in *Léxico científico gastronómico,* elBulli 2006). The commoners using the respective collaborative spaces to initiate diverse communities of practice that paved the way to the success of these innovative endeavors. In all the cases, significant outcomes in terms of new startups, new innovative products, or new recipes and methods result from the efficient orchestration of all the innovation commons, which were made accessible to the participants of the innovative projects.

Ferran Adrià, chef and co-owner of elBulli, at a press event marking the closing of his world-famous restaurant. Behind him are top chefs, many of whom trained at the restaurant over the years

- Despite these successes, Adrià voluntarily closed the restaurant in July 2011, at a moment when elBulli (which could accommodate only 8,000 diners a season) was at the peak of its reputation, with more than two million requests on the waiting list. Some speculate that it was due to financial reasons, given that the restaurant was regularly losing money. Another potential reason is a form of "cognitive fatigue". As Capdevila et al. (2018, p.534) underlined, in the late 90s the team of chefs at elBulli entered "a period of 'creative excess', where the search for a new episteme extended beyond the frontiers of pure gastronomy to encompass different artistic creative aspects and experiences, including architecture, sculpture, contemporary art, music, and theatre".

Some lessons learned from the 3 cases

1 : While the literature dealing with communities generally analyzes the formation and the developments of a given community characterized by a given specific main cognitive motive (a community of practice, an epistemic community, a community of interest, etc.), the examination of the three cases suggests that the orchestration of the dynamics of innovation in the collaborative space may call for successive breakings of the cognitive frame of the same group of passionate individuals.

 This group crosses diverse communities in order to deploy the innovation process in different temporal and spatial dimensions, and to orchestrate the articulation of a series of commons through changing their main cognitive focus as the process of innovation is evolving.

2: With regards to the commons, the results suggest that the dynamics of innovation within such innovative spaces is inherently related to the articulation of different *commons* orchestrated by the commoners in order to establish interdisciplinary boundary crossing collaboration. Based on our observations, the dynamics of innovation in the collaborative spaces results from the following sequence of *commons*: 1) *social relationship commons*, 2) *symbolic commons*, and 3) *innovation commons*. Each of these commons corresponds to a collective action governance mechanism over a specific common pool resource which is a key determinant of the innovative project.