

A FUTURE IN COMMON

**Understanding and Framing
Commoning Strategies for Bristol**

BRISTOL CITIZEN SENSING PROGRAMME

Phase 2 / Deliverable 1

28-02-2016

**Ideas
for
Change**



SUMMARY

An initial collaboration between Ideas for Change and Knowles West Media Centre (KWMC) and Bristol City Council (BCC) led to the development of a “Generative city commons approach to urban participatory sensing”, now referred to as “The Bristol Approach to Citizen Sensing”. With the aim to foster inclusive, sustainable and scalable citizen participation for the common good, the proposed approach focuses on the development and evolution of a city commons. The co-creation and management of a pool of community owned assets and resources can provide benefits to society as a whole by enabling: new solutions to local issues, the enhancement of available infrastructure, the creation of open and accessible capital, and access to a rewards and incentives economy as well as new skills, and professional and entrepreneurial opportunities. Our final deliverable (D3) also included a methodology (the framework) that guides the application of the approach in the context of Bristol, through a strong orchestration process supported by KWMC and local partners.

KWMC and BCC are now running an activation

phase to take “The Bristol Approach” to fruition by applying the framework in a number of community interventions. The goal is to collaborate with citizens to tackle local issues by enabling participatory processes, co-designing and deploying bottom-up sensor infrastructures and collecting, making sense and sharing relevant open data. To better frame the vision of the city commons and translate it into concrete actions, KWMC and BCC have commissioned a focused piece of research from Ideas for Change.

The aim of the new collaboration agreement is to frame the vision for “The Bristol City Commons” by:

- Providing a definition for City Commons
- Assessing models for governance of the commons
- Conceptualising the citizen-producer, a new social agent (the commoner) that contributes to the commons
- Proposing a model of rewards and incentives for citizen-producers
- Recommending infrastructures for the commons

(how they are made available, visualised and shared)

To meet these goals Ideas for Change conducted field and desktop research. Firstly, we reviewed the existing literature in the fields of economics, urban planning, sociology, commons-based peer production, philosophy, political sciences and human computer interaction. We also conducted interviews with experts and practitioners who are currently developing commons-based initiatives and understanding. We analysed several definitions of commons and *commoning*, along with diverse governance models and ecosystem agents.

Secondly, we identified cities that are enabling sharing and *commoning* strategies and collected data on how these are being applied in practice. We aggregated these data in a corpus of case studies and, based on the literature review, we constructed a set of theoretical lenses to analyse them.

Thirdly, we ran two internal workshops to synthesise the research outputs and assemble higher-level findings that inform a number of recommendations to frame and activate the vision for “The Bristol City Commons”. We present the findings organised in three chapters:

- Chapter 1 focuses on the commons. It presents and discusses various definitions of the term and explains why protocols of governance are required to regulate and maintain pools of commons.
- Chapter 2 delves on the right to contribute as a framing for the concept of “citizen-producer”. It presents the various roles that contributors may take on in the context of a common-based collaborative initiative as well as their motivations to contribute and how these can be matched to specific rewards. Finally, it explains why, to foster contributions, commons-based systems need to provide infrastructures and support services that make common resources accessible, actionable and interoperable.

- Chapter 3 presents five case studies of sharing and collaborative cities: Seoul, Milano, Bologna, Amsterdam and Portland. From each case study we draw insights that shed light onto the different ways in which cities are enabling sharing and *commoning* strategies.

Finally, we provide a conclusion that, along with the recommendations presented in each chapter, synthesises higher level findings derived from this research.



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INTRODUCTION

As municipalities increasingly engage with commercial enterprises to deliver smart city programmes that embed technology into almost every aspect of city life, a number of researchers, journalists and writers have questioned these programmes' aims and their capacity to deliver beneficial outcomes for urban communities (e.g. Greenfield, 2013; Townsend, 2013). A report recently published by the UK charity Nesta identified seven factors that have prevented smart city initiative to deliver real value to the cities where they were deployed:

- (i)** Not taking human behaviour as seriously as technology;
- (ii)** Lack of use, generation and sharing of evidence, leading to little evidence of ROI (return of investment);
- (iii)** Lack of focus on data skills;
- (iv)** Lack of integration with other work in cities;
- (v)** Over reliance on hardware and technology;
- (vi)** No role for the citizen; and
- (vii)** Closed and proprietary projects. (Saunders, 2015)

Thus, for a smart city programme to be successful, it is crucial to ensure that the technologies developed address real local needs, that citizens and local entrepreneurs can actively participate in such programmes and that they can access to and benefit from their outcomes.

An alternative approach for a citizen-centred smart city is to think of cities as commons. The commons entails all the things that we share together rather than own privately, from water to air, parks, streets and more complex entities like the Internet, civic organisations, traditions, skills and communities. (Foster & laone, 2015)

Today, many municipalities and organisations around the world are actively deploying sharing and *commoning* strategies as an evolution of their smart city agendas. City councils in Bologna, Milan, Seoul, Portland or Amsterdam are moving on a trajectory towards openness, unlocking resources and enabling so-

cial practices aimed to develop urban commons: from building hubs for communal sharing to reclaiming public spaces and facilities for citizens, as well as promoting the creation and use of digital commons. Furthermore, there is a growing understanding that to enhance their potential cities need an urban commons that is flexible and adaptable, and that profits from a wide array of contributing agents and accessible resources.

Moreover, there is evidence to suggest that *commoning* can foster contributive and altruistic behaviours among people (Ostom et al., 1999; Benkler, 2002; Benkler & Nissenbaum, 2006). Examples of tangible and digital commons from community gardens to Wikipedia, Linux or Creative Commons demonstrate the immense contributive power of commons-based systems (Foster & laone, 2016; Fuster Morell, 2010).

In this report we present a number of definitions and higher-level recommendations to inform *commoning* strategies in the context of “The Bristol Approach

to Citizen Sensing”. Several snowflakes can create a snowball effect. The iterative application of The Bristol Approach can lead to the growth of the city commons, which also includes the know-how regarding the processes that are necessary to enable citizens’ participation in Smart city programmes. We trust that enabling *commoning* strategies that unlock, generate and nurture open and accessible resources can significantly contribute to a more innovative, inclusive and empowered society. Ultimately, this approach aims to enable an ecosystem of contributive practices for urban communities to develop and profit from shared resources and thus achieve a vibrant and inclusive city: a city in common.

A future in common



THE

COMMONS



DEFINITIONS

There is not a unique definition for the term commons. Throughout time, researchers and practitioners have defined commons in different ways ranging from perspectives that stem from their quality of shared resources and assets (Ostom et al., 1999; Fuster Morell, 2010), to the community practices that emerge around them (Bollier, 2007), and the outcomes that they can potentially enable (Benkler & Nissenbaum, 2006).

Nobel prize winner Elinor Ostrom defines the commons as the cultural and natural resources accessible to all members of a society, including natural materials such as air, water, and a habitable earth. These resources are held in common, not owned privately (Ostom et al., 1999). More recently, The European Commission (2016) proposed that the commons entail the natural and cultural resources freely accessible to all members of a given society, such as parks or lakes. In a digital context, it refers to resources critical for the digital environment, which should not be transformed into private property.

Bollier has extended these definitions by arguing that the commons is a resource plus a defined community and the protocols, values and norms devised by the community to manage it. The commons should therefore be defined as (i) a social system for the long-term stewardship of resources that preserves shared values and community identity; (ii) a self-organised system by which communities manage resources with minimal or no reliance on the Market or State; (iii) the wealth that we inherit or create together and must pass on (from natural resources to civic infrastructure, cultural works and traditions, and knowledge); and d) a sector of the economy that generates value in ways that are often taken for granted – and often jeopardised by the Market-State.

Bollier introduces the concept of *commoning* to refer to the practices associated to the production, management and exploitation of shared resources for collective benefit (Bollier, 2007). He posits that forms of *commoning* vary from one commons to another, and therefore

there cannot be a “standard template” for commons. The commons must be understood, then, as a verb as much as a noun. A commons must be animated by bottom-up participation, personal responsibility, transparency and self-policing accountability.

Commons have also been defined in relation to the valuable outcomes that they can enable. In a recent project aimed at re-imagining the traditional civic commons, The Municipal Art Society of New York (MASNYC) proposed that commons are entities that have the capacity to deliver learning and social connections, provide economic opportunities, develop human capital, strengthen public safety and health, make connection and serendipity possible, and foster inspiration.

A distinction has often been made between traditional/natural (tangible) and digital commons. The latter are typically called the “new commons of knowledge” and, while tangible commons are characterised by their limited nature, digital commons are not at risk

“The commons must be understood, then, as a verb as much as a noun.”

- *Bollier* -

of being depleted due to their immaterial and abundant nature. In fact, their attributes foster re-appropriation, replicability and extensive use beyond the limits of the communities that have created them. Fuster Morell defines digital commons as “information and knowledge resources that are collectively created and owned or shared between or among a community and that tend to be non-exclusive (generally free) available to third parties. They are oriented to favor use and reuse, rather than to be exchanged as a commodity. Additionally, the community of people building them can intervene in the governance of their interac-

tion processes and of their shared resources”. (2010)

However, such binary distinction between two types of commons can be misleading. The so-called traditional commons can also be considered to be knowledge commons. In fact, their management and governance entail complex knowledge that is often passed down from generation to generation. Common thus appears to be a social construction founded on the spread of knowledge and self-governance of production and not an intrinsic feature of the nature of specific categories of goods (Vercellone et al., 2015).



COMMONS-BASED PEER PRODUCTION

Yochai Benkler has used the term Commons-based peer production to describe a socio-economic system of production that is facilitated by the technical infrastructure of the Internet. It is characterised by intensive collaboration among large groups of individuals who cooperate to produce information, knowledge or cultural goods without relying on either market pricing or hierarchies to coordinate their efforts (Benkler, 2002). This novel system of production, where no single entity owns the product or manages its direction, has created valuable digital commons such as Wikipedia, Free Software and Open-source hardware projects.

Moreover, Benkler has also defined the commons in relation to the outcomes that they can enable. He argues that peer production systems can be highly contributive to society as they offer opportunities for more people to engage in virtuous behaviour. A society that provides opportunities for virtuous behaviour is more conducive to virtuous individuals. Socio-technical systems of commons-based peer production offer both a

medium of production for diverse information goods and serve as a context for the formation of virtuous, contributive behaviours (Benkler, 2002).

Peer production systems can be highly contributive to society as they offer opportunities for more people to engage in virtuous behaviour.

- Benkler -

RECOMMENDATIONS

The term commons has been used to refer to shared resources that cannot be separated from a community

of users and contributors, as well as the social arrangements and infrastructures that make their exploitation and management possible. Commons-based systems can enable collaborative processes where two plus two equal five. They can produce abundance by fostering appropriation, large scale collaboration and replicability.

Firstly, we suggest that the commons is not a thing but a mindset, which can be translated into a vision and a strategy by following principles of openness, transparency and collaboration. Secondly, we argue that cities have an abundance of resources that can be unlocked or commonised. Any asset regardless of its property status can be subjected to a *commoning* strategy and become a shared resource or a commons. Thirdly, to be actionable, urban commons should be characterised by the following attributes:

- **ABUNDANCE:** generate an extended city offering that increases opportunities by providing access to universal and actionable capital for contribu-

tors, for other citizens, local enterprises and/or for the city

- **ACCESSIBILITY:** be designed to be accessible, appropriated and reused under the most permissionless possible approach
- **ACTIONABILITY:** Be associated to infrastructures and support services that embed skills in the community and foster use and contribution
- **GOVERNANCE/MANAGEMENT:** be designed to be managed transparently, jointly and directly. Include a clear protocol for use and contribution, supervision mechanisms and actions to penalise abusive behaviour. Enable awareness regarding community members, contributions and resource use
- **REWARDS:** be associated to incentives and rewards that match citizens' motivations to contribute

A citizen sensing programme can be structured as a commons-based peer production system. Using a wide range of sensing devices, from open source DIY sensors to personal smartphones and public infrastructure citizens can produce open data (commons) about their cities. While they may use these data themselves (to learn, address issues of concern or fuel new services and applications) if data are made accessible, interoperable, replicable and actionable then others outside the community of contributors could profit from them as well. However, although data are digital assets that can be replicated and used extensively, the infrastructures that support and make the resources available may not be digital commons (e.g. servers owned by councils, companies or citizens). Such hybrid systems pose challenges regarding ownership and governance that ought to be taken into account.



GOVERNANCE

Most of the literature on the commons revolves around how certain shared resources require a governance or management protocols to be protected. There is evidence that when resource users interact without the rules that regulate access and define rights and duties, two forms of free-riding are likely to occur: over-use without concern for the negative effects on others, and a lack of contributing resources for maintaining and improving the common pool of resources itself. Like in traditional economic theories, Hardin (1968) suggested that privatisation or the intervention of an external regulatory agent are the only solution to prevent the “tragedy of the commons” (the depletion of the common resource). However, Ostrom et al. (1999) have demonstrated that it is both possible and desirable to create stable social arrangements that can auto-regulate without the need for external prescriptive intervention. For this to happen community members must first address issues in provision, credibility and supervision.

While all common-pool resources (CPR) seem to require governance protocols, there are no fixed recipes.

The specific characteristics of a pool of common resources affect the type of arrangement that is required to design its governance regime (Gibson, 1999). These attributes comprise for example the size and carrying capacity of the resource system, if resources move (like water or wildlife) or are stationary (trees or plants), how fast they regenerate, etc. (Schlager et al., 1994).

The need for governance protocols also applies to digital commons, even when resource depletion tends not to be a risk. While it has been argued that open-access is the main attribute for an asset to become a commons (Lessig, 2004), Fuster Morell suggested that a governance design that facilitates community control over the collaborative process of building the common-pool resource is equally fundamental (Fuster Morell, 2010).

Ostrom has defined a well-known set of principles for managing the commons (Ostrom et al., 1999). These principles can be applied to both, tangible and digital commons. According to the authors, communities of

contributors should:

1. Define clear group boundaries
2. Match rules governing use of common goods to local needs and conditions
3. Ensure that those affected by the rules can participate in modifying the rules
4. Make sure the rule-making rights of community members are respected by outside authorities
5. Develop a system, carried out by community members, for monitoring members' behaviour
6. Use graduated sanctions for rule violators
7. Provide accessible, low-cost means for dispute resolution
8. Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system

A number of studies on how communities manage shared resources in Latin America have also revealed six factors deemed to be crucial to the sustainability of the pool of commons (Cardenas, 1999).

AWARENESS:

- If users are not aware of how others are using the shared resources then overuse is likely to occur
- When users can communicate and access information regarding resource use then they are likely to obtain more collective benefits

COLLECTIVE AND INDIVIDUAL INCENTIVES:

- if the benefits are low, enabling face to face interactions among members supports consensus and improves the general performance
- when incentives are higher some participants may be tempted to not comply to agreed regimes

CONTROL AND PUNISHMENT

- when participants are given the opportunity to participate in costly monitoring and in the application of sanctions, users are willing to pay to punish those who overuse the resource

CONSENSUS:

- when participants openly discuss and agree their own levels of use and system of sanctions, levels of non-compliance are typically kept lower and collective benefits increase

RECOMMENDATIONS

There are no fixed recipes for the governance of the commons, as each case poses specific challenges and opportunities. Nevertheless, the sets of recommendations provided by Ostrom et al. (1999) and Cardenas (1999) suggest that any arrangement needs to provide a level of transparency and awareness regarding community members, contributions and resource use; include individual and collective incentives that foster contribution; devise supervision mechanisms and concrete actions to penalise abusive behaviours; and support dialogue to achieve general consensus (even in open source communities where a recurrent procedure is to

fork when no consensus is reached). Additionally, rules need to be adaptable and open to revisions.

Nowadays technology can strongly aid the management of the common resources, helping identify, measure and keep track of them. However, so far technology cannot be a substitute for community decision making. Novel tools such as the blockchain can provide decentralised mechanisms for the management of common resources. More real world deployments need to be run and evaluated to reveal the opportunities and hurdles associated to managing pools of shared assets solely via computational distributed means.

Free software communities can shed light on plausible governance arrangements for digital commons. They are considered to be a sustainable form of production where no one “owns” a project, though individuals own (in a formal sense) the software they contribute. Its main criterion is that all individual contributors agree that none of them shall exclude anyone else from using it, even those who haven’t contributed to its development. The collective effort is sustained by a combination of volunteerism and good will, technology, law—mostly licensing like the GNU General Public License that governs most free software development—and self-serving participation. These factors lead to a model of production that avoids traditional pricing and management mechanisms in organising production or motivating participants (Benkler, 2002).

Free software is about granting users the free-

dom to run, copy, distribute, study, change and improve the software. Free software is any software that provides the following freedoms. The freedom to:

- Run the program, for any purpose (freedom 0).
- Study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.
- Redistribute copies so you can help your neighbour (freedom 2).
- Improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.

A future in common

THE

RIGHT TO

CONTRIBUTE

From donating benches for a park to collecting and sharing sensor data or editing articles in Wikipedia, citizens have always dedicated time and effort to activities that don't necessarily produce a monetary reward but certainly contribute value to society. The production of commons has been largely associated to these types of contributions that are rarely taken into account as part of the formal economy.

Cities that are adopting sharing and commoning strategies are increasingly assessing ways to frame and support the citizens' right to contribute to the urban commons. This requires that municipalities cease their desire to either own or do everything in favour of enabling collaboration and reconsidering old policy that underestimates or limits the contributive power of citizens. Such is the case of Bologna, for example, where a bill of rights and duties has been put in place to facilitate and support citizens' contributions. In Milan, the approach has been different, with the public administration investing in physical spaces that can

be used as hubs for sharing and *commoning*: from the House of Collaboration to various incubators, and the handover of unused spaces to associations, startups and citizens pursuing initiatives based on common or shared resources.

Framing and delivering a programme that fosters citizens' participation requires some understanding of the different kinds of roles that "the citizen-producer" can play in developing commons; the need to agree on a bill of rights and duties that frames the practices associated to the shared and common resources; the need to understand how to reward contributions; as well as the need to provide infrastructure and support services that facilitate participation and access to the resources.



ECOSYSTEM OF AGENTS

Empirical studies have demonstrated that contributors of commons systems vary in type and motivations. Moreover, they are often described as (i) those who always behave in a narrow, self interested way and never cooperate in dilemma situations (typically referred as free-riders); (ii) those who are unwilling to cooperate with others unless assured that they will not be exploited by free-riders; (iii) those who are willing to initiate reciprocal cooperation in the hopes that others will return their trust; and (iv) genuine altruists who always try to achieve higher returns for a group.

In contrast to communities that manage natural resources, communities around digital commons are more open to participation, which makes it difficult to establish their boundaries [Benkler, 2002]. Nevertheless, studies of online communities have showed a general tendency towards an unequal distribution of the contributions. A frequently observed pattern of contributions has been described as the 90/9/1 power law, where around 90% of participants lurk or act as an audience,

Citizens have always dedicated time and effort to activities that don't necessarily produce a monetary reward but certainly contribute value to society.

9% make minor contributions and 1% are very active contributors. Moving on from this power law, Fuster Morell [2010] studied the interdependences of 90, 9, and 1 degrees of contribution and revealed a form of ecosystemic participation. Her research highlighted the co-dependency and mutual adaptation of the different degrees of contribution, where each actually plays a role that supports the sustainability and effectiveness of the common goals.

When designing programmes aimed at developing commons, it is important to consider how motivations to contribute may vary and to support the different roles that citizens may take on in order to participate. We have identified a set of roles that seem to be crucial to the sustainability and scalability of an ecosystem of common and shared resources. Such roles can be nuanced and emerge around each type of commons based peer production platform. Nevertheless, for the sake of simplicity we have summarised them in the following taxonomy:

THE CONTRIBUTOR



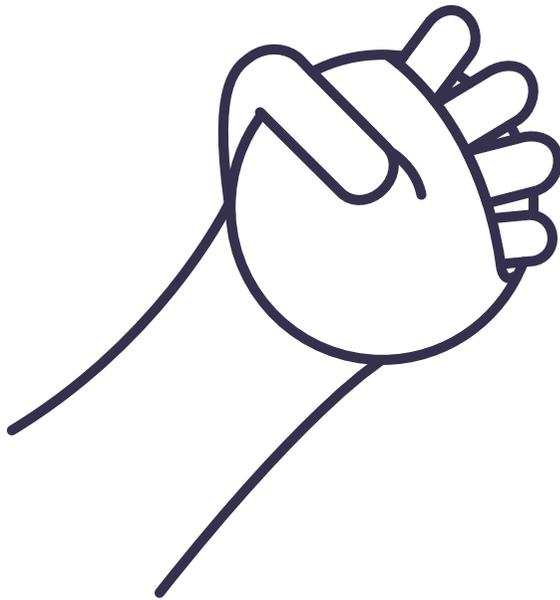
Someone who actively contributes to the development of the pool of resources and possibly participates in its governance. In the case of a participatory sensing programme, for example, this agent is likely to install and use a sensor to gather and share data. She might participate in events, support campaigns, and actively engage in conversations about the programme.

THE CHAMPION



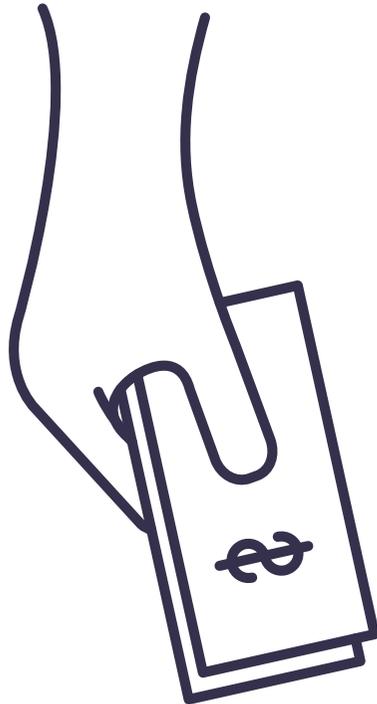
Someone who draws others to participate. Programme champions may be the instigators of a specific campaign or work/collaborate with an institution that leads the programme. Emergent champions may be engaged contributors that entice others to join in and contribute (Balestrini et al., 2014) or behave like “bees” pollinating and sharing ideas through their social interactions. Both programme and emergent champions are crucial to the sustainability and scalability of an intervention.

THE USER



Someone who doesn't necessarily contribute to the pool of shared resources but uses them. The user can access the resources and use them for their own purposes demonstrating the usefulness of the co-created commons (e.g. Checking data feeds produced by contributors to make decisions about her personal routine). In many cases advanced users can support the scalability of a given programme. For instance, if an advanced user develops an application based on the commons (e.g. an air quality mobile app) this may in turn create a sense of purpose for contributors that fuels their motivation to participate. However, it is important to consider that the byproduct of a commons should be regulated under rules that are compatible with the governance protocol established by the contributors.

THE SEEDER



Most pools of commons need resources to exist, to be accessible and sustainable. In the case of Wikipedia, for example, large donation campaigns are organised to raise the necessary funds to keep the free encyclopedia running. The cost of running a commons-based initiative is often underestimated. The seeder is an agent that financially supports the development of a commons. Although she may not be a user or a contributor, her participation as seeder is key to the sustainability of the programme. Citizens are increasingly funding projects that produce value to society via civic crowdfunding platforms. Cities like Milano and Bologna are using taxpayer contributions to develop infrastructure that foster urban commons.

THE MANAGER / ORCHESTRATOR



There are a number of tasks associated to running the commons. As a single person or a collective, the manager is responsible for the daily operations that make a pool of commons viable, accessible and dynamic. In the case of a participatory sensing programme, for instance, tasks may include the design, development and maintenance of a digital platform or an array of networks. The manager may also incentivise and orchestrate participation, help with troubleshooting advice, fix technical problems and control that the ecosystem of contributive agents complies with the rules agreed by the community.



MOTIVATIONS & REWARDS

In commons based projects users and contributors will engage for a number of motivations that are not necessarily monetary. Different studies on commons-based peer production ranging from Wikipedia to open source software development and citizen science have revealed that motivations to participate range from: altruism (doing something good), desire to contribute to solving issues of concern, desire to learn and share skills, desire to contribute to collective efforts aimed at effecting positive change or “make a difference”, desire to be part of a like-minded community of people and interact with others [Benkler, 2002; Benkler & Nissenbaum, 2006; Kuznetsov, 2006]. Moreover, initiatives like the SETI@Home project (aimed at searching for extraterrestrial life) have demonstrated that contributors are even willing to share their personal resources (in the case of SETI@Home, computing power) to support a commons-based peer production initiative.

Following, we unpack some of the most common motivations for contributors to participate in com-

mons-based initiatives. We focus on online projects both due to the nature of The Bristol Approach and to the fact that these motivations extend those encountered in non-digital projects. Finally, it is important to notice that many infrastructures for commons-based peer production include features that clearly support these motivations.

ALTRUISM. Altruism is a virtue that is similar to benevolence, charity and generosity. A person who acts out of altruism aims to benefit others without any intent to promote a gain or improve his or her situation. For example, Wikipedians who are motivated by pure altruism invest time and effort into their work without any desire for compensation except for the satisfaction of giving. For others, reciprocity, the process by which a person who commits an altruistic act receives a benefit in return, maybe at a later time, is a motivation.

SENSE OF COMMON PURPOSE. Sharing a common purpose and collaborating towards a shared goal is a

strong motivation for people who are naturally predisposed to contributing. In Wikipedia, for example, contributors discuss the content, propose changes to articles, and some times divide into teams to tackle different tasks. Through this collaboration and discussion, they feel needed and develop a sense of common purpose and belonging that unites them into one community.

Sharing a common purpose and collaborating towards a shared goal is a strong motivation for people who are naturally predisposed to contributing.

JOINING A COMMUNITY OF LIKE-MINDED PEOPLE.

Contributors to commons-based peer production platforms tend to interact with the same set of individuals over time, often forming smaller communities within the platform. In participatory sensing programmes, citizen science and civic crowdfunding campaigns users often state that their motivation to contribute is to help build or be part of a community of people who share common interests or concerns.

LEARNING AND SHARING SKILLS. This is a strong motivation in most commons-based peer production platforms. Contributors tend to engage because they find opportunities to share with others something that they have expertise on (and in turn feel useful and valued), and/or opportunities to learn about topics that they care about. These motivations strongly manifest in platforms like Quora and Wikipedia, and are often stated by those who contribute in citizen science endeavours.

REPUTATION AND PRIDE. Contributors who participate in online communities tend to develop digital identities in order to be respected, trusted, and appreciated by their peers. A reputable identity is rewarding because it demonstrates success and accomplishment. Users who have a reputation for making large contributions are appreciated by other peers. The desire to be valued and recognised often motivates people to

Contributors who participate in online communities tend to develop digital identities in order to be respected, trusted, and appreciated by their peers.

contribute more.

AUTONOMY. Autonomy is associated to the freedom of independent decision making. Most aspects of the real world are governed by rules, limits and regulations that are imposed by external entities. Most commons-based peer production systems offer an escape from this rigid routine. Contributors can pick their tasks and complete them on their own terms. This self-selection is liberating, and it enables contributors to feel creative and productive.

RECOMMENDATIONS

As described in this chapter, people contribute to commons-based initiatives for a variety of motivations. Moreover, there are a number of roles that agents can take on to participate in the co-creation of commons. It is important that all these aspects are taken into account when designing the rewards and incentives aimed at enabling and sustaining citizens' contributions to a programme. Contributors' aspirations can be matched with different types of rewards:

ALTRUISM. Reciprocal cooperation can be established, sustained and even grow if the proportion of those who always act in a self-interested manner is initially not too high [Axelrod & Hamilton, 1981]. For those who contribute due to altruistic motivations it may be important to feel like their efforts are not exploited by free riders but rather produce benefits for the entire community. Providing feedback both on other

users' contributions and on the impact of the collective effort can be rewarding for the contributor who is driven by altruism.

SENSE OF COMMON PURPOSE. For those who contribute because they want to share a sense of collective purpose, belonging to a clearly defined and purposeful community is a reward. Programmes can provide this reward by creating the means to foster social connectedness and ownership. Involving contributors in processes of decision making, creating spaces for goal setting and features to track progress towards goals can fuel engagement.

JOINING A COMMUNITY OF LIKE-MINDED PEOPLE. Contributors who want to feel part of a community of like minded people are likely to feel rewarded by having the opportunity to enjoy social interactions. Creating opportunities for these interactions to emerge, inviting contributors both to online and face to face social gatherings can fulfill this motivation.

LEARNING AND SHARING SKILLS. Providing resources and opportunities for contributors to acquire, expand and share skills can act as a reward. To foster the appropriation of the tools, skills and practices for contributors to enhance their daily lives and work practices, programme instigators can plan workshops, knowledge sharing schemes and provide access to toolkits and resources.

REPUTATION AND PRIDE. Contributors seeking recognition can feel rewarded if their names, achievement and contributions appear associated to the project outcomes. A sense of pride can be fuelled if the programme is seen as valuable, receives media attention and is recognised by external entities. Making contributors feel part of these achievements can be rewarding for them.

AUTONOMY. Programmes can be designed to provide opportunities for contributors to engage in tasks that they can take on in their own terms and support their motivations and skills. Tasks should be broken

down into small contributions that are “doable” in people’s free time. Large tasks that require too much commitment can deter participation as contributors may feel like they “fail” or can’t afford participating. Programmes should offer a variety of roles and tasks with which people can engage, from funding to managing, championing, and actively using or growing the pool of resources.

Although general rewards can be put in place by taking into account contributors’ motivations, more specific types of incentives should be tailored according to the goals of the programme. If a commons-based initiative aims to address an issue, then effective incentives shall be linked to the issue because we can assume that contributors share a concern around it. For instance, if a citizen sensing programme engages people to contribute mobility data to improve the local transport system, then offering discounts for trains or buses or access to novel mobility services can foster participation. Offering an incentive that does not match users’ motivations or concerns can be inefficient.



INFRASTRUCTURE & SUPPORT SERVICES

Commons systems comprise two elements: the content and the infrastructure [Benkler & Nissenbaum, 2006]. The content itself is the concrete outcome that emerges from a contribution, for example, a data set. The infrastructure includes all underlying technologies that enable the production of such outcome, following from the previous example, this would be the sensor and the platform that hosts and visualises the data set. Moreover, a set of support services (funding, documentation/education, governance protocols, contribution orchestration, etc.) are required for the commons to be functional and to thrive with the support of an engaged community.

The programmes for commons that have increased potential for scalability seem to be those where both the “content” and the “infrastructure” are commons. For example, users can create or edit wiki pages but it is also possible for them to improve the wiki technology and to instance other wikis (wikitravel, internal organisation wikis, etc.). Nevertheless, there are inter-

mediate scenarios where the infrastructure might not be a commons and yet it still offers opportunities to build commons and or share accessible resources. For example, Yahoo's Flickr service enables users to upload and share photos under Creative Commons licenses although the underlying platform is proprietary. Likewise, the YouTube video platform allows users to share videos under permissive Creative Commons licenses.

Additionally, to make a set of common or shared resources accessible and actionable to contributors and users, some features and support services are required. Agents will need tools and skills to interact with the commons and use them in ways that can produce value. For instance, it is not enough with publishing open data for communities to derive value from them. Such data sets should be downloadable in a format that allows interoperability and readability.

RECOMMENDATIONS

Accessibility implies more than just making resources available. To truly enable *commoning*, programmes should design and deploy an ecosystem of infrastructure, assets, and strategies that (i) foster the emergence of a community of contributors, users, champions, seeders and managers around the resources; (ii) embed skills for ecosystem agents to proficiently engage in *commoning*; (iii) establish and applies a governance protocol and data licenses; (iv) roll out rewards and incentives that match agents' motivations; and (v) enable transparent feedback regarding resource contributions and uses.

The nature of the infrastructure and the outcome reveals the tensions between ownership and access. While in some pure commons systems both the infrastructures and the outcomes becomes universal capital for contributors, this is not necessarily always possible or desirable. When designing an urban commons, stakeholders might need to analyse when providing access is more efficient than transferring the ownership of the infrastructure, with its overheads and management requirements. In most of the case studies, we have seen that cities are leaning towards increasing the access to shared resources (e.g. providing access to collaboration hubs or unlocking urban data sets) rather than transferring the ownership of the underlying infrastructures.

A future in common

THE SHARING CITIES



THE SHARING CITIES

Cities around the world are increasingly embracing *commoning* and sharing strategies as an evolution of their smart city agendas. They tend to follow different approaches. For example, while Seoul is interested in developing a strong public-private sharing economy ecosystem, Bologna focuses on questioning ideas around city ownership and enabling a bill of rights and duties for citizens to co-create urban commons at the grass-roots level. These two cities represent two models that have been referred to as “The sharing city” (Seoul) and “The collaborative city” (Co-City, Bologna) (Foster&laione, 2016).

In this section we briefly describe how Seoul, Milan, Bologna, Amsterdam and Portland are designing their *commoning* and sharing ecosystems. We chose to focus on these cities because they are considered to be at the forefront of the sharing and collaborative movements but represent different visions, cultures and ways of doing.



SEOUL SHARING CITY

SUMMARY

- Seoul Sharing City was initiated with a strong leadership from the local administration (organising committees, certification of sharing startups, incubation, local and international events, etc.)
- They created the Seoul Open Data Plaza to make public data sets open and available via API
- They strongly focus on raising awareness by providing information and education about the available services. Seoul Sharing City is partly coordinated via Creative Commons Korea, who are also responsible for organising events. Managed by Creative Commons Korea via the ShareHub portal.
- They focus on building public-private-social partnerships
- It's recognised as a global leader. It's in the early stage of promoting alliances with other cities around the world

Seoul Sharing City (<http://www.sharehub.kr/>) started in September of 2012 as part of the Seoul Innovation Bureau's plan to solve social, economic and environmental problems in innovative ways. The Sharing City aims to improve the lives of Seoul citizens through sharing, and to maximize the city's resources and budget. Its goal is to create jobs and increase incomes, address environmental issues, reduce unnecessary consumption and waste, and recover trust-based relationships between people. Seoul Sharing City is led by the Public Administration in a semi top-down approach.

The city's first action was to enact the Seoul Metropolitan City Sharing Promotion Ordinance on December 31, 2012. The Seoul Metropolitan Government collected opinions from sharing activists through public hearings. The ordinance dictates that the city must support the vitalisation of sharing not only in the public and private sectors. As such, the city acknowledges companies or organisations that

attempt to tackle social problems through sharing, designates them as "sharing companies" (or "sharing organisations") and supports them. These "sharing companies" are selected by an expert committee that comprises fifteen members (from private experts to other in the IT, CSR, and social innovation fields, a city councilor and officials). Creative Commons Korea was appointed to setup and manage ShareHub platform and other means to help the government to spread information about the latest sharing initiatives.

More recently the administration is helping to foster a more bottom-up approach. To address tensions between sharing businesses and existing laws around transportation, insurance, tourism and more, the Seoul Metropolitan Government (SMG) created a Sharing Facilitation Committee. The committee aims to improve laws and policies that "are a hindrance to the growth of sharing businesses." SMG plans to revise existing statutes and create more institutional support for sharing, such as enacting special laws.

The city plans to become a global sharing capital by creating a “National Sharing City Association” and “Consultative Group of World Sharing Cities”, with the long term goal of creating “Global Organisations of Sharing”.

HIGHLIGHTS

The portal ShareHub offers the official Seoul Sharing City services list. These services include sharing of Information (Creative Commons Korea), Space (Koza-za, rooms or ParkingShare), Objects (Socar, cars) and Kiple (general assets), experiences and talent (MyRealTrip), etc. In each of the categories there is a mix of private projects and public initiatives.

Seoul has also opened the Seoul Open Data Plaza (data.seoul.go.kr). The platform shares the city’s public data with citizens and aims to support the development of novel IT solutions and create new business opportunities for the private sector. The plaza shares a wide range of data such as real-time bus operation

schedules, subway schedules, non-smoking areas, locations of public Wi-Fi services, shoeshine shops, and facilities for disabled people. Data are made accessible via an open API.

Apart from the support that is offered to the Seoul Sharing City projects a large number of additional activities have been carried out:

- Seoul Sharing Fair
- Sharing Economy Startup School
- Creative Commons Summit 2015 was held in Seoul
- In schools students of all ages have access to educational programmes about the sharing economy. Sharing clubs are created for students to share unused school supplies

Despite the large amount of resourced invested by Seoul to promote the Sharing City programme among citizens awareness of the sharing economy remains relatively low. The local government is committed to continuing supporting the projects and raising awareness.



MILANO SHARING CITY

SUMMARY

- Milano Sharing City is framed as an evolution of Milano Smart City
- It has an attentive and proactive administration that is leading regulation, mapping experts and networks, and organising events after having consulted to its citizens
- It is setting up physical spaces as hubs: House of Collaboration, various incubators and assigning unused spaces to associations, startups, and citizens
- It follows a pragmatic and proactive approach to addressing the three tiers of the sharing economy: multinationals, local startups and social initiatives

In Milano, ideas about becoming a sharing city started at the Sharexpo in 2014. In less than a year the city presented its own manifesto about sharing: the “Guidelines on the Sharing Economy”. It was the result of an online public consultation -based on a

questionnaire that allowed citizens, entrepreneurs, researchers, businesses, local associations and services' users to share ideas, information, and demands with regards to the sharing economy.

After this initial document approval the first action entailed mapping the local actors of the sharing economy, which led to the creation of an official Register of qualified operators and experts of the sharing economy. It resulted in the Network of the Sharing Economy (Rete Della SE).

With the Guidelines on the Sharing Economy, the public administration aims to establish relationships with three types of subjects in the sharing economy.

- The big corporations such as AirBnB and Uber, in order to understand how to manage and regulate their presence in the city and how to exploit their networks for a recirculation of information
- The small startups rising up in the city and based on collaborative models, in order to understand how to promote them and allow them to thrive, socialising the benefits of the sharing economy

services to people

- The community's initiatives so as to figure out how to read, interpret and relate to them

HIGHLIGHTS

SPACES FOR COLLABORATING

The House of Collaboration (CO-HUB) and other collaborative spaces in the city were created after the municipality acknowledged a lack of a physical spaces for civic collaboration and the acceleration of initiatives. CO-HUB focuses on four activities: training, contamination, research and dissemination, and intends to be an enabling platform to connect experiences, practices, experts, businesses, universities, and civic actors.

The city also aims to support social innovation by participating in many incubators like Air, Alimenta, PoliHub, SpeedMiUp and the most famous FabriQ, now in its second year of development. Moreover, Milano has assigned more than 22,000 square meters of un-

used spaces to associations, startups and citizens.

CIVIC CROWDFUNDING AND PARTICIPATORY BUDGETING

During 2015 a number of crowdfunding platforms were selected. Now projects that gather enough traction during the initial promotion phase but don't achieve their goal, are eligible to be partially funded by the Administration (up to a maximum amount of 50,000 euro per project). The municipality has allocated 400,000 euro to this project currently under experimentation.

The participatory budgeting scheme is another example of the Sharing City programme and involves nine municipal districts that aim to favour citizen's active participation (coordinated by experts in participatory processes).

EVENTS

Events are also an important part of this sharing city strategy. During 2015 the city hosted a number

of local and international events such as "Collaborative Week", Sharitaly, the Experiment Days, the European Coworking Conference, Espresso Coworking and Milano Sharing City. In 2016 Milan will host EURO CITIES annual conference (November 2016), that will focus on the theme of 'sharing cities'.



BOLOGNA: CITY AS COMMONS

SUMMARY

- It is the only case directly addressing the concept of “city as commons” (“CO-City” model). The idea of the urban commons is still very much in development. Bologna city leads and promotes academic research on the topic
- It focuses on questioning who owns and manages the city. New vision of government: distribution of powers among public, social, economic, knowledge and civic actors
- It provides significant investment in the design of new forms of collaboration and partnerships among these actors. Other cities in Italy are adapting the “CO-City” model
- It follows a bottom-up approach with 130+ agreements between the city and its citizens, and a top-down approach limited to providing space and leading workshops with citizens to gather information about their needs
- It has a strong focus on the social and the local. It

does not clearly address how to regulate multinational companies' operations in the city

In 2011, a group of women in Bologna wanted to donate benches to their neighborhood park (Piazza Carducci) so they called the city government to get permission for it. After a tedious process, they found out that there simply was no way for citizens to contribute improvements to the city. In fact, it was illegal. Eventually, city officials found a way to give permission to this group of women. The episode inspired Bologna to re-think the way it handles collaboration between citizens and city authorities. The city wanted to find a way to support the enthusiasm of citizens who want to contribute to their city.

The result is a novel policy: "The Regulation on Collaboration Between Citizens and the Administration for the Care and Regeneration of Urban Commons." Since the Bologna City Council adopted it in 2014, the regulation has become a model in Italy, where

cash-strapped local governments can use citizens' help. Around 60 municipalities have followed Bologna in adopting it.

The Bologna policy does two main things:

1. First, it creates a clear pathway for individuals to volunteer their time and talents on projects requiring municipal assets or cooperation
2. Second, it describes the types of in-kind support that city authorities can offer to citizens or civic groups, whether it's paintbrushes, vacant property or technical assistance from city staff. The terms are presented in a document called a "collaboration agreement," a draft of which is posted online for public comment before it coming into force

The Bologna Regulation offers a structure for local authorities, citizens and the community at large to manage public and private spaces and assets together. It is a handbook for civic and public collaboration,

as well as a new vision for the government.

TYPES OF INTERVENTIONS:

Collaboration between active citizens and the City Council may reach different levels of intensity: the occasional care, the constant and continuous care and the shared management and regeneration. The actions may concern:

- Care interventions: interventions aimed for the protection, conservation and maintenance of urban commons to ensure and improve their quality and usability
- Shared management: care interventions of urban commons carried out jointly by citizens and administration with continuity and inclusivity
- Regeneration interventions: recovery, transformation and innovation interventions, carried out through co-design methods pursuant to social, economic, technological and environmental participatory, broad and integrated processes that determine an overall improvement

of the quality of life in the city

- Social promotion of innovation and collaborative services
- Promotion of urban creativity
- Digital innovation

FUNDING OF THE INTERVENTIONS

- The City contributes, within the limits of available resources, to cover the costs incurred for carrying out the actions of “cure” or regeneration of urban common
- Citizens that engage in shared care of the commons cannot be paid, directly nor indirectly, in respect of the activities performed that are carried out personally, spontaneously and without charge
- However, citizens can avail of professionals for design, organization, promotion and coordination of the care and regeneration of the commons, as well as to ensure specific training of specialist nature

- The city supports and develops a range of self-funding strategies providing municipal spaces for fundraising events, official endorsement of the projects, civic crowdfunding with partial municipal support, etc.

“CITY AS A COMMONS” VISION

- The idea of the urban commons is still in development. Foster & Iaione (2016) outlined four major tenets of the city as commons:
- The city is an open resource where all people can share public space and interact
- The city exists for widespread collaboration and cooperation
- The city is generative, producing for human nourishment and human need
- The city is a partner in creating conditions where commons can flourish

HIGHLIGHTS

To date, the regulation has supported more than 130 agreements (after 1.5 years of operation) between citizens and the city. Many of the projects involve cleaning up city streets, parks and squares, removing graffiti and other maintenance of public spaces. But there are a number of social initiatives as well.

Identifying the community’s natural leaders and helping them create block clubs has been crucial to the success of the co-city Bologna model. Some examples:

- Michela Bassi from Social Streets Project. The project evolved from being a network of neighborhood Facebook groups to a non-profit organisation with a set of tangible projects including an outdoor ad turned into a neighborhood bulletin board. Social Streets groups have now launched in 400 other streets and squares

- worldwide, including 57 in Bologna alone
- Veronica Veronesi from Reuse With Love, a group of 50 neighbors who joined forces to fight waste and improve the lives of children and the poor
- A civic crowdfunding to support projects that the city cannot wholly fund, such as restoration of Bologna's 24 miles of arched porticoes over sidewalks: Un Passo per San Luca

The top-down efforts have taken a variety of forms:

- Since 2010 the Incredibol programme has been offering abandoned buildings to startups in hopes of spurring neighborhood regeneration as well as creating new jobs
- At a series of workshops held from October to December 2015, the Mayor Virginio Merola and his deputies collaborated with citizens to help identify priorities for urban regeneration in each part of the city



AMSTERDAM: SHARING CITY

SUMMARY

- Amsterdam Sharing City was initially led by ShareNL, a project that found strong municipal and national support.
- There was a pre-existing sharing economy ecosystem in the city
- Amsterdam Sharing City is a testbed for pilot projects to gain direct experience and knowledge in the Sharing Economy and its impact in Amsterdam. Regulation will be addressed based on this experiences
- It is currently addressing mostly multinationals of the sharing economy and local startups. The connection with the more social, grassroots, low-tech initiatives occurring in the city is still unclear

Amsterdam Sharing City was initially promoted by two people. Pieter van de Glind and Harmen van Sprang, who co-founded the project ShareNL (a knowledge and network platform for the collabora-

tive economy). Amsterdam already presented a rich sharing economy ecosystem. In late 2014 the local government pioneered Airbnb regulation in Europe.

Inspired by Seoul, Harmen and Pieter aimed at developing a local vision for the sharing economy as they started gaining support within the administration. Very quickly the initiative attracted a wide network of local champions. In 2015 Amsterdam became Europe's first "Sharing City", bringing together government officials and community stakeholders, including conventional businesses as well as sharing startups.

The Amsterdam Sharing City project has been described as a testbed and playground for pilot projects to start getting direct experience and knowledge in the Sharing Economy in Amsterdam. The key to Amsterdam Sharing City—besides open communication and cooperation with the local government—is a network of champions and community stakeholders who work together on concrete projects related to

the sharing economy.

In 2016 the city aims to set up a national "Sharing City Platform" and to cooperate to foster the development of a "Global Sharing City Council" (initial cooperation is with Seoul). A Sharing City Index has also been announced along with a Sharing City Summit in 2016.

HIGHLIGHTS

Amsterdam was in a position to become a leader in the sharing movement even before its official designation as a "Sharing City." The municipality is home to a number of successful sharing businesses, including the borrowing platform Peerby, ShareYourMeal or SnappCar (P2P Car Rental). Under the Sharing City project umbrella the network of champions is leading a number of projects.

- THINK: the school for creative leadership and

innovation run the Amsterdam sharing city challenge.

- Airbnb & Library: developed within different libraries of the city workshops for (senior) citizens.
- Amsterdam Airport Schiphol: as an ambassador of the program Amsterdam Shiphol Airport provides different P2P mobility services for citizens arriving or leaving from the airport (e.g. ParkFly-Rent or SnappCar)
- Klein Amsterdam (school): plan that combines novel insights, related to blended and integrated learning, with tried and tested methods such as collaborative and authentic learning
- Community Center Corantijn: development of activities and information campaigns to raise awareness and infor the community about the

different alternatives and possibilities.

- Accenture: zuidas Mobility Fund is to be created to facilitate joint investment in mobility by public and private partners. Accenture has introduced a 'flexible mobility budget' for their staff, who receive a travel allowance based on commuting distance no matter what form of transport they use
- Achmea: the largest Dutch insurance company Achmea commissioned a study to research the social value creation of four fast growing Dutch and international sharing economy platforms Croqqr, SnappCar, Thuisafgehaald and Peerby. The study reveals that together these 4 initiatives created a social value of 4 million euro's due to more and better social relations between people, increased autonomy and health
- Sandd: the logistics company provides services

to sharing economy start-ups

- BPD (Bouwfonds): architecture company focused in developing living environments based in community and neighborhood values
- Peerby Go: A service through which neighbors can rent household items from other neighbors, with a specific delivery and pick up at a time and place
- A property developer is working on the concept of “Sharing Tower”

Finally, a public private partnership comprising 30 parties (2 ministries from national government, some municipalities, leasing companies, insurance companies, collaborative startups, etc.) are working together to achieve 100.000 shared cars on 2018. The initiative is known as “The Green Deal”.



PORTLAND: FROM COMMUNITIES TO COMPANIES

SUMMARY

- In Portland there is still no “Sharing City” programme. However, compared to other cities in the USA, Portland has become a hub for sharing in the pacific Northwest with initiatives for bike sharing, yard sharing, seed sharing, multiple tool libraries, kitchen libraries, etc.
- Startups and multinationals are taking advantage of this fertile ground in the city.
- It offers regulation in exchange of taxes payment and data sharing with multinational companies. Airbnb launched its “Shared City” programme in Portland and now it is opening a large engineering office. Uber and Lyft operate with a light regulation. Nike is sponsoring the bike-sharing operation scheme.

COMMUNITY LEAD

A range of sharing initiatives are completely led by local communities, for example:

- The giant Trash-to-Treasure event (to share clothes, toys and gifts) is run by over 100 volunteers every Spring
- Tools: Tool libraries located around the city are free to use for those with proof of residence and offer a wide variety of tools and workshops
- Prom Dresses: Prom dresses and bridesmaid dresses can be donated to Abby's Closet. There are collection points in 50 convenient locations around the Portland area. Once a year, high school girls have the opportunity to pick their favorite dress from thousands of choices
- Repair PDX - a volunteer run grassroots organisation that coordinates repair events and maintains a pool of volunteer fixers and list of interested host partners

COMPANIES PARTNERSHIPS AND REGULATIONS

More recently the administration has engaged via agreements and partnerships with different sharing economy companies.

Airbnb announced in March 2014 a long-term initiative called “Shared City,” and picked Portland as its first destination. It aims to help civic leaders and the AirBnB community to create “more shareable, more livable cities through relevant, concrete actions and partnerships”. In early 2016 Airbnb announced the opening of an engineering center in Portland, the first outside of San Francisco.

Since then Portland has engaged with different sharing economy companies and developed regulation for Home Sharing, Ridesharing, etc. In the case of Ridesharing regulation Portland City Council included a data sharing requirement as part of a 120-day pilot program to test new for-hire transportation regulations. This is the first time ride-sourcing companies Uber and Lyft have shared consumer data with any of the cities in which they operate. In return Portland is taking a lighter regulatory approach on issues such as insurance and the allowance of “price surging”.

Portland Bike Sharing: has been launched with the support of Nike as a sponsor. The company will pay \$10 million over five years in exchange for the right to put its logo and signature orange colour on the bicycles.

The Oregon Department of Transportation recently announced a partnership with Waze, the real-time crowdsourced navigation app powered by one of the world's largest communities of drivers, via the Waze Connected Citizens Program. Designed as a two-way data share of publicly available traffic information, the Connected Citizens program promotes greater efficiency, deeper insights and safer roads for the state of Oregon.



RECOMMENDATIONS

Cities are following different approaches to move on a trajectory towards sharing and *commoning*. While some have a strong focus on the sharing economy (Seoul, Amsterdam and Portland) others are rethinking issues on resource ownership, labour and civic participation in the context of the commons' paradigm (Bologna and Milano). Despite the differences among cities, we have identified a number of common themes:

- They try to follow a people-centered approach. They engage in efforts to reach out to citizens and collect their opinions. They map local champions and give them a voice, support their initiatives and/or get them involved as part of a broader city network. These are often referred to as “a nudging class” (a term coined by Iaione in [Bauwens, 2015]), a group of champions willing to nudge society and institutions towards a sharing and collaborative paradigm.
- In most cases, they focus on social innovation

as a driver for social inclusion and cohesion.

- Their public administrations are willing to re-think their role and to become enablers for the collaborative paradigm. These administrations use regulation to foster sharing and collaboration as well as providing legal frameworks and incentives for citizens, organisations and commercial enterprises.
- They profit from an array of “smart infrastructures” that facilitate the spread of the new sharing initiatives and practices. This shows how both the “sharing” and the “collaborative city” can profit from the first wave of smart city programmes and add value to the existing technology and social infrastructure.
- They demonstrate the power of big data. Portland has used the law and the taxes as an instrument to incentivise mobility companies such as Uber and Lyft to share their data with the city council. The understanding that access to these data can be highly beneficial for the city

should not be ignored.

- By organising events and introducing new practices at schools (e.g. sharing resources at school in Seoul) they create awareness about sharing, foster social cohesion and support behaviour change.



CONCLUSION

The aim of this report is to help to frame “The Bristol Approach to Citizen Sensing” by clarifying concepts and informing *commoning* strategies. To meet these goals Ideas for Change conducted field and desktop research. In this report, we organised a summary of our findings according to three chapters. The first one focuses on the commons, provides definitions and highlights into the need for governance protocols. The second chapter explores the right to contribute as a framing for the concept of “citizen-producer”, with its various contributive roles, motivations and rewards. It also discusses the need to provide infrastructures and support services that make common resources accessible, actionable and interoperable. Finally, the third chapter presents five case studies of sharing and collaborative cities: Seoul, Milano, Bologna, Amsterdam and Portland. From each case study we draw insights that shed light onto the ways in which cities are deploying sharing and *commoning* strategies.

This research suggests that *Commoning* is (i) a dy-

dynamic system of relations and rights, (ii) based on a social consensus / regulation (built on rewards and uses), (iii) that facilitates the emergence of contributory and creative behaviour (iv) for the creation and maintenance of a collective good.

Moreover, the findings presented in this report shed light on the crucial factors that need to be put into place for a commons-based system to successfully attract contributions and become sustainable. A bill of rights and duties that recognises the “citizen-producer’s” right to contribute to the city commons should comprise a governance protocol and a structure of incentives and limitations that can guarantee two things:

1. That altruists and optimists can develop contributive, autonomous and creative behaviours. That the conditional contributors (those who contribute only when they know that others contribute) have access to stimuli and are guaranteed that free-riders will not take over the programme.

These two conditions seem to be required to achieve the critical mass of contributors that is needed to build a sustainable system.

2. That a minority group (1%) can take responsibility over the commons with the support of the other minority group (9%). That the remainder (90%) has opportunities to develop a sense of meaningfulness and belonging.

Finally, we suggest that in the context of a *commoning* strategy, the processes and outcomes should be open, transparent, accessible and interoperable allowing others to derive value from them (possibly under equal conditions) and thus enabling an ecosystem of contribution and abundance.

A future in common



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A FUTURE IN COMMON

**Understanding and Framing
Commoning Strategies for Bristol**

BRISTOL CITIZEN SENSING PROGRAMME

Phase 2 / Deliverable 1

28-02-2016

**Ideas
for
Change**