

Predictive Tech in Scaling Material Urban Commons

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Abstract

Scaling Material Urban Commons is a speculative city-making project investigating automated logistics for commoning material urban commons, such as rescued food. It postulates that some forms of material commons require different forms of beyond-hyperlocal scale commoning. The project critically investigates and prototypes technological and sociotechnical conditions for city-wide commoning of material urban commons, using a predictive-algorithm-based system emulator that orchestrates pickup and drop-off of rescued food in Basel and London. Introducing predictive technology shifts the site of commoning closer towards an algorithm-driven platform, which raises following key questions: What frictions emerge from changing scale in commoning? How to reconcile predictive technologies with local, idiosyncratic food cultures? How to engage in commoning with algorithmic agents in participatory settings? By addressing these questions, the project aims at creating imaginaries of commoning-based smart city alternatives.

Body

Calls for not returning to the old normal after the pandemic strengthen the momentum for imagining and building convivial and commoning-based urban futures. Convivial approaches aim to prioritise tools, interactions, and systems that support people in their social endeavours instead of conditioning them to accommodate the logics of tools and technologies. Commoning promotes care-based approaches to negotiating and regulating the access and use of resources. While digital technologies as platforms for scaling knowledge commons (e.g. Wikipedia)

continue to be explored widely (Cila et al, 2020), how scaling the commoning of material resources (i.e. food, tools, spare parts) might be entangled with social practices, culture of specific urban environments, and digital technologies could benefit from broader investigation. This paper presents a new three-year research project exploring this space, titled ‘Scaling Material Urban Commons’, which speculates about the potential of predictive technology for reconfiguring urban logistics and infrastructures to enable city-wide commoning of rescued food. The project develops an algorithmic agent that triggers automatic pickups and deliveries of rescued food to households or micro-businesses through a series of co-creative workshops with local stakeholder and people with diverse relevant expertise such as urban computing, design, machine teaching. As a speculative city-making project, it aims to instantiate imaginaries of alternative algorithmic urban futures by appropriating the paradigm of predictive logistics currently driven by financial interests of the private sector for commoning material urban resources.

It's 2025. National regulators have cut the production and import of food with the highest impact on climate and biodiversity by 50%. As a reaction to the new scarcity, shops increasingly release food after their 'sell by date' for pick up. The logistical challenges of the brief time window until expiration, legal risks due to uncertain health and safety related regulatory requirements, and limited scalability due to idiosyncratic local entanglements in food culture, all contribute to deterring commercial players from commodifying the space of rescuable food. Apps listing locally available rescuable have been around for the last decade, but the randomness of items (a pack of cornflakes, two packs of ground coffee, a pack of rice cake, half pound ground meat, a croissant and a burrito) seldom match the cooking plans or ad hoc appetite of people in the immediate neighborhood. The bike courier cooperative PedalNow recognized covering a larger geographical area increases the likeliness to match rescued food with the right people, organizations or micro-businesses can be increased, and created the spin-off cooperative AI-Food Drop. AI-Food Drop has developed an automated system which uses ethically-sourced data—for example, people's movement, fridges content, and so on—and machine learning to identify and anticipate situated use value and match it with available food. Members of AI-Food Drop are people, organizations, and micro-businesses that provide and use the food. As cooperative members, they also negotiate among them and decide on use value, fair distribution and train the algorithms behind AI-Food Drop's automation accordingly. Besides involving an algorithmic agent into participative forms of commoning, identifying and generating the most relevant data remains a major challenge.

Urban commoning prevalently manifests in community garden projects, which are *hyperlocal* as the people who are engaged with the maintenance and use of gardens are mostly immediate neighbours. Digital commons, on the other hand, are *hypermobile* in a sense that their access and management is defined by digital geographies of internet access rather than physical geographies hard-wired in transport routes or logistical infrastructure. The research project aims at extending over urban scales defined by the considerable mobility of material commons. Mobile material urban commons in this context refers to things that can be transported between sites while their production, management, and use are governed by and embedded in site-specific commoning practices. The perimeter of geographical scale domains, however, is elusive: gardens, for example, are also embedded in larger logistical infrastructures of seed, soil, gardening material and both human and other-than-human inhabitants; digital commons cannot be dissociated from the material infrastructures of data centres or energy production. Scaling Material Urban Commons speculates that rescued food constitutes mobile material urban commons that occupy a scale domain between hyperlocal and hypermobile. The scale and boundaries (in terms of geographical, number geography, number of commoners, volume of commons, for example) of the system remain ambiguous, which the project aims to further explore.

The commoning movement often promotes localism to counter the hegemony of global capital imprinting itself in data-driven technologies, urban logistics and architecture. The Scaling Material Urban Common project's premise is that some forms of commoning require beyond-hyperlocal scales for meaningfully and feasible operation. With rescued food for example, if yoghurt becomes available in a hypothetical rescue bin, what are the chances, that on the same day someone in a close vicinity needs yoghurt or a micro-business is willing to adapt their meal plans as to use the yoghurt? Increasing the geographical area or the number of commoners increases the chances that someone will be able to make use of the yoghurt. While potentially enabling the coverage of larger geographical areas within tight time windows, predictive technologies enable academic explorations around the interplay between algorithmic anticipation of need for ingredients and the commoners' ability and willingness for adapting of cooking plans based on the system's deliveries.

Framing the scale for commoning mobile material urban commons needs to critically engage with scale-variant aspects of commoning and changes to the quality of commoning by scaling. The 'more of the same' type of scalability is a default requirement in the tech start-up world, as investment flows toward business models where the number of profit generating avenues

can be scaled up without scaling up the resources invested in the development and maintenance of a product or service. Solely progress-driven projects of scaling often require that products, services, plants, and labour force are removed from their original entanglements, and are (deliberately or out of ignorance) inhibited to form new situated relationships (Tsing, 2012). While proposing a beyond-hyperlocal level commoning, the project investigates strategies of incorporating idiosyncratic aspects of local food cultures in term of consuming food or using meal ingredients into the speculative automation of food drop-offs. Including a larger number of heterogenous endpoints into commoning also necessitates careful consideration about what may be appropriate criteria for defining boundaries of the commoning activities such as group size, geographical area, connectedness, types of food, and any number of criteria that emerge as relevant during the research project. Besides drawing new boundaries, framing the scale domain of commoning material urban resources with predictive technologies includes investigating scale-variant sociotechnics that cannot be transferred from local to larger-than-local scale.

Shifting the site of commoning to a data and algorithm driven platform (connecting food producers, shops, cooks and consumers) gives rise to following operational questions: How to determine situated use value from data and information? How to source relevant data? How to teach the algorithm as a commoning community? How to monitor platform behaviour and negotiate protocols for reteaching the algorithm? At the same time, involving ‘algorithmic creatures’ (Choi, Forlano and Kera, 2020) into participatory processes and gives rise to the question about how, instead of focusing on ‘looking inside systems’, to “looking across them—seeing them as sociotechnical systems that do not contain complexity but enact complexity by connecting to and intertwining with assemblages of humans and non-humans” (Annany and Crawford, 2018).

Scaling Material Urban Commons appropriates the current dominant logic of predictive technologies, which algorithmically enable extractivism and control, as well as exploitative gig economy mechanisms. The project is cautious of the risks of the project’s outcomes being reappropriated for commercial, extractivist projects, and thus includes in its research design continued observation of commoning-specific entanglements of technology and sociotechnics to explore potentiality of creating mechanisms with a ‘commoning lock-in’.

The project comprises of co-creative workshops on framing the scale of commoning with predictive technologies; insights of the workshop will inform the design of the speculative prototype running in Basel and London with local partner organisations (such as bike couriers,

shops, micro-businesses, etc). An exhibition will take place at the conclusion of the project, to showcase the outcomes of the project with diverse stakeholder groups, including the members of the public. Viktor Bedö is principal investigator of Scaling Material Urban Commons, Jaz Choi is a design research partner and member of the project's advisory board.

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