

Reflective ethnographic design of collaborative economy models using annotated portfolios

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Abstract. As the collaborative platform economy develops, network effects tend to create one dominant platform within each domain such as transport, reducing the power of workers to find alternatives. The research problem is to find a specific methodology that could enable researchers to draw on the experience of participants as workers and their wish to create ways of working that offer them greater power in the collaborative economy. Ethnographic studies can enable researchers to discover how workers make sense of their involvement in the collaborative platform economy and provide valuable data on how current business models and platforms can affect worker power. However, a wish to promote worker power implies a participatory form of research that aims to break down power relations between researchers and participants. This paper reflects on the methodological challenges of studying the collaborative economy ethnographically in order to develop new business models and platforms. Annotated portfolios, a technique used in human-computer interaction, offers the potential to enable worker experience to inform new business model designs. Researchers can use annotated portfolios to articulate latent designs in ethnographic data gathered from engagement with workers in the collaborative economy. In bringing these designs into existence, researchers can then contribute their perspective to a co-design process with these workers. Annotated portfolio techniques can thus help both researchers and workers to use ethnographic data to design new business models in the collaborative economy.

1 Introduction: worker power in the collaborative economy

Digital technologies enable sharing of resources on a scale not seen before, which Botsman and Rogers (2010) described as “collaborative consumption”. Collaborative consumption evolved into the collaborative or sharing economy, defined as ‘using internet technologies to connect distributed groups of people to make better use of goods, skills and other useful things’ (Stokes et al., 2014, p.

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10). With the rise of digital platforms in the 2000s, several writers have used the term “platform economy” to distinguish a growing trend towards monetization of the digital platforms that people use to communicate and increasingly to gain employment. Kenney and Zysman (2016, p. 61) define digital platforms as ‘multisided digital frameworks that shape the terms on which participants interact with one another’. Digital platforms can facilitate social media such as FACEBOOK, enable marketplaces such as EBAY or create new forms of business such as UBER.

In the platform economy, the main actors are the companies that own the platforms, such as UBER, AIRBNB or DELIVEROO; customers, who receive goods or services via the platform; and freelance workers who provide the goods or services on offer (De Groen et al., 2016). Freelance workers now perform a range of tasks in the platform economy that include transport, household repairs, information work and domestic service, but in doing so they take on the risks of self-employment while the platform owners take a steady commission from operating the platform (Smith and Leberstein, 2015).

The growing trend towards the platform economy is a concern, as workers don’t benefit from regular employment, they take on tasks as and when they are given them, responding to temporary offers of work via an app (De Groen et al., 2016). These platforms benefit customers as they can find the lowest price for products and services worldwide, but workers do not have the job security, opportunities for collective action or benefits that workers in more traditional organizations have. Although the Organization for Economic Co-operation and Development reports that the platform economy is less than 1% of the total economy (OECD, 2017), that proportion is growing rapidly. When goods or services are provided on a paid basis, employers hold far greater market power than workers, including unilaterally setting wages for each task (Kingsley et al., 2015). The issue of how platform firms can exert power over workers is an increasing problem for policy, as a platform can potentially replace entire industries or services. In the context of software production, the lock-in effect has been noted, where if a piece of software can gain enough market share, it gains further customers, complementary applications and eventually dominates the market (Bonaccorsi and Rossi, 2003). In the platform economy, these network effects lead to one platform becoming dominant, reducing the power of workers to find alternatives (Kenney and Zysman, 2016). The issue of worker power in the platform economy is the research context.

Worker power in relation to platform firms has mainly been limited to participating in online forums to share knowledge and experience. AMAZON MECHANICAL TURK, a crowdsourcing labor platform, has been the focus of a number of attempts to mobilize collective action by workers. For example, Mturk Crowd (2019) is a forum for workers to share tips on requesters for work, issues with “Turking” and how to operate the platform more effectively. Another thriving platform for collective action in the platform economy is Ride Share Drivers United (2019), which is a ‘rideshare advocacy group’, focusing on common issues experienced by drivers for platforms such as UBER and LYFT, where they claim that it is ‘only through large scale collaborative effort that we can send a strong message to the ride share companies’. Worker led forums can be a starting point to develop new worker-led business models in the platform economy, where designing these new models is the research problem.

2 Research problem: creating worker-led business models in the collaborative economy

A firm’s business model is generally defined in terms of how it creates and captures value (Shafer et al., 2005; Chesbrough, 2006; Zott et al., 2011), where Teece (2010, p. 179) offers the definition, ‘A business model articulates the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value’. Taking a more resource-based view, a business model can be framed in terms of how the firm uses both internal and external resources to create value that is differentiated from its competitors (Tapscott et al., 2000).

In the collaborative economy, firms have adopted business models that deliver a value proposition to the customer, who benefit from services such as transport at a reduced cost. These firms use the resources afforded by the Internet to create software platforms that link customers with freelance workers who provide these services. These workers are a vital resource to the platform firm, but are classed as independent contractors, with an uncertain income as a result. The Frankfurt Paper on Platform-Based Work (2016, p. 2) notes that workers as independent contractors in the digital platform economy are ‘typically excluded from the legal and social protections established for employees over the last hundred years’, and that ‘worker organizing has for decades been correlated with the economic

well-being of working people' (p. 6), calling for a 'co-operative turn', 'in which workers, clients, platform operators, investors, policy makers, and worker organizations work together to improve outcomes for all stakeholders' (p. 3).

A key issue is ownership, where Kenny and Zysman (2016, p. 66) ask the questions, 'Who owns or controls the platform?', 'How is value created' and 'Who captures the value?'. In co-operative forms of business model, workers are the owners, creating, capturing and benefiting from the value created by their work. Considering how research can contribute to creating new worker owned business models in the collaborative economy, this implies participatory methods that aim to change the situation of workers rather than just understand it. The research problem is to find a specific methodology that can draw directly on the experience of participants as workers and their wish to create ways of working that can offer them greater power in the collaborative platform economy. Ethnography is a technique that can enable researchers to gain valuable data on how workers participate in and make sense of the collaborative economy, but the challenge is how to bridge the gap between data and action. Ethnography as a design technique could help to bridge this gap.

3 Ethnography as a design technique

Ethnography is a research methodology that aims to gain a deep understanding of the experience of individuals and groups in their context through participant observation (Trochim, 2006), including how they make sense of their worlds (Silverman, 2007). Ethnography is generally directed by a theory or other frame of reference, but is open to other interpretations of the data (Alvesson and Skölderberg, 2009). Close involvement by the researcher is a key aspect of ethnography in gaining a rich understanding of the culture being studied, but carries the risk that they can "go native" (Alvesson and Deetz, 2000). Another issue with ethnography is that it is about observation leading to rich description (Easterbrook et al., 2008), rather than about change.

Creating new models and platforms in the collaborative economy implies not just observing how it currently works, but about promoting some form of change, which implies a participatory form of research. Action research as a form of participatory research aims to break down power relations between the researcher and participants, enabling the latter to change their situation and find alternative

forms of organizing (Cassell and Johnson, 2006). Changing the situation of participants from an existing to a desired state implies a design process, which links with participatory forms of action research (Cole et al., 2005; Light and Akama, 2012). Design is ‘concerned with how things ought to be, with devising artifacts to attain goals’ (Simon, 1969, p. 59), thus design is about an ‘inquiry into the ideal’ focusing on what is desirable but ‘not-yet-real’ (Nelson and Stolterman, 2012, p. 35). A starting point for how ethnographic data can become a design technique is offered by Barab et al. (2004, p. 254), who introduce the concept of critical design ethnography, which they see as ‘a process that sits at the intersection of participatory action research, critical ethnography, and socially responsive instructional design’. Implementing critical design ethnography starts with understanding the cultural context through rich description, as with other forms of ethnography, then making commitments to social change which are expressed in a design for potential action, which can be generalized beyond the original ethnographic context (Barab et al., 2004).

The methodology proposed in this paper builds on critical design ethnography to elicit business model designs from ethnographic study of workers in the collaborative platform economy. Annotated portfolios, a technique used in human-computer interaction, offers the potential to enable the experience of workers to inform new business model designs.

4 Annotated portfolios of ethnographic data as a design methodology

Ethnographic data from engagement with workers in the collaborative economy can offer not only a rich description of their current situation, but also embodies their hoped-for future, including a future where they as workers gain greater power. Taking a design perspective, the research process is thus about articulating these wishes and hopes as designs for new worker led business models. In this respect, the design process functions in the way suggested by Zimmerman and Forlizzi (2008, p. 44), where designers can create an artifact which ‘functions as a specific instantiation of a model – a theory – linking the current state to the proposed, preferred state’, in this case modeling desires for their future that are expressed by workers in the collaborative economy. The methodological challenge

is how ethnographic data can become part of a design process. Annotated portfolios are a technique that could help meet this challenge.

Originally developed in the context of classroom assessment (Yancey, 1992), annotated portfolios were first used in a design context to develop clinical treatment strategies in mental health (Lavori and Dawson, 1998). Annotated portfolios were then re-introduced in the context of human-computer interaction as a method that could bring together a number of artifacts and identify the aspects that were common among them through text annotations (Gaver, 2012; Bowers, 2012; Gaver and Bowers, 2012).

Annotated portfolios can also be helpful in bridging the gap between research and design, where the 'essence of research is to produce knowledge, and the essence of design is to produce artifacts' (Löwgren, 2013, p. 30). Annotated portfolios are an example of intermediate-level knowledge, in a space between 'particular artifacts, which are not abstracted at all' and the 'fully abstracted level of general theory' (Löwgren, 2013, p. 32). Other examples of intermediate-level knowledge include concept-driven interaction design research (Stolterman and Wiberg, 2010), which was then developed into strong concepts, or design elements which can be used in different contexts (Höök and Löwgren, 2012). In design terms, annotated portfolios can contribute to producing knowledge of 'what ought to be' (Gaver and Bowers, 2012, p. 42), thus they can contribute to change, rather than documenting what already exists. Annotated portfolios are not limited to material artifacts, Bowers (2012, p. 71) highlights that any 'material form can be considered for an annotated portfolio including an illustrated monograph, a scientific paper, a curated exhibition and so forth'. Despite this potential, there has been relatively little interest in annotated portfolios as a design technique.

Annotated portfolios were used by Hoby et al. (2013) to abstract key qualities from five design case studies, finding that using portfolio techniques 'preserves some of the complexity, richness and interrelation of the cases and thus yields a knowledge contribution that is more criticizable and appropriable for constructive design research peers' (p. 369). Kelliher and Byrne (2015) extended the use of annotated portfolios to collaborative documentation, focusing on a public design futures event that generated a vast amount of data. Annotation of first high-level categories such as Making or Discussion enabled the researchers to make sense of and organize this data, helped by then adding 'richer description, whereby annotation of participants, locations, summary details or thematic labels was

attached' (Kelliher and Byrne, 2015, p. 40). Frauenberger et al. (2016) link annotated portfolios with Actor-Network Theory where portfolios can enable a shared understanding of the activities and discourses that form a design process, which they identify as 'ideation, conceptualisation, prototyping, refining / testing and evaluation' (p. 134). In contrast, annotated portfolios enabled Barrass (2016) to offer a more general account of the knowledge embodied in a single artifact, the Hypertension Singing Bowl, where a portfolio approach enabled the author to 'identify interaction, perception, aesthetics and contemplation as important axes of the domain' (p. 72). Annotated portfolios as a form of intermediate-level knowledge have been suggested as a means for facilitating Research Through Design (Höök and Löwgren, 2012), that connects theory and practice (Frauenberger et al., 2016) and design with post-phenomenological concepts (Hauser et al., 2018).

Moving closer to the methodology proposed in this paper, Sauerwein et al. (2018) use annotated portfolios in qualitative analysis of interview data in a design context, adding to the five-step analysis method offered by McCracken (1988), claiming that this methodology offers more transparent analysis. Their use of annotated portfolios entailed annotating visuals of a completed design with interview data on the design process (Sauerwein et al., 2019). Repeating the process with multiple designs enables pattern recognition through comparing each annotated design. Analyzing interview data using annotated portfolios implies that analysis of ethnographic data could also use annotated portfolios in a design context.

There is thus potential to re-visit annotated portfolios as a method that can bridge the gap between artifacts and theory. The technique could thus be applicable to the design of business models in the collaborative economy, where the artifacts are ethnographic data from engagement with workers, annotated as a portfolio of business model designs. Analysis as an annotated portfolio can bring out the latent desiderata, or preformed desires, (Nelson and Stolterman, 2012) in the data, where categories of desiderata for design in an organizational context include (Gaver and Bowers, 2012; Stanford, 2007):

- functionality;
- aesthetics;
- practicalities;

- motivation for designing;
- culture;
- systems;
- structure;
- the people for whom it is intended;
- performance measures and processes;
- products and services;
- operating context;
- sociopolitical concerns.

Additional categories of desiderata in a business model context can include (Teece, 2010; Zott et al., 2011):

- revenues and costs;
- value creation;
- value capture;
- boundaries of the firm.

Annotated portfolios can enable researchers to engage with workers in the collaborative economy by offering potential business model designs based on ethnographic data on those workers. This engagement can be viewed as a co-design process.

5 Using annotated portfolios to co-design business models in the collaborative economy

As well as sharing experience and knowledge through online forums, workers have created their own platforms in the collaborative economy. Ride Share Drivers United (2019) have created ZicXoc Rides (2019) as an ‘app based booking system, designed to connect drivers with riders directly, enabling drivers to run a truly independent business, while offering passengers a better service for better value’. This alternative platform offers ride share drivers greater power in the platform economy to create their identity as an individual driver-led business rather than take on the identity of an existing platform. It could thus help to overcome the network effects that enable existing platform firms such as UBER to

become dominant in a specific domain, in this case transport. This and other alternative platforms suggest that there is potential to design niche worker-led business models in the collaborative platform economy. Annotated portfolios created from engagement with workers could contribute to the design of new business models that enable workers to gain greater power.

By adopting a co-design approach, researchers can draw on the potential for participants to offer their expertise, in this case of being a worker in the collaborative economy, together with their creativity, which can be on the levels of doing, adapting, making and creating (Sanders and Stappers, 2008). Researchers can first gather ethnographic data with workers through a software platform using participatory methods, then reveal the latent designs in this data by annotating it as a portfolio. These designs can be the starting point for a business model co-design process with workers, which can also use the software platform as a “third space” (Muller, 2007). Gathering of data on collaborative economy workers through a platform builds on previous initiatives by researchers such as Turkopticon (Irani and Silberman, 2013) that aimed to promote reflection and mutual aid for workers on the Amazon Mechanical Turk platform.

The design process using ethnographic and annotated portfolio methods can take place in these steps:

- (1) Identify a domain in the collaborative economy where a dominant platform reduces worker power (e.g. in transport).
- (2) Identify existing forums or other mechanisms that workers use to exchange knowledge and experience about working for that platform.
- (3) If there is not an existing forum to share experience, researchers can create one and encourage workers to join.
- (4) With the consent of participants, the informal collaboration by workers, as documented in the forum, can be collected as ethnographic data.
- (5) This data is then annotated as a portfolio of designs for the collaborative economy, using the business model categories of desiderata to guide annotation.
- (6) These business model designs can then be offered to workers through the forum for discussion and further development.
- (7) The researchers could also offer in-person workshops to enable other participatory design methods to be used.

- (8) When a feasible new business model has emerged from this co-design process, researchers can then collaborate with workers and with software designers to code a new platform to implement the model.

6 Conclusion

This paper first introduced the issue of worker power in the collaborative platform economy, where network effects have resulted in a tendency towards one dominant platform in each domain. These network effects reduce worker power in relation to platform firms, as they cannot bargain with the firm by withdrawing their labor. Workers in the collaborative economy are using online forums to share issues that they experience with the platform firms that enable them to gain work, a form of collaboration that enables workers to gain some collective power. A further development in gaining collective power is where workers have created alternative worker-led business models such as platform co-operatives that enable them to gain greater power in niche markets. However, the majority of workers in the collaborative economy continue to gain their employment through dominant platform firms.

There is thus potential for researchers to create new business models through engagement with workers on existing platforms in the collaborative economy. An ethnographic methodology can enable researchers to use online forums or a collaborative platform to engage with these workers to find out not only about their existing situation but also discover their wishes and desires for the future. Design is about bringing about a desired future, implying a design methodology, using ethnographic data.

This paper proposes a methodology for designing new business models in the collaborative economy, where annotated portfolio techniques can enable researchers to articulate latent designs in ethnographic data. These articulated designs can then be a starting point for a co-design process of new business models that can build on particular expertise or geographical knowledge of workers to challenge dominant platforms in niche areas of the collaborative economy.

The next step in establishing annotated portfolios as a technique that enables ethnographic data to contribute to a co-design process in the collaborative

economy will be to conduct empirical work to both test and refine this methodology.

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