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The digital labor of ethical food consumption: a new research agenda for studying everyday food digitalization

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Abstract

This paper explores how consumers' ethical food consumption practices, mediated by mobile phone applications (apps), are transformed into digital data. Based on a review of studies on the digitalization of ethical consumption practices and food apps, we find that previous research, while valuable, fails to acknowledge and critically examine the digital labor required to perform digitalized ethical food consumption. In this paper, we call for research on how digital labor underlies the digitalization of ethical food consumption and develop a conceptual framework that supports this research agenda. Our proposed conceptual framework builds on three interconnected analytical concepts—datafication, affordances and digital labor—that enable the study of digital labor as an infrastructural element of digitalized food consumption. We illustrate our conceptual framework through our previous research concerning Buycott, a US-based mobile app whose stated aim is to facilitate consumers' ethical purchasing decisions. Using the walkthrough method, we consider how the Buycott app engages user-generated data and what implications this holds for consumers. The app's infrastructure, we suggest, connects ethical consumption and digital labor. A richer understanding of the digital food economy, we propose, enables social scientists not only to elucidate how consumers engage in digital labor, but also to contribute to the development of new data governance structures in the digital food economy. We therefore call for social scientists interested in food, consumption and the digital economy to contribute to a new research agenda for studying everyday food digitalization by empirically examining how ethical consumption apps implicate ethical consumers' work.

Keywords Digital labor · Ethical consumption · Mobile phone app · Datafication · Affordances · Buycott

Introduction

Imagine you are shopping in a supermarket. You pull out your smartphone and begin testing a new ethical consumption app that you have downloaded recently. The app, Buycott, enables you to scan the barcodes of retail products and check if the scanned items are in conflict with your ethical consumption goals, one of which is avoiding companies that do not allow employees to form a labor union. As it happens, one of the products you intend to buy is not in Buycott's database. This means that currently there is no information available on this product. Luckily, you happen to know which corporation owns the company that produces this product, so you enter the information and some requested product information yourself. This information becomes part of Buycott's database, ready to be mobilized when another consumer scans a similar barcode.

What is revealed in this encounter between ethical consumer, smartphone, mobile app, food, barcode, supermarket and database? In this paper, we argue it is important to understand the human-data assemblages (Lupton 2018) that construct this event to grasp fully what happens in this seemingly mundane practice of digitally-enabled ethical food consumption. Building on and extending previous work on

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this topic (e.g., Fuentes and Sörum 2019; Hawkins and Horst 2020) we are conceptually interested in consumers' work, including practices such as uploading missing company and product information. We argue that previous research on the digitalization of ethical consumption, while valuable, fails to acknowledge and critically examine consumers' digital labor, which is required to perform digitalized ethical (food) consumption. By digital labor we refer to "formal (compensated) and informal (uncompensated) activities that take place in and through digital and mobile technologies" (Gregory 2017). In this paper, we focus on informal digital labor as an infrastructural, albeit mostly obscure, aspect of the digitalization of ethical food consumption. By attending to informal digital labor, our paper offers a new critical perspective on the relationship between crowdsourced data, ethical consumption, and corporate growth, and ultimately calls for further research on digital labor and everyday food digitalization.

We argue that it is particularly important to study the informal labor that enables and facilitates everyday food digitalization in the context of a rapidly expanding digital food economy. Citizens around the globe are increasingly living within a 'digital economy' or 'platform economy', in which large technology companies (e.g., Amazon, Facebook) are creating internet-based platforms that radically change how people 'socialize, create value in the economy, and compete for the resulting profits' (Kenney and Zysman 2016, second paragraph). In fact, 'the platform has emerged as a new business model, capable of extracting and controlling immense amounts of data' (Srnicek 2017, p. 6), enabling economic growth at a time of declining manufacturing profitability (Srnicek 2017). The food economy is no exception to this development (cf. Carolan 2020; Prause et al. 2020). Examples include the increase in precision or 'smart' farming, which utilizes sensory devices to collect agricultural big data, and the emergence of mobile apps that track users' caloric intake or promise to facilitate ethical food consumption (e.g., Bronson 2018; Didžiokaitė et al. 2017). These diverse examples illustrate how food and its production, distribution and consumption are increasingly translated into digital data. The collection of these data via digital platforms holds considerable value for producers (e.g., for business optimization) as well as consumers (e.g., for self-optimization).

Our paper's point of departure is that attending to everyday digital labor practices is crucial to understanding the inextricable interrelations between production and consumption in the digital food economy. Consumer-facing digital platforms are designed to enable or constrain situated and entangled practices of food, eating and datafication (Schneider et al. 2018). However, to date, very few studies have considered these practices in relation to informal digital labor. In this paper, we turn our attention to one specific form of food consumption—ethical food consumption—and explore how everyday practices mediated and facilitated by mobile phone applications (apps) are increasingly transformed into digital data. With this analytic focus, we conceptualize digital labor as an infrastructural element of digitalized food consumption. The aim of our paper is to develop a conceptual framework that supports our proposed research agenda to study how digital labor underlies the digitalization of ethical food consumption. Our proposed conceptual framework builds on three interconnected analytical concepts: datafication, affordances and digital labor, which we define and discuss in the third section of the paper. But first, to put these concepts and our aim into context, we review key literature on the digitalization of ethical consumption.

Ethical consumption and the prominence of apps

Consumers increasingly employ digital network infrastructures to facilitate ethical consumption practices. Ethical consumption refers to "any practice of consumption in which explicitly registering commitment to distant or absent others is an important dimension of the meaning of activity of the actors involved" (Barnett et al. 2005, p. 29). Over the past decade, digital media and mobile applications (apps) have gained prominence amongst consumers and have become key platforms for ethical food consumption. In recent work, scholars have analyzed digital food platforms as implicating care for both the consuming self and the producing/distributing other (e.g., Eli et al. 2018; Giraud 2018; Witterhold 2018). Within this body of work, ethical food consumption enabled by digital media is described as a form of 'digital food activism' (Schneider et al. 2018). Digital food activism aims to remap networks of food politics, production, distribution and consumption, transforming relationships between consumers and industrial and policy actors. However, emerging studies of this phenomenon highlight the complexities of 'apptivism' (Lewis 2018), drawing attention to the possibilities and limitations that app-based ethical consumption presents in a digital economy (e.g., Eli et al. 2016; Humphery and Jordan 2018).

To understand how ethical food consumption apps operate within the digital economy, researchers have started investigating 'appified culture' (Morris and Murray 2018), referring to "apps as sociocultural and political artefacts that are created and experienced in complex relationships and networks" (Lupton 2020, p. 2). However, to date, studies on ethical consumption apps have been limited, focusing on three key aspects: (1) the concepts of ethics scripted into apps (e.g., Hansson 2017), (2) the ways in which consumers deploy these apps (e.g., Hawkins and Horst 2020), and (3) how apps as 'consumerist mediator' reconfigure the

relationship between consumer and market (e.g., Soutjis 2020). We review each strand in the following sections.

In her study of ethical smartphone apps, Hansson (2017) conducted an "object ethnography" of three apps—the Fairtrade app, the GreenGuide app and the Shopgun app. Drawing on concepts of socio-technical "scripting", she describes how ethics is "built in" the apps, arguing these apps "work as ethical choice prescribers" (Hansson 2017, p. 104). While each app implicates a different script of ethical consumption, what they have in common is a socio-technical materialization of ethics as realized through consumer action (Hansson 2017, p. 117). Other studies arrive at similar conclusions and further analyze the kind of ethics built into the app and the ideal users configured through these ethics. For instance, a Swedish study of three ethical consumption apps (also focusing on the Green guide, the Fair trade app and Shopgun) shows that when consumers follow these apps' scripts as part of their everyday consumption practices, the apps "put pressure on consumers to be ethical" (Fuentes and Sörum 2019, p. 149). Yet, these apps also help to resolve this pressure, in providing information to consumers eager to manage the complexity of consuming ethically, thereby 'agencing ethical consumers' (Fuentes and Sörum 2019). Smartphone apps are thus understood as catalysts for consumers to become "a new type of economic actor with the agential capabilities required to operate in the ethicalized landscape of everyday consumption" (Fuentes and Sörum 2019, p. 149). However, an analysis of the ethical consumption app Buycott, which facilitates consumer-side boycotts and buycotts of retail products, problematizes the app's promotion of an individualized, commodity-centric activism that reinforces tenets of the neoliberal market (Eli et al. 2016). Humphery and Jordan (2018) argue that digital activism replicates the problematic fragmentation of contemporary activism; in other words, rather than providing an alternative model, digital activism utilizes platforms in ways that reinforce the erosion of collective action.

Research on digital activism raises important questions as to how consumers take up or reject the scripts of ethical consumption apps. As Hansson (2017) notes "[…], whether ethical smartphone apps become important market devices in shaping and promoting ethical consumption or not depends on if and how consumers use them or follow the scripts" (Hansson 2017, p. 118). Recent studies have started to explore how consumers employ ethical consumption apps in their everyday lives (Hawkins and Horst 2020; Sörum 2020). Crucial to this, as Hawkins and Horst (2020) suggest, is app design, which both shapes and limits users' actions and concepts of activism. Importantly, Hawkins and Horst (2020) draw attention to the laborious elements of app-based engagement with ethical consumption, and to the nuanced ways in which consumers deploy these apps. Such nuance, however, can run against the scripts upon which the apps' potential for ethical action is premised. This is illustrated in Fuentes and Sörum's (2019) analysis of the hybrid app-user agency implicated in ethical consumption apps, where following an app's scripts is essential to realizing one's agentic potential as an activist consumer. In this context, Sörum (2020) argues it is important to understand how consumers engage with ethical consumption apps that aim to assist with product choices and ultimately responsible consumption. Based on qualitative fieldwork in Sweden, he finds that "several respondents resisted ECAs [ethical consumption applications] because they did not provide a distinctive value, affirming the framings by spokespersons or contributing to users' identity projects" (Sörum 2020, p. 110). Moreover, many respondents in the user interviews Sörum conducted found the apps confusing and "the technologically advanced situation seemed to add perplexity to the decision-making process due to how the consumer interpreted the outcome of her product scanning" (2020, p. 107). In conclusion, the study finds that force of habit and conflicts with prevailing shopping habits and consumer norms pose key barriers for the acceptance of ethical consumption apps (Sörum 2020, p. 110).

The third, emerging strand of literature on ethical consumption apps attends to apps' role as 'consumerist mediator(s)' that reconfigure the relationship between consumer and market (Soutjis 2020). Analyzing the Yuka app, popular in France, that provides users with a health rating of food products, Soutjis found that the app enables users to intervene in markets, but that the potential for intervening "is related to the openness and collection of product data in the backstage of the market" (2019, p. 116). This attention to infrastructure is a novel contribution to the literature on ethical consumption apps. It shifts scholarly attention to product data, the laborious processes of data collection and the status of data. A similar shift toward infrastructure is found in a recent interdisciplinary paper, where scholars from computer science, information studies, and science and technology studies (STS) reflect on developing a healthy eating app based on Swiss retailers' loyalty program data (Schneider et al. 2021). Both studies foreground the datafication of everyday shopping and consumption practices and elucidate how consumers and apps become part of so-called data assemblages (Kitchin and Lauriault 2014) or human-data assemblages (Lupton 2018; see next section). This raises the question of how apps mediate between consumers and markets, in light of the reconfiguration of data assemblages and the digital economy (Schneider et al. 2021).

Taken together, while the literature has begun exploring how ethics are scripted into apps, how consumers deploy ethical consumption apps, and how apps mediate the relationship between consumer and market, it has yet to engage with the work that consumers do – their digital labor – when employing ethical consumption apps. In this paper, we argue

for attention to digital labor as a key part of consumers' everyday engagements with data assemblages, the digital economy, and the digitalization of food and eating. In the next section we propose a conceptual framework that supports this research agenda with the aim of studying how digital labor underlies the digitalization of ethical food consumption.

Conceptual framework: understanding the digital labor of ethical food consumption

Our conceptual framework builds on three interconnected analytical concepts: datafication, affordances and digital labor. This framework allows us to explore an understudied aspect of everyday digitalization, namely, how consumers actively contribute to the successful functioning of ethical consumption apps, while wielding influence on companies' reputation and sales in the process. In developing this framework, we are inspired by the concepts of 'prosumption' (Ritzer 2014) and 'digital prosumption' (Ritzer and Jurgenson 2010). Prosumption is a neologism combining production and consumption. Prosumption research integrates studies of production and consumption processes and practices. Ritzer and Jurgenson (2010) argue that prosumption is increasingly becoming central due to a sharp increase of user-generated online content (see also research on participatory web cultures, e.g., Beer and Burrows 2010). They suggest that "[i]n prosumer capitalism, control and exploitation take on a different character than in the other forms of capitalism: there is a trend toward unpaid rather than paid labor" (Ritzer and Jurgenson 2010: abstract). This development has been captured in research attending to the 'working consumer' (Kleemann et al. 2008; Rieder and Voß 2010; Hornung et al. 2011). Studies of working consumers capture how companies try to integrate consumers' productive labor power into production processes through consumer self-service. With Web 2.0 applications, more comprehensive modes of user integration have become widespread and, thus, an extended model of 'working consumers' has been proposed (Hornung et al. 2011). However, this is not a one-directional process and it is important to emphasize the interdependency and volatility of the relationship between digital prosumers and enterprises. As Rieder and Voß observe, "Web 2.0 is not just a tool for enterprises to put customers to work. It is also a powerful instrument in the hands of customers, which may significantly influence the image and turnover of enterprises" (Rieder and Voß 2010, p. 8).

The first analytical concept in our framework is datafication. By datafication we mean a "process by which subjects, objects, and practices are transformed into digital data. […] a logic that sees things in the world as sources of data to be 'mined' for correlations or sold, and from which insights can be gained about human behavior and social issues" (Southerton 2020, p. 1). Datafication is central to the digital economy as it enables the aggregation and analysis of big data sets for patterns (e.g., in behavior) that provide new business insights and, as a result, has wide-ranging effects on individual and social lives, beyond economic value creation. Following the data reveals and foregrounds so-called 'human-data assemblages' (Lupton 2018), that is, networks of humans, devices, software, data and more, which "highlight the distributed and dynamic nature of subjectivity and embodiment […]" (Lupton 2018, p. 5). Lupton's more-than-human approach resonates with critical data studies scholars, who emphasize that technical systems relying on data are always socio-technical systems that "are as much a result of human values, desires and social relations as they are scientific principles and technologies" (Kitchin 2021, p. 5). Sadowski (2019), who studies the political economy of smart technologies, has recently proposed that data are a form of (economic) capital rather than a commodity, as previous studies on the social, political and economic implications of data have assumed. He argues that an understanding of data as capital enables researchers to "better analyze the meaning, practices, and implications of datafication as a political economic regime" (Sadowski 2019, p. 1).

Our second analytical concept is affordances. Studying what technologies and artefacts afford – that is, what actions they enable and allow – is a common approach in STS and related fields. However, sociologist Jenny Davis (2020) has proposed a shift from *what* technologies afford to *how* they afford. She suggests that "asking *how* instead of *what* objects afford shows nuanced relationships between technical features and their effects on human subjects while accounting for creative and subversive human acts" (Davis 2020, p. 10). Davis has developed the so-called 'mechanism and conditions framework' to enable a focus on how objects afford (Davis 2020). By attending to the mechanisms of affordance researchers can examine how "technologies r*equest, demand, encourage, discourage, refuse* and *allow*" certain actions and social dynamics to take shape (Davis 2020, p. 11). Analyzing the conditions of affordances allow us to understand the relational nature of human-technology encounters: "The conditions of affordance vary by perception, dexterity, and cultural and institutional legitimacy" (Davis, 2020, p. 11).

Our third analytical concept is digital labor. Digital labor encompasses "formal (compensated) and informal (uncompensated) activities that take place in and through digital and mobile technologies" (Gregory 2017). Examples of compensated digital labor include click work done in people's homes and call-center work in large offices. Several researchers have pointed out that cheap computers and connectivity have drastically lowered the costs of some means of

production, creating an enormous potential labor pool. Studies of emergent forms of digital labor emphasize that digital labor has potential to challenge distinction between public and private, amplify online outsourcing through global platforms, challenge distinctions between production and consumption and lead to new categorizations (e.g., worker vs. self-employed, employee vs. independent worker) (e.g., Scholz 2013; Gregory 2017; Graham and Anwar 2018). However, digital labor, in both its compensated and uncompensated forms, also amplifies problematic working conditions and the unfair compensation of workers in the digital economy (e.g., Graham et al. 2017; Rosenblatt 2018). As Sadowski (2019) mentions, the issue of fair compensation is difficult to resolve, particularly where users produce data without being formally employed. After all, what would be a fair price for one's personal information? Nonetheless, he suggests two ways to judge: "(1) what kind of compensation, if any, is offered for data and (2) what is the difference between the compensation for data producers and the value obtained by data capitalists?" (Sadowski 2019, p. 8).

In our conceptual framework, we focus on unpaid, user-based digital labor. This includes activities that users themselves may not consider 'work', such as uploading a photo to social media, curating a public playlist on a streaming service, or posting about a recent dining experience on a review website. Whereas some researchers describe these practices as part of a participatory (media) culture (Jenkins 2006) with the potential for user input and collaboration, others warn about the exploitation of users as immaterial laborers who produce the "informational and cultural content of the commodity" (Lazzarato 1996, p. 133), thus essentially providing 'free labor' (Terranova 2000). In an overview of this debate, Postigo (2016) mentions a tendency to overcome such a dichotomous view on user-generated content (UGC) and points to approaches in new media research that analytically attend to "co-production, notions of the amateurs as entrepreneurs, attempts to theorize the political economy of Web 2.0 platforms, and work on understanding situated moral economies of meaning and participation [as] endeavors for reconciling critical perspectives with those that see UGC as empowering […]" (Postigo 2016, p. 334). Such analyses recognize the co-existence of 'work and play' while emphasizing the constitutive (but not deterministic) power of platforms.

Key to digital labor is the digital platform itself. In his study of gaming culture on YouTube, Postigo suggests that platforms are "architectures of digital labor" that seamlessly and invisibly straddle labor and leisure.

> The concept is used to show how technological features designed into YouTube create a set of probable uses/meanings for YouTube, most of which are undertaken as social practice. These same features, however, serve YouTube's business interests and so have created a set of affordances that allow YouTube to extract value from UGC and constitute its digital labor architecture. (Postigo 2016, p. 333)

Postigo therefore argues that all forms of cultural practice traversing through these architectures (shaped by algorithm and affordances) are similarly captured and converted to inventory and enter the organizational logics of platform owners, be they YouTube, Facebook, Tumblr, or Twitter.

We suggest that prosumption and digital activism could also be considered digital labor, as digital activism platforms are grounded in models of user participation through unpaid data generation. Yet, as Lindtner (2020) argues, digital labor on such platforms remains hidden, because "when users participate in digital platforms […], they are celebrated as entrepreneurial agents of content creation, remix, and even social movements, masking their transformation into co-creators of economic value behind a story of empowerment" (Lindtner 2020, p. 14). In this paper, we explore how capturing consumers' ethical consumption practices, converting them into datasets, and monetizing these datasets leads to this co-creation of economic value. In the next section, we draw on our previous research and discuss an ethical consumption app, Buycott, to illustrate and highlight how datafication, affordances and digital labor turn users' data into value.

Exploring digital labor on an ethical consumption app

Using the conceptual framework we describe above, we are inspired by 'the walkthrough method' (Light et al. 2018) to explore and illustrate how digital labor comes into being in the everyday workings of Buycott, an ethical consumption app, based on our published research. The method "enables researchers to identify the app's context, highlighting the vision, operating model and governance that form a set of expectations for ideal use. By walking through the app's registration, everyday use and deletion, this technique allows for recognition of embedded cultural values in an app's features and functions" (Light et al. 2018, p. 896). The authors suggest that the method also enables researchers to study how apps shape users' self-expression, relationships and interactions. In the illustrative example we present below, we use the walkthrough method to attend not only to the cultural values embedded in the app, but also to its 'techno-economic assumptions' (Birch 2017), which include claims making and the production of knowledge, as well as the staking of claims and the assertion of expertise (Birch 2017, p. 5). Our discussion of Buycott is informed by our long-term digital ethnographic engagement with the app and its

software updates since its launch in 2013. As we have argued elsewhere, long-term engagement with emerging, evolving and elusive digital technologies such as apps enables co-presence with digital platforms and their interfaces, devices, users and objects. It also provides important insights into the enactment of data assemblages and shifting accountability relations within these assemblages (Schneider and Eli 2021; Schneider et al. 2022).

The Buycott app

Based in California, Buycott is a private company whose barcode-scanning app promotes political participation via selective consumption. Using the slogan "vote with your wallet"[1], Buycott is premised on a logic that positions the app itself and the organization that developed it as mediators of political action, mobilizing both consumers and media support (Eli et al. 2018, p. 213). Users perform product boycotts and buycotts online through initiating and subscribing to campaigns. Each campaign is issue-specific, and themes include animal rights, civil rights, criminal justice, etc. Once a user initiates a campaign, others can click to join this campaign on the website or through the app. Subscribers are then expected to use the app to scan product barcodes. After each barcode scan, the app produces a 'family tree' of companies and parent companies, thus revealing to users whether the product belongs to companies they should either support or avoid, based on the campaigns to which they've subscribed (Eli et al. 2016).

Our research on Buycott began in 2013, shortly after the app's launch. At the time, Buycott's campaigns for the labeling of genetically modified (GMO) foods and against Koch Industries received considerable media coverage from prominent outlets, such as *Forbes* (O'Connor 2013) and *Wired* (2013). Interested in how Buycott might feed into everyday decision-making about food, we undertook a participatory approach akin to the walkthrough method described by Light et al. (2018). Having joined Buycott campaigns, we began using the app to scan retail products in our own homes. This offered us a first-hand experience of the app's scripts but also of its many bugs (e.g., the provision of unreliable or conflicting product data), generating further questions about how consumers were interpreting and using the app. Thus, in 2014, we shifted our focus to exploring how consumers understood Buycott's knowledge production and its ethical ramifications. Through analyzing user-generated social media posts and reviews, we found that many users did not engage with Buycott's participatory script, but rather viewed themselves as information recipients (Eli et al. 2016). This led to gaps between the app's vision and use in practice. And these gaps, we realized, did not reflect user (mis)interpretation as much as they reflected the app's "dynamic co-constitution, involving the triad of the news media, citizen-consumers, and the ICT platform" (Eli et al. 2016, p. 66).

Focusing on this triad, we developed a case study analysis of Buycott's most subscribed campaigns in 2014 – 'Long live Palestine' and 'Demand GMO Labelling'. We conducted a thematic discourse analysis of news media texts (published online, April 2013 to August 2014), user-generated posts (Buycott Facebook page, iTunes user reviews), and texts generated by Buycott's developers (Buycott's website, Facebook page, Twitter account). Through this, we analyzed how the multiple discourses within the triad of media, users and developers co-construct and constrain possibilities for consumer action, imbued with internal tensions and contradictions. For example, although the 'Demand GMO Labelling' campaign was aimed at boycotting companies that opposed a California law for GMO labeling, many subscribers expressed the belief that joining this campaign would provide information on which products contained GMO. Thus, we found that while Buycott's developers framed it as enabling 'voting' in supermarket aisles, users framed the app itself as an ethical commodity to be consumed, with media discourses hovering between the developers' vision and the consumers' interpretation – depicting the app both as a means of political participation, and as a product whose use indicated ethical allegiances.

As we wrote up our findings, new questions arose about Buycott's sources of funding, its plans for growth, and how user-generated data were used. We therefore approached Buycott's founder, Ivan Pardo, for a Skype interview in early 2017. Pardo provided us with responses concerning funds, as well as consumer and company reactions to the app, but did not specify plans for growth and future revenue. However, we felt the interview painted a sufficiently clear picture of Buycott at the time (Eli et al. 2018).

In 2019, when TS was preparing a talk which, in part, drew on the Buycott case study, we found that the Buycott website and mobile app had changed. A new tab appeared on the website: 'Barcode API'. Clicking on this tab, we discovered Buycott was now advertising its provision of "The world's largest UPC database", stating that "our comprehensive product API provides data for over **150 million products** from every corner of the globe" (emphasis in the original).[2] UPC refers to a Universal Product Code, a unique electronic identifier for retail products. Now offering paid plans, Buycott began selling access to this database: Plan Basic for $49 a month, Plan Developer for $99 a month

[1] Retrieved from: https://buycott.com (accessed 14 April 2022).

[2] Retrieved from: https://www.buycott.com/api (accessed 14 April 2022).

and Plan Startup for $499 a month. In other words, while consumers continued to use the app to facilitate ethical consumption, product data were also used as a for-profit product and an income generator for the app. The selling of product data, then, became central to Buycott's business model, though it is unknown whether and to what extent these data were being crowdsourced. As we recently reflected, "this blurs the boundaries between consumption and production, and one may argue that Buycott users provide free 'digital labor', typical of the digital economy (cf. Scholz 2013)" (Schneider and Eli 2021).[3]

What do Buycott users know about the digital labor upon which the app is premised? In 2014, Hawkins and Horst (2020) conducted the only study, to date, which examines Buycott user experiences. In this focus group study, participants who identified as ethical consumers were prompted to use Buycott and then provide reflections about using the app. Hawkins and Horst's (2020) participants felt that using Buycott to inform their everyday shopping decisions was labor-intensive. However, as the participants did not report generating data on the app, their knowledge about the digital labor required for the generation of user campaigns and product information on Buycott remained unexplored. Moreover, since 2014, Buycott went through a major change, as explained above, and is no longer just an ethical consumption app, but "The world's largest UPC database".[4]To understand what Buycott currently tells users about its business model, we opened a new account on the app. We discovered that when consumers sign up and create an account, the use of consumer crowdsourced data is neither clearly stated nor explained in the process (see Fig. 1 and 2). Although a link to 'terms of service' is visibly displayed (see Fig. 2), there is no 'agree' prompt, and consumers can sign up for the Buycott app without indicating they have read the terms of service. This is atypical, as other apps or websites request approval, often by ticking a box to acknowledge that one has read the terms of service and agrees to them, as part of the signing up process.

A look into the terms of service reveals that ownership and sharing of user content is explained in detail. For example, the subsection 'Rights in User Content Granted by You' states that

> "By making any User Content available through the Services you hereby grant to us a non-exclusive, transferable, sublicenseable, worldwide, royalty-free license to use, copy, modify (for formatting purposes only), publicly display, publicly perform and distribute your User Content in connection with operating and providing the Services and Content to you and to other Account holders."[5]

Terms of service may provide Buycott and other apps with legal protection. Yet the dry, legal language of terms of service – largely inaccessible, frequently unread – fades into the background compared with the emotionally evocative language used to promote Buycott in the media and on the company's website. Though Buycott now shares product data for revenue, consumers are still invited and mobilized to use the app as a means to ethical consumption. When users sign up to use Buycott, they do so as caring consumers. Ethical shopping is the main incentive behind users' data generation. Yet, consumers' crowdsourced product data, which formed the basis for the app's success, may have found an unexpected value in corporate contexts.

When Buycott was first launched, a key element of the app's affordances was to prompt users to contribute product data. Each time an item scanned by a user was not in the database, consumers received a prompt to enter product information such as brand name, company name and product name (a process KE documented in her fieldnotes, 29.11.2013). If users decided to do so, they contributed free labor. Users may not have perceived it this way, as they benefited from others entering product data, too, and were enabled to boycott and buycott as promised. Yet, in addition to the mutual benefit of crowdsourced data between consumers, the collected and aggregated data have gained value for Buycott, allowing it to establish itself as a reputable provider of a UPC database with global scope. In the current version of the app, when users scan a barcode of an unknown product, they receive an error message: "Sorry. We couldn't find that barcode in our database. Try searching for something else". However, the FAQ page on Buycott's website still claims that "much of the product data is crowdsourced" and features user-generated information as key to the app: "If you scan a product that Buycott doesn't know yet, fill out the fields and submit the new product"[6]. Moreover, the app's current version still prompts users to report inaccuracies about product and company information. Interestingly, the app also offers a new feature, linking product pages to 'affiliate partners': when users visit a product page, a shopping basket icon appears in the top right hand corner. Clicking on the shopping basket leads to an Amazon link and the following prompt: "Help keep Buycott free by shopping through our affiliate partners". As such, the app's affordances seamlessly blend users' positionalities, from

[3] Other forms of data collection might occur when using the Buycott website (e.g. tracking) or when using the app, as users need to log into the app.

[4] Retrieved from: https://buycott.com/api (accessed 14 Apri 2022).

[5] Retrieved from https://www.buycott.com/terms (accessed 20 January 2020).

[6] Retrieved from https://www.buycott.com/faq (accessed 14 April 2022).

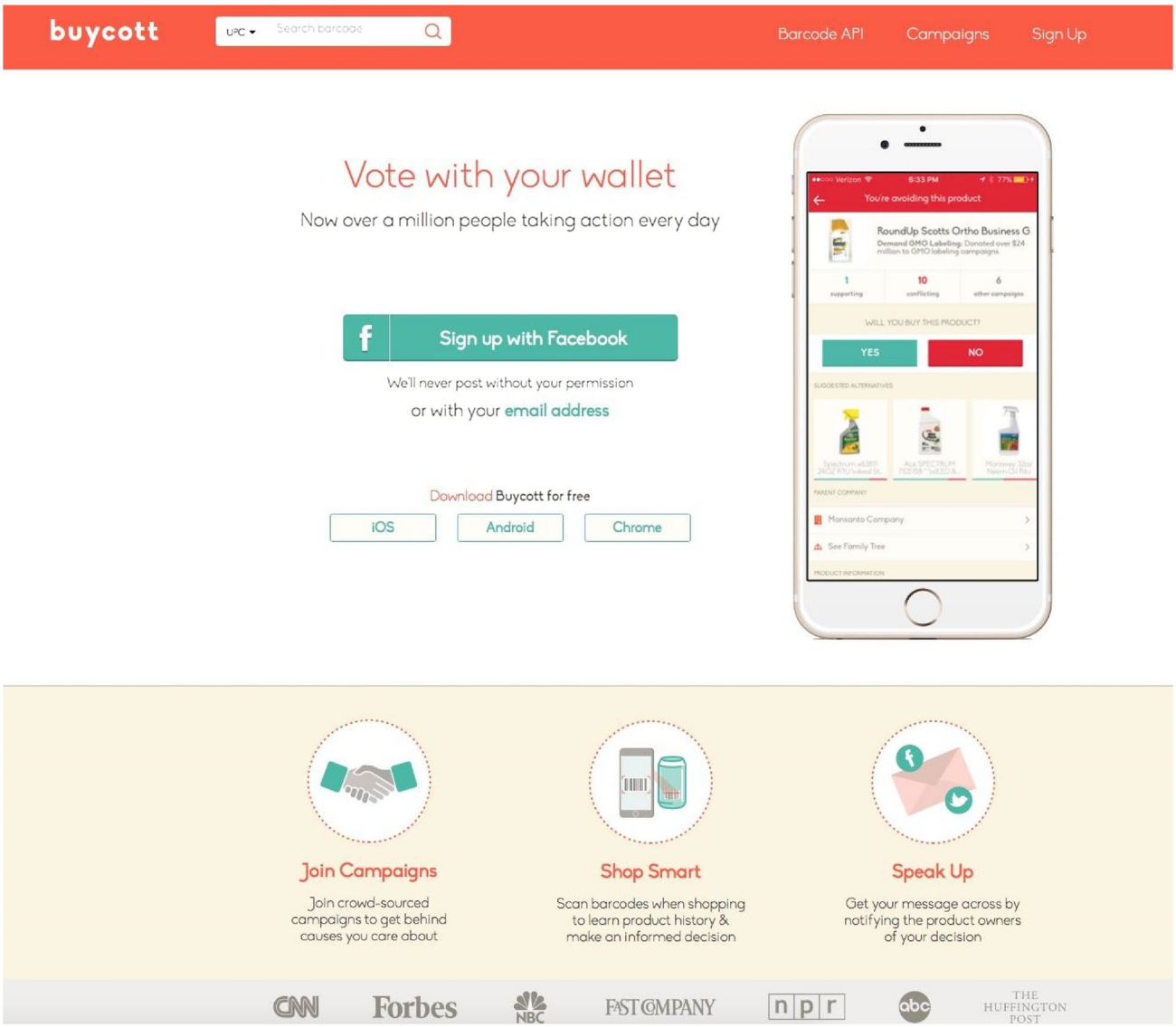

Fig. 1 Screenshot of the Buycott homepage (https://www.buycott.com, accessed 1 December 2020)

consumers to activists, campaigners, and data contributors, and back to consumers again—supporting Buycott through shopping on a multinational corporate website.

Discussion

Using our conceptual framework which builds on datafication, affordances and digital labor, we can develop an understanding of how ethical consumption apps build unpaid user labor into their digital infrastructures and business models. We see datafication at work when products are transformed into digital data as illustrated by the Buycott app, where the transformation of products into data is facilitated by scanning a machine-readable barcode on consumer goods. The barcode, a series of unique black bars, together with the unique 12-digit number beneath it, constitutes the Universal Product Code. UPCs makes it easy to identify the scanned product's manufacturer and the product's features, such as the brand name, item, size and color. This datafication process of translating food products into data has added new sources of value to Buycott and as such new tools of accumulation (Sadowski 2019). This is evidenced in Buycott's claim that the company holds "The world's largest UPC database"[7]. Access to this database is available through a subscription-based business model which guarantees monthly income streams for Buycott depending on

[7] Retrieved from: https://buycott.com/api (accessed 14 Apri 2022).

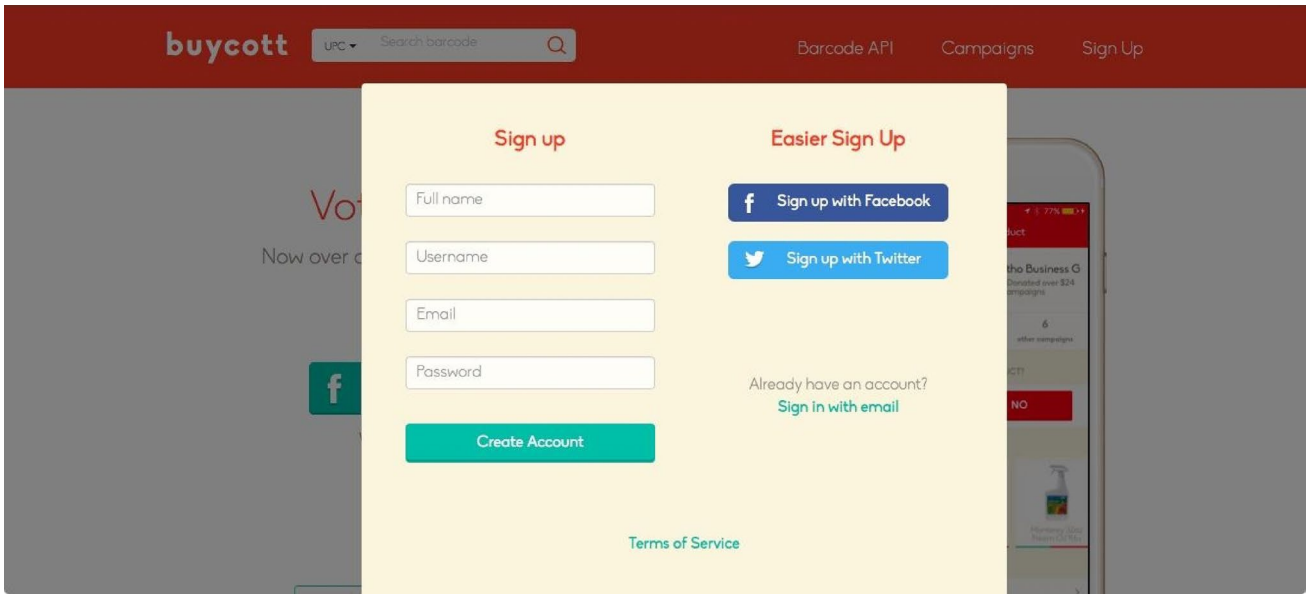

Fig. 2 Screenshot of signing up for Buycott (https://www.buycott.com, accessed 30 November 2020)

the chosen subscription plan. This use of data by corporate subscribers to build and maintain digital systems and services shows how an initial model of crowdsourcing product data through consumer interaction with the app has created value for Buycott, even if the crowdsourced data themselves are not directly monetized.

The process of datafication is facilitated by the app's affordances. Users opening the app find a prominently placed 'scan' icon that encourages them to scan product barcodes. The app's architecture, then, is centrally built around enabling the scanning of products, to inform consumers about the owner of the brand (family tree) or whether the scanned product is in conflict with any campaigns they personally subscribed to. Thereby, scanning reduces individual search cost and the app's affordance "allows certain action and social dynamics to take shape" (Davis 2020, p. 11). Although users can use the app without the scanning feature by simply exploring products already in the database and campaigns set up by other users, or by learning about recent actions taken, trending products or trending campaigns, the full activist potential is connected to using the scanning feature. Thus, we argue the affordances of the Buycott app enable and encourage a form of ethical consumption directly linked to the action of product scanning. We call for more in-depth empirical studies of digital platforms' affordances to study how these platforms encourage this or other types of digital prosumption.

It is the scanning of products, central to unlocking the full potential and insights of the Buycott app, that blurs the lines between prosumption and digital activism on the one hand and digital labor on the other hand. Users enter, share, and receive product data to discover which companies are linked to the retail products they buy. Yet, although company-facing information about API subscriptions is only a click away, the possibility that the data a user generates may translate into revenue for Buycott, either directly or indirectly, is not clearly conveyed in the app or on the company's website. This approach to data, though widely employed by digital media companies, seems out of step with the conscious consumption values Buycott actively promotes.

However, when Buycott users share data, does it count as digital labor, and is it necessarily exploitative? Critics might argue that we need to ask users before we make this judgment. Buycott users, like users of other digital media, may be savvier than we assume. Though they might not know precisely how their product data are being used, given public knowledge about how platforms such as Facebook monetize data, it is likely they realize that Buycott, as well, has something to gain from the data they contribute. However, our argument is not that users feel contributing data counts as labor, or that they see themselves as being exploited. Rather, we argue that through a particular digital infrastructure, a "socio-technical architecture of digital labor" (Postigo 2016), apps such as Buycott simultaneously construct users as knowing subjects (seeking/sharing product information) and 'working consumers' (Kleemann et al. 2008; Rieder and Voß 2010; Hornung et al. 2011) (laboring without realizing).

Buycott's affordances prescribe a dialectic of knowledge and non-knowledge. In registering to exercise conscious consumption, users also register to perform digital labor for the app. Informal (uncompensated) user activities such as uploading product information including brand,

manufacturer, country and more are, thus, simultaneously prosumption, digital activism and digital labor. As the example of Buycott illustrates, digital platforms facilitate data generation and the development of a comprehensive database that might lead to future revenue streams.

We suggest that the example of Buycott is illustrative of how contemporary food and eating practices increasingly rely on digital labor, often facilitated by digital platforms. However, we caution against both overly pessimistic and overly optimistic interpretations of this development. Instead, we propose that future research focus on how situated practices of digital platforms afford digital labor in everyday engagements with food.

Our call for further attention to digital labor ethical consumption, prosumption and digital activism is aligned with emerging work on reconsidering data governance. Recent overviews of data governance proposals suggest that future research and action should attend to issues of equality, sharing and value. For instance, Solomé Viljoen's (2020, paragraph 7) proposes a focus on data egalitarianism, suggesting that "rather than proposing individual rights of payment or exit, data governance should be envisioned as a project of collective democratic obligation that seeks to secure those of representation instead". Micheli et al.'s (2020) review of four emerging models of data governance, i.e., data sharing pools, data cooperatives, public data trusts and personal data sovereignty, suggests that these should be considered according to the function of the stakeholders' roles, their interrelationships, articulations of value, and governance principles. We join these calls for a reconsideration of data governance, and suggest that research into ethical consumption apps and digital labor might provide a useful lens on these issues.

Conclusion

In this paper, we explored through the illustrative example of the Buycott app, drawing on our previous research, how an ethical consumption app engages users in digital labor. Through investigating the app's affordances, we found that although the app prompts users to contribute digital labor in the form of barcode scanning and correcting product information, as part of crowdsourcing and sharing data, the potential dialogue between these data and the app's current venture—a UPC database with fee-paying corporate subscribers—remains unclear. The app, therefore, blurs the boundaries between participation and labor, simultaneously constructing users as knowing subjects (seeking/sharing product information) and non-knowing working consumers (laboring without realizing).

Our paper contributes a conceptual framework and proposes a research agenda to explore and understand ethical consumption in the digital food economy, by elucidating how ethical consumers engage in digital labor on platforms and apps for digital prosumption and digital food activism. We suggest further research is needed to address the question we raise in our article: how do intermediary digital platforms facilitate digital labor (as part of the everyday digitalization of food) and how could this potentially be governed? Such future research has the potential to shed further light on the design of digital platforms and on how the affordances of these platforms enable or encourage a specific type of consumer, including digital prosumers and activists. These studies also have the potential to examine and reflect upon how work and leisure are no longer separate spheres and how mundane digital interactions monetized. We particularly call for future research to address automated data collection, where participation in digital labor becomes less laborious, or, at least, perceived as less laborious by consumers as they are less actively involved in the process.

We situate our call for further research vis-à-vis the growing challenge of citizen-consumers' participation in the digital economy. Future studies of situated digital labor practices can elucidate how platforms' affordances enable and constrain actions and social dynamics that foster or hinder specific types of digital participation. Ultimately, such studies may contribute to the development of new data governance structures, crucial in addressing the issues raised when ethical consumption becomes digital labor.

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Declarations

Conflict of interest TS declares that she has no conflict of interest. KE declares that she has no conflict of interest.

Ethical approval This article does not contain any studies with human participants performed by any of the authors.

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