Version of Record: https://www.sciencedirect.com/science/article/pii/S096969891930596X
Manuscript_8733bc9f43b2c01c96ce8c54b964d08b

E-retailers and the engagement of Delivery Workers in Urban Last-Mile Delivery for Sustainable Logistics Value Creation: Leveraging Legitimate Concerns under Time-Based Marketing Promise

Ronan de Kervenoael, Department of Marketing, Rennes School of Business, Rennes, France.
ronan.jouan-de-kervenoael@rennes-sb.com
Alexandre Schwob, Department of Marketing, La Rochelle Business School, La Rochelle, France.
schwoba@excelia-group.com
Careen Chandra, Birmingham University, Singapore Institute of Management (SIM), Singapore.
CXC629@student.bham.ac.uk

E-retailers and the engagement of Delivery Workers in Urban Last-Mile Delivery for Sustainable Logistics Value Creation: Leveraging Legitimate Concerns under Time-Based Marketing Promise

Abstract

This paper's research aims to understand how e-retailers can benefit from independent contractors' (delivery drivers') agile engagement under time-based marketing promise (TBMP) to advance sustainable logistics value creation in the urbanised last-mile-delivery (ULMD) environment. Our analysis of independent drivers' narratives (n = 30) reveals that sustainable logistics value can be apprehended through a process in which independent workers are both agenced by their leveraging of technologisation and task autonomy and concerned by the mobilisation of other ULMD stakeholders. They thus can propose novel, creative solutions for e-retailers and city planners towards sustainable logistics value creation.

Keywords: last-mile delivery, time-based marketing promise, technologisation, independent contractor, urban space

1. Introduction

The wheels of retailing are rotating at an extremely high speed (Hollander, 1960, de Kervenoael et al., 2018). As a result, the global e-delivery retailscape is increasingly characterised by immense complexity, including global reach vs. local sourcing; de-centralisation; use of third-party providers; and universal use of just-in-time, cost-efficiency-oriented technologies (Hossain et al., 2019; Ted Lirn et al., 2018; Vyt et al., 2017). This state-of-the-art system relates to the challenges associated with urban last-mile delivery (ULMD) (Hübner, Holzapfel, and Kuhn, 2016; Hübner, Kuhn, and Wollenburg, 2016; Jeanpert and Paché, 2016; Martín et al., 2019). It is characterised by systemic fragility, as indicated by the on-demand model's volatility, lack of stocks, intensified need for innovation, and the ultra-competitive environment subject to non-classical retailers (e.g. people to people [P2P] marketplaces). This has all led to an obsession towards being customer centric (Abushaikha et al., 2018; Piotrowicz and Cuthbertson, 2019). E-retailers thus seek sustainable logistics value creation because it enables them to achieve competitive advantage while acceding to

customers' expectations and participation (Ruiz-Real et al., 2019; Wang et al., 2019). Within this endeavour, retail externalities ought to be further considered to foster new business models that create sustainable value (Bahn et al., 2015; Caro et al., 2019).

In discussing the complex nature of e-retail logistics within ULMD, this paper contributes to the retail literature on logistics value creation by eliciting how the work accomplished by independent delivery contractors informs the modalities of sustainable logistics value creation when reinforced by marketing time constraints.

Thirty semi-structured interviews were conducted with independent delivery contractors who all operate on behalf of large e-grocery retailing operations in Singapore. Narratives were analysed following a practice-spatial approach (Fuentes et al., 2017; Saskia et al., 2016). This reflects the human and spatial constraints faced in the ULMD and their impacts on both technological and non-technological resources within a clearly defined time-based marketing promise (TBMP). TBMP refers to an emerging practice in e-retail that promises consumers that the delivery lead time of their orders will occur at a specific short time frame (e.g. one hour in this study) that is counted from when the order is sent to when the consumer receives the order. The analysis uncovered how through TBMP as a market-driven practice, independent delivery contractors become *agenced* and *concerned* by the creation of sustainable logistics value in retail. This presents independent contractors as dependable agents able to recognise and appreciate the conditions and modalities toward the attainment of sustainable logistics value in e-retail.

The concept of time and timeliness in retail, marketing, and, specifically, logistics is traditionally associated with enlarged automation that increases fulfilment productivity and aims to reduce order-to-dispatch time and errors (Bressolles and Lang, 2019; Xing et al., 2010). Technologies are seen as paying an increasing role from enterprise resource planning (ERP) systems, testing of drones, click-and-collect shopping, facilitating dedicated time slots, real-time data analysis, and real-time pricing to smart lockers, etc. (Capgemini, 2019; Fernie and Sparks, 2019; Yuen et al., 2019). Although the definition of an independent contractor varies and is beyond the scope of this paper (Kelly, 2018), independent contractors represent the embodiment of a more flexible, independent, and agile workforce within what is termed the gig economy, where punctuality is an important dimension. Accordingly, how to create value between e-retailers' technological optimisation, gig economy workers' skills, and consumer engagement is sought-after knowledge (Grönroos, 2000, 2009). Specifically, this study thus aims to answer the following question: How does a TBMP influence the work of independent delivery workers toward sustainable retail logistics value creation? In particular,

what role do technologisation and delivery workers' task autonomy play in this process? Technologisation, in this paper, refers to the ongoing introduction of more or less sophisticated technology into every aspect of social life. It encourages all market actors to reconsider their and others' engagements in technology, and this reflects how ubiquitous technologies are problematised in daily practices.

The remainder of the paper is organised as follows: in the theoretical background, we provide a summary of current research on e-retailers' logistics value creation in relation to time pressure and sustainability issues. We then justify why practices related to technologisation and task autonomy are considered central aspects towards sustainable logistics value creation. In contrast to traditional e-retail settings in which time management is often considered linear, advanced time-based marketing promise (TBMP) as a market-driven agencing practice is considered here as an indispensable condition to appreciate the novel and emerging dynamic drivers of e-retail sustainable value creation within ULMD. In the third part, the methodological choices and the sample on which our analysis rests are justified. Findings underlying the significant socio-cultural understandings taking place within the ULMD are then presented, and the paper concludes with the theoretical and managerial implications of the findings.

2. Theoretical background

2.1 E-retailers' logistics value creation process, time pressure, and sustainability within ULMD

E-retail's value creation encompasses a wide variety of activities, actors, and spatial attention (de Kervenoael et al., 2018; Galipoglu et al., 2018). These include considerations such as retail format, service levels, regulatory constraints, and types of customers. Furthermore, along the development of technologies, it also includes the growing importance particularly given to logistics (de Kervenoael et al., 2016; Halldórsson et al., 2019; Yanik et al., 2014). Over the last decade, dramatic progress has been made in e-fulfilment, which echoes progress related to technological innovation (i.e. vehicle routine optimisation). This progress needs to occur both within and outside of the firm, in what is often presented as the most critical part of the delivery process—the last-mile delivery (Bates et al., 2018; Hossain et al., 2019; Hübner, Kuhn, and Wollenburg, 2016; Jeanpert and Paché, 2016). ULMD is indeed often considered as "one of the most expensive, least efficient and most polluting sections of the entire logistic chain" (Gevaers et al., 2011, p. 56). Indeed, situations related to consumers themselves (e.g. incorrect customer address given, customer's unavailability for receiving the

package, or random order cancellations or returns) and urban conditions, such as weather and accidents, are now the main cause of delays (Gonzalez-Feliu, 2018; Yuen et al., 2018).

Over the last decade, retailers have worked to optimise logistics for consumers (Andreu et al., 2010; Gawor and Hoberg, 2019). In an increasingly technologised environment, numerous logistical activities linked to value-creation practices have been identified as contributors to sustainable e-retail strategies, including consumer reviews and ratings, added convenience offerings (e.g. smart lockers), reverse logistics, and services that bring packages an extra few steps within the consumer's reach (Sinkovics et al., 2018; Wang et al., 2019; Yuen et al., 2019; Yuen et al., 2018). Thus, logistics value is now considered to encompass the unspoken socio-cultural aspects of service. In doing so and by moving away from mainly cost-based logistical consideration (Larke et al., 2018; Vakulenko et al., 2019a, 2019b), logistics value should also be appreciated as both a driver and target of time manipulation and acceleration (Rosa, 2013). This justifies novel time management practices in which externalities that arise can now be leveraged towards more focused sustainable logistics value creation and can move away from ad hoc sustainability marketing campaigns (PwC, 2018; Ranieri et al., 2018). In this study, sustainable logistics value creation is seen as retailers' services delivery sustainability and represents what is effective and efficient in time and space. Sustainability reflects the allocation of resources along organisational logistics that allows for negotiating risks and opportunities associated with economic, environmental, and social developments. It essentially includes the minimisation of pollution (environmental and spatial) and waste and the attainment of benefits in terms of individual and collective well-being (see also Jones et al., 2011; Yang et al., 2017).

Pinpointing smaller and more manageable topics where significant differences can be made (e.g. promoting women's health and saving materials, energy, and water) is now recognised as offering sources of competitive advantage (Ruiz-Real et al., 2019). Indeed, sustainable logistics value in its own right as an agenda that mobilises multiple actors in the retail value network is documented as central to the development of smart cities, autonomous electric vehicles, and ride sharing in e-fulfilment (Dameri and Rosenthal-Sabroux, 2014; Lin, 2018). Dedicated sustainability-focused e-retailers are now required to find a balance between market demands and consideration of the increasingly busy arena of urban stakeholders' expectations within daily operations (Ruiz-Real et al., 2019). Taken together, in the current context, e-retailers, as involved urban actors, need to be further engaged in broadening the socio-cultural options available to shape the sustainability of logistics value creation (Ramaswamy and Ozcan, 2019). In ULMD, these socio-cultural orientations

address, in real time, metropolises' dynamics, and they increase supply network robustness, flexibility, and agility within customer-centric strategies (Melacini, et al., 2018; Vurro et al., 2009).

2.2 Technologisation and task autonomy as vectors of e-retailers' logistics value creation

The optimisation of e-delivery to lower costs encourages the integration of multiple resources, especially when waiting time becomes the most salient aspect of service quality (Balaji and Roy, 2017; Nguyen et al., 2018, 2019) and consumers have been shown to readily pay more for timely deliveries (Fisher et al., 2016; Joerss et al., 2016). Under strict TBMP, the importance of wider retail stakeholders' embeddedness (i.e. the way to mobilise "actors", including humans and non-humans), who work conjointly in the logistics value creation process as a network, not a chain, has become central (Storbacka et al., 2016). This relates to the fact that e-retailers can neither fully control independent contractors, unlike traditional employees, nor urban dynamics. Interestingly, even within this new setting, ubiquitous technologies (technologisation) and its impact (or lack of) on operators (e-retailers, independent contractors, and wider urban stakeholders), in practice, still strongly shape capabilities and the possibility for individuals to rely on what is called task autonomy (Waseem et al., 2018). Task autonomy is defined as "the degree to which an individual is given substantial freedom, independence, and discretion in carrying out a task, such as scheduling work and determining procedures to follow" (Langfred and Moye, 2004, p. 935). It has been found task autonomy fosters engagement and raises performance when workers' tasks require creativity and real-time adaptability (Kalleberg and Dunn, 2016) or when they can benefit from information asymmetries (Langfred and Moye, 2004). This, by extension, reflects the experiential view of multiple actors' participation in shaping tangible benefits and reducing transaction costs (Carbone et al., 2017; Echeverri and Skålén, 2011). Yet, in most research, the arguments about the multiple paths towards sustainable logistics value remain at the retailer or consumer levels. Moreover, the influence of intermediary actors such as independent contractors, who are non-institutionalised, part-time, short-distance, local, and occasional drivers, has been overlooked (Caro et al., 2019). Still, for these operators, who are often depicted as low-skilled, low-wage, and sometimes zero-hours contract workers, easy access to technologies via smartphone freeware and easy training (e.g. YouTube tutorials) is important for them to both accomplish their delivery tasks and create innovative solutions hence, supporting logistics value (Ewen, 2018; Heller, 2017).

Accordingly, we argue that the role of technologies in conjunction with operators' agency related to task autonomy should be better considered to reveal the conditions that are needed for more sustainable logistics value creation. Technological practices beyond e-retailers' provided hardware and software are considered relevant to reveal independent contractors' broader capabilities and how these can be used to capitalise on e-retailers' e-fulfilment strategies under the new time-based marketing practices. In turn, independent contractors' mobilized capabilities beyond retailers' proprietary technologies by expanding the role of experiential, relational, dynamic, spatial, and temporal dimensions in the value creation process (Waseem et al., 2018).

2.3 Time-based marketing promise (TBMP) and the production of agenced and concerned retail stakeholders that meet the challenges of a sustainable logistics value

Time-based marketing promise (TBMP) is the name we associate with an emerging practice in e-retail in which digital marketers and e-retailers guarantee a specific delivery lead time i.e. completed delivery at a specific short time frame (one hour in this study) to the consumer (Stuart Research, 2016; Lomas, 2017). As a traditional concept in retail, time management refers to the idea that time is limited and to increase revenue, it must be managed effectively (Hagberg et al., 2016). It relates to marketing concepts including not only seasonality patterns, promotions, events, peak time, and opening time but also manipulating time perception in stores through atmospherics (Fernie and Sparks, 2019). With the advent of digitalisation, time management now includes tools from click-and-collect, dark stores, storage and collection points to robots and autonomous vehicles. These evolutions are directly linked to costs (e.g. stock), inventory turnover, and productivity of the bottom line (Capgemini, 2019). Time expectation influences shopping practices, consumption, channel trust, retailer loyalty, and repeat purchases in a marketplace crowded by competitors only a click away (Acimovic and Graves, 2017; Bernon et al., 2016).

In ULMD, negotiating time is now perceived as a decisive source of competitive advantage; yet, further research is necessary to appreciate how time can serve as a valuable tool to delve deeper into the sustainability of today's retail logistics value creation processes and to increase revenue (Fisher et al., 2016). TBMP as a tool to analyse logistics value creation stresses the idea that with advanced technologies, the mobilisation of intense time pressures encourages actors to identify apt behaviour and actions to achieve service promises (Grönroos, 2000, 2009). These behaviours are reliant on all actors, such as the "customer himself or herself and network partner employees," (Grönroos, 2009, p. 355).

The socio-material perspective of markets' construction (Kjellberg and Helgesson, 2010; Shove and Araujo, 2010) further allows framing the conditions and modalities of the sustainability of the logistics value, filtered, in our case, via TBMP. To interpret these, the open and collective procedures of market building along *market agencing*, a process that provides the means to better address political creativity, innovation, and dissembling/reassembling market issues and matters (Cochoy et al., 2016), can be used. By leveraging the often-overlooked independent contractor's perspective to appreciate the stakes associated with sustainable value creation, studies have shown the value in considering the dual process of agencing and concerning, a phenomenon that is evident in the TBMP (Stigzelius, 2017).

Further and regarding the importance of time management, in co-functioning as a whole, the socio-material arrangements (including open effects produced by technologies) encourage independent contractors to become equipped and engaged, that is, agenced. When agenced, one is profiled and experiences ambivalence and uncertainty about how to properly act to create outcomes of value (Connolly and Prothero, 2008; DeLanda, 2016). Therefore, technology is also an agentic actor component. This has resulted in expressing *concerns* as "those things and situations that—for better or for worse—are related to us, can affect us and worry us" (Geiger et al., 2014, p. 2). Independent contractors could thus develop the capacity and willingness to embody experiential interaction as constitutive relationships with these concerns that represent important progress toward sustainable logistics value creation. As concerned entities, independent contractors aim to enhance and extend both personal and organisational capabilities. In this research, the agencing and concerning processes provide a sensitizing framework in the ongoing enactment of temporal promises that create value in the ULMD.

3 Methodology

In this paper, we consider that TBMP serves as a case study to support a deeper and more detailed investigation into the stakes at play in e-retail sustainable logistics value creation. Case studies are recommended for contemporary events that are unfolding and bounded by time, multiple actors, and activities (i.e. "a program, an event, an activity, a process, or one or more individuals" (Creswell and Creswell, 2017, p. 15). It is an appropriate method when the boundaries between phenomenon within its real-life context and the context itself are not clearly evident (Yin, 1981). The unit of analysis in this study is represented by individual independent contractors delivering for large e-retailers in Singapore.

We relied on a purposive sample of 30 independent contractor delivery workers with whom we conducted in-depth semi-structured interviews. By virtue of their capacity, they provided richly textured information that allowed the unfolding of novel understanding. All are currently working for major e-retailers under conditions tied to TBMP (i.e. one-hour delivery promise from ordering to delivery to the consumer) (see Table 1). This sample of relatively homogenous individuals was deemed appropriate to reflect and manage the complexity of the analytic task, and the number of respondents was guided by the criterion of information saturation and redundancy (Lincoln and Guba, 1985).

Singapore, located within Asia, was chosen because it symbolises the birth of many technological trends and practices within a densely populated urban environment (Singapore Economic Development Board, 2018). E-delivery there is expected to reach S$10 billion by 2020 (Singapore Business Review, 2017), even though estimates have put the rate of first-attempt delivery failure at 7.6 percent and rising to 16.2 percent at the second attempt (Choo, 2016; Wang et al., 2019). Furthermore, independent contractors are in relatively short supply; thus, technology support is required in all areas of work (Fuei, 2017).

Construct validity in the survey instrument was ensured by linking the semi-structured interview questions to the theoretical framework and main research questions. A pilot study was conducted with five independent delivery workers who each had more than five-years' experience and had worked under different time constraints and e-retailers (they were not part of the 30 analysed narratives). Technologies mentioned by respondents included e-retailers proprietary listing systems and apps (e.g. on-the-road navigation systems, delivery information acquisition apps, scheduling apps, logging data, tracking technologies, and parcel QR codes) along with a myriad of open source systems, such as Google Maps, WhatsApp, emails and texts, cities' transport warnings, and weather apps. In the interview guide, questions were related to the ways the use of technology changed work practices, thus echoing the concept of agencing and concerning. Questions included, for example, what do you think of the marketing time delivery service promise by (name of the company) in Singapore? What are customer's expectations (understanding) of such a delivery time promise? Can you elaborate on issues (physical, managerial, social, technological) impacting the way you move goods under such time constraints when delivering in an urban environment? How do you reconcile these new time demands with your usual delivery work?

Interviewees were approached in different resting places (five different places representing five main e-retailers' logistical settings), including cafeterias, and buffets, where they were waiting for their next job close to e-retailers' warehouses. The interviews took

place over a coffee within the facilities in a quiet corner with a reserved table and chairs. Reliability was achieved through systematic recording and transcription of all interviews. Triangulation of data was achieved by using the top five e-retailers providing a one-hour delivery promise in Singapore (see Table 1). These e-retailers deliver products from grocery to non-food items that can be found in an average supermarket setting. All other independent contractor conditions (using own vehicle, smartphone, etc.) provided by the e-retailer were observed as similar. To qualify as a valid respondent, each interviewee had to have over two-years' experience as an independent delivery contractor (all ranged from two to eleven years) and to self-declare that they had worked under the one-hour rule for over six months (Bansal and Corley, 2011; Gioia et al., 2013).

In analysing the data, we systematically leveraged an approach that "allows for a systematic presentation of both a '1st-order' analysis (i.e., an analysis using informant-centric terms and codes) and a '2nd-order' analysis (i.e., one using researcher-centric concepts, themes, and dimensions; for the inspiration for the 1st- and 2nd-order labelling, see Van Maanen, 1979: 542)" (Gioia et al., 2013, p. 18). This represents iterative steps between empirical data and theoretical constructs. Agencing and concerning processes successfully allowed structuring the analysis of the empirical narratives. The transcribed material was then manually coded based upon empirical themes that emerged from the data, which gradually moved from first-order concepts to second-order themes (Gioia et al., 2013). This operation was done following Spiggle's (1994) procedure (i.e. through a systematic work of data analysis and interpretation based on categorisation, abstraction, comparison, dimensionalisation, integration, and iteration).

[Insert about here Table 1: sample details]

4 Findings

In what follows, we analyse how time-based marketing promise (TBMP) operates as a practice that enables pathways toward achieving more sustainable logistics value creation in e-retail. The data analysis is structured around two hubs. In the first one, narratives show how technologisation and task autonomy work to produce agenced delivery workers and cultivate a sense of purpose that allows the workers to efficiently administer marketers' TBMP. Along these complex processes, independent contractors negotiate, leverage, and stabilise concealed and taken-for-granted co-creation benefits in conjunction with the technologisation of e-fulfilment and the social value and responsibilities associated with their professional

experiences. In the second hub, we delve into the various processes through which these independent contractors become transformed into a concerned workforce (i.e. affected actors who become compelled to participate, put forward, and lobby for the advancement of more sustainable e-logistics value).

4.1 TBMP and the production of agenced independent contractors

4.1.1 Leveraging technologisation and task autonomy

The data show that the majority of respondents indicated they benefit from the support (e.g. application, appropriate packaging, discussion group, and real-time communication) of their employers (e-retailers) when attempting to adhere to TBMP. There is ample evidence that the respondents regarded the role of these employers as essential to ensure the evolution of delivery workers' independence and tasks. Through these conventional scripts, they recognised personal agency as valuable and going beyond what robotisation, for example, may be able to achieve. ULMD was described as intense, emotional, agitated, disorderly, and requiring one to take a stance within rapidly succeeding tasks. The constantly changing urban jungle was, in effect, suspending traditional efficient project management and optimisation systems by making automation too difficult. E-retailers and our respondents were working conjointly to retain the exclusive attributes of their roles while obtaining desirable (i.e. sustainable) ULMD by leveraging both rational and emotional aptitudes. Respondent I07 explained that.

> We are good on our own[,] and I worked with other delivery companies similar to this before. [..] the systems are different[,] but companies guide us […] I already know what are the problems [technology, e.g. maps or connection, traffic, weather, loading, unloading] I may be facing[,] and I clarify many things with the company. They are very supportive in a way that they care for us. (I07)

Yet, all e-retailers were described as providing fairly equal technological solutions and similar communication strategies. As shown in detail later, the rule of thumb for delivery workers is to rely on third-party applications (e.g. Google Maps, police information, city work planning, etc). The proprietary technological supports e-retailers offered to independent contractors were encapsulated in a set of applications aimed to provide facts and criteria allowing e-retailers to control, supervise, or restrict our respondents' actions, rather than as an interactive, agile, real-time relationship management tool. None were said to be personalised to individual contractors' needs or conditions (e.g. vehicle type, type of smartphone, etc.). Many respondents stated they had previously experienced technical

disfunctions that required them to develop their own coping tactics (i.e. open source solutions). Technologies, although closely connecting the various actors, were not able to provide an integrated specialised service experience and were described as standardised and humdrum.

> All drivers are signed in the driver "Bee" application and coordinate [the] job from there. Many times[,] we use group chat [in addition] to talk[ing] about anything [with other drivers] or send[ing] personal message[s] to the [retail] coordinator [sometimes on public platforms] asking to follow up with customers in case of delivery failure or ask for guidance if we need one. (I08)

This statement from Respondent I08 further highlights the compartmentalisation of ULMD, whereby agency is legitimised because of the current shortcomings of technologisation; in effect, agency is counteracting the anxiety of being excluded from conversations. The off-putting limitation of standardised technology and processes acts as a clear signal that independent contractors have relevant abilities and resources. All respondents described a common notion: co-creation of value operates between e-retailers, delivery contractors, and final consumers. Agency encourages fast-paced decision making that facilitates distinguishing how all parties ought to benefit better from the technologised logistics support. This, in turn, was found to make the ULMD and TBMP exciting and fostering opportunities for long-term e-fulfilment sustainability. In an environment that is saturated by technologies and time-management records, at stake is the difficulty of using parallel multiple technological solutions (in the first quote that follows, I09) or, conversely, relying primarily on one unique but often inferior source (in the second quote that follows, I05). Even though ULMD is recognised as an information-rich environment that includes traffic information, CCTV, smart city traffic management, etc., it still requires integration of data and the collaboration of actors. TBMP is focusing these activities, and this suggests that in ULMD, increased agency creates smarter, more agile interwoven actors. Respondents I09 and I05 remarked on this.

> For our side, [the] company needs to fix the company application, [and we] still need a lot of updates to help us become more efficient. Hmm ... because we can deliver not only grocery [products] but also take other like laundry line[,] for example. With current separate applications for each line, this is so complicated, [and we] need to open and close every single time. (I09)

> Google Map[,] sometimes[,] they do not point to the exact location … usually GPS gives me a headache because it hangs or [is] not working, especially under tunnels[,] or it shows [a] lost signal and I need to re-start my phone [….] It only helps me to go near the customer[']s house but [it does] not exactly bring me to the place. (I05)

Indeed, all the independent contractors stated they were relying on publicly available technologies for mapping and location purposes; thus, agency interplays between the map, software data, and distinct spatial characteristics along social rules. This agency allowed and encouraged them to ignore traditional, linear, theoretically optimised project management systems and technological micro-management. In this context, information needs to be aggressively acted upon to secure sustainability. At the same time, within constantly evolving ULMD, real-time data that clarifies the changing conditions on the ground reinforces the unconventional character of the ULMD and contributes to appreciating that all actors' roles are special (e.g. leveraging mapping technologies goes hand-in-hand with a particular professional experience and reading of the city). Predictive capabilities of AI were alluded to as soon providing further solutions. The proposed fastest ways or shortest routes were perceived as not always the best choices. Here, the scarcity of possible roads and temporality work towards making agency valuable. Having a range of countervailing measures and options was described as central to keeping TBMP. The following quotes from I27 and I02 illustrate these principles:

> For example, GPS always shows you the shortest route[,] and this is to make sure the delivery deadlines are always met according to the time calculation (laughter) but at times[,] GPS may give you inaccurate directions. It can quickly support route planning to travel from one point to another or check out other routes to prevent [a] jam in some areas[,] but [it is] not optimal[,] and we need to assess ourselves whether it is correct or not. (I27)

> Question: In your professional opinion as a driver, how much of that time promise is under your control given the traffic issue and GPS?

> Hmm... will give 80% for the traffic jam and 50% for the GPS. (I02)

4.1.2 Bolstering value creation while building collective value

Enhanced expertise and professionalism when taking control or possession of a delivery does not guarantee the delivery will be completed on time. Respondents were in a virtual competition among themselves to be the first to accomplish a successful delivery. TBMP established a new rule to incentivise drivers to remain motivated: extra income (by finding time to fit in an extra job) as a reward for their successful deliveries. Altogether, experienced workers share co-creation benefits with e-retailers and consumers. For them, these benefits take the form of positive appraisals about the collective value they contribute, as evidenced by the following quote from Respondent I02 in response to the question:

> Is the delivery always successful at first attempt? If not, why? How does it affect the time promise?
> Yes, most of the time we always do a good job. We are thinking before we send goods to customer places[;] so[,] we can deliver successfully at [the] first time. (I02)

In addition to limited options related to unsuccessful deliveries, respondents frequently expressed concerns that alternative ways of behaving and mobilising technologies exist. This puts into perspective the notion of urgencies and a sense of the "big picture" of what the value of the delivery work is (i.e. high task involvement). This big picture relates to actors' level of mastery and inclination to consider that in a complex environment, it is particularly important to understand the importance of collective value by staying attuned with consumers and their needs, as explained in the extract from Respondent I14.

> The company guarantees different timing options for customers because they want to give more choices, [and] more flexibility because nowadays, we are in the era of speed …. We cannot deny that time is one of the most important aspects in this industry, for we need to be on time [….] But what I think what matters the most is experience because hmmm... you know, in such [a] crowded society like Singapore, where people are living not only in houses but also condos and apartments, there's varieties of rules applied in different places to deliver. (I14)

As previously shown, in new contexts, with agency comes the development of professionalism, appropriate social value, and social resonance with the need of being part of a quest (TBMP) and a collective. Some independent contractors felt well prepared to foster their social identities (and related sense of belonging). This represents an extra effort to accomplish goals, which comes along with being influential, but careful, agents of change with the ULMD. Respondent I09 voiced this idea.

> The point of this rapid service is how trustworthy we are in keeping this promise to serve them better. If we are trusted[,] customers will think that the service is worth[while] or maybe [they will] write nice reviews or recommend [us] to their friends. (I09)

4.2 Being concerned by sustainable logistics value creation processes in retail

4.2.1 Working on consumers' mobilisation and cooperative behaviours

Sustainable ULMD is also driven by our informants being able to partake of and capitalise on the flow of accurate information provided by consumers. Encouraging consumers to provide extra directions and delivery recommendations was seen as central to the co-creation of value. Knowing where and upon whom responsibilities and initiatives rest allows more collective deliveries, (e.g. alert to a condominium security service that a delivery is

forthcoming; providing required entry codes; option of various entry points), which can lead to a more convenient and satisfying shopping experience. To address these, being engaged and concerned in the various tasks implies that delivery workers reflect on and cope with the most detrimental outcome: failure to deliver/receive the ordered product(s). At this point, the majority of respondents reminded us that the absence of the consumer (i.e. an unanswered door knock) remains the main cause of value disintegration. Judging from our informants, this issue was confirmed as a central pressure detrimental to the sustainability of logistics value creation as a whole because it imposed a cumulative effect on subsequent deliveries. At the collective level, consumers who are not informed or concerned about others were perceived as obstructions who produced further negative externalities (e.g. pollution, traffic, costs, etc.). This is seen as incompatible not only with TBMP but also with e-shopping. In other words, mobilisation in the ULMD was described as being an issue for all actors together, not only individually. This was voiced by Respondent I08:

> Critical for me personally will be when [the] customer is not present to accept the delivery because they cancel their orders too late and when we arrive and bring the goods to their place already. We cannot hand over their orders because it is wasting so much of [*sic*] effort. (I08)

Clear expectations are present, but failure to deliver was described as having further longer-term repercussions in this hypercompetitive channel (increasing the frequency of purchases and deliveries). In all cases, trust was damaged, putting the relationship at risk in terms of both repeated purchases and delivery-actor choice, reflecting the emotionally sensitive impact of being concerned, as illustrated in Respondents I17's or I04's comment:

> Some demanding customers want to ask for something [compensation] because they feel that they are at a loss[,] but sometimes it is their fault or no one['s] fault.(I17)

or

> I think [the] company can cooperate with customers to provide information about how to enter the building so that it is easier and less confusing for us because when I deliver to 4 customers in one hour, I cannot afford to make any mistakes that lead to [a] delay[,] so it would be great if customers add delivery instruction[s] maybe so that I can be more prepared and deliver on time. (I04)

4.2.2. Concerned communication processes: the development of an integrative logistic culture

In this present context, logistics value creation was perceived as sustainable only if all actors are part of a network whereby responsibilities can be identified and, eventually, penalties applied (e.g. a systematic failure to be present should lead to a ban of an e-delivery option).

Akin to missing two medical appointments in a row, further delivery may not be guaranteed. Then, the truly concerned consumer can benefit from the TBMP innovation, which would promote appropriate shopping behaviour. However, rather than focusing on failure, this culture should relate and promote sustainable behaviours, such as smart thinking and competent behaviour. This will create stronger relationships between all parties (e.g. agile and real-time chatting on social media) as exemplified in the responses from Respondents I11 and I18.

> Communication is the key to connect and link this rapid delivery service and expectation of customers… Then[,] I guess [the] company must understand this and create communication channels preferred by customers[,] be it maybe through online WhatsApp with no call fees (laughter) so that customers do not hesitate to ask or clarify anything when they want to order from the company. (I11)
>
> and
>
> Some people can appreciate our effort and hard work and are quite understanding in response to late deliveries. Yes, some are complainer types, will be mad and ask for detail clarification and even get to our Facebook page to spread this negative experience to their fellas. (I18)

Thus, concerning produces feelings of accomplishment and requires distinct skills and capabilities. At stake here are companies' endeavours to become drivers of positive collective behaviours that encourage consumers to abandon reflex responses (often, criticism, in the case of service failure) as individuals who often unjustifiably feel entitled to get benefits from the e-retailer/delivery worker's service.

5 Discussion and Conclusion

5.1 Summary of the findings

The extent to which e-retailers will be able to fulfil their one-hour lead time will, in part, depend of how they leverage and manage independent contractors' agenced and concerned creation of value. Figure 1 illustrates the overall dynamics at stake for independent e-delivery contractors' engagement in ULMD toward sustainable logistics value creation under TBMP. On each side of the figure, the principal contextual elements are presented along the main types of stakeholders in retail e-logistics. While traditional e-fulfilment criteria remain important (e.g. ordering platform linked to back office operations), they need to be completed to reflect the dynamic situation of the ULMD (de Kervenoael et al., 2016; Yanik et al., 2013).

As such, beyond immediate profitability factors, often unobserved by outsiders, the agile engagement of independent contractors (e-delivery drivers) under the increasingly constraining TBMP is found to inform the conditions and modalities of sustainable retail logistics value creation. While agencing and concerning are relevant to all market-actors in e-commerce (Kjellberg and Helgesson, 2010; Stigzelius, 2017), in this study, we offer a novel perspective focusing specifically on independent contractors as delivery workers that now represent the bulk of e-retail delivery services. Delivery workers' autonomy in fulfilling the TBMP to e-commerce consumers in the digitalised (or technologized) ULMD shows that while these workers are agenced, they harness technologisation for the overall ULMD sustainability. Independent contractors' personal endeavours are found to be central despite the standardized and saturated presence of technological solutions. Multiple, real time decisions need to be taken to overcome technological shortcomings and to cope with the ULMD' complex socio-cultural and spatial circumstances. As sincerely concerned individuals, independent contractors are leveraging both their rational and emotional aptitudes to deal with the unexpected, fluid nature of e-shopping delivery. This situation strengthens their belief that independent contractors are professional that foster opportunities to bolster and shape value creation both at individual and collective levels. Along their willingness to be trusted, concerned independent contractors have become very sensitive to their role in the promotion of customers' cooperative and responsible behaviour in what is described as a networked e-retail logistics. This situation crystallizes noticeable effects of the time based agencing and concerning process through which e-retail logistics generate sustainable value creation. Simply put, working on sustainable e-logistics value creation implies that independent contractors' endeavours propose novel, creative solutions for other stakeholders such as e-retailers and city planners, and that an integrative e-logistics culture with all e-retail logistics stakeholders is developed.

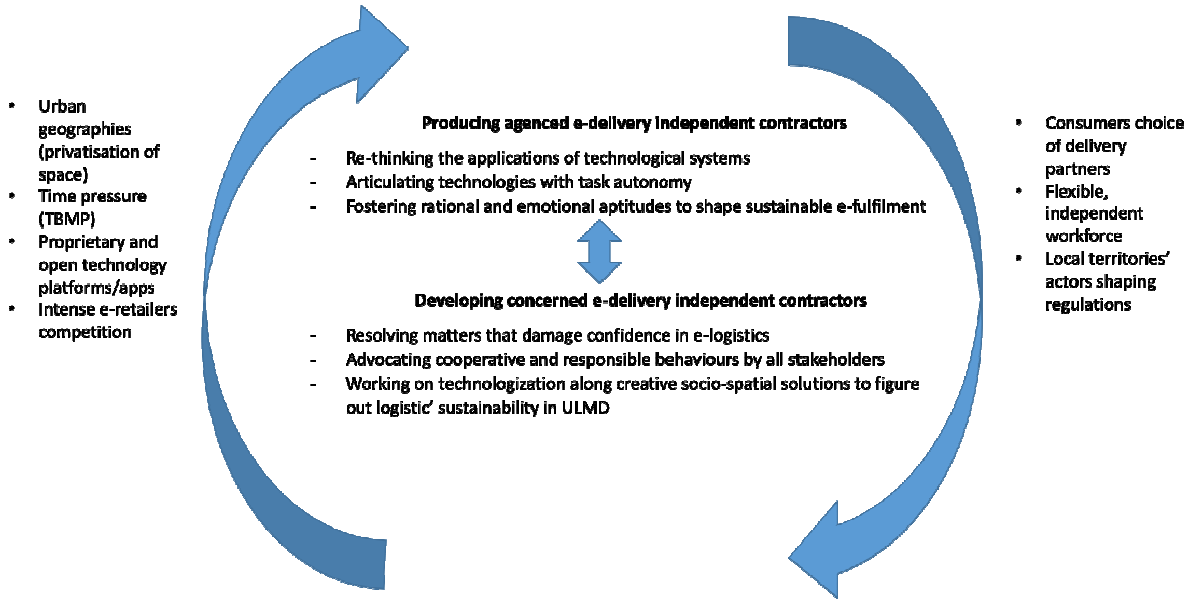

Figure 1: The dynamics of independent e-delivery contractors' engagement in ULMD for sustainable logistics value creation under TBMP

5.2 Theoretical implications

This study addresses a persistent gap regarding the role of independent contract in e-logistic value creation. While many articles discussed how in increasingly technologized environment, logistics value for consumers could be optimized and contribute to sustainability (Carbone et al., 2017; Sinkovics et al., 2018; Wang et al., 2019; Yuen et al., 2019; Yuen et al., 2018), the ULMD ecosystem is too often taken as fixed rather than dynamic. While investigating the engagement of e-delivery independent contractors', this study brings a more dynamic view of the ULMD and it brings a socio-cultural perspective on e-commerce, e-retail logistic and the impact of stakeholders' behaviour on channel selection (de Kervenoael et al, 2018). While e-retailers' reliance on technologies remain important, the socio-spatial conditions of delivery along co-creation of value by multiple stakeholders is found to increase consumers and the overall urban ecosystem welfare (Melacini et al, 2018). Furthermore, while many studies underline the negative externalities impacting ULMD, the perspective of independent e-retail logistics contractors implies that synergies need to be taken into account. This situation necessitates to examine the potential of socio-cultural approaches where actors mutually transform each other to create in our case innovative and efficient e-fulfilment systems (Lim et al, 2018; Arnould, 2005; Bardhi and Eckhardt, 2017)

Under precise TBMP, independent delivery workers become competent agent who leverage technologization and task autonomy to partake in the sustainability of retail logistics

value, echoing what traditional employee (including part-timers) do in brick and mortar store (Larivière et al., 2017; Caro et al., 2019). Far from being detached from daily contingencies, independent delivery workers are very much attuned with the stakes of technologization and ULMD. Clear evidences are pointing out at the need for all retail logistics stakeholders to develop cooperative and responsible behaviours, in effect testifying conditions toward the shaping of an e-logistics culture (Fernie and Sparks, 2018).

The data also contribute to the understanding of technology in use in retail logistics. As such, it departs from the research whereby coping with the uncertainties of the socio-spatial environment is entirely dependent on technological innovations (Gevaers et al., 2011; Giovanis and Athanasopoulou, 2018; Hübner, Kuhn, and Wollenburg, 2016; Ranieri et al., 2018; Vakulenko et al., 2019a, 2019b). We show through delivery workers usage of technologies that an astute appropriation of technologies becomes required to apprehend the stakes toward a more sustainable logistics value creation. This means that one should refrain from feeling comfortable with the imposition of technological innovations that inevitably call for specific and often rigid logics of interaction among the different market actors (Melacini et al., 2018). Equally, the data show how important it is to understand the operationalisation of the technologically driven service in real-life conditions where both proprietary (e-retailers; local authorities etc.) technological platforms (hardware and software) are mingled with open source applications (Google map, weather apps).

Regarding the time constraint in particular, contrary to expectation of further distress, the data show e-delivery contractors outstanding adaptation and that TBMP in effect acts as a motivator that positively influence these independent workers' behaviours and broader collective solutions towards more sustainable and valuable e-delivery within the socio-spatialised ULMD (de Souza et al., 2014; Fernie and Sparks, 2018, Larivière et al., 2017). Under TBMP, agenced and concerned independent contractors, are thus those who, in real time, go beyond standardised expectations of linear delivery tasks and re-evaluate previously discarded instincts. They can articulate the uniqueness of events and their conditions of occurrence within the dynamic urban environment. As a marketing promise, TBMP shapes and unveils not only agile e-delivery practices but also the conditions and desirable modalities for sustainable logistics value creation in today's flexible, volatile, unexpected, but also fluid and intelligible urban retail space. As proposed, under TBMP, independent contractors display remarkable talents beyond traditional job descriptions, which makes them legitimate market actors to bring sustainable logistics value propositions within urban spaces.

5.3 Managerial implications

Understanding on the go e-shopping (lead time of one hour in our case) represents a key challenge not only for e-grocery but for the whole of e-commerce reflecting the demand for quasi immediate consumption (Benoit et al, 2016). With such as understanding, echoing existing literature, the data reveal clear technological shortcomings (errors) between the physical reality and the digital service processes (Macarulla et al., 2018). In general, the agility of current technologies to cope with the physical and social dimensions of the e-delivery experience is not found to be optimal (Skeldon, 2019). As such, our respondents expressed a longing for IT solutions that would highlight with accuracy the diversity and the quality of specific tasks in their work (e.g. evidences of products being handled appropriately or compliance with security and other regulations) and not only the timely delivery or other quantitatively measurable duties. Undeniably, Google Maps is still not able to asynchronously or in real time incorporate input from individual independent contractors. This lack of flexibility in incorporating the knowledge and initiatives of the gig economy workers has been consequential for not only e-retailers' marketing and human resources departments but also city planners because they all should adopt the realisation that human expertise, as delivered by grassroots workers, has become central to retail and logistics sustainability (Flora, 2011; Fox, 2017).

In the same manner, the data highlight increasing physical access challenges (because of the privatisation of space) in relationship to gated communities, smart offices' access protocols (e.g. smart monitoring, vehicle search, object removal, facial recognition, alert display linked to time, etc.), smart apartment buildings (e.g. elevator codes, scanning of goods, and restriction with size and weight of goods, control of occupied access for service, alarms, ramps, etc.), or eco-packaging. All these generate further debate on how to integrate different governance systems whereby ULMD actors work together. Failure to understand the longer-term effects of independent contractors' willingness to generate value for e-delivery market development may even lead to regulatory backlashes and policy bans (e.g. delivering at certain times of the day or in certain areas) that could destabilise the entire e-fulfilment marketplace (Hoffman and Prause, 2018; Hussenot, 2017).

5.4 Suggestions for further research

Several limitations of this study suggest avenues for further research. We operationalise agenced and concerned independent contractor under TBMP along qualitative findings in one location. Further work is required to assess how transferable are the findings to other services beyond e-grocery towards the wider e-commerce channel in other urban environments. Future research could also provide, via a quantitative study, valuable insights into the roles of 'other' stakeholders and under different market structures i.e. different cultures or in emerging markets, in larger or smaller urban environments. As such, the perspective of e-retailers should also be analysed. Moreover, one should determine the extent to which within service 4.0 (AI/IoT), particular practices would allow independent workers and retailers to effectively conceptualise further sustainable logistics value and, more broadly, value creation in retail. Future study may reveal the existence of a potentially unengaged segment of independent subcontractors, and this may provide additional information on the evolution of the drivers of sustainable retail logistics value.

References

Abushaikha, I., Salhieh, L., Towers, N., 2018. Improving distribution and business performance through lean warehousing. *International Journal of Retail & Distribution Management*, 46, 8, 780–800.

Acimovic, J., Graves, S.C., 2017. Mitigating spillover in online retailing via replenishment. *Manufacturing & Service Operations Management*, 193, 3, 419–436.

Andreu, L., Sánchez, I., Mele, C., 2010. Value co-creation among retailers and consumers: new insights into the furniture market. *Journal of Retailing and Consumer Services*. 174, 4, 241–250.

Arnould, E., 2005. Animating the big middle. *Journal of Retailing*. 81, 2, 89–96.

Bahn, K.D., Granzin, K.L., Tokman, M., 2015. End-user contribution to logistics value co-creation: a series of exploratory studies. *Journal of Marketing Channels*. 221, 1, 3–26.

Balaji, M.S., Roy, S.K., 2017. Value co-creation with Internet of things technology in the retail industry. *Journal of Marketing Management*. 33, 1–2, 7–31.

Bansal, P., Corley, K., 2011. From the editors—The coming of age for qualitative research: embracing the diversity of qualitative methods. *Academy of Management Journal*. 54, 2, 233–237.

Bardhi, F., Eckhardt, G.M., 2017. Liquid consumption. *Journal of Consumer Research*. 44, 3, 582–597.

Bates, O., Friday, A., Allen, J., Cherrett, T., McLeod, F., Bektas, T., ... Davies, N., 2018, April. Transforming last-mile logistics: opportunities for more sustainable deliveries, in: Proceedings of the 2018 CHI *Conference on Human Factors in Computing Systems*, Paper No. 526.

Benoit, S., Schaefers, T., & Heider, R. 2016. Utilitarian, hedonic and hybrid determinants of on-the-go consumption. *Journal of Retailing and Consumer Services*, *31*(1), 32-42.

Bernon, M., Cullen, J. Gorst, J., 2016. Online retail returns management: integration within an omni-channel distribution context. *International Journal of Physical Distribution and Logistics Management*. 46, 6/7, 584–605.

Bressolles, G., Lang, G., 2019. KPIs for performance measurement of e-fulfillment systems in multi-channel retailing. *International Journal of Retail & Distribution Management*. https://doi.org/10.1108/IJRDM-10-2017-0259

Capgemini Research Institute., 2019. The last-mile delivery challenge. https://www.capgemini.com/wp-content/uploads/2019/01/Report-Digital-%E2%80%93-Last-Mile-Delivery-Challenge1.pdf

Carbone, V., Rouquet, A., Roussat, C., 2017. The rise of crowd logistics: a new way to co-create logistics value. *Journal of Business Logistics*. 384, 4, 238–252.

Caro, F., Kök, A.G., Martínez-de-Albéniz, V., 2019. The future of retail operations. *Manufacturing & Service Operations Management*. https://doi.org/10.1287/msom.2019.0824

Choo, C., 2016. Impact of a delivery point network for urban e-commerce deliveries. Singapore University of Technology and Design, Singapore.

Cochoy, F., Trompette, P. Araujo, L., 2016. From market agencements to market agencing: an introduction. *Consumption Markets & Culture*. 19, 1, 3–16.

Connolly, J., Prothero, A., 2008. Green consumption: life-politics, risk and contradictions. *Journal of Consumer Culture*, 8, 1, 117–145.

Creswell, J.W., Creswell, J.D., 2017. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage, Thousand Oaks, CA.

Dameri, R. P., Rosenthal-Sabroux, C., 2014. Smart City: How to Create Public and Economic Value with High Technology in Urban Space. Springer International Publishing, London.

de Kervenoael, R.D., Bajde, D., Schwob, A., 2018. Liquid retail: cultural perspectives on marketplace transformation. *Consumption Markets & Culture* 21, 5, 417–422.

de Kervenoael, R., Yanık, S., Bozkaya, B., Palmer, M., Hallsworth, A., 2016. Trading-up on unmet expectations? Evaluating consumers' expectations in online premium grocery shopping logistics. *International Journal of Logistics Research and Applications*. 19, 2, 83–104.

de Souza, R., Goh, M., Lau, H. C., Ng, W.S., Tan, P.S., 2014. Collaborative urban logistics–synchronizing the last mile: a Singapore research perspective. *Procedia-Social and Behavioral Sciences*. 125, 2014, 422–431.

DeLanda, M., 2016. Assemblage Theory. Edinburgh University Press, Edinburgh.

Echeverri, P., Skålén, P., 2011. Co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*. 11, 3, 351–373.

Ewen, L., 2018. Solving for the last mile is retail's next big disruption, retail dive. https://www.retaildive.com/news/solving-for-the-last-mile-is-retails-next-big-disruption/514577/

Fernie, J., Sparks, L. (Eds.)., 2019. Logistics and Retail Management: Emerging Issues and New Challenges in the Retail Supply Chain. Kogan Page, London.

Fisher, M., Gallino, S., Xu, J., 2016. The value of rapid delivery in online retailing. doi:10.13140/RG.2.2.17868.62080.

Flora, C. 2011. Earnings and yearnings: meet the slashers: more than one career can be doubly fulfilling. *Psychology Today*. https://www.psychologytoday.com/us/articles/201101/earnings-and-yearnings-meet-the-slashers

Fox, J., 2017 June 23. The truth about the gig economy. Bloomberg Businessweek. https://www.bloomberg.com/news/articles/2017-06-23/the-truth-about-the-gig-economy

Fuei, L.K., 2017. Automation, computerization and future employment in Singapore. *Journal of Southeast Asian Economies*. 34, 2, 388–399.

Fuentes, C., Bäckström, K., Svingstedt, A., 2017. Smartphones and the reconfiguration of retailscapes: stores, shopping, and digitalization. *Journal of Retailing and Consumer Services*, 39, C, 270–278.

Galipoglu, E., Kotzab, H., Teller, C., Yumurtaci Hüseyinoglu, I. Ö., Pöppelbuß, J., 2018. Omni-channel retailing research–state of the art and intellectual foundation. *International Journal of Physical Distribution & Logistics Management*, 48, 4, 365–390.

Gawor, T., Hoberg, K., 2019. Customers' valuation of time and convenience in e-fulfillment. *International Journal of Physical Distribution & Logistics Management*. 49, 1, 75–98.

Geiger, S., Harrison, D., Kjellberg, H., Mallard, A., 2014. Concerned Markets: Economic Ordering for Multiple Values. Edward Elgar, Cheltenham, UK.

Gevaers, R., Van de Voorde, E., Vanelslander, T., 2011. Characteristics and typology of last-mile logistics from an innovation perspective in an urban context, in: Macharis, C., Melo, S. (Eds.), City Distribution and Urban Freight Transport: Multiple Perspectives. Edward Elgar, Cheltenham, UK, pp. 56–71.

Gioia, D.A., Corley, K.G., Hamilton, A.L., 2013. Seeking qualitative rigor in inductive research: notes on the Gioia methodology. *Organizational Research Methods*, 16, 1, 15–31.

Giovanis, A.N., Athanasopoulou, P., 2018. Consumer-brand relationships and brand loyalty in technology-mediated services. *Journal of Retailing and Consumer Services*, 40, C, 287–294.

Gonzalez-Feliu, J., 2018. Sustainable Urban Logistics: Planning and Evaluation. John Wiley and Sons, London.

Grönroos, C., 2000. Creating a relationship dialogue: communication, interaction and value. *The Marketing Review*. 1, 1, 5–14.

Grönroos, C., 2009. Marketing as promise management: regaining customer management for marketing. *Journal of Business & Industrial Marketing*, 24, 5/6, 351–359.

Hagberg, J., Sundstrom, M., Egels-Zandén, N., 2016. The digitalization of retailing: an exploratory framework. *International Journal of Retail & Distribution Management*, 44, 7, 694–712.

Halldórsson, Á., Altuntas Vural, C., Wehner, J., 2019. Logistics service triad for household waste: consumers as co-producers of sustainability. *International Journal of Physical Distribution & Logistics Management*. 49, 4, 398–415.

Heller, N., 2017, May 15. Is the gig economy working? The New Yorker. https://www.newyorker.com/magazine/2017/05/15/is-the-gig-economy-working

Hoffmann, T., Prause, G., 2018. On the regulatory framework for last-mile delivery robots. *Machines*. 63, 3, 33. https://doi.org/10.3390/machines6030033

Hollander, S.C., 1960. The wheel of retailing. *Journal of Marketing*, 25, 1, 37–42.

Hossain, T.M.T., Akter, S., Kattiyapornpong, U., Dwivedi, Y.K., 2019. Multichannel integration quality: a systematic review and agenda for future research. *Journal of Retailing and Consumer Services*, 49, C, 154–163.

Hübner, A., Holzapfel, A., Kuhn, H., 2016. Distribution systems in omni-channel retailing. *Business Research*. 9, 2, 1–42.

Hübner, A., Kuhn, H., Wollenburg, J., 2016. Last mile fulfilment and distribution in omni-channel grocery retailing: a strategic planning framework. *International Journal of Retail and Distribution Management*. 44, 3, 228–247.

Hussenot, A., 2017. The future of work could lie in freelancing. World Economic Forum. https://www.weforum.org/agenda/2017/08/why-the-future-of-work-could-lie-in-freelancing

Jeanpert, S., Paché, G. 2016. Successful multi-channel strategy: mixing marketing and logistical issues. *Journal of Business Strategy*. 37, 2, 12–19.

Joerss, M., Schröder, J., Neuhaus, F., Klink, C., Mann, F., 2016, September. Parcel delivery: the future of last mile. McKinsey and Company. https://www.mckinsey.com/~/media/mckinsey/industries/travel%20transport%20and%20logistics/our%20insights/how%20customer%20demands%20are%20reshaping%20last%20mile%20delivery/parcel_delivery_the_future_of_last_mile.ashx

Jones, P., Comfort, D., Hillier, D., 2011. Sustainability in the global shop window. *International Journal of Retail & Distribution Management*, 39, 4, 256–271.

Kalleberg, A. L., Dunn, M. 2016. Good jobs, bad jobs in the gig economy. *Members-only Library*, 20, 1-2.

Kelly, M., 2018, June 7. California's new "ABC Test" for independent contractors is anything but elementary. Squire Patton Boggs. https://www.employmentlawworldview.com/californias-new-abc-test-for-independent-contractors-is-anything-but-elementary/

Kjellberg, H., Helgesson, C. F. 2010. Political marketing: Multiple values, performativities and modes of engaging. *Journal of Cultural Economy.* 3, 2, 279-297.

Langfred, C.W., Moye, N.A., 2004. Effects of task autonomy on performance: an extended model considering motivational, informational, and structural mechanisms. *Journal of Applied Psychology*, 89, 6, 934–945.

Larivière, B., Bowen, D., Andreassen, T.W., Kunz, W., Sirianni, N.J., Voss, C., ... De Keyser, A., 2017. "Service Encounter 2.0": An investigation into the roles of

technology, employees and customers. *Journal of Business Research*, 79, October, 238–246.

Larke, R., Kilgour, M., O'Connor, H., 2018. Build touchpoints and they will come: transitioning to omnichannel retailing. *International Journal of Physical Distribution & Logistics Management*. 48, 4, 465–483.

Lim, S. F. W., Jin, X., & Srai, J. S. (2018). Consumer-driven e-commerce: A literature review, design framework, and research agenda on last-mile logistics models. *International Journal of Physical Distribution & Logistics Management*, *48*(3), 308-332.

Lin, J., 2018, March 13. Singapore tops charts again—this time for best performing global smart city. *Business Insider*. https://www.businessinsider.sg/singapore-tops-charts-again-this-time-for-best-performing-global-smart-city/

Lincoln, Y.S., Guba, E.G., 1985. Naturalistic Inquiry. Sage, London.

Lomas, N., 2017. Tesco launches one-hour grocery deliveries in London powered by Quiqup Available athttps://techcrunch.com/2017/06/26/tesco-launches-one-hour-grocery-deliveries-in-london-powered-by-quiqup/?guccounter=1

Macarulla, Rodriguez, A., Tiberius, C., van Bree, R., Geradts, Z., 2018. Google timeline accuracy assessment and error prediction. *Forensic Sciences Research*. 3, 3, 240–255.

Martín, J.C., Pagliara, F., Román, C., 2019. The research topics on e-grocery: trends and existing gaps. *Sustainability*, 11, 2, 321.

Melacini, M., Perotti, S., Rasini, M., Tappia, E., 2018. E-fulfilment and distribution in omni-channel retailing: a systematic literature review. *International Journal of Physical Distribution & Logistics Management*. 48, 4, 391–414.

Nguyen, D.H., de Leeuw, S., Dullaert, W.E., 2018. Consumer behaviour and order fulfilment in online retailing: a systematic review. *International Journal of Management Reviews*. 20, 2, 255–276.

Nguyen, D.H., de Leeuw, S., Dullaert, W., Foubert, B.P., 2019. What is the right delivery option for you? Consumer preferences for delivery attributes in online retailing. *Journal of Business Logistics*. https://doi.org/10.1111/jbl.12210

Piotrowicz, W., Cuthbertson, R., 2019. Last mile framework for omnichannel retailing. Delivery from the customer perspective, in: Piotrowicz, W., Cuthbertson, R. (Eds.), Exploring Omnichannel Retailing. Springer, Cham, pp. 267–288.

PwC., 2018. Global Consumer Insights Survey 2018: signed, sealed, delivered (and regularly returned). https://www.pwc.com/gx/en/retail-consumer/assets/delivery-expectations-global-consumer-insights-survey.pdf

Ramaswamy, V., Ozcan, K., 2019. Digitalized interactive platforms: turning goods and services into retail co-creation experiences. NIM *Marketing Intelligence Review*. 1, 11, 18–23.

Ranieri, L., Digiesi, S., Silvestri, B., Roccotelli, M., 2018. A review of last mile logistics innovations in an externalities cost reduction vision. *Sustainability*. 10, 3, 1–18.

Rosa, H., 2013. Social Acceleration: A New Theory of Modernity. Columbia University Press, New York.

Ruiz-Real, J., Uribe-Toril, J., Gázquez-Abad, J., de Pablo Valenciano, J., 2019. Sustainability and retail: analysis of global research. *Sustainability*. 11, 1, 14.

Saskia, S., Mareï, N., Blanquart, C., 2016. Innovations in e-grocery and Logistics Solutions for Cities. *Transportation Research Procedia*, 12, 825–835.

Shove, E., Araujo, L., 2010. Consumption, materiality, and markets. In: Araujo, L., Finch, J., Kjellberg, H. (eds.). Reconnecting marketing to markets. Oxford: Oxford University Press, pp. 13-28.

Singapore Business Review., 2017, September 14. Singapore e-commerce sales to reach $10b in 2020. Singapore Business Review. https://sbr.com.sg/information-technology/news/singapore-e-commerce-sales-reach-10b-in-2020

Singapore Economic Development Board., 2018. Singapore flexes its standing as Asia's technology capital. https://www.edb.gov.sg/en/news-and-resources/insights/innovation/singapore-flexes-its-standing-as-asias-technology-capital.html

Sinkovics, R.R., Kuivalainen, O., Roath, A.S., 2018. Value co-creation in an outsourcing arrangement between manufacturers and third party logistics providers: resource commitment, innovation and collaboration. *Journal of Business & Industrial Marketing*. 33, 4, 56–573.

Skeldon, P., 2019, February 19. The future of ecommerce delivery. Parcelhub. https://www.parcelhub.co.uk/blog/future-ecommerce-delivery/

Spiggle, S. 1994. Analysis and interpretation of qualitative data in consumer research. *Journal of Consumer Research*. 21, 3, 491–503.

Stigzelius, I. 2017. Producing Consumers: Agencing and Concerning Consumers to Do Green in Everyday Food Practices. Stockholm School of Economics.

https://www.hhs.se/contentassets/574f17c1efcf48daa6c6974a4dad5740/kappa_sse-ingrid-1.pdf

Storbacka, K., Brodie, R.J., Böhmann, T., Maglio, P.P., Nenonen, S. 2016. Actor engagement as a microfoundation for value co-creation. *Journal of Business Research*. 69, 8, 3008-3017.

Stuart Research. 2016, September. On demand delivery: The untapped goldmine. https://stuart-bucket.s3.amazonaws.com/share/the-untapped-goldmine-research.pdf

Ted Lirn, T.C., Wu, Y.J., Coronado Mondragon, A.E., 2018. ISL 2016: sustainable transport and supply chain innovation. *The International Journal of Logistics Management*. 29, 1, 2–4.

Vakulenko, Y., Shams, P., Hellström, D., Hjort, K., 2019a. Online retail experience and customer satisfaction: the mediating role of last mile delivery. *The International Review of Retail, Distribution and Consumer Research*. 29, 3, 306–320.

Vakulenko, Y., Shams, P., Hellström, D., Hjort, K., 2019b. Service innovation in e-commerce last mile delivery: mapping the e-customer journey. *Journal of Business Research*. 101, August, 461–468.

Van Maanen, J. 1979. The fact of fiction in organizational ethnography. *Administrative Science Quarterly*, 24, 539–550.

Vurro, C., Russo, A., Perrini, F., 2009. Shaping sustainable value chains: network determinants of supply chain governance models. *Journal of Business Ethics*. 90, Supplement 4, 607–621.

Vyt, D., Jara, M., Cliquet, G., 2017. Grocery pickup creation of value: customers' benefits vs. spatial dimension. *Journal of Retailing and Consumer Services*. 39, C, 145–153.

Wang, X., Yuen, K.F., Wong, Y.D., Teo, C.C., 2019. Consumer participation in last-mile logistics service: an investigation on cognitions and affects. *International Journal of Physical Distribution & Logistics Management*. 49, 2, 217–238.

Waseem, D., Biggemann, S., Garry, T., 2018. Value co-creation: the role of actor competence. *Industrial Marketing Management*. 70, April, 5–12.

Xing, Y., Grant, D.B., McKinnon, A.C., Fernie, J., 2010. Physical distribution service quality in online retailing. *International Journal of Physical Distribution & Logistics Management*. 40, 5, 415–432.

Yang, S., Song, Y., Tong, S., 2017. Sustainable retailing in the fashion industry: a systematic literature review. *Sustainability*. 9, 7, 1266.

Yanık, S., Bozkaya, B., de Kervenoael, R., 2014. A new VRPPD model and a hybrid heuristic solution approach for e-tailing. *European Journal of Operational Research*. 236, 3, 879–890.

Yin, R.K., 1981. The case study crisis: some answers. *Administrative Science Quarterly*. 26, 1, 58-65.

Yuen, K.F., Wang, X., Ma, F., Wong, Y.D. 2019. The determinants of customers' intention to use smart lockers for last-mile deliveries. *Journal of Retailing and Consumer Services*. 49, C, 316–326.

Yuen, K.F., Wang, X., Ng, L.T.W., Wong, Y.D. 2018. An investigation of customers' intention to use self-collection services for last-mile delivery. *Transport Policy*. 66, C, 1–8.

Table 1– Sample Details

Code	Company	Occupation	Age	Experience (yrs)
I01	Redmart	Delivery Van Driver	28	5
I02	Honestbee	Delivery Van Driver	35	11
I03	Amazon Prime Now	Delivery Van Driver	26	3
I04	Giant Online	Delivery Van Driver	34	9
I05	FairPrice Online	Delivery Van Driver	37	10
I06	Amazon Prime Now	Delivery Van Driver	26	3
I07	Redmart	Delivery Van Driver	36	5
I08	Honestbee	Delivery Van Driver	34	8
I09	Honestbee	Delivery Van Driver	28	4
I10	Redmart	Delivery Van Driver	33	9
I11	Redmart	Delivery Van Driver	29	4
I12	Redmart	Delivery Van Driver	27	4
I13	ColdStorage Online	Delivery Van Driver	28	5
I14	Fairprice Online	Delivery Van Driver	28	6
I15	Redmart	Delivery Van Driver	24	3
I16	Redmart	Delivery Van Driver	29	5
I17	Redmart	Delivery Van Driver	29	4
I18	Honestbee	Delivery Van Driver	28	5
I19	Giant Online	Delivery Van Driver	30	8
I20	Amazon Prime Now	Delivery Van Driver	29	5
I21	Giant Online	Delivery Van Driver	26	3
I22	Giant Online	Delivery Van Driver	25	2
I23	Amazon Prime Now	Delivery Van Driver	27	3
I24	Honestbee	Delivery Van Driver	27	5
I25	Giant Online	Delivery Van Driver	34	9
I26	Honestbee	Delivery Van Driver	30	6
I27	Honestbee	Delivery Van Driver	31	5
I28	Redmart	Delivery Van Driver	29	5
I29	Redmart	Delivery Van Driver	28	4
I30	Honestbee	Delivery Van Driver	31	6