

Exploring access-based consumption in last-mile logistics: a customer foresight study

Pauli Komonen

Abstract

Purpose – Due to e-commerce growth, technological advancements and environmental concerns, developing a more nuanced service portfolio has become a critical issue for last-mile logistics service providers. Concurrently, consumers are adopting new modes of consumption. This paper aims to investigate the potential for last-mile logistics service providers to act as intermediaries in access-based consumption and to revitalise their service offerings through product-service systems – a pioneering strategy not executed in the market yet.

Design/methodology/approach – This strategic customer foresight study uses a quantitative survey of 1,000 respondents and an online focus group comprising 10 early adopter consumers to investigate emerging last-mile service models. Potential service concepts were identified through the survey, and two distinct concepts were subsequently selected for evaluation and co-development within the focus group. The research was conducted in partnership with an SME logistics company in Finland.

Findings – The consumers expressed selective interest in access-based consumption related to the proposed offering of essential household goods. Young adults and consumers in early middle age living in the city centre emerged as the most potential user groups. Economic reasons and short-term needs were the primary motivations for adopting access-based consumption.

Practical implications – The study showed that engaging consumers in a customer foresight process is viable for SMEs innovating their offerings and demonstrates how the process works in practice.

Originality/value – Documented cases of customer integration into foresight processes are rare in earlier research, and this paper extends the knowledge base through a multidisciplinary examination of future consumer behaviour in the last-mile logistics domain. The paper also expands the limited literature on the role of logistics in access-based consumption.

Keywords Consumer research, Product-service systems, Corporate foresight, Access-based consumption, Last-mile logistics, Early adopter studies

Paper type Research paper

Pauli Komonen is based at the Department of Foresight and Data Economy, VTT Technical Research Centre of Finland Ltd, Espoo, Finland.

Received 28 October 2022
Revised 4 January 2024
15 March 2024
Accepted 17 March 2024

© Pauli Komonen. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

The author wants to thank Petteri Repo and Juri Mykkänen from the University of Helsinki for their constructive and insightful comments during the writing process and Tiina Kymäläinen from VTT Technical Research Centre of Finland for her valuable help during the early stages of the project. The author also values the comments from the anonymous reviewers, which led to significant improvements in the article.

Funding: The company involved in the study funded the data collection and preliminary analysis. VTT Technical Research Centre of Finland self-funded later analysis and parts of the writing process.

1. Introduction

As consumers increasingly shop online and use various delivery options for their orders, innovating last-mile logistics becomes critical for service providers. During this decade, global demand for last-mile deliveries is forecast to increase by 78% (Deloison *et al.*, 2020). Consequently, stakeholders in the industry are keen to implement innovative, efficient and sustainable last-mile concepts (Hagen and Scheel-Kopeinig, 2021). Recent delivery innovations include multi-brand parcel shops, mobile parcel lockers, trunk deliveries, night-time deliveries, crowdsourced deliveries, pavement droids, electric delivery vehicles and drone delivery (Araújo *et al.*, 2020; Deloison *et al.*, 2020; Lim *et al.*, 2018; Vakulenko *et al.*, 2019a, 2019b). From the consumer's perspective, the last-mile delivery experience significantly influences overall customer satisfaction (Vakulenko *et al.*, 2019a, 2019b).

Logistics companies have to balance innovation and efficiency to succeed in the current operating environment. Under circumstances of intense price pressure, third-party logistics

providers face demand for offering simplicity and functionality in their services, but simultaneously, digitalisation, e-commerce and servitisation open up new strategic options and enable development towards change and innovation (Borgström *et al.*, 2021). Logistics companies are evolving from cost-conscious enablers to innovative players (Araújo *et al.*, 2020). Sustainability and digitisation shift current industry standards, and logistics service providers have to design a more nuanced service portfolio (Peppel *et al.*, 2022).

This study in strategic customer foresight was conducted in collaboration with an SME logistics company operating in Finland. The company has a history of over 100 years and is one of the leading actors in the Finnish market. The company sought innovation opportunities through consumer foresight for the forthcoming three years. The company had initial ideas about new service concepts for consumers, and some of the concepts had already proven to be successful with business-to-business clients. The company had identified access-based consumption and sustainability as significant trends in consumer behaviour, encouraging them to steer their innovation activities towards concepts based on “as-a-service” models. The focus of the new services was especially on offering large household products as a service (e.g. “home office as a service”, “washing machine as a service”). The logistics company would be an intermediary in transporting, maintaining, repairing and updating the products, while a retailer would provide the goods. This kind of service did not yet exist in the market based on an industry benchmarking study conducted before the research.

The study is guided by three questions: (1) should last-mile logistics companies innovate their offerings through product-service systems? (2) How can the adoption of these services by consumers be studied both quantitatively and qualitatively? and (3) What are the drivers and constraints for consumers to engage in access-based consumption of essential household items provided by a logistics company? The paper addresses two knowledge gaps in the research literature: the scant documented cases of customer integration in strategic foresight (Schweitzer *et al.*, 2019), and the limited literature on the role of logistics in new types of distributed consumption, such as access-based consumption (Carbone *et al.*, 2018).

The article begins by examining relevant literature in the fields of last-mile logistics and access-based consumption. Then, the paper’s data and methodology are explained. After that, the main results are presented, followed by a discussion, conclusions and implications. The paper ends by reflecting on the limitations and future research avenues.

2. Research on last-mile logistics and access-based consumption

2.1 *The last-mile logistics sector is open to service innovation*

The “last mile” refers to the final delivery stages in logistics (Bates *et al.*, 2018). Last-mile delivery has attracted significant interest from the retail industry and logistics suppliers in recent years (Araújo *et al.*, 2020), and the topic has also been widely researched among scholars (Juhász and Bányai, 2018). In the competitive e-commerce market, online stores try to improve existing delivery options in collaboration with logistics service providers and develop new delivery solutions to differentiate from competitors (Holdorf and Haasis, 2014). The last-mile logistics industry faces challenges on multiple fronts. The need for more sustainable processes and products, political shifts and technological advancements pose challenges for logistics (Zijm and Klumpp, 2017). Furthermore, the growth of last-mile services has led to challenges related to congestion and pollution (Ranieri *et al.*, 2018).

Many researchers consider last-mile delivery the most critical logistics process, but simultaneously, it is the most expensive one, requiring efficiency in operations (Mangiaracina *et al.*, 2019). As the only human contact between customers and online stores often takes place through the last-mile parcel service, the delivery service and its options are a critical success factor for e-commerce orders, and competitive advantages can be achieved by offering

different logistics services and value-added services (Holdorf and Haasis, 2014). The objective is to cooperate with the customer over the long term and communicate with him frequently (Holdorf and Haasis, 2014). In the “new normal lifestyle” caused by the multiple simultaneous crises (Hu and Kee, 2022), consumers are open to innovation that responds to their changed lifestyles (Thongsri *et al.*, 2022).

In an international survey of logistics stakeholders, 45.9% of European respondents identified providing new services to customers as one of the most significant challenges in last-mile delivery (Scandit, 2021). This challenge was specifically emphasised in the Nordics. In Finland, the three most preferred locations for last-mile delivery among consumers are home delivery, post offices and parcel machines (Posti, 2020). The importance of home delivery to Finnish consumers creates opportunities for innovation in home-centric last-mile solutions. Furthermore, the high level of digital maturity in the Finnish economy makes it a suitable testbed for new solutions. An industry analysis conducted by Deloitte (2023) considers Finland the most mature market for smart last-mile delivery solutions.

E-commerce and last-mile service providers need to be effective and cost-conscious to succeed. Zero-cost deliveries and subscription models increase the demand for same-day and next-day deliveries (Bates *et al.*, 2018). Effectiveness, efficiency and environmental sustainability have been the main perspectives in the academic literature, but knowledge about innovative last-mile delivery solutions is fragmented (Mangiaracina *et al.*, 2019). In addition, there is a knowledge gap in Finland- and Helsinki-specific last-mile logistics and access-based consumption research.

2.2 Access-based services have received mixed consumer acceptance

The logistics industry has expressed interest in new forms of consumption (Carbone *et al.*, 2018). Smaniotta *et al.* (2020) have argued that access-based services can be considered examples of logistical challenges with both practical implications, requiring a material, spatial and temporal reorganisation of everyday life and symbolic implications, necessitating a reappraisal of values, identities, ideologies and discourses. Logistics service providers must anticipate new trends and tailor their delivery technologies and services to meet customer-specific needs (Jacobs *et al.*, 2019). However, research on how to achieve this is scarce.

The influential study of Bardhi and Eckhardt (2012) defines access-based consumption as “transactions that can be market mediated but where no transfer of ownership takes place.” Product-service systems, offering products to be used as a service, are considered commercially attractive and can reduce environmental impacts, such as material and energy use (Catulli *et al.*, 2017). Access-based consumption and product-service systems are likely to arise when both functional and symbolic values are extracted by consumers (Catulli *et al.*, 2017). Access-based consumption has been available in many product categories, such as clothing, tools, cars, bicycles, cars and handbags (Lawson *et al.*, 2016). In the home context, the study of Rousseau and Carmen (2021) found that environmental considerations, ease of use and price were the main consumer drivers for adopting home wash subscription services, while contract terms, familiarity and price acted as barriers.

The market has indicated that in many situations, consumers want access to goods and prefer paying for the experience of temporarily accessing them, even if historically, access has been considered an inferior mode of consumption compared to ownership (Bardhi and Eckhardt, 2012). The shift is vital to businesses as they head towards the growing market of consumers engaging in alternative forms of consumption (Lawson *et al.*, 2016). It has been argued that when consumers shift away from traditional ownership forms, forward-looking firms can benefit from being at the forefront (Belk, 2014). To succeed, they must understand

what motivates consumers to participate in access-based consumption (Lawson *et al.*, 2016).

On the other hand, ownership is an institution with an inherent value in modern consumer society, and the desire to own can be seen as a barrier to the access-based consumption model (Gullstrand Edbring *et al.*, 2016). The large-scale implementation of product-service systems underpinning access-based consumption can be problematic, as it challenges consumers' needs for self-expression and affiliation (Catulli *et al.*, 2013). It has also been noted that access-based consumption threatens the relationship between consumers and objects and prevents consumers from gaining anything other than utility from consumption (Gruen, 2016). As a result, consumers have rejected access-based services in certain product categories (Poppelaars *et al.*, 2018). Therefore, identifying the most relevant product categories becomes critical.

3. Data and methodology: a quantitative survey and an online focus group

Customer foresight is an emerging field of applied research that focuses on understanding the future needs and preferences of customers in relation to upcoming products and services (Eller *et al.*, 2020). The field uses both qualitative and quantitative methodologies and integrates techniques from strategic foresight and customer research. This study used a multi-method approach comprising two primary components: (1) a quantitative online survey to identify general demand and identify a relevant sociodemographic group interested in prospective last-mile services and (2) a synchronous online focus group discussion to co-develop service ideas with early adopter consumers from the identified demographic. In both phases, all participants provided informed consent.

The online survey was conducted in August 2020 and collected responses from 1,000 individuals. The survey was administered through market research company Bilendi's internet panel using computer-assisted Web interviewing, and the collected dataset was subsequently analysed in SPSS and Excel. The target population consisted of citizens aged 18–74 residing in the Helsinki metropolitan area, which had a population of 1.2 million as of 2021. The 1,000-person sample was designed to be representative of the area's gender, age and geographical distribution. Participants across various income and occupational categories were included. The Helsinki metropolitan area was selected due to its perceived commercial potential as an early adopter of new last-mile services. Based on the specifications of the target group, a random sampling technique incorporating soft quotas related to these specifications was used for the internet panel, which consists of over 80,000 potential respondents.

The online focus group discussion was organised in February 2021 and included ten consumers. Focus group discussions leverage social interaction to generate insights (Stewart and Williams, 2005), enabling researchers to systematically interview multiple respondents and encourage cross-pollination of ideas (William, 2012). Online focus groups offer several advantages over face-to-face settings, including lower costs and the ability to include a more geographically diverse set of participants (Fielding *et al.*, 2008). However, the text-based nature of the interaction limited the assessment of non-verbal cues. The focus group involved a small but balanced sample of consumers aged 27–42, residing in central Helsinki or nearby suburbs. Participants were equally distributed between males and females. These individuals self-identified as early adopters of new products and services and had also former experience of using online stores and home delivery services. A subcontractor managed the recruitment process, and the online discussion was facilitated via the Howspace platform. The participants received a €60 incentive for their involvement.

Two researchers facilitated the online discussion to ensure sustained engagement across all discussion threads. Communication was exclusively text-based, resulting in a total of 6,081 words. The qualitative data was subsequently thematically analysed using NVivo research software. The open coding scheme comprised 65 codes, which were grouped

into seven code families via axial coding. Given the manageable volume of data, selective coding was deemed unnecessary, with the main themes being identifiable within the code families. These themes were used to structure the results section of the qualitative research phase.

4. Analysis and results

4.1 Relevant service concepts identified in a quantitative survey

The quantitative survey aimed to gain a broad understanding of consumer reception towards new types of last-mile services and to identify potential user groups for several distinct services. Figure 1 presents the respondents' expressions of interest in various items they could order, use, maintain and update through a logistics company – i.e. use them as a service. The selected product categories were based on the case company's initial ideas and plans, of which some had already been successful in the business-to-business domain. The table aims to capture all potential interest and therefore excludes only the categorically negative response “not at all interested” on the 1–5 Likert scale.

The highest level of interest was observed in using home electronics, home office furniture, washing machines, small furniture and dishwashers as a service. The younger age groups within the 18–44 age range exhibited greater interest in the services. Interest also appeared to be higher among respondents living with a partner and children, as well as among those residing in the city centre. Families with children and high-income households generally displayed a greater inclination towards home services. Among young people, this interest could potentially be attributed to a life stage where flexibility is valued over material possessions. Young individuals more frequently reside in rented apartments and may therefore be less willing to make long-term investments in household items. Their income level is comparatively lower, and they often lack access to a private car. They also do not have the same long-standing consumption routines as older generations.

Sustainability expectations were notably higher among young respondents aged 18–24; 49% of this group expressed interest in tracking the environmental impact of their orders, compared to just 19% in the 65–74 age bracket. Over a third of respondents aged 18–24 were willing to pay a premium for eco-friendly transport, while approximately 11% of those

Figure 1 Interested in using products as a service (n = 1,000)

	Total (n = 1,000)	Male (n = 488)	Female (n = 511)	18-24-y. (n = 111)	25-34 (n = 210)	35-44 (n = 200)	45-54 (n = 180)	55-64 (n = 159)	65-74 (n = 140)	Living with a partner and children (n = 318)
Home electronics	33%	36%	31%	43%	38%	37%	34%	25%	23%	40%
Home office furniture	32%	35%	30%	42%	44%	38%	29%	24%	15%	43%
Washing machine, dryer	27%	30%	25%	42%	39%	26%	26%	16%	16%	35%
Small furniture	26%	28%	24%	40%	34%	26%	23%	19%	13%	33%
Dishwasher	25%	28%	22%	38%	34%	25%	22%	16%	15%	32%
Large furniture	24%	28%	21%	35%	31%	22%	21%	18%	20%	31%
Fridge, freezer	23%	25%	21%	34%	31%	25%	20%	14%	14%	33%
Stove, oven	22%	24%	20%	33%	30%	22%	22%	14%	12%	31%
Mats, curtains and other home textiles	22%	24%	20%	36%	29%	22%	20%	14%	11%	28%
Small household appliances	22%	25%	18%	39%	30%	24%	18%	12%	9%	30%

Source: Created by author

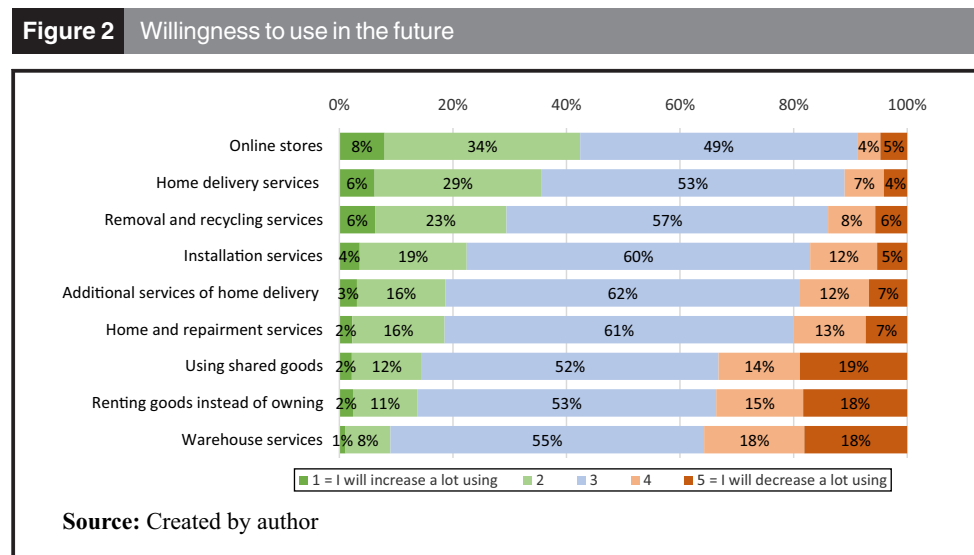
over 45 were prepared to incur such additional costs. Should a transition towards access-based and environmentally beneficial ownership models occur, younger generations are poised to play a pivotal role in altering consumer culture.

The general consumption-related future expectations of respondents were explored to understand emerging trends in consumer behaviour. Once again, younger consumer groups showed a greater interest in using shared goods and renting products rather than owning them. Among those aged 18–24, 25% expressed a willingness to increase their use of shared goods in the future, compared to just 8% in the 45–54 age group. Regarding renting, both the 18–24 (18%) and 35–44 (20%) age groups anticipated a greater increase in future usage compared to other age categories. The overall trend towards the digitalisation of consumer behaviour was evident, as over a third of respondents expected to expand their use of online shopping.

A similarly substantial proportion of people is expected to increase their reliance on home delivery services in the future. The findings indicate strong growth potential for last-mile services, although this growth may predominantly occur through traditional deliveries augmented with some additional services, such as recycling and installation. The needs surveyed aligned with the company’s principal strategic themes, focusing on last-mile services and access-based consumption. While the company was involved in various activities related to these themes, home delivery services constituted its primary business area. For entirely new initiatives, like warehouse and home repairment services, there seemed to be only modest consumer interest. The findings suggested that the highest potential for new access-based services lies among younger age groups residing in the city centre. [Figure 2](#) provides an overview of these emerging needs.

4.2 New service concepts co-developed in a qualitative online focus group

Two access-based concepts were selected for evaluation and development in the online focus group based on the survey results and the logistics company’s initial plans. The company viewed washing machines as an attractive option, having already experienced success in delivering them to business-to-business clients. Washing machines also ranked as the third most promising option among consumers in the survey. The second concept chosen for development was “home office as a service,” ranked second among consumers. This choice was further justified by the significant market shift towards remote working, prompted by COVID-19 restrictions and new hybrid working policies. Although the highest



level of consumer interest was identified in home electronics, this category was excluded due to the company's lack of current partnerships with electronics retailers.

Most participants seemed neutral about whether to own or lease goods. Ownership was generally viewed as more economical and practical, although renting was considered a viable alternative if offered at a competitive price. The psychological need to own items, as opposed to merely accessing them, was not explicitly widespread among participants. However, implicit attitudes and norms may have influenced the ownership needs. The neutral attitude is exemplified by a 29-year-old man living close to the city centre:

For me, ownership is irrelevant as such. The price would determine whether I would want to rent or not. After all, even when you rent a house, you have to rent big appliances.

Frequency of use was a key consideration for many; renting items that were infrequently used was viewed as reasonable. Generally, items of personal importance and regularly used were more likely to be owned rather than leased. A 27-year-old woman living near the city centre regards ownership as easier than renting and highlights the durability of the items:

I could rent, but I also feel that it might be easier to just buy it myself, because products like this are supposed to be 'everlasting'. If I were in a situation where I was temporarily living somewhere for work, for example, I would prefer to rent them if I knew I wouldn't be using them until they broke down[.].

A text-based and raw visual description of the two service concepts, namely, the washing machine and the home office, were presented to focus group participants. The main features and functionalities of these services were outlined in the concepts. The overall impression of "the washing machine as a service" was that it "kind of makes sense," though its adoption would depend on factors such as price and contract termination options. Some respondents noted that the cost of repairing a washing machine could exceed that of purchasing a new one, thereby highlighting the importance of the maintenance services included in the concept. The washing machine leasing model was deemed particularly useful for those residing in a location temporarily. A 29-year-old male living near Helsinki city centre articulated his price-sensitive expectations:

I could imagine renting a washing machine. The only thing I'm thinking about is the price. Would it cost more than owning one? Where is the limit when it's beneficial to lease one and when to buy?

Consumers were encouraged to envision future features related to washing machines as a service. The service was imagined to include detergents as well as the option of using an external laundry for clothes that cannot be washed in the machine. Consideration was also given to the machine's connectivity to smart home functionalities. This open ideation rendered the concept both flexible and comprehensive for the consumer, and the participants were able to effortlessly critique, expand and modify the presented service concepts. A 27-year-old woman envisioned a laundry connection as an added service:

Some kind of possibility to send clothes to the laundry that cannot be washed in your own washing machine could be included in the price of the service.

The second concept discussed was a "home office as a service". This service would include essential furniture, lighting and electronics installation. Nearly all participants engaged in some form of remote work, yet many lacked a dedicated workspace at home. They anticipated continuing with some remote work even after pandemic restrictions had been lifted. However, they had not significantly invested in their domestic working environments. Despite these substantial changes in lifestyle, the home office concept received only moderately positive feedback. Many participants were content with their pared-down working conditions, comprising just a chair and a table, rendering a comprehensive service concept unnecessary. A 35-year-old male from a suburb near the city centre elaborates on this:

[The home office service] could be quite OK. I live in a two-room apartment with my spouse, and the working space is in the corner of the living room, so there's no need for a separate office – making this kind of service unnecessary. The employer takes care of the electronics and provides help when needed.

Consumers expected a high level of flexibility from the service, including the ability to choose furniture and use the service for varying durations. On the other hand, there was no significant interest expressed in additional services, such as the disposal of old furniture, assembly of new furniture or the availability of spare parts.

5. Discussion and conclusions

5.1 Consumers' willingness to use access-based products

The study examined access-based service concepts and consumers' future expectations. These were assessed through an online survey and focus group, informed by the collaborating logistics company's business strategies. The results indicated that participants generally held neutral views on ownership versus renting, with decisions often based on practical considerations such as price, frequency of use, maintenance features and existing living conditions. Consumers sought flexibility in the service models but also demonstrated a degree of self-sufficiency regarding additional services. Overall, the highest potential for new access-based services appears among younger individuals living in the city centre, and income level, life stage and living conditions seemed to influence these preferences. Younger respondents were also more willing to use shared goods and rent products in the future.

The findings extend the previous knowledge base on access-based consumption from both strategic business development and applied customer foresight perspective. There seems to be no significant shift towards access-based consumption, as also noted by [Godelnik \(2017\)](#). However, indicators of change can be detected. Specific segments of the population appear more receptive to new forms of consumption and ownership, with access-based models appearing particularly suitable at certain life stages. The respondents' attitudes towards ownership were generally neutral, signalling openness to new consumption models. Ultimately, consumers expect leasing models to offer economic value and competitive pricing compared to traditional ownership and established business models in the market. A high level of price sensitivity was evident throughout the study. The pricing models of access-based services may not be familiar to many consumers, causing a cautious reception. Raising awareness has been identified as a critical area for development in access-based consumption ([Arekrans et al., 2022](#)).

The consumers did not strongly associate access-based consumption with sustainability, even though younger age groups generally had higher sustainability expectations regarding last-mile logistics. It might not be clear and transparent to consumers whether renting is more sustainable than owning, as also noted by the study of [Gullstrand Edbring et al. \(2016\)](#). However, the shift towards more sustainable production and consumption may necessitate new forms of access-based and circular business models, which could extend the lifecycle and utilisation rate of products. Earlier research has indicated that access-based household laundry services have a significant environmental impact potential ([Wasserbauer et al., 2020](#)). This study also highlighted a need for potentially environmentally friendly value-added services, such as furniture recycling and logistics of second-hand goods. However, the respondents' self-sufficiency with respect to most additional services emerged as a barrier to developing comprehensive last-mile service solutions. For example, the respondents did not report time scarcity or a lack of skills, factors that could create a need for additional services, such as furniture assembly.

Access-based services have both practical and symbolic implications, as [Smaniotto et al. \(2020\)](#) have noted. In the material and spatial sense, they may require consumers to adjust their daily lives, such as committing to a service subscription or reorganising their homes. However, these considerations did not appear to be critical to the respondents of this study. Similarly, the symbolic dimension of values and identities was not deemed significant, which

can perhaps be attributed to the mundane nature of the services. Economical and practical reasons were the main incentives for using access-based goods in this study, and no significant symbolic capital attached to the access-based consumption of household items could be identified. Access-based services did not appear to be “trendy” in consumer culture. However, earlier research has indicated that access-based consumption can carry symbolic capital. For example, in the study by [Bardhi and Eckhardt \(2012\)](#), young urban consumers viewed access to car-sharing as cheaper, more convenient and flexible compared to car ownership. It should be noted, however, that a car is a more valuable item, is used differently, and carries different kinds of symbolic qualities. Home appliances do not have the same visibility in social life, thereby emphasising their utilitarian nature.

The respondents did emphasise certain ecological aspects in their use of logistics services. An increase in access-based consumption could occur due to environmental reasons, which last-mile service providers must be able to communicate effectively. Environmentally conscious, political consumerism could be a variable influencing consumers’ willingness to engage in access-based consumption, as also noted by [Catulli et al. \(2013\)](#). Such ecologically positive sentiment was identifiable in the consumption of recycled goods in this study, which also called for logistics innovation. As consumers’ ecological concerns, regulatory pressures and technological innovations drive the green transition in many markets, sustainability is evidently becoming a cornerstone in last-mile providers’ strategies – requiring its implementation in the last-mile customer interface as well.

Engaging consumers throughout the service innovation process helps foresee promising features and possible limitations to the new concepts before they enter the mass market. For example, this study pointed out that the success of access-based services in a business-to-business context was not wholly applicable in the consumer context. Even if the consumers were ambiguous in their ownership attitudes, the access-based service models were not wholly able to communicate the consumer benefits. In addition, the research also uncovered new areas of last-mile consumer innovation, such as the transportation of goods in peer-to-peer commerce. Logistics service providers should strategically adopt new services, innovative delivery models and communication interfaces, and the consumers’ expectations and concerns should be addressed at the service design stage to maintain customer trust and loyalty, as also highlighted by [Vakulenko et al. \(2019a, 2019b\)](#).

5.2 Managerial implications

This article primarily investigated the strategic option of increasing the number of services at the last-mile consumer interface. Consumers are already used to additional services included in deliveries, such as installation and recycling options. They also have experience or at least awareness of using access-based products in specific product categories, such as leasing cars. However, being an intermediary in the access-based consumption of various household goods carried only limited potential for logistics companies. The same applies to adding other services to the home delivery touchpoint. On the other hand, consumers anticipated using more online stores and home delivery services in the future, which supports the current business model and general growth potential of last-mile service providers, even though this simultaneously creates environmental and traffic-related challenges. The need for functionality and simplicity in services was evident, as noted also by [Borgström et al. \(2021\)](#).

According to the company in the study, the study allowed them to identify consumer needs and respond to them. The company had also developed its service portfolio, which led to business growth, also documented in its public financial figures. The company has developed a direct-to-consumer online store, which offers installation and recycling services that are already familiar to consumers. Via retailers, the company offers transportation, installation, recycling and delivery tracking services. It also offers a laundry-as-a-service concept for businesses. The company’s current value promise emphasises future customer experience, emphasising the importance of customer-centric operations.

Logistics companies should nevertheless not discount the phenomenon of access-based consumption and product-service systems enabling it. The relatively higher levels of interest among young consumer groups may indicate a gradual transition towards new forms of consumption – or at least a possibility to offer different kinds of services to different customer segments. Pressing sustainability concerns may lead to consumer preferences and industry regulation driving the adoption of access-based consumption. If the overall flexibility in consumer culture increases, as noted by [Caldwell and Henry \(2020\)](#), consumers may be increasingly willing to use service models that allow temporary access. Therefore, it remains vital for logistics service providers and retailers to monitor emerging trends and signals in consumer behaviour and respond accordingly.

5.3 Limitations and future research avenues

The study is not without limitations. The data was collected solely from the Helsinki capital area in Finland, and even if the metropolitan area of ca. 1.2 million people can be compared to European cities of the same size, the findings are not widely generalisable. However, the relatively large and representative sample of 1,000 respondents can be considered valid and reliable for the selected area. The study approach included only one SME company. However, expanding the study to companies of different sizes, locations and positions in the logistics value chain would likely uncover broader business implications and development trajectories for the industry.

Methodologically, the study attempted to be at the intersection of consumer research and corporate foresight and mainly relied on consumer research approaches as the more general trend identification, innovation scanning and service benchmarking were conducted before. Increasing corporate foresight and consumer research data triangulation throughout the project could have enriched the findings. The study also does not consider the opinions and preferences of other value chain stakeholders, such as manufacturers and retailers. Expanding data collection across the value chain would facilitate a more comprehensive understanding of the phenomenon.

References

- Araújo, F.A., de, Reis, J.G.M. and dos Cruz Correia, P.F.D.A. (2020), "The role of last-mile delivery in the future of e-commerce", *IFIP Advances in Information and Communication Technology*, Vol. 591 IFIP, pp. 307-314, doi: [10.1007/978-3-030-57993-7_35](https://doi.org/10.1007/978-3-030-57993-7_35).
- Arekrans, J., Sopjani, L., Laurenti, R. and Ritzén, S. (2022), "Barriers to access-based consumption in the circular transition: a systematic review", *Resources, Conservation and Recycling*, Vol. 184, p. 106364.
- Bardhi, F. and Eckhardt, G.M. (2012), "Access-based consumption: the case of car sharing", *Journal of Consumer Research*, Vol. 39 No. 4, pp. 881-898, doi: [10.1086/666376](https://doi.org/10.1086/666376).
- Bates, O., Friday, A., Allen, J., Cherrett, T., McLeod, F., Bektas, T., Nguyen, T., Pieczyk, M., Piotrowska, M., Wise, S. and Davies, N. (2018), "Transforming last-mile logistics: opportunities for more sustainable deliveries", Conference on Human Factors in Computing Systems – Proceedings, 2018-April, doi: [10.1145/3173574.3174100](https://doi.org/10.1145/3173574.3174100).
- Belk, R. (2014), "You are what you can access: sharing and collaborative consumption online", *Journal of Business Research*, Vol. 67 No. 8, pp. 1595-1600, doi: [10.1016/J.JBUSRES.2013.10.001](https://doi.org/10.1016/J.JBUSRES.2013.10.001).
- Caldwell, M. and Henry, P.C. (2020), "The continuing significance of social structure in liquid modernity", *Marketing Theory*, Vol. 20 No. 4, pp. 547-572, doi: [10.1177/1470593120948111](https://doi.org/10.1177/1470593120948111).
- Carbone, V., Rouquet, A. and Roussat, C. (2018), "A typology of logistics at work in collaborative consumption", *International Journal of Physical Distribution & Logistics Management*, Vol. 48 No. 6, pp. 570-585, doi: [10.1108/JPDLM-11-2017-0355](https://doi.org/10.1108/JPDLM-11-2017-0355).
- Catulli, M., Cook, M. and Potter, S. (2017), "Consuming use orientated product service systems: a consumer culture theory perspective", *Journal of Cleaner Production*, Vol. 141, pp. 1186-1193, doi: [10.1016/J.JCLEPRO.2016.09.187](https://doi.org/10.1016/J.JCLEPRO.2016.09.187).

- Catulli, M., Lindley, J.K., Reed, N.B., Green, A., Hyseni, H. and Kiri, S. (2013), "What is mine is not yours: further insight on what access-based consumption says about consumers", *Research in Consumer Behavior*, Vol. 15, pp. 185-208, doi: [10.1108/S0885-2111\(2013\)0000015012](https://doi.org/10.1108/S0885-2111(2013)0000015012).
- Deloison, T., Hannon, E., Huber, A., Heid, B., Klink, C., Sahay, R., Wolff, C., Deloisonb, T., Hannon, E., Huber, A., Heid, B., Klink, C., Sahay, R. and Wolff, C. (2020), "The future of the last-mile ecosystem", World Economic Forum, January, available at: www.weforum.org/publications/the-future-of-the-last-mile-ecosystem/
- Deloitte (2023), "2023 Global smart last-mile logistics outlook".
- Eller, E., Hofmann, R. and Schwarz, J. (2020), "The customer foresight territory", *Marketing Review St. Gallen*, Vol. 3 No. 3, pp. 12-19.
- Fielding, C.N., Lee, R.M. and Blank, G. (2008), *The SAGE Handbook of Online Research Methods: Online Focus Groups*, pp. 290-307.
- Godelnik, R. (2017), "Millennials and the sharing economy: lessons from a 'buy nothing new, share everything month' project", *Environmental Innovation and Societal Transitions*, Vol. 23, pp. 40-52, doi: [10.1016/J.EIST.2017.02.002](https://doi.org/10.1016/J.EIST.2017.02.002).
- Gruen, A. (2016), "Design and the creation of meaningful consumption practices in access-based consumption", *Journal of Marketing Management*, Vol. 33 Nos 3/4, pp. 226-243, doi: [10.1080/0267257X.2016.1229688](https://doi.org/10.1080/0267257X.2016.1229688).
- Gullstrand Edbring, E., Lehner, M. and Mont, O. (2016), "Exploring consumer attitudes to alternative models of consumption: motivations and barriers", *Journal of Cleaner Production*, Vol. 123, pp. 5-15, doi: [10.1016/J.JCLEPRO.2015.10.107](https://doi.org/10.1016/J.JCLEPRO.2015.10.107).
- Hagen, T. and Scheel-Kopeinig, S. (2021), "Would customers be willing to use an alternative (chargeable) delivery concept for the last mile?", *Research in Transportation Business & Management*, Vol. 39, p. 100626, doi: [10.1016/J.RTBM.2021.100626](https://doi.org/10.1016/J.RTBM.2021.100626).
- Holdorf, S. and Haasis, H.D. (2014), "Last mile delivery concepts in E-Commerce an empirical approach", SKIMA 2014 – 8th International Conference on Software, Knowledge, Information Management and Applications, doi: [10.1109/SKIMA.2014.7083550](https://doi.org/10.1109/SKIMA.2014.7083550).
- Hu, M.K. and Kee, D.M.H. (2022), "Fostering sustainability: reinventing SME strategy in the new normal", *foresight*, Vol. 24 Nos 3/4, pp. 301-318, doi: [10.1108/FS-03-2021-0080](https://doi.org/10.1108/FS-03-2021-0080).
- Jacobs, K., Warner, S., Rietra, M., Mazza, L., Buvat, J., Khadikar, A., Cherian, S. and Khemka, Y. (2019), "The last-mile delivery challenge", *Capgemini Research Institute*, pp. 1-40.
- Juhász, J. and Bányai, T. (2018), "Last mile logistics: an integrated view", *IOP Conference Series: Materials Science and Engineering*, Vol. 448 No. 1, p. 12026, doi: [10.1088/1757-899X/448/1/012026](https://doi.org/10.1088/1757-899X/448/1/012026).
- Lawson, S.J., Gleim, M.R., Perren, R. and Hwang, J. (2016), "Freedom from ownership: an exploration of access-based consumption", *Journal of Business Research*, Vol. 69 No. 8, pp. 2615-2623, doi: [10.1016/J.JBUSRES.2016.04.021](https://doi.org/10.1016/J.JBUSRES.2016.04.021).
- Lim, S.F.W.T., Jin, X. and Srari, 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*, Vol. 48 No. 3, pp. 308-332, doi: [10.1108/IJPDLM-02-2017-0081](https://doi.org/10.1108/IJPDLM-02-2017-0081).
- Mangiaracina, R., Perego, A., Seghezzi, A. and Tumino, A. (2019), "Innovative solutions to increase last-mile delivery efficiency in B2C e-commerce: a literature review", *International Journal of Physical Distribution & Logistics Management*, Vol. 49 No. 9, pp. 901-920, doi: [10.1108/IJPDLM-02-2019-0048](https://doi.org/10.1108/IJPDLM-02-2019-0048).
- Poppel, M., Ringbeck, J. and Spinler, S. (2022), "How will last-mile delivery be shaped in 2040? A Delphi-based scenario study", *Technological Forecasting and Social Change*, Vol. 177, p. 121493, doi: [10.1016/J.TECHFORE.2022.121493](https://doi.org/10.1016/J.TECHFORE.2022.121493).
- Poppelaars, F., Bakker, C. and van Engelen, J. (2018), "Does access trump ownership? Exploring consumer acceptance of access-based consumption in the case of smartphones", *Sustainability*, Vol. 10 No. 7, p. 2133, doi: [10.3390/SU10072133](https://doi.org/10.3390/SU10072133).
- Posti (2020), "Tiivistelmä international post corporationin (IPC) julkaisemasta rajat ylittävistä verkkokauppatutkimuksesta", available at: <https://minun.posti.fi/hubs/Tutkimukset/kansainvalinen-verkkokauppatutkimus-2020.pdf>
- Ranieri, L., Digiesi, S., Silvestri, B. and Roccotelli, M. (2018), "A review of last mile logistics innovations in an externalities cost reduction vision", *Sustainability*, Vol. 10 No. 3, p. 782, doi: [10.3390/SU10030782](https://doi.org/10.3390/SU10030782).

- Rousseau, S. and Carmen, R. (2021), "Consumer attitudes towards circular business models and activities", Center for Economics and Corporate Sustainability (CEDON) (Pub. N. 15), available at: https://circulareconomy.europa.eu/platform/sites/default/files/consumer_attitudes_towards_circular_business_models_and_activities.pdf
- Scandit (2021), *Is Your Last Mile Technology Fit for Purpose? Industry Challenges & Device Choice*, Scandit AG.
- Schweitzer, N., Hofmann, R. and Meinheit, A. (2019), "Strategic customer foresight: from research to strategic decision-making using the example of highly automated vehicles", *Technological Forecasting and Social Change*, Vol. 144 No. February, pp. 49-65, doi: [10.1016/j.techfore.2019.04.004](https://doi.org/10.1016/j.techfore.2019.04.004).
- Smaniotto, C., Emontspool, J. and Askegaard, S. (2020), "Consumption logistics and the ordering of market systems", *Marketing Theory*, Vol. 21 No. 1, pp. 93-112, doi: [10.1177/1470593120948119](https://doi.org/10.1177/1470593120948119).
- Stewart, K. and Williams, M. (2005), "Researching online populations: the use of online focus groups for social research", *Qualitative Research*, Vol. 5 No. 4, pp. 395-416.
- Thongsri, N., Warintarawej, P., Chotkaew, S. and Seksan, J. (2022), "A novel extended design thinking approach and predicting antecedents of food friend application acceptance during the covid-19 outbreak", *foresight*, Vol. 24 No. 3/4, pp. 408-428, doi: [10.1108/FS-01-2021-0021](https://doi.org/10.1108/FS-01-2021-0021).
- Vakulenko, Y., Shams, P., Hellström, D. and Hjort, K. (2019a), "Service innovation in e-commerce last mile delivery: mapping the e-customer journey", *In Journal of Business Research*, Vol. 101, pp. 461-468, doi: [10.1016/j.jbusres.2019.01.016](https://doi.org/10.1016/j.jbusres.2019.01.016).
- Vakulenko, Y., Shams, P., Hellström, D. and Hjort, K. (2019b), "Online retail experience and customer satisfaction: the mediating role of last mile delivery", *Distribution and Consumer Research*, Vol. 29 No. 3, pp. 306-320, doi: [10.1080/09593969.2019.1598466](https://doi.org/10.1080/09593969.2019.1598466).
- Wasserbauer, R., Sakao, T., Ljunggren Söderman, M., Plepys, A. and Dalhammar, C. (2020), "What if everyone becomes a sharer? A quantification of the environmental impact of access-based consumption for household laundry activities", *Resources, Conservation and Recycling*, Vol. 158, p. 104780, doi: [10.1016/J.RESCONREC.2020.104780](https://doi.org/10.1016/J.RESCONREC.2020.104780).
- William, B. (2012), "Evaluating the efficacy of focus group discussion (FGD) in qualitative social research", *International Journal of Business and Social Science*, Vol. 3 No. 7, pp. 54-57.
- Zijm, H. and Klumpp, M. (2017), "Future logistics: what to expect, how to adapt", *Lecture Notes in Logistics*, pp. 365.-379, doi: [10.1007/978-3-319-45117-6_32](https://doi.org/10.1007/978-3-319-45117-6_32).

About the author

Pauli Komonen (MSocSc) is a Senior Scientist at VTT Technical Research Centre of Finland. Komonen's research is at the intersection of corporate foresight, consumer research and strategic management. Komonen has over a decade of experience advising companies in strategic foresight and customer insight, including clients in industries such as logistics, telecom, FMCG and energy. In addition, Komonen has provided expert commentary and opinion articles on leading Finnish television channels, radio programs and newspapers. Pauli Komonen can be contacted at: pauli.komonen@vtt.fi

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com