



Investigating the Sustainability of Crowd Delivery Businesses in Three Pillars

Elif, İzcan, Izmir University of Economics, elif.izcan@std.izmirekonomi.edu.tr

Aysu, Göçer, Assoc. Prof., Izmir University of Economics, aysu.gocer@ieu.edu.tr

Ceren, Altuntaş Vural, Assoc. Prof., Chalmers University of Technology,

ceren.altuntasvural@chalmers.se

Abstract

Purpose: With the growth of e-commerce, customers choose to shop more from the comfort of their homes via the internet instead of going to physical stores. This led to the high and steadily rising volumes of e-commerce (Chevalier, 2022), which in result, drastically changed the way goods circulate and increased freight transportation as the merchandise now reaches end users' doorsteps. The stage of freight shipment, where packages arrive at their destination, is known as "last mile delivery" (Dupljanin et al., 2019), where traditional courier services typically handle shipments via their employed personnel driving motorized corporate vehicles.

Last-mile delivery services is experiencing a surge in implementation of crowd-sourced delivery (CD). This method is envisioned as an innovative service in managing tension between delivery speed and cost, while providing work for individuals and lessening the negative effects that rapidly growing last mile delivery operations have on the economy, society, and environment (Castillo et al., 2018). It is given rise as a novel delivery approach by the gig economy, which entails engaging non-employee individuals to transport goods for the requesters and facilitating their interaction through the internet (Savelsbergh and Ulmer, 2022).

In the literature, it is a commonly observed phenomenon that CD is consistently acknowledged for its favorable impact on sustainability (Buldeo Rai et al., 2017; Rześny-Cieplińska and

Szmelter-Jarosz, 2019; Szmelter-Jarosz and Rześny-Cieplińska, 2020; Szmelter-Jarosz and Rześny-Cieplińska, 2020). Despite its contributions to sustainability, CD is also criticized to have risks (Gläser et al., 2021) that undermine the positive effects, such as, challenges in gathering and maintaining a critical mass of customers and couriers, liability concerns, trust, and effectiveness of deliveries (Rougès and Montreuil, 2014). Moreover, recent news from the field shows that the social, environmental and economic conditions of CD businesses are more than that is mentioned in the literature.

In consideration of the voice from the field, it is evident that the CD system in the gig economy is encountering obstacles in terms of social, environmental and economic sustainability, and is failing to fulfill the anticipated earnings, equity, and safety standards of its stakeholders. Therefore, a comprehensive assessment of the potential risks and benefits of CD businesses for social, environmental and economic aspects is necessary both for directing research and practice to contribute to the development of the sustainability of this delivery method. In that respect, this study aims to examine the ramifications of CD businesses across environmental, social, and economic dimensions for different stakeholders by complementing and comparing the information from the literature with the field data and provide insight for improving the sustainability of CD businesses. In that respect, following research questions are introduced for the study; RQ1: *What are the risks and benefits of CD businesses for social, environmental and economic dimensions of sustainability?* RQ2: *What are the research directions and recommendations for improving the sustainability of CD businesses?*

Methodology: A multi-method approach is applied, which implements a thorough systematic literature review and a series of semi-structured interviews with crowd couriers and company representatives. The systematic literature review method was employed by following the essential steps as described in Pati and Lorusso's (2018) study using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) criteria to provide a comprehensive overview of both the scope and content of previous studies on CD. This enabled an understanding of the focus of research and the extent to which CD businesses serve sustainability dimensions. As a result, research gaps on CD are subsequently identified, which are then used to develop semi-structured interview questions. Subsequently, semi-structured interviews are conducted, given that the application of CD to last mile delivery operations is a

newly emerging field of both business and academia, and there is a dearth of empirical research on this specific topic (Flick, 2014). In the research, participants are first determined through purposive sampling (Eisenhardt, 1989), which is complemented through snowball sampling in cases where the initial participants directed the researchers to another participant to learn more about the topic (Noy, 2008). Research context is determined from a developing country, Türkiye as many CD studies are conducted in developed economies, but few have examined the emerging economies (Alharbi et al., 2022). This study analyzes qualitative data from the interviews through content analysis to uncover, code and classify underlying patterns of benefits and risks of CD businesses for the social, environmental and economic dimensions for three key stakeholders (Patton, 2002), namely, service delivery company, customer and the crowd courier. Furthermore, comparative content analysis is applied to research and field data to reveal the benefits and risks of CD businesses for the three pillars of sustainability and identify the research directions and recommendations for improving its sustainability. Fossey et al.'s (2002) criteria is utilized to validate the process of examination and evaluation in this study.

Findings: The overview of the literature review reveals various insights about the scope of CD businesses and the focus of academic work in the area. First, although the terminologies used for crowd couriers are quite close, the definitions are made from different angles, such as ‘occasional drivers or independent contractors’ or as ‘simultaneous drivers’. Besides, it is reported by the analysis that the academic attention on CD businesses starts by 2016 and is slightly increasing since then. Despite the increasing interest on the area, CD-related publications are still concentrated by some specific journals and publishers. It is also outlined that majority of the studies are quantitative, and qualitative as well as mixed methods are remarkably low. Besides, the source of data in most of the research is secondary data and depends on assumption-based analysis, with relatively lower studies conducted by primary data. Moreover, most of the studies focus on single-actor perspectives, whereas dyadic and triadic studies are lower. In terms of sustainability focus, the research on CD businesses is very low in the social and environmental dimensions.

The comparative content analysis of systematic literature review and interviews outlined different perspectives of the academic studies and field data in relation to the benefits and risks

of CD businesses for the three pillars of sustainability. In general, three categories are outlined as validated, transformed or new; indicating that previous studies and practice shows similarities for some criteria of benefits and risks, whereas addresses to some differences, which would either be a transformation or a newly raised aspect for any of the pillars of sustainability or a stakeholder of CD businesses. The validated group refers to the criteria that are found to be consistent with or identical to the criteria identified in the literature. Conversely, transformed criteria are the field practices that are found to be contradictory to the literature. For example, some benefits stated in the literature are not found to be experienced in the field. Furthermore, their absence is found to be causing risks in practice. Furthermore, a comparison of the two sets of data revealed that some of the criteria identified as risks in the literature were transformed into benefits in the field by the implementation of certain safety measures. In addition, there are also newly identified risks or benefits in the field, which are not mentioned in the previous studies. Besides, some of the criteria identified in the literature as risks or benefits for one stakeholder are entirely novel or indicated as such for another stakeholder than those described in the interviews.

Research limitations/implications: This study shows that current literature has a narrow focus on CD sustainability. In contrast to the literature, there are a variety of social, environmental and economic practices of CD businesses in the field. For a broader perspective on the issue, the economic, social and environmental value creation for stakeholders needs to be further addressed. Existing studies do not examine whether the actual distribution of economic benefits makes each stakeholder better off and whether the process of allocating the financial value created is fair. Customers are mentioned as being satisfied with reduced delivery prices, but suppliers are only mentioned as receiving small compensation for delivery tasks (Schaltegger et al., 2019). The currently used narrow research on CD sustainability therefore runs the risk of focusing on a single actor and mostly ignoring the stakeholder groups (Schaltegger et al., 2019). Besides, achieving economic success, environmental protection, and social well-being all at once is necessary on the route to full sustainability (Lozano, 2008). As a result, when considering the present and future of organizations from a commercial viewpoint, we can assert that all three dimensions should be considered equally in order to build an effective and durable structure in the modern world. It is clear that there are significant differences between the literature, existing business practices and the proposed standards for full sustainability. Despite

this very significant discrepancy between current expectations and actual behaviour, it can be argued that all actors have a moral obligation to pursue full sustainability. The findings of this study also have implications for managers seeking to make more accurate and ethical decisions for ensuring social, environmental and economic welfare.

The limitations of this study provide avenues for further research. The scope of this study can be expanded to encompass additional primary and secondary stakeholder perspectives, or alternatively, it can be extended to include multiple stakeholders. A comparison between developed and developing economies would also provide a more nuanced understanding of the sustainability of CD businesses.

Originality/Value: This paper adapts a novel perspective on CD businesses and contributes by complementing and comparing research and field data to outline the discrepancies on the benefits and risks of CD businesses for the three pillars of sustainability. The comparative analysis outlined validated, transformed and new benefits and risks of CD businesses in the three pillars of sustainability, which provides an outline for stakeholder issues to be aligned and addressed. The findings of this study provide comprehensive content for CD businesses to build up better relationships between the company and its stakeholders, provide ground to create higher value, avoid ethical failures and advance sustainability, which in return may provide managers both academic and practical insights.

Keywords: Last Mile Delivery, Crowd Delivery, Sustainability, Three Pillars

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