2025, 07(02): 45-61
e-ISSN: 2687-5101

SKETCH

Research Article | Araştırma Makalesi

Journal of City and Regional Planning
Şehir ve Bölge Planlama Dergisi

THE IMPACT OF E-COMMERCE ON URBAN AREA: A PHENOMENOLOGICAL ANALYSIS AND DISCUSSIONS ON ANKARA

E-Ticaretin Kentsel Alana Etkisi: Fenomenolojik Bir Analiz ve Ankara Üzerine Tartışmalar

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Abstract

The literature highlights both the direct spatial impacts of e-commerce—such as logistics, warehousing, and mobility—and the indirect spatial impacts, including urban economy and waste generation. Despite this, urban planning processes largely overlook e-commerce and related activities. To address this gap, this study conducts a phenomenological analysis of the spatial implications of e-commerce and offers recommendations for adapting urban planning practices in the context of Ankara. The analysis is based on interviews with nine stakeholders, aiming to capture the experiences of individuals affected by or affecting e-commerce activities and to integrate their insights into planning strategies. While the primary focus is on the impact of e-commerce in urban areas, remarks were also obtained regarding Ankara. The results confirm the spatial aspect of e-commerce and demonstrate that stakeholders' concerns align closely with the current literature. Participants emphasized that the geographical dimensions of e-commerce necessitate integrating the phenomenon into urban planning. In the context of Ankara, effectively integrating e-commerce into urban planning requires prioritizing sustainable economic development while mitigating environmental impacts. This approach will enhance the efficiency of urban logistics and promote equitable access to e-commerce benefits across different regions. By addressing these concerns, Ankara can serve as a model for other cities aiming to harmonize technological advancement with sustainable urban growth. Consequently, it is recommended that key urban planning elements—such as land use, transportation, infrastructure, and environmental sustainability—be integrated with e-commerce activities.

Keywords: electronic commerce, urban planning, phenomenological analysis

Received | Gönderim: 06.12.2025
Accepted | Kabul: 16.12.2025

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DOI: 10.5281/zenodo.18095362

Özet

Literatürde e-ticaretin lojistik, depolama ve mobilite gibi doğrudan mekânsal etkilerinin yanı sıra kent ekonomisi ve atık üretimi gibi dolaylı mekânsal etkileri de vurgulanmaktadır. Buna rağmen, kent planlama süreçleri e-ticareti ve ilgili faaliyetleri büyük ölçüde göz ardı etmektedir. Bu açığı kapatmak için bu çalışmada e-ticaretin mekânsal etkilerinin fenomenolojik bir analizi yapılmakta ve Ankara bağlamında kent planlarının e-ticarete uyumlanması için öneriler sunmaktadır. E-ticaret faaliyetlerinden etkilenen veya bu faaliyetleri etkileyen bireylerin deneyim ve içgörülerini planlama stratejilerine entegre etmeyi amaçlayan analiz, dokuz paydaşla yapılan görüşmelere dayanmaktadır. Birincil odak noktası e-ticaretin kentsel alanlardaki etkisi olmakla birlikte, Ankara ile ilgili görüşler de alınmıştır. Sonuçlar, e-ticaretin mekânsal doğasını doğrulamaktadır ve paydaşlar tarafından paylaşılan sorun alanlarının mevcut literatürle örtüştüğünü göstermektedir. Katılımcılar, coğrafi boyutları olan e-ticaret olgusunun kent planlamaya entegre edilmesi gerektiğini vurgulamışlardır. Ankara bağlamında, e-ticaretin kent planlamaya etkili bir şekilde entegre edilmesi için çevresel etkilerinin azaltılması ve sürdürülebilir ekonomik kalkınmaya öncelik verilmesi gerekmektedir. Bu yaklaşım, kentsel lojistiğin verimliliğini artıracak ve farklı bölgelerde e-ticaretin sunduğu avantajlara eşit erişimi teşvik edecektir. Bu sorunları gidererek Ankara, teknolojik ilerlemeyi sürdürülebilir kentsel büyümeyle uyumlu hale getirmeyi hedefleyen diğer şehirler için bir model oluşturabilir. Sonuç olarak, arazi kullanımı, ulaşım, altyapı ve çevresel sürdürülebilirlik gibi temel kent planlama unsurlarının e-ticaret faaliyetleriyle bütünleştirilmesi önerilmektedir.

Anahtar Kelimeler: elektronik ticaret, kent planlama, fenomenolojik analiz

1. INTRODUCTION

Digitalization has accelerated in recent years, significantly shaping the conventional meaning of commerce. Electronic commerce (e-commerce) is no longer an option for businesses to gain competitive advantage and expand globally; it has become an integral part of the commerce ecosystem, along with brick-and-mortar shops (Nahiduzzaman et al., 2019). Considering the complex and rapidly changing nature of the urban system, along with the rapid growth of the e-commerce sector, urban planning should adapt to this pace and complexity. E-commerce offers an opportunity in the urban economy; however, it also creates next-generation urban problems, such as environmental pollution and spatial and transportational inadequacy (Zhang et al., 2016; Siegfried et al., 2021).

While the growth of e-commerce has long been a focus of economists, interest in its impact on urban logistics, spatial planning, and transportation planning has received limited attention. Nevertheless, generations Y and Z are inclined to shop on online channels because of their rapid adaptation to the digital world (Bekar & Sağlam, 2022). On the sales side, growing digital marketplaces have created a commercial environment where sellers can reach an increasing number of customers. Technological and behavioural trends, coupled with the forced closure of businesses during the COVID-19 period and the subsequent loss of momentum in community mobility, have

inevitably led to the sudden rise of e-commerce both globally and in Türkiye. This rise occurred at such an unexpected pace, and the problems caused by e-commerce in urban areas have become a new topic of discussion in international literature.

Ankara has the second-highest e-commerce sales volume among all provinces of Türkiye (E-Ticaret Bilgi Platformu, 2024). It carries significant e-commerce potential, and the impacts of this development are experienced at the business and consumer levels. According to 2022 data from the Ministry of Trade of the Republic of Türkiye, 8.5% of e-commerce businesses in the country are in Ankara. The number of businesses engaged in e-commerce activities increased sevenfold from 2019 to 2022. Per capita e-commerce spending increased 3.4 times in 2020, 1.8 times in 2021, and 1.1 times in 2022 compared to the previous year (Republic of Türkiye Ministry of Commerce, 2023). According to data obtained from the Ankara Chamber of Commerce (ATO), twice as many companies listed online sales as their primary activity in 2020, the year the pandemic began, compared to the previous year. Furthermore, the fact that no companies in this sector have closed as of 2020 indicates that e-commerce has developed and been widely adopted in Ankara (Ankara Chamber of Commerce, 2023).

The spatial nature of e-commerce is predominantly out of focus since it does not require the use of physical space; however, e-commerce activities often involve the movement of merchandise in physical locations. Yet the impact of online shopping, which has become easier and more widespread with the increased use of information technologies, is still neglected in planning decisions (Aditantri et al., 2021). Especially in large cities, urban plans usually overlook the transformations related to retail, transportation, logistics, and real estate that e-commerce may cause, which is inconsistent with contemporary realities (Jaller et al., 2020). However, technology and society are known to play a crucial role in shaping contemporary cities: infrastructure such as transportation, telecommunications, energy, and information technology are vital parts of the urban landscape (Graham & Marvin, 2002). E-commerce should not be seen just as an economic activity; it must also be recognized as an urban phenomenon that changes centre-periphery relationships through digital communication networks, logistics, and urban circulation practices. It serves as a digital infrastructure that transforms the experience of physical stores, streets, and neighbourhoods. This transformation significantly influences perceptions of urban authenticity, the use of public spaces, and local commercial practices (Zukin, 2009). As cities interact with global flows, they also create new ways of differentiating and reconnecting locally (Graham & Marvin, 2002).

Currently, literature primarily examines the effects of e-commerce on urban space in terms of economic performance, logistical efficiency, and spatial distribution. However, it falls short in exploring how these processes change the phenomenological experience of urban life (Graham & Marvin, 2002) and how they reshape everyday spatial perceptions and practices in large cities like Ankara through digital infrastructures. Similarly, the current urban plans of Ankara fail to adequately address the needs of e-commerce; both its negative consequences and its benefits are overlooked. The role of e-commerce in planning, its advantages and disadvantages, can be shaped by stakeholder submissions. This participatory process can contribute to solving urban problems through decisions that do not cause a democratic deficit. In this context, the research presents the results of interviews with key stakeholders in the e-commerce ecosystem, the real estate and retail sectors that e-commerce may impact, and central and local governments, and interprets them within the context of

urban planning. These interviews, on the one hand, aim to explore stakeholders' thoughts and sectoral experiences on the impact of e-commerce on urban spaces and address its impact on urban spaces through a phenomenological assessment. They also provide insights into current and potential debates on e-commerce within the context of Ankara's urban landscape.

For Ankara, one of the focal points of e-commerce-based development, discussing the spatial impacts, status, and future of e-commerce through stakeholder perspectives is a good starting point for identifying strategic steps to ensure the economic and environmental sustainability of the opportunities e-commerce can provide. The study primarily examines the potential impacts of e-commerce on urban space, as well as the perceptions, emotions, and thoughts generated by professionals regarding current and future developments of e-commerce. Therefore, the second section also includes a literature review examining the potential impacts of e-commerce on urban planning. Following the third section, which synthesizes stakeholder perspectives, the fourth section discusses strategies for Ankara aimed at revealing the impacts of e-commerce on urban space and mitigating its negative impacts. Considering the importance of information technologies in urban life, considering e-commerce as a dynamic in urban planning is crucial. In this sense, the results will significantly contribute to urban planning authorities, as well as make stakeholders heard.

2. THE EFFECTS OF E-COMMERCE ON URBAN AREAS

The impact of e-commerce on urban areas can be assessed, drawing on the literature, within the context of the new types of accessibility that have emerged with e-commerce, the changing and evolving rural/urban economy, environmental impacts, and pressure on infrastructure.

E-commerce does not require reduction in physical travel; it allows consumers to purchase goods and services without wasting time on transportation. This convenience, which increases the trend toward online shopping, may impact public transportation volumes. Conversely, some share of passenger trips may be transferred to travel for product distribution. However, there is no consensus among studies on how online shopping, compared to physical shopping, impacts factors such as distance and frequency of urban travel (Pettersson et al., 2018). For instance, a study argues that e-commerce shopping complements physical shopping and does not reduce total amount of travel (Van Wee et al., 2013), while another study finds a modest decrease in personal travel in the Netherlands as a result of business-to-consumer (B2C) e-commerce, while there has been a slight increase in freight transportation (Weltevreden & Rotem-Mindali, 2009).

Another impact is contributing to the urban economy by creating new employment opportunities. The enlargement of e-commerce has a significant impact on the workforce structure in the transportation, logistics, customer relations, and information technology sectors. It stimulates the local economy in underdeveloped areas by enabling businesses to expand their customer bases and reach new markets (Zhang, 2019). In addition to expanding the commercial footprint, untenanting reduces operational costs (Nanda et al., 2021). New business areas such as drop shipping, e-commerce service providing, and network marketing have emerged through e-commerce. The sudden acceleration in online shopping, particularly during the pandemic, has led to an increase in the number of people using their own vehicles for business purposes, developing the growth of gig economy in urban areas. These developments can mean a loss of revenue for brick-and-mortar retail stores

that haven't adapted to e-commerce. Rural development driven by e-commerce, however, can cause diseconomy if not carefully planned. For example, while the rise of Taobao villages as a way to stimulate the economy in rural areas is cited as a rural development model in China that will reduce the income gap between rural and urban areas, research by Tang & Zhu (2020) reveals that the rapid growth of the local shoe industry in Zeguo, a Taobao village, has negatively impacted product pricing and labour costs, creating an informal sector. Nevertheless, the penetration of modern communication and globalization into rural areas can offer significant opportunities, such as reducing urban migration or even encouraging reverse migration, alleviating poverty in rural areas, and fostering rural revitalization (AliResearch, 2021).

The environmental impacts of e-commerce are a subject of extensive discussion in the literature (Mangiaracina et al., 2015; Guo et al., 2024). Packaging used during the preparation of an e-commerce order creates waste, and the frequent use of delivery vehicles leads to energy consumption and greenhouse gas emissions. Considering returned products, the high environmental cost of e-commerce becomes evident. Another issue is the lack of adequate urban and regional transportation and logistics infrastructure to meet the increasing demand proportional to the growth of e-commerce. Furthermore, inadequate transportation infrastructure negatively impacts the efficiency of deliveries and is seen as a limiting factor for businesses (Wong, 2003). From the perspective of urban residents, the increased use of delivery services for daily shopping may result in side road traffic problems (Tao & Qian, 2024). Research by Allen et al. (2018) found that the average package delivery truck makes 37 stops per trip, and because 95% of these stops are located at the curb, parking violations often occur. Beyond these pressures, it should be emphasized that payment systems for traffic-reducing and sustainable transportation alternatives, such as rentable electric scooters, are realized through the B2C e-commerce model.

3. THE PRESENT AND FUTURE OF E-COMMERCE: STAKEHOLDER INTERVIEWS

A qualitative study was conducted to get subjective information of stakeholders from e-commerce-related sectors on the present and future of e-commerce. Information was obtained through one-on-one interviews. The research methodology was based on phenomenology, and the questions were applied with a flexible approach. One focus was to describe "the potential spatial impacts of e-commerce". Experience in determining strategic steps to ensure the sustainability of e-commerce opportunities in economic and environmental contexts, as well as views on the future of e-commerce, were also asked. Nine individuals related to e-commerce activities based on their experiences were included in the sample (Table 1). According to Yıldırım and Şimşek (2013), the number of participants in phenomenological research should not exceed 10, since the number of people who can discuss the phenomenon is limited. The information obtained provides the opportunity to better understand the situation even if the results cannot be generalizable (Şimşek, 2012).

Thirteen open-ended questions were asked regarding stakeholder experiences. To refine the experiences into basic concepts, the interviews were grouped and evaluated. The responses were categorized into six groups: the impacts of e-commerce on urban areas and urban economy, spatial and strategic adaptation to growing e-commerce, the relationship between e-commerce and traditional commerce, and the future of e-commerce. To ensure a more consistent assessment, it was considered significant that each stakeholder expressed their opinions within their professional context rather than gave a view on all categories.

Table 1. *Sample distribution of stakeholder interviews*

Institution/sector to which the stakeholder belongs	Sample size
Logistics (Fulfilment Operations)	1
Retail (Retail Leasing Service)	1
Real Estate (Real Estate Development Service)	2
E-Commerce Website Design (E-Commerce Infrastructure Platform)	1
Digital Marketplace	1
E-Commerce Payment System (Virtual POS Service)	1
Local Government (Ankara Metropolitan Municipality)	1
Central Government (Republic of Türkiye Ministry of Environment and Urbanization)	1
Total	**9**

3.1. The Impacts of E-Commerce on Urban Areas and Urban Economy

Stakeholders from various fields agree that e-commerce is causing a decline in urban mobility. Generally, e-commerce is perceived as interacting with the logistics and warehousing sectors, requiring transportation and digital infrastructure. The prevailing view is that the potential impact on urban areas will be more rapid and significant than on rural areas, due to these digital infrastructure requirements.

The evaluation of the questions posed in the context of spatial and strategic adaptation to growing e-commerce is shared under four sub-headings: the retail sector, residential choice, transportation systems, and warehousing sectors.

3.1.1. The Impacts on Retail Sector

While 8 out of 9 stakeholders argue that e-commerce will negatively impact the future of the retail industry and physical shopping areas, the retail leasing specialist advocates for the ongoing significance of traditional commerce. According to retail leasing company data, capital turnover ratios and store expansions have increased as the effects of the pandemic subsided. The retail leasing specialist notes that the expansion and contraction of stores in shopping malls may alter their warehouse space needs. Logistics and distribution centres are suggested to be in shopping malls that may offer large square footage of warehouse space, which can let the two commerce types support each other. This synergy could lead to more efficient supply chains by optimizing operational costs.

According to the local government specialist, the Kızılay district in Ankara and some shopping malls there have already lost their commercial vitality. It's been noted that Kızılay, the old city centre, has weakened commercially compared to previous years and has become an economically depressed area. Stakeholders in local and central government emphasize the importance of transforming such areas by equipping them with new functions.

The e-commerce specialist predicts that digital marketplaces will transform physical shopping areas into spaces for exhibitions, product displays, and similar activities. Easier price/performance comparisons on e-commerce

platforms are a key factor in customer preference. She believes that soon, tiny shops and workplaces will meet the spatial needs for commercial functions in cities.

Real estate specialists note that the growth of digital marketplaces is forcing companies to be more competitive. Commercial rental values often rise rapidly due to exchange rate fluctuations, and the rising cost of physical stores is exacerbating this competition. According to a retail leasing specialist, expanding through online shopping channels is not a preferred option for businesses accustomed to traditional methods. Here, enterprises prioritize representing tradition through physical space.

Digital marketplace specialist highlights the benefits of two-way growth. Multi-channel sales are suggested to be prioritized. She expects traditional retail spaces to assume new roles, such as return and pickup points.

According to a specialist at a company offering virtual POS services, traditional retail businesses will gain an advantage if they choose to collaborate with e-commerce rather than compete with it. Adaptation in populated cities like Ankara could involve transforming retail spaces into some subsectors that have lost importance. For example, it's anticipated that large-space retail units like DIY and electronics stores won't need physical areas as much as they once did.

The logistics specialist believes that as the e-commerce trend continues, the traditional retail sector will be disrupted, and small businesses will face challenges. For him, the increasing need for larger distribution centres on the urban fringe will necessitate the establishment of more logistics hubs.

3.1.2. The Impacts on Residential Choice

We asked how online shopping for daily needs might influence residential choice in Ankara. Stakeholders underline a correlation between accessibility to express delivery and residential choice. Online shopping has become a chaotic part of daily life and is now part of urban culture. It can be considered a new factor representing residential choice in major cities like Ankara. According to a stakeholder with a role in central government, the context for this impact should be combined with basic needs such as socializing, staying at home, and mobility, as well as the conveniences offered by e-commerce.

The specialist in the e-commerce infrastructure platform states that meeting daily needs within close range is not a determining factor in residential choice, since these needs can now be met online. Shopping malls, schools, and green spaces influence residential location preferences more than commercial units, according to one real estate professional. However, commercial units that meet daily needs are generally located close to residential density, so for him, online shopping would not significantly impact residential choice. The other stakeholder from the same sector highlights that proximity to markets and groceries will no longer be as significant in residential choice. A stakeholder in a virtual POS company suggests that consumer habits, the backgrounds of various generations, and the socio-demographic structure influence the residential choice. Large families, for instance, persist in their engagement in wholesale shopping.

Another stakeholder believes that if services are available outside the city, people tend to live in urban sprawl areas. The retail leasing specialist discusses the duality between using online shopping for daily needs and residential

choice. Densely populated areas typically host online shopping services for daily needs. Therefore, developing parts of the city have limited online purchasing opportunities, although they still have room for improvement.

3.1.3. The Impacts on Transportation Systems

This topic focuses on responses related to sustainable mobility and transportation safety. Stakeholders assess that the increased use of express deliveries during the pandemic has altered traffic flow and increased traffic risks. A stakeholder involved in the central government states that increased motorcycle use increases traffic risks since some motorcycle couriers do not comply with traffic rules. For this stakeholder, large suppliers can reduce traffic congestion by using artificial intelligence tools to select locations at the neighbourhood level.

The specialist in the e-commerce infrastructure platform also states that transportation systems designed around private vehicles, trains, and subways are incompatible with the express delivery model. Based on this stakeholder's experience, cities need to reconsider their transportation plans to take motorcycle couriers into account. The retail leasing specialist also believes that the increase in the number of motorcycles and increased speeds reduce transportation safety in cities. The stakeholder recommends restricting the number of motorcycles for companies in the e-commerce ecosystem or implementing rules for limited lane usage on city roads. According to a real estate development professional, urban delivery mostly eliminates the need for a person to travel. Therefore, a slight decrease in personal travel and an increase in the number of delivery vans can be discussed. The other real estate development professional interviewed states that carelessness caused by quick commerce (Q-commerce) leads to loss of life and property. Delivery at certain times or on specific days is recommended to ensure safety.

The digital marketplace professional emphasizes that more efficient transportation and logistics would have both economic and ecological benefits. The stakeholder suggested solutions such as environmentally friendly vehicles or modes, car sharing, delivery restrictions in certain areas during peak hours, and the widespread use of parcel lockers. According to a stakeholder in a virtual POS company, economically and environmentally efficient delivery methods allow the breakthrough of the transportation and logistics sectors. To mitigate negative impacts, she recommends solutions such as sustainable delivery methods and route planning software. The specialist believes that decreased individual travel to physical stores could potentially lead to a cumulative reduction in transportation expenses. This could reduce the energy required for fuel and, indirectly, the current account deficit. The logistics specialist recommends implementing regulations such as hourly deliveries based on batch sizes or diversifying the size of vehicles used to avoid transportation congestion. The stakeholder notes that road-based deliveries are expected to be more intense, with the recommendation of integrating transportation modes to minimize the environmental impacts.

3.1.4. The impacts on Logistics and Warehousing Sectors

The consensus is that the demand for fulfilment centres and warehouses will keep growing. According to the urban planner working for the local government, Ankara's urban plans have been intended to attract industrial investment in the long term, and related planning decisions need land use solutions for logistics and warehousing as much as production. He asserts that spatial expansion is crucial, particularly in the industry and related sectors.

However, environmental impact assessments should be considered during the site selection phase. The stakeholder noted that the number of courier companies in the city centre has increased since the pandemic. Courier companies have found flexible solutions, such as "drop-off points," providing additional income for local businesses. Fulfilment centres play a more active role than warehouses. The stakeholder emphasizes the importance of suitable transportation infrastructure for fulfilment centres, ideally located just outside the city but still within close range. He also assessed that there will be a greater need for motorcycle parking in urban areas due to the provision of daily necessities by motorcycle couriers. The stakeholder stated that e-commerce-related offices generally choose locations in Bilkent Cyberpark, creating a cluster there.

The stakeholder from the central government considers harmonization within the logistics and warehousing sectors a smart city issue. Big data and cluster analysis need to be addressed for optimizing operations and strengthening the infrastructure. Furthermore, he assesses that offices and fulfilment centres must be located within the urban technical infrastructure, within a multi-cantered structure, and within the framework of a market economy. He anticipates that urban planning will now assume a more significant role in the e-commerce ecosystem.

The specialist in the e-commerce infrastructure platform says that logistics and warehousing were considered the most significant challenges faced by companies seeking to expand their businesses worldwide. Fulfilment centres need to be in fringe areas; thus, warehouses and product shipments can be carried out in large spaces close to the urbanized area. The stakeholder asserts that Kahramankazan provides favourable conditions for logistical development. Conformably, a real estate development professional thinks that it is necessary to locate the fulfilment centres and warehouses in the fringe area. The other real estate developer anticipates an increased need to strengthen logistics infrastructure in provinces like Ankara, where e-commerce activity is intense, and recommends that urban planning decisions address this need. According to him, the location of offices and fulfilment centres should vary depending on the type of product to increase supply chain efficiency.

The demand for fulfilment centres and warehouses is steadily increasing for the digital marketplace professional. Key steps to enhance logistics infrastructure include the creation of new logistics centres on urban peripheries with good accessibility, utilizing multiple micro-centres for distribution instead of a single mono-centre, adapting urban spaces, and minimizing land requirements through vertical warehousing. An ideal location for a large fulfilment centre serving Ankara should have advantageous transport access, adequate space for future expansion, low traffic density, and minimal security risks.

The stakeholder in the virtual POS company says a key step in serving customers quickly and effectively is the use of large warehouse spaces to stock products and process orders. Therefore, in this ecosystem, where cost and time management are crucial, strengthening the logistics infrastructure is a priority. She emphasizes that locations close to both fringe areas and critical transportation networks, rather than the city centre, are preferable, as otherwise, urban traffic will be negatively impacted. The stakeholder notes that the appropriate location of fulfilment centres will vary across provinces due to transportation and population density. For offices, it's important to choose locations with digital infrastructure and where they can collaborate with similar sectors, such as technology parks. In her opinion, technology parks in Çankaya, Ankara, can be selected for offices, while the Saray district can be selected for fulfilment centres.

The retail sector specialist points out that urban outskirts can address the growing warehouse needs. Adding to that, encouraging customers to use drop-off points can prevent delivery congestion. Such services should be organized at locations within a maximum of 10–15 minutes' walk, accessible 24/7, and provide uninterrupted communication, especially by phone. The stakeholder believes that selecting sites for fulfilment centres requires geography, population, settlements, the qualitative and quantitative relationships of the investment area, and transportation connections. She notes that the urban planning process plays a more bureaucratic role.

The specialist with an administrative role in fulfilment operations states that the sector is facing a rising need for fulfilment centres, with warehouses/distribution centres sought on urban peripheries. In response to sectoral demand—driven by factors such as low rental income and the need for large spaces—the number of logistics hubs in locations remote from the city but with convenient transportation options is estimated to increase. Future urban centres may see the emergence of small distribution warehouses, also known as hubs. When asked how offices should be positioned to increase supply chain efficiency, the specialist stated that the locational importance of offices is diminished due to the remote work option. The specialist emphasizes the ecological harms of meeting customer demands independently, noting that occupancy rates for large vehicles are decreasing due to differences in order timing.

3.2. The Relationship Between E-Commerce and Brick-and-Mortar

According to stakeholder responses, e-commerce and brick-and-mortar support each other under today's economic conditions. Stakeholders in central and local government argue that both types of commerce will exist in the future. However, according to the central government stakeholder, e-commerce will break the excessive growth of brick-and-mortar and transform the spaces of physical commerce.

The specialist in the e-commerce infrastructure platform predicts that e-commerce will dominate the future. Pointing out that both types of commerce have positive and negative aspects, the stakeholder states that the cost parameter required for e-commerce is lower than for brick-and-mortar. However, trust is a well-established element in the physical shopping experience.

The stakeholder from the digital marketplace states that e-commerce served as a substitute for brick-and-mortar during the pandemic, but after the pandemic, these two commerce types began to complement each other. In this context, both types will maintain their importance and continue to support each other in the future. Brick-and-mortar, on the other hand, is always essential for some urgent needs, such as medical products.

The stakeholder in the virtual POS company indicates that while the trend toward e-commerce increased during the pandemic, its momentum has diminished since then. Therefore, in current conditions, these two commerce types support each other according to this stakeholder's sectoral experience. It is expected that brick-and-mortar will dominate for up to two generations in the future; however, issues such as anti-globalization and support for local production and consumption may maintain the importance of physical commerce.

The retail leasing specialist states that e-commerce is expected to become increasingly prevalent due to future technological advancements. However, she notes that existing infrastructure must be updated or redesigned to effectively leverage these technologies. The stakeholder from the logistics sector points to the increasing use of

in-store pickup options. According to him, the service allows customers to diversify their purchasing experience. Creative solutions, such as opening pop-up stores in strategic locations in city centres, can make e-commerce a primary choice in the future.

3.3. The Future of E-Commerce

Stakeholders, when asked about their views on the future of e-commerce, largely expect the current trend to continue. The retail leasing specialist states that customers often reckon with e-commerce when leasing stores and kiosks today. The stakeholder in local government believes that local governments' ability to adapt to any improvement is hindered by the obligation to comply with central government decisions, the perfectionist approach of academics, and the demands of citizens. For such reasons, the cancellation of well-planned decisions renders the process inefficient. He asserts that adapting to e-commerce requires the removal of these obstacles. A stakeholder from the central government, on the other hand, emphasizes that spatial impacts are not considered in central government decisions regarding e-commerce, which tends to grow exponentially. However, spatial optimization is essential for the efficiency of e-commerce activities.

The digital marketplace specialist recommends future technological investments, improved logistics processes, and accurate analysis of consumer demands, leading to a focus on data analytics. According to the stakeholder from the virtual POS company, continued technological advancements will shape the sector. The use of artificial intelligence and data analytics will increase speed and reduce costs in online retail. According to her, it's necessary to act environmentally responsibly and adopt sustainable practices.

The stakeholder in the logistics sector notes that the government supports e-commerce and individual entrepreneurship through various institutions. Additionally, large logistics companies are quickly entering e-commerce logistics and expanding globally, according to this stakeholder's sectoral experience. The stakeholder emphasizes both the importance of e-commerce incentives and the need for enhanced entrepreneurial training. He calls for swift investment in cities that currently lack adequate digital infrastructure.

4. DISCUSSION

Stakeholders censured that developing e-commerce ecosystem in Ankara will significantly impact the urban area in various aspects. This highlights the necessity of discussing the issue within the framework of urban planning. Factors such as transportation infrastructure, land use, and the location of buyers and sellers, which drive e-commerce activities, make it a spatial phenomenon (Anderson et al., 2003). To effectively integrate e-commerce into Ankara's urban planning, it is essential to prioritize the sustainable development of economic opportunities. In this context, authorities should link e-commerce to the land use, transportation, infrastructure, and environmental sustainability that shape urban planning.

Logistics centres are meant to be designed in sites that can optimize the distribution network and be located away from city traffic and residential areas. A convenient location offers the advantage of reducing logistics costs, shortening delivery times, and leveraging existing infrastructure (Escudero-Santana et al., 2022; Rahmanifar et al., 2024). According to the Ankara Development Agency, the Ankara Logistics Base, the first

logistics base of Türkiye, occupies a critical position on the east-west and north-south axes (Ankara Development Agency, 2011). The logistics sector, which is increasingly important for both Türkiye and Ankara, is increasingly creating new employment opportunities in the region, particularly for warehouse workers (Iyzico, 2022). The current public transportation accessibility for employees in the sector is insufficient, resulting in a labour loss.

With the intensification of demand following the pandemic, stakeholder interviews indicate that companies seeking to expand their e-commerce operations in Ankara view the lack of logistics and storage capacity as a problem. Generally, fulfilment centres should choose locations away from urban traffic, close to transportation networks, and with land for expansion. The concentration of logistics activities in areas such as Elmadağ and Kahramankazan, which are far from the city centre but have good connectivity to major transport corridors, can be considered a significant indicator of spatial restructuring related to e-commerce. Repurposing unproductive industrial areas in these regions for logistics uses provides a notable discussion ground for understanding the urban and environmental impacts of logistics development.

Stakeholders state that e-commerce will keep on growing, perhaps in even more innovative forms, in parallel with technological advancements. Social commerce (s-commerce), meaning social media elements help purchasing decisions, is an epitome (Kim & Park, 2013; Attar et al., 2022). As e-commerce continues to evolve, it is essential to prioritize strategies that support both online and physical stores to prevent harm to traditional retail. To leverage the strengths of each commerce type, physical and online stores must work together in sales and marketing. Otherwise, traditional businesses risk stagnation or even extinction (Zumstein et al., 2021). For instance, governments could provide public incentives for the digital transformation of brick-and-mortar retailers. Additionally, training programs and support could be established to help the workforce transition to new job opportunities arising from e-commerce, such as marketplace managers, social media specialists, and search engine advertising experts. Consequently, we expect an increased demand for physical and social infrastructure, housing, and transportation. Interviews with stakeholders show that the option to work from home makes it harder to study the spatial effects of employment. However, existing research suggests that this trend may increase demand for living in the suburbs and help decentralize residential areas (Delventhal et al., 2022).

Stakeholder experiences underscore the attractiveness of urban peripheries due to relatively low land costs and the need for space conducive to the expansion of logistics-related services, including transportation, loading, warehousing, and distribution. Additionally, the convenience of obtaining daily necessities with Q-commerce, such as food, groceries, and dining options through online shopping, diminishes the motivation to travel within the city for these needs, thereby reducing the desire to live near commercial facilities. This trend reflects a broader shift in which quality of life factors increasingly take precedence over traditional considerations in home-buying decisions. It is essential to re-evaluate the prevailing conception that locational advantages, such as proximity to transportation and commercial facilities, are the primary determinants of housing preferences in Ankara. Consequently, Ankara's spatial plans should consider the implications of online shopping habits and home-office opportunities in certain industries, as these factors may contribute to a weakening of the city centre and promote urban sprawl.

With the increase in express deliveries during the pandemic, the number of motorcycle couriers increased significantly, and their working conditions became heavier (Yertüm & Balcı, 2023). However, current transportation systems are incompatible with the Q-commerce model, which alters traffic flow and creates security vulnerabilities. We recommend reconsidering transportation safety in Ankara's transportation plans, with motorcycle couriers in mind. Solutions such as implementing rules for limited lane use, imposing delivery restrictions in certain areas during peak hours, and creating parking areas for motorcycles and commercial vehicles could be implemented.

E-commerce, especially when it comes to packaging, returns, and volume inefficiencies, consumes more energy and resources (Pålsson et al., 2017). Local governments need to leverage smart city infrastructure and big data analytics to optimize logistics operations and track greenhouse gas emissions (Cheba et al., 2021). Utilizing big data to model urban logistics behaviour will be a significant factor in developing public policies aimed at creating sustainable transportation systems (Cardenas et al., 2017). Reversed logistics, a strategy designed to minimize the environmental costs of logistics processes, involves reassessing products for damage during the supply phase, incorrect delivery, or end-of-life considerations (Dowlatshahi, 2000; Pokharel & Mutha, 2009). The central government's initiative to promote and expand "reversed logistics," which encourages recycling and reuse, represents a noteworthy advancement for the environmental sustainability of e-commerce in Ankara. Nevertheless, these developments do not necessarily indicate that e-commerce is confronted with environmental policy objectives. Research by Dost & Maier (2017) indicates that energy consumption associated with e-commerce tends to rise alongside increased energy consumption in both the commercial and residential sectors.

Another issue is the fundamental infrastructure problem that hinders internet access, which is critical for e-commerce success (Jennex et al., 2004). Stakeholder interviews reveal a demand for upgraded internet infrastructure systems throughout Ankara to provide comprehensive internet access with high download and upload speeds. A 2022 OECD study supports this demand, showing that businesses in Türkiye had the lowest access to and use of information and communication technologies among 38 OECD countries, surpassed only by Bulgaria, Greece, and Hungary (OECD, 2023). As urbanization and population density decline, internet access becomes increasingly problematic in Ankara and across Türkiye, creating barriers to e-commerce adaptation. The implementation and enhancement of essential internet infrastructure investments are vital for the sustainability of e-commerce.

5. CONCLUSION

Economic data and decisions are essential at various scales of planning, as stated in the Spatial Plans Construction Regulation. E-commerce has evolved from being a temporary solution to the pandemic era to becoming a permanent part of the commercial landscape. Today, it operates mostly in integration with physical commerce. The stakeholders' experiences regarding the spatial impacts of e-commerce differ due to their diverse backgrounds and perspectives; however, the spatial nature of e-commerce has been confirmed, and several issues affecting urban areas have been identified. Stakeholders' views on the phenomenon align with the potential spatial impacts identified in the literature. Some stakeholders disagree on issues such as the

contribution of e-commerce to rural development and the decline in demand for physical retail space. Despite this, there is a general agreement that the urban planning process needs to take e-commerce into account.

The implementation of planning inferences related to e-commerce relies on several factors, including the identification of priority issues for sustainable economic development and consideration of stakeholder needs. Economic data and decisions are essential at various scales of planning, as stated in the Spatial Plans Construction Regulation. Therefore, spatial planning decisions and policies must adopt the specific recommendations provided by this research. Urban planning strategies that recognize e-commerce as a transformative element of the retail landscape and integrate it with traditional structures offer a competitive advantage on a global scale while also enhancing cities' ability to respond to environmental and economic challenges.

Addressing the spatial impacts of e-commerce and the transformations in logistics infrastructure and retail sectors within a holistic planning framework provides a practical and conceptual contribution to the urban planning literature. Collaboration and data sharing among stakeholders are critical for monitoring these impacts and developing sustainable urban policies. However, the lack of interaction between stakeholders during these meetings is evident. Collaborative efforts among stakeholders are essential for paving the way toward innovative solutions. Additionally, collaboration, especially through data sharing between the public and private sectors, enhances our understanding and management of spatial impacts.

This study offers a phenomenological perspective on the relationship between e-commerce and urban planning and provides a contextual contribution to the existing literature by considering e-commerce not merely as an economic or logistical phenomenon but as a socio-spatial process that reshapes urban space through stakeholder experiences and perceptions. However, this research confines its findings to the perspectives of specific stakeholder groups and the Ankara context. Future studies supported by different urban scales, spatial contexts, and quantitative spatial data may contribute to a more comprehensive understanding of the urban impacts of e-commerce.

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Acknowledgement |Teşekkürler

This paper is derived from the dissertation prepared by Gizem HAYRULLAHOĞLU under the supervision of Prof. Dr. Çiğdem VAROL. The authors express their gratitude to the nine stakeholders who generously provided their insights. | Bu makale, Prof. Dr. Çiğdem VAROL'un danışmanlığında Gizem HAYRULLAHOĞLU tarafından hazırlanan doktora tezinden derlenmiştir. Yazarlar, görüşlerini cömertçe paylaşan dokuz paydaşa teşekkürlerini sunarlar.

Conflict of Interest Statement | Çıkar Çatışması Beyanı

There is no conflict of interest for conducting the research and/or for the preparation of the article. | Araştırmanın yürütülmesi ve/veya makalenin hazırlanması hususunda herhangi bir çıkar çatışması bulunmamaktadır.

Financial Statement | Finansman Beyanı

No financial support that has been received for conducting the research and/or for the preparation of the article. | Bu araştırmanın yürütülmesi ve/veya makalenin hazırlanması için herhangi bir mali destek alınmamıştır.

Ethical Statement | Etik Beyanı

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