Chapter 11
E-Commerce Business Modeling in Smart Cities

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ABSTRACT

The chapter's objectives include examining how e-commerce has affected the retail and delivery sectors, identifying key trends in last-mile delivery, and identifying the solutions that businesses are creating in response to these trends. With an emphasis on smart city logistics and a comparison of conventional and contemporary retail and delivery methods, the theoretical framework developed in the chapter gives an outline of the fundamental theoretical principles underlying the study issue. There are two significant qualitative research portions in the chapter's empirical portion. Firstly, the impact of e-commerce on the players in the retail delivery ecosystem is examined and secondly, disruptive technologies being developed to enhance the last mile delivery are examined.

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1 INTRODUCTION

We live in a time when e-commerce is booming. Although its growth is anticipated to gradually slow down starting in 2020, it will continue to post spectacular annual sales growth rates of around 20% in 2025. Its predicted proportion of global retail sales will rise from 7.4% in 2015 to 17.5% in 2021. Consignments to cities are expanding at an ever-increasing rate, with an 8.7% volume shift from 2012 to 2017. New difficulties in the areas of infrastructure, the environment, society, and politics are therefore emerging. Companies are forced to innovate throughout the whole supply chain, particularly in terms of storage and delivery, as customers' expectations rise and they compete to meet the demand quicker, cheaper, and more reliably. Traditional merchants are typically developing omni-channel retail strategies, merging physical and online fulfillment operations, and in response to e-demand commerce for them to play catching up with the criteria imposed by e-commerce. The last mile, defined as "the last leg of the logistical journey between the hub and the ultimate destination," is where the complexity of omni-channel operations is most crucial. Cities are implementing new technologies at an accelerated rate because they are seen as possible answers to the problems brought on by e-commerce. Urban areas are moving toward "living on the confluence of digital technology, disruptive innovation, and urban surroundings," which is what is meant by their becoming "smart". Logistics (Hacardiaux et al., 2022) are not an exception in a "smart city," which means that its procedures and infrastructure are also intelligent. Citizens may benefit from tailored delivery from omni-channel shops, including adjustable speed, time, and delivery location. It includes ideas for robotic intra-logistics solutions, which are crucial for achieving rapid delivery effectively even at the stage of the distribution centre. It also includes ideas for smart distribution, or the automated final mile. The advancement of the Internet, electrification, sensing, and actuation technologies, which together have allowed for disruptive improvements in delivery vehicles, have all contributed to the automation of last-mile delivery. The distribution of packages will undergo a major transformation during the next ten years, with autonomous trucks for long-haul bulk shipments joining flying drones for small-size package delivery in urban areas. In light of these developments, effective businesses not only get ready to face problems, but also look for opportunities. The optimization of last-mile solutions in smart cities became the main research question of this chapter work, as will be explained in the following later, as e-commerce disrupts last mile delivery and mandates new requirements. Case Company X sees potential for applying their expertise in this area.

1.1 Case Company X

Company X is a top supplier of apps that are completely integrated and designed to optimize difficult internal and external logistical operations. Companies operating in its three main business divisions—System Integration (in-house logistics), product solutions (in-house logistics), and Software (Pramanik, 2022a)—are united under one umbrella brand (global supply chain). With service offerings spanning from consultancy through maintenance, the System Integration business unit serves as a general contractor and systems integrator for projects involving automated intralogistics systems and dynamic automation. The division of Product Solutions offers production logistics and intralogistics solutions that are tailored to each client's needs and project specifications. Companies in this business category provide maintenance, product design, automation solutions, and transport, palletizing, and de-palletizing systems. The umbrella brand's software firms are experts in offering supply chain execution tools. They specifically provide in-house created software for managing and controlling logistics as well as transport