

# Chapter 13

## Payment Systems as a Driver for Platform Growth in E-Commerce: Network Effects and Business Models

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### ABSTRACT

*This chapter visits some of the fundamental concepts from platform economics, network effects, and network externalities. Further on, it discusses definitions of two-sided and multi-sided markets, how they are treated as business models. These concepts are further compared to the concept service ecosystem. A case of a payment service provider whose business model contributes to the growth of e-commerce is included. The purpose is to tease out how research on platforms has developed since e-commerce was in its infancy. The fundamental concepts developed in network economics are still valid and have been translated into different fields with a focus on value creation, information, and interaction. How platforms within platforms spur each other's growth is an area that has the potential to reach new insights on the platform economy.*

### INTRODUCTION

Online payment platforms have seen tremendous growth in the last few years. For example, the leading online payment provider, PayPal, doubled its transaction volume between 2017 and 2020 (PayPal, 2021). According to the CEO and president of PayPal, 2020 was a record year, on account of businesses of all sizes becoming more digitized in the wake of the covid-19 pandemic. For China's largest mobile payment platform, AliPay, the number of active users doubled between 2016 and 2019, from 451 million to 900 million, according to data from the company (Alibaba Group, 2019). A current trend prominent in e-commerce is to offer buy-now-pay-later mobile payment applications (BNPL). As many consumers face uncertainty whether the ordered products will meet their standards or fit when ordering products

DOI: 10.4018/978-1-7998-7545-1.ch013

online, it is easy to see the appeal of a credit option for online shoppers. The top four applications that offer credit options, including installments at the checkout, grew over 180 percent in monthly active users in the U.S. in September 2020 compared to the same month the previous year (Chan, 2020). To explain this remarkable growth of digital platforms and their consequences is something that is occupying more and more scholars.

The growth of platforms in research literature has been chiefly explained with the concept of *network effects*. Simply put, the more users that join a platform, the more attractive it becomes, attracting even more users. On a fundamental level, a platform is a type of intermediary in exchanges. The reason for platforms, or intermediaries in general, to exist is most often referred to as their ability to reduce transaction costs. Payment systems are an early example of platforms that help agents coordinate their wants, but this coordination is also highly dependent on the number of users of the specific payment method. For example, payment card networks allow merchants and consumers to use the same payment network to engage in a transaction (Evans & Schmalensee, 2009). Hence, the platform reduces transaction costs by serving as an intermediary; however, the temporal and geographical distance between agents involved in a platform can also give rise to costs in the form of uncertainty, as in the example of BNPL schemes above.

In recent years, there has been an increase in research on payments as a type of platform. A simple search on the topic reveals that the number of publications tripled in the last five years (2016-2020) compared to the previous five years (2011-2015) (Table 1. appendix). Many of the more recent articles have mobile payment platforms in focus, while earlier work focused on payment card networks. In addition, differences in consumer spending using different payment mediums and temporal separation of payment and consumption have attracted interest throughout the payment and retail literature (Greenacre & Akbar, 2019; Hirschman, 1979; Prelec & Loewenstein, 1998; Runnemark, Hedman, & Xiao, 2015). With a constant change and an increase of new payment services and possibilities to pay online, research calls for more holistic and general theories of behavior and operations (de Luna, Liébana-Cabanillas, Sánchez-Fernández, & Muñoz-Leiva, 2019; Galipoglu, Kotzab, Teller, Yumurtaci Hüseyinoglu, & Pöppelbuß, 2018).

This chapter takes a step back and revisits some of the fundamental concepts of platform markets, lent from theories of network economics. The objective is to gain an increased understanding of the origin of platform thinking in economic research and how it has been translated to other perspectives, such as in the marketing literature. The concept of externalities and network effects, which are central to explaining the mechanisms of multi-sided markets, is discussed with an emphasis on how it has been used in research on platforms. Furthermore, the description of the platform market, including the example of payment platforms, as an ecosystem and multi-sided market in different research perspectives is visited. This is done in order to bring out new insights that have been gained more recently and to better understand the remarkable growth of the platform economy. Lastly, the case of a payment service provider illustrates the new trend of BNPL in practice and raises questions about what the phenomenon might mean for consumers and research ahead.

## **BACKGROUND**

Online shopping has increased all over the world, and in many ways, the ability to shop online is possible and facilitated by the development of online payment intermediaries and financial services (Van Hove & Karimov, 2016). Online payment intermediaries continue their expansion, and many have recently

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