



# Strategic Choice of Sales Channel and Business Model for the Hotel Supply Chain

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## Abstract

In this paper, we study whether a hotel should cooperate with an independent online travel agency (OTA) to sell rooms, and, if yes, using what business model—the Merchant model or the Agency model. In the Merchant model, the OTA purchases rooms at a discount wholesale price and sells them at a profit, but takes on the risk of having unsold inventory. In the Agency model, the OTA passes reservations booked by its customers to the hotel and receives an agreed commission fee on each transaction. We demonstrate that there is no one strategy tailored to all situations: the choices of channel and business model are closely tied to certain conditions, like the hotel's room capacity, consumer acceptance of the OTA channel, the increase in market size with the OTA channel and the commission rate charged by the OTA. The hotel's equilibrium strategy indicates that adding the OTA channel does not increase the hotel's profit if the hotel's capacity, the increase in market size with the OTA channel, and consumer acceptance of the OTA channel are relatively small. Regarding the selection of business model, in general, larger hotels offered a larger increase in market size with the OTA channel, and where the commission rate is low, will prefer the Agency model; otherwise hotels will prefer the Merchant model. Managerial guidance regarding channel and business model selection is provided.

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## Introduction

The study reported here was motivated by some anecdotal evidence. It is generally acknowledged that the online travel agency (OTA) has become a popular distribution channel for the hotel industry, seeking to sell rooms. An increasing number of hotel chains, Hilton for example, are selling rooms through the OTA channel, in addition to their own traditional direct channel (Verhoef, Kannan, and Inman 2015). However, the relationship between the two parties is not always an easy one: their different objectives can create conflicts (Choi 1991). For instance, in 2009, contract negotiations broke down between Choice Hotels International, one of the world's largest hotel franchises, and Expedia.com, its major OTA (Lee, Guillet, and Law 2013). Moreover, the OTA channel may not work for many family-run hotels in popular tourist destinations.

Where OTAs and hotels do cooperate in the sale of rooms, they may follow either or both of two business models: the Merchant model or the Agency model. In the Merchant model, the OTA purchases rooms from the hotel at a wholesale price and sells them at a profit to its customers. The OTA therefore takes on the inventory risk of unsold rooms it has purchased. The hotel shares the overall inventory risk (of excess, unsold rooms) with the OTA, but it has a lower profit margin for each room sold to the OTA. In the Agency model, also known as consignment contract, the OTA acts as an agent in the transaction. That is, it passes reservations booked by its customers to the hotel and receives an agreed commission fee on each transaction. The hotel bears all of the inventory risk but has a higher profit margin for each room sold (Lee, Guillet, and Law 2013; Wang, Li, and Shen 2004). For example, Orbitz.com cooperates with hotels using the Merchant model, while Booking.com cooperates with hotels using the Agency model, and Expedia.com employs both models in its business relationships with hotels (Lee, Guillet, and Law 2013).

These phenomena give rise to two principal research questions. First, should hotels cooperate with OTAs to sell rooms? Supplemental questions follow. Why would some hotels coop-

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erate with OTAs to distribute rooms, and some not? Under what conditions is it profitable for hotels to cooperate with OTAs? Owing to the advent of the online channel, the world of retailing has changed dramatically in the past decade (Verhoef, Kannan, and Inman 2015). Following this trend, the OTA channel has assumed a dominant role in the hotel industry (Lee, Guillet, and Law 2013; Verhoef, Kannan, and Inman 2015). OTAs can help to promote hotel brands on the Internet and contribute nearly 70% of the room sales of some economy hotels (<http://www.iresearch.com.cn/View/196367.html>). However, the OTA channel is a double-edged sword. On the one hand, it gives hotels access to a larger segment of customers. This is because OTAs have a good reputation and high visibility, and offer competitive prices, as well as a convenient and secure booking environment (Lee, Guillet, and Law 2013; Li and Law 2007). The advantage of OTAs is particularly important given the ‘perishable’ nature of hotel rooms: the lost revenue from each unsold room is gone forever. On the other hand, however, hotels are charged an agreed commission rate for each room sold by OTAs, or a lower wholesale price is offered to OTAs. Moreover, channel competition (direct versus OTA) and conflicts can exist between hotels and OTAs, as shown in the example of Choice Hotels International and Expedia.com. Thus, an answer to the first question would help hotels to decide whether to use a single sales channel (direct) or a dual sales channel (direct plus OTA), under different conditions.

The second research question that arises is: if the hotel and the OTA do cooperate to sell rooms, which business model is best for them to follow? The anecdotal evidence shows that two business models predominate: the Merchant model and the Agency model. Both have pros and cons for the hotel and the OTA. When, then, should a hotel adopt the Merchant model, and when the Agency model? How do parameters like the hotel’s capacity, customer acceptance of the OTA channel, as well as the increase in market size with the OTA channel affect the choice of business model?

To address these two research questions, we consider a setting in which a hotel with finite capacity determines whether to cooperate with an OTA to distribute its rooms, and, if yes, using what business model. Customers are heterogeneous in channel preference and make their purchasing decisions based on the net utility of purchasing from each channel. The hotel will strategically choose the most profitable scenario among three channel and business model strategy scenarios, namely, single hotel direct channel, dual-channel under the Merchant model, and dual-channel under the Agency model. By investigating these problems, we address some major concerns of both marketing practitioners and scholars interested in channel management issues.

The paper proceeds as follows. The literature is reviewed in Section ‘Literature Review’. The problem is specified in Section ‘The Model’. The scenarios with the single direct channel, and with the dual sales channel using the Merchant model and the Agency model are analyzed in Section ‘Optimal Decisions for Different Channel and Business Model Strategies’. The equilibrium channel and business model strategy and the managerial implications are analyzed in Section ‘The Hotel’s Equilibrium

Channel and Business Model Strategy’. Section ‘Extensions’ further analyzes the stability of results for randomly varying parameters and the impact of three-segment market scenarios. Conclusions are presented in Section ‘Conclusions’. All proofs are given in Appendix A (Supplementary data).

## Literature Review

A substantial amount of research has focused on the channel selection problem in retail environments. Some scholars have verified the benefit of adding in an Internet channel. For example, McGuire and Staelin (1983) provided an explanation on why a supplier would want to use an intermediary retailer in the context of two supply chains with one supplier in each chain. Chiang, Chhajed, and Hess (2003) demonstrated that it was beneficial for a manufacturer to add a direct Internet channel as a substitute for shopping to compete with its retailer even if the direct channel was unlikely to produce sales. Tsay and Agrawal (2004) showed that the addition of a direct channel alongside a reseller channel was not necessarily detrimental to the reseller, and both parties could benefit. Arya, Mittendorf, and Sappington (2007) found that the introduction of a direct channel might not always be detrimental to the traditional retailer due to the wholesale price reduction and efficiency improvement. Similarly, Cattani et al. (2006) found that the traditional retailer did not need to view the addition of a direct channel as harmful competition but rather as a mechanism for segmenting the market, to the benefit of both parties, under an equal-pricing framework. Chennamaneni, Desiraju, and Krishnamoorthy (2016) demonstrated that whether or not to sell via an intermediary was affected by the interaction among marginal costs, capacity level, and the type of value the intermediary brings to the channel. A service provider with larger capacity and marginal cost prefers an indirect channel.

However, more scholars have argued that the benefit of multichannel strategies might not be evident in all situations. Choi (1991) found that intermediaries reduced the intensity of direct competition between manufacturers, while the dominant channel structure depended critically on the form of the demand function. Chen, Kaya, and Özer (2008) showed that dual-channel strategies depended on channel environment, such as the cost of managing a direct channel, retailer inconvenience, and product characteristics. Cai (2010) concluded that the supplier’s selection and the retailer’s perfect channel selection were not universal and would depend on channel-based demand, channel operational costs, and channel substitutability. Yoo and Lee (2011) found that the effect of an Internet channel varied across channel structures and market environments. Ofek, Katona, and Sarvary (2011) studied competing retailers that could operate dual-channel and examined how pricing strategies and physical store assistance levels changed as a result of the additional Internet outlet. Ryan, Sun, and Zhao (2012) investigated competition and coordination in an online marketplace. Hsiao and Chen (2013) concluded that manufacturers’ competitive strategies, channel conflict, and consumers’ channel preferences would result in different dual-channel strategies. Hsiao and Chen (2014) provided an answer to when and why

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