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The cross-impact of network externalities on relationship quality in exhibition sector

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ABSTRACT

An exhibition is a kind of network business that confers benefits for participants that are often intangible and hard to evaluate. This paper addresses this issue as limited empirical research has been conducted on the effects of cross-network externalities in exhibition sector. The paper also addresses relationship quality, a relatively new concept within the hospitality literature, and investigates the effects of cross-network externalities on service quality and relationship quality, and their impact on customer loyalty. The results of this study ($n = 412$) show that the exhibition market exhibits cross-network externalities and that business network size has a significant influence on service quality, exhibitor satisfaction, and exhibitor trust. It is also argued that business network size and three components of relationship quality significantly affect exhibitor loyalty. This study provides valuable insights for exhibition organizers to formulate their relationship marketing strategies.

1. Introduction

The concept of network externalities originally grew out of studies of consumption externalities in telecommunications in the 1970s (e.g., Artle and Averous, 1973; Gravelle, 1972; Hazlewood, 1950; Littlechild, 1970, 1975; Pyatt, 1972; Squire, 1973). These researchers found that a new subscriber joining the telecommunication system is generally thought to benefit existing subscribers simply by widening the base of potential people to call. Farrell and Saloner (1985) and Katz and Shapiro (1985) extended the concept as 'network externalities' whereby the value a user derives from a product rises number of other users of the same or similar product increases. Katz and Shapiro (1986) further applied the concept of network externalities to the context of technology adoption and the studies that followed were extended to Internet applications such as Internet instant messaging (Wang et al., 2004), security features (Lelarge and Bolot, 2008), mobile instant messaging (Zhou and Lu, 2010), and social networking sites (Lin and Lu, 2011). The network size of one technology may affect the adoption and use of another technology (Doganoglu and Grzybowski, 2007) and therefore, the effect of cross-network externalities occurs where the network size of one technology affects the network size of other technologies use and vice versa (Strader et al., 2007). To date, studies of network externalities have largely been applied to the adoption and deployment of new technologies, but comparatively little research has been undertaken in the hospitality and events sector.

Exhibitions have many applications, but in this paper we focus on them as platforms for introducing and disseminating knowledge on products and services, as well as places to identify industry trends (Hultsman, 2001). Exhibitions have their own dynamic and it is generally held that the more exhibitors want to participate in an exhibition, then the more attendees will want to visit it. It also works the other way round as the more attendees potentially want to visit an exhibition, the more exhibitors are willing to show their products in that venue. It shows a cross-network effect where the network size of exhibitors affects the network size of attendees and vice versa. Exhibitors offering the same or similar products are theoretically opening themselves up to competition but this is more than offset by the fact that potential customers know where to find such products and enjoy the possibility to compare and contrast. It is the same principle that underlies the ancient bazaar markets of Asia and traditional markets of Europe where merchants offering similar products often cluster together so that they can be readily tracked down by customers. A special feature of exhibitions is that supply chain members (exhibition organizers, exhibitors, and attendees) benefit from the cross-network effect between exhibitors and attendees in a given exhibition, thereby enhancing 'cross-network externalities'.

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Relationship quality is defined as the quality of interaction between a customer and a supplier (Gummesson, 1987). Previous studies indicated that relationship quality consists of three components: customer satisfaction with the performance of the supplier; trust in this supplier; perceived commitment to the supplier (Baker et al., 1999; Garbarino and Johnson, 1999; Smith, 1998). Previous studies also showed that service quality is an antecedent factor of relationship quality (Kim and Han, 2008; Rauyruen and Miller, 2007) and customer loyalty is the ultimate output of the relationship quality (Hyun, 2010; Jin et al., 2013; Lai, 2014). The greater the cross-network effect presented in the number of exhibitors and attendees at an exhibition, the better service quality for the exhibition that the exhibitors will perceive. Therefore exhibition organizers can strategically enhance their relationship quality with exhibitors through enlarging their business networks. The virtuous circle also extends to the exhibitors as they are more likely to join exhibitions provided by the exhibition organizers that present rich business networks, good services, and good relationship quality. Thus there is a need to study the role of cross-network externalities, service quality, and relationship quality in enhancing customer loyalty in the exhibition sector.

Network externalities and relationship quality are relatively new concepts within the events and hospitality literature. Both exhibitors and attendees are customers for the exhibition organizers, but income flows do not always reflect the importance of both sets of relationships as it is the exhibitors who provide the main source of income for organizers and are the recipients on the majority of marketing and promotional efforts provided by organizers (Jin et al., 2010). In order to shed more light on the importance of these relationships, this study examines the structural relationships among cross-network externalities, service quality, relationship quality, and customer loyalty of exhibitors. The need for academic research in this setting is justified for three reasons. First, network externalities are the new drivers of network economy (McGee et al., 2002) and their effects are salient to the development of certain network businesses such as exhibitions. In order for an event like an exhibition to take place the various interlocutors – exhibition organizers, exhibitors, and attendees – become interlinked in a supply chain network. Therefore, cross-network externalities become a driving force that reinforces the development of exhibition business network. Second, it is usually the exhibition organizer that initiates the relationship in the hope of strengthening its relationship with exhibitors hoping that they will attend future exhibitions and maintain ongoing relationships (Jin et al., 2012). Relationship quality would appear to be an important consideration in the successful organization of exhibitions, but only a few studies to date have explored the nature of relationships between exhibition organizers and exhibitors (e.g., Jin et al., 2012; Jin and Weber, 2013). Jin et al. (2012) examined the key components of exhibitors' relationship quality with exhibition organizers and Jin and Weber (2013) tested the effect of relationship quality on exhibition brand preference, but neither of these studies considered both antecedent and consequence factors of the relationship quality in exhibition sector. Despite the importance of relationship marketing efforts to improve the quality of relationships, it is important to have a more comprehensive model for a deeper understanding of the role of relationship quality in exhibition sector. Finally, networks are clearly an essential ingredient in the success of the exhibition sector and thus organizers strive to strengthen their relationships with their key customers (exhibitors) by enhancing their relationship quality, but hitherto research on this field has been limited. To enhance our understanding of these kinds of relationships, this study examines cross-network externalities and considers service quality, the components of relationship quality, and customer loyalty together.

2. Theoretical background

2.1. Network externalities theory

Farrell and Saloner (1985) and Katz and Shapiro (1985) provided early analyses in the presence of network externalities. Farrell and Saloner (1985, 1986) defined network externalities as an increase in the value of a product as the number of users of that product increases. The classic example that exhibits network externalities is the adoption of telecommunication systems where a user pursues a telephone service only if there are other people with compatible telephones that a user wishes to call (Artle and Averous, 1973; Oren and Smith, 1981). At the beginning, researchers developed mathematical equations to investigate the relationship among network externalities, product compatibility (standardization), and product prices (e.g., Chou and Shy, 1990; Economides, 1996; Farrell and Saloner, 1985, 1986; Gandal, 1994; Matutes and Regibeau, 1988). Later on, researchers conducted empirical studies to evaluate the effects of network externalities on the adoption of different technologies (e.g., Goolsbee and Klenow, 2002; Wang et al., 2008; Zhou and Lu, 2011). In technology acceptance studies, Katz and Shapiro (1986) defined network externalities as the increase value of a technology a user as more people use the same technology. Table 1 shows recent studies in network externalities. Over the past decade the concept has been extended to Internet technologies, especially with regard to social networking applications.

The sources of network externalities can be direct or indirect (Katz and Shapiro, 1985). Consumers benefit from a large network not only because there are many users purchasing the same brand, but also because large networks are supported by a major provision of services (Chou and Shy, 1990). The primary source of network externalities is the direct physical effect of the number of users on the quality of a given product or service (Liebowitz and Margolis, 1995; Katz and Shapiro, 1986). A second source of network externalities is an indirect market-mediated effect, which arises when there is a link between the needs of a customer and a number of other complementary products, which further enhances the benefits that customers derive from the focal product (Church and Gandal, 1993; Katz and Shapiro, 1986; Srinivasan et al., 2004). A third source of network externalities occurs when the quality of the product increases and more post-purchase services related to the product become available usually resulting in increased numbers of users (Katz and Shapiro, 1986; Farrell and Saloner, 1987).

Other than the above positive effects, network externalities may cause negative impacts when a user's utility decreases with as a result of an increase in other users who consume the same products or services leading to highway congestion and other problems (Liebowitz and Margolis, 1995). But in order to maintain its focus, this paper concentrates on positive externalities.

Most previous studies of network externalities have focused on networks that have only one type of member and a single product (e.g., automated teller machine (ATM): Saloner and Shepard, 1995). However, some researchers argue that the network size of one type of member may affect the network size of another type of member (Doganoglu and Grzybowski, 2007; Strader et al., 2007). They called this effect the 'cross-network externalities' effect. Since a supply chain network consists of a variety of customers and suppliers and the existing literature shows that the utility of a customer increases in tandem with the size of the suppliers (e.g., infomediaries services: Bhargava and Choudhary, 2004), the impact of the network size of suppliers will affect the network size of customers and vice versa. It is also a cross-network externalities impact. In this study, cross-network externality is defined as the effect of network size of participants (exhibitors, professional attendees, potential buyers, and media) in an exhibition. This study explores a new a novel idea namely that the utility of an exhibitor increases along with