



Multiple channel complexity: Conceptualization and measurement

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ABSTRACT

Nowadays, to better serve their customers, many companies are using multiple channels with different levels of complexity. Although the literature agrees that it is a challenge to design and manage multiple channels for improved performance in today's circumstances, there are no empirically determined guidelines offered to achieve that goal. One contributing factor to this is the lack of a clear conceptualization of multiple channel complexity in the literature. With no such construct and measure, researchers are unable to conduct studies to understand variability in the complexity of multiple channels in practice and hence to draw normative conclusions for managers. In this work, drawing upon the vast organizational complexity literature, we provide a conceptual definition and a measure of multiple channel complexity. Our construct describes the structure of a multiple channel system with respect to three complexity dimensions: channel number; channel levels, and channel member variety. The data from 305 sales/marketing managers in the electronics industry support the validity of the construct as we observe that in highly uncertain environments having highly complex multiple channels in place improves company performance.

1. Introduction

In the past two decades, manufacturers have been increasingly using complex multiple channels to distribute their goods (Bairstow & Young, 2012; Vinhas & Anderson, 2005). Technological innovations, changing customer expectations and emergence of new forms of businesses have been contributing factors to this trend. The level of complexity of these multiple channels varies across industries and companies, showing various ownership structures (company owned versus independent) with different types and forms of individual channel members (e.g., distributors, sales agents, e-tailers) (Yan, 2011). For example, while a company in an industrial market may have a company sales force channel and a distributor channel, another one may have a mail order channel, an online channel, a call center channel, and a company sales force channel.

Naturally, crafting and managing these multiple channels in a way to produce desirable performance are challenging for marketing managers (Chen & Chiang, 2011; Kabadayi, 2011). Complex multiple channels may be costly and risky if not designed and managed strategically, but serve customers better and improve performance if designed and managed strategically (Chung, Chatterjee, & Sengupta, 2012).

Although marketing channels literature has consistently acknowledged the importance of channel design for performance (Kabadayi, Eyuboglu, & Thomas, 2007; Sharma & Mehrotra, 2007), it offers limited insight and tools to understand and analyze today's complex multiple channels. Specifically, there is a lack of conceptualization of multiple channel complexity. Without having such a construct and its operational measure, it would not be possible to fully understand the variability in the complexity of multiple channels and its impact on channel performance.

The importance of understanding organizational complexity is well documented in the management literature (Anderson, 1999; Damanpour, 1996). Analyzing the complexity of a system is a first step to understand the behavior and working of that system (Dooley, 2002). As complexity increases, so do the demands on management to ensure that all activities are working smoothly and together toward achieving the organization's goals (Anderson, 1999). Therefore to manage a system, the complexity of that system must be understood first; otherwise, interventions would lead to sub-optimization (Gottinger, 1983). By analogy then, it is very important to have the concepts and tools to understand and analyze a channel organization's complexity. Without such tools, one cannot theorize and test hypotheses linking multiple channel complexity to possible behaviors and sentiments of

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channel members in the system and therefore to company performance. Given the importance of recognition and eventual management of multiple channel complexity for companies, such conceptualization could be critical for managers.

To address this need of the literature, our potential contribution lies in developing a conceptual definition and a measure of multiple channel complexity. In this paper, multiple channel complexity is considered as a structural descriptor of a channel system. Following Hall, Haas, and Johnson's (1967) definition of organizational complexity, multiple channel complexity is defined as the degree of structural differentiation in the system. Structural differentiation may come from three sources: horizontal differentiation, vertical differentiation, and variety of elements (ibid). Horizontal differentiation corresponds to the number of concurrent channels in place; vertical differentiation is the number of channel levels in the system; and variety of elements is captured in the number of different channel member types in the system. Based on findings in the current channels literature, possible relationships among different dimensions of multiple channel complexity, environment, and performance are developed. Then, these relationships are used to empirically test the nomological validity of our multiple channel complexity measure. Specifically, it is suggested that company performance depends on the *match* between the multiple channel complexity and the environment: if complex (simple) multiple channels are matched with high (low) environmental uncertainty, company performance will be closer to the ideal. In terms of methodology, "distances from ideal" approach is used to generate normative insights from data (Doty, 1990; Doty, Glick, & Huber, 1993). This approach analyzes the association between distances of multiple channel complexity dimensions from their ideal types and distances of observed performance outcomes from ideal outcomes (Van de Ven & Drazin, 1985).

In the next section first the conceptual background is discussed and multiple channel complexity is defined based on organization theory. Then, the details of empirical study are presented followed by modeling methodology and results. The final section discusses contributions and implications for future research and practice.

2. Multiple channel complexity

Organizational complexity has been discussed in a wide range of literatures. Several authors who studied organization design and social systems have offered various definitions of complexity (e.g. Simon, 1964). One common theme is that the degree of complexity is derived from the structural properties of the system as determined by the number and variety of elements and their interactions (Anderson, 1999; Daft, 1995). In a very general sense, a complex system can be defined as a system made up of a large number of parts that interact in a non-simple way (Simon, 1964). An organization with lots of departments would necessarily be more complex than one with a few departments (Price, 1972). Complexity is also described as the degree of structural differentiation - the number of separate parts of the organization as reflected by the division of labor, number of hierarchical levels, and variety of elements (Hall et al., 1967). In other words, complexity is related to the numerousness and variety in the system (Scuricini, 1988).

A highly complex organization, for example, is characterized by many levels of authority, a large number of occupational roles, and many and different subunits (departments and divisions) (Dooley, 2002). Since complexity is achieved through differentiation, two distinct types of complexity are possible: *horizontal complexity* is caused by a high level of horizontal differentiation, i.e. a large number of units/departments in an organization or a high level of functional differentiation, a large number of different types of units based on their tasks, characteristics and titles (Daft 1995; Hrebiniak, 1978). On the other hand, *vertical complexity* entails a high degree of vertical differentiation that involves a high number of hierarchical levels in an organization (Dooley, 2002; Price, 1972).

Based on these similar and complementary definitions of complexity in the organization theory literature, we define multiple channel complexity as the degree of structural differentiation in the channel organization (Hall et al., 1967). Structural differentiation may come from horizontal differentiation, vertical differentiation, and variety of elements (ibid). A channel organization has a higher degree of horizontal complexity if it has a larger number of parallel channels operating concurrently. A channel organization has a higher degree of vertical complexity if it has a larger number of vertical levels between the manufacturer and the customer. Finally, a channel organization has higher complexity if it embodies a larger number of different types of independent channel members and in house departments which carry out the distribution tasks. In summary, multiple channel complexity is comprised of the following three dimensions:

- (1) Channel number: the total number of parallel channels in a multiple channel system,
- (2) Channel level: the total number of vertical channel levels in a multiple channel system
- (3) Channel variety: the total number of different types of channel members in a multiple channel system.

Therefore, a channel organization is *complex* if it has a high *channel number* (i.e. a large number of parallel channels), a high *channel level* (i.e. a large number of vertical channel levels), and a high *channel variety* (i.e. a large number of different types of both internal/company owned and external/independent channel members/departments).

To give these measures full conceptual precision, we explain below how one could operationalize them: the first step of the operationalization is to produce a complete list of different channel configurations that are used in the industry of interest. For example, in our study, we developed this list on the basis of a review of the academic and trade literature coupled with pre-study interviews with industry executives. First, a total of 8 executives were briefly asked about the various channels that their companies were using to reach their final customers. Then, the list of channels created based on those interviews was shared with another group of 20 executives to make sure that their companies indeed employed those channels. This group of executives unanimously confirmed that the channels as presented below were commonly used in their industry. Therefore, we decided to include the seven channels as shown in Fig. 1 in our operationalization of multiple channel complexity.

(1) [Company] → Distributor	→ Customer
(2) [Company] → Sales Agent/Broker	→ Customer
(3) [Company] → Sales Agent/Broker → Distributor	→ Customer
(4) [Company → Company Sales Branch/Office]	→ Customer
(5) [Company → Company Sales Force]	→ Customer
(6) [Company → Company Catalog]	→ Customer
(7) [Company → Company Website]	→ Customer

Fig. 1. Channels used in operationalization of multiple channel complexity.

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