



Small and medium sized manufacturer performance on third party B2B electronic marketplaces: The role of enabling and IT capabilities



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ABSTRACT

This research investigates the determinants of the performance of small and medium sized manufacturers on business-to-business electronic marketplaces (B2B EMs). Based on the resource-based view, the framework proposed suggests that a manufacturing firm's performance on a B2B EM is determined by EM enabling capabilities, namely the online marketing capability, flexible manufacturing capability and content management capability. Further, the framework posits that these EM enabling capabilities are in turn determined by the firm's IT capability. Data from 358 online manufacturers participating in a B2B EM is collected and analyzed. The results confirm our hypotheses that the online marketing capability, flexible manufacturing capability and content management capability fully mediate the impact of the IT capability on the firm's online performance. Furthermore, the online marketing capability is found to be a stronger factor in influencing the manufacturer's online performance than the others.

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1. Introduction

With recent developments in electronic commerce, there has been a significant increase in the number of small and medium sized manufacturers using third party business-to-business (B2B) electronic marketplaces (EMs), such as Alibaba.com, to sell to their customers directly. Online EMs allow manufacturers to bypass middlemen and possibly compensate for a decline in sales through traditional channels [1]. B2B customers often prefer to purchase directly from manufacturers as well because manufacturers can offer lower prices and more stable supply compared to B2B intermediaries. Recognizing the unique value propositions that can be offered by manufacturers, many B2B EMs, such as DHgate.com [2], consider manufacturers as their primary clients.

At the same time, a small or medium sized manufacturer can be in a disadvantageous position when it comes to managing its business online. Selling on B2B EMs requires it to build organizational capabilities different from those tailored to sell offline [3,4]. In the traditional market, such manufacturers mainly acquire their customers through personal relationships [5] and rely heavily on a small number of major clients, who tend to place large orders [6]. However, selling on the Internet forces manufacturers to engage with a larger number of customers who order in small batches. Besides, unlike using traditional customer

relationship practices, manufacturers should be able to use various Internet-based media to market their products to customers in a larger geographic area. They also need to adjust their manufacturing practices to accommodate for varying order volumes. In other words, direct selling on EMs requires manufacturers to build new marketing, content management and flexible manufacturing capabilities to deal with the customer demand heterogeneity. The lack of prior experience in marketing [7], content management or flexible manufacturing [6] can be a strong barrier to achieve success in EMs. All of the three capabilities heavily hinge on the development of the firm's IT capability. Insufficient IT resources may render conducting business in EMs difficult.

Despite the increasing importance of EMs for small and medium sized manufacturers, to date, there has been limited research focusing on the performance of such manufacturers on B2B EMs. The existing B2B EM literature mainly focuses on the determinants of B2B EM adoption [8,9] and EM governance mechanisms building [10,11]. But, the literature seems to ignore the actual performance of EM participants, including manufacturers. Moreover, even regarding EM adoption, most prior studies focus on the demand side by studying decision making in organizational buyers [8,9], and, with a few exceptions [4], pay little attention to the supply side of EMs. Further, the general e-commerce value studies are not specifically designed to study manufacturers, and, hence, consider them as participants of their studies, without identifying their e-commerce capabilities [12,13].

The goal of our research is to build a framework to study the sales performance of manufacturers based on the IT and organizational capability theories [14]. First, three EM enabling capabilities that are particularly relevant to manufacturers selling online are identified: the

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online marketing, content management and flexible manufacturing capabilities. The online marketing capability refers to the firm's knowledge, skills, and competence in leveraging EMs to reach, attract and convert potential leads into sales online [15,16]. The content management capability is the firm's ability to create and maintain product database for effective and efficient content publishing and updating on EMs. The flexible manufacturing capability is the firm's ability to respond to changing conditions, while "keeping costs, delays, organizational disruptions and performance losses at or near zero" [17]. Second, the IT capability of a firm, defined as the firm's experience, skills and knowledge in using information technology to support business processes [18], is suggested to be indirectly related to the manufacturer performance online by driving up the above mentioned three EM enabling capabilities. Our research contributes to the B2B EM and e-commerce value literature in that it specifically studies the performance of manufacturers which are playing an increasingly important role in the growing e-commerce marketplaces [19]. The research offers managerial implications for manufacturers to help them build organizational capabilities required to achieve success in EM platforms.

The rest of the paper is organized as follows. First, we review the existing literature on related research topics, including online B2B supplier performance and e-commerce value research. We also provide a review of the theoretical background of our research, resource-based view and its application in the IT value research. Then, the research framework is presented, and research hypotheses on what and how resource-based factors impact the manufacturer's performance on B2B EMs are developed. Next, data collected from 358 manufacturers is used to empirically test the model. Finally, we discuss the results as well as theoretical and research implications.

2. Literature review

2.1. Online B2B supplier performance

A few studies on B2B EM performance of suppliers adopted the lens of organizational resource and capability. Wang et al. [4] propose that the online marketing, EM management, online social networking, product/service quality, and learning capabilities are important driving factors of online performance. Rosenzweig and Roth [20] define online B2B seller competency in seven dimensions: technical skills, change disposition, conflict management, market acuity, coordinated logistics, knowledge channels, and fluid partnering. Boeck et al. [3] find that the suppliers on B2B EMs must continuously adapt their capabilities to buyer requirements to attain the next level of relationship.

However, the current research treats EMs as an undifferentiated whole including third party, private and consortium EMs [3] and little research has been done to specifically study seller capability on third party EMs. Third party B2B EMs are often characterized by transactional relationships, with low expectation of evolving into the collaborative relationships. Capabilities required for third party EM operation may be different from those required for selling through private and consortium EMs. This research makes efforts to study seller capability on third party EMs.

2.2. E-commerce value research

The research on e-commerce value and success mainly focuses on identifying e-commerce capabilities and assessing e-commerce success. E-commerce competence is a core concept studied in the literature. Some researchers conflate e-commerce competence with e-commerce investments [21], while others identify e-commerce competence factors and related business and IT competencies. For example, Zhu et al. [13,22] suggest that the complementarity between the e-commerce capability, as conceptualized in four dimensions including the information, transaction, interaction and supplier connection capabilities, and IT intensity determines e-commerce performance of manufacturing firms.

Zhuang & Lederer [23] suggest that e-commerce technology resources include e-commerce website interactivity, publishing, community, catalog, transaction applications, etc.

A review of the literature reveals the following observations. First, the e-commerce competence is identified in both front end operations (e.g. website functionalities) and back end operations (e.g. supply chain capabilities) [13,22]. Yet, a greater emphasis in the literature is given to the front end website functionality. Second, the role of the IT capability is emphasized [13,22]. Yet, the process through which IT capabilities generate value for firms in e-commerce is not specifically studied. Third, specific research on manufacturers is rare [12,22]. When manufacturers are studied, the interest is focused on more general capabilities required in the e-commerce context, and constructs specifically related to the manufacturers are not identified or tested.

In the e-commerce value literature, the value of e-commerce is mostly measured indirectly through its contribution to performance [13]. However, there are two exceptions in which the e-commerce value is measured directly. The first approach originating from Delone & McLean's IS success model [24] regards the firm's e-commerce as an IT system, whose success is measured by the information quality, system quality, service quality, usage, user satisfaction, net benefits, etc. The second approach uses perceptual measures of the short term e-commerce performance and longer term potentials [25] partly due to the unavailability of objective performance data. The fact that it takes long time before the e-commerce investments pay off also suggests that objective data may not be a good indicator of firm e-commerce performance. We adopt the second approach, especially Wade and Nevo [25] on e-commerce performance measurement, because EMs are not only systems, but also marketing and sales channels, where success is affected by more factors than just system attributes.

2.3. Resource-based view

The resource-based view (RBV) argues that the performance of a firm is determined by its resources [14]. Rare, valuable, inimitable and non-substitutable resources help firms achieve competitive advantages [14]. However, the process through which particular resources provide competitive advantage is not clear. RBV researchers further suggested that the combination of resources and complementary organizational components can form organizational capabilities that empower the firms to gain competitive advantages [26]. Organizational capabilities can be categorized as different functional capabilities [27], such as the marketing capability [28], new product development capability [29], and IT capability [30]. Functional capabilities are also known as operational capabilities, which are the firm's ability to repeatedly perform a productive task which creates value through transforming inputs into outputs [27].

The IT value literature is largely inspired by the resource-based view. It has identified IT assets and resources that help improve the firm's competitive advantages and performance. There are two views regarding the role of the IT capability in enhancing the performance of the firm. The first advocates a direct role of IT infrastructure and resources on performance [11,30], and considers related business capabilities as complementary to the IT capability. The second view argues for an existence of mediating links [29,31] and that business capabilities that are driven by IT directly affect the firm's performance. Taken together, these findings suggest that IS researchers should look beyond direct effects of the firm-level IT resources and focus attention on the ways to leverage IT capabilities to better reconfigure and execute business processes.

3. Manufacturer performance on B2B EMs

We build a framework to explain manufacturers' performance on B2B EMs (see Fig. 1). We postulate that the manufacturer EM performance is affected by the manufacturer's IT capability, and this impact

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