

Examining E-marketing Services and E-marketing Performance with NK Model

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Abstract— The business-to-business electronic marketplace (B2B e-marketplace) is becoming critical for small and medium-sized enterprises (SMEs). However, which e-marketing services determine a firm's e-marketing performance and how innovation, knowledge complexity and environmental turbulence influence the relationship between e-marketing services and e-marketing performance are under-researched topics in the field. We first empirically tested 176 SMEs from China to evaluate which e-marketing services are significantly related to e-marketing performance and how these services collectively influence the performance. Then, we used an NK model to examine how innovation, knowledge complexity and environmental turbulence mediate/moderate the relationship. The results show that five e-marketing services (e-CRM, e-SCM, e-competitiveness, IS/IT integration and information transparency) can greatly influence e-marketing performance; innovation positively mediates the relationship between e-marketing services and performance; and knowledge complexity and environmental turbulence positively moderate the relationship.

Index Terms— E-marketing, NK Model, Services Marketing, SMEs

I. INTRODUCTION

THE business-to-business electronic marketplace (B2B e-marketplace) is an internet-based business platform that allows multiple buyers/sellers to share information about products/services instantaneously, conduct transactions online and benefit from other value-added marketing services (e.g., electronic customer relationship management (e-CRM), electronic supply chain management (e-SCM) etc.) that help to identify, recognise and fulfil both sellers' and buyers' requirements in the B2B context [1]. Many scholars [2, 3] have stressed that the B2B e-marketplace has become an ideal platform for buyers and sellers to market their products. E-marketing in the e-marketplace can greatly contribute to firms' growth and development. Academics find that managing good online customer relationships, setting up efficient operations, being ready to absorb external knowledge, making full use of the marketing tools in the e-marketplace and exploring the additional market information available there lead to better firm performance.

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Although research on e-marketing services and e-marketing performance has developed greatly, we find two gaps in it: (1) Usually, firms conduct multiple-service activities. All the academic examinations of the relationship between e-marketing services and e-marketing performance to date have been conducted from single perspectives. No study has tried to explore how e-marketing services might collectively contribute to firms' e-marketing performance, and which e-marketing services in general should be taken into consideration by firms when they are formulating their e-marketing strategies. Based on the current studies, firms cannot comprehensively identify which services should be considered, how the investment in those services should differ and how those services might collectively improve their e-marketing performance. (2) Other areas of the management literature show that innovation [4], the knowledge complexity of an industry [5] and the degree of industrial turbulent [6] can influence firms' performance. However, how those factors affect the relationship between e-marketing services and e-marketing performance for small and medium-sized enterprises (SMEs) has not been studied in the area of e-marketing. Investigating the impacts of those factors on choices of e-marketing services and e-marketing performance could allow scholars to better understand how to build up SMEs' competitiveness in the e-marketplace. In sum, our paper attempts to fill these gaps by examining,

1) which e-marketing services are positively related to e-marketing performance, and how those services collectively contribute to performance improvement, and

2) how innovation, knowledge complexity and environmental turbulence influence e-marketing performance.

II. METHODS

We employ a mixed method (an empirical study and an adjusted NK simulation) in an attempt to explain the relationship between e-marketing services and e-marketing performance. Mixed methods are often used to demonstrate how different data sources or methods of inquiry can lead to the same result. The purpose of the mixed method is to increase the credibility and validity of the research results. By combining multiple research methods, researchers can overcome weaknesses or problems stemming from a single method. Thus, in this study, a mixed method combining quantitative and simulation data was deemed the best way to answer the research questions, as it would enhance the perceived quality of the research and provide the best means to explore this new research topic and especially the new

relationship proposed in this paper (Cooper & Schindler, 2006).

III. DISCUSSION AND IMPLICATIONS

A key contribution of our empirical study is that we conceptualise and empirically investigate the viability of e-marketing services for improving e-marketing performance. The results of our empirical study provide strong support for this approach. All five e-marketing services derived from the B2B e-marketplace are shown to have a strong positive impact on e-marketing performance, as the correlation between the links is high. Thus, it is clear that companies can benefit greatly from integrating these e-marketing services into their portfolio of marketing activities. In addition, not only is it critical to develop strong customer relationships and customer value around existing products in the short run; using e-marketing services to understand and manage future value creation processes by fostering innovation is also crucial for achieving superior marketing performance in the long run. Therefore, we offer a new conceptualisation of e-marketing services and performance, providing a foundation for the development of a new and theoretically important focus for research in e-marketing performance. In addition, we have tested, for the first time, the important link between e-marketing services and e-marketing performance, and present in this paper empirical evidence that offers insights pertaining to the wider e-marketing literature.

Our examination of the effects of management innovation, knowledge complexity and environmental turbulence on the relationship between e-marketing services and performance further advances the e-marketing field. There is no existing literature that takes organisational capabilities (innovation) and institutional factors (knowledge complexity and environmental turbulence) into consideration in interpreting e-marketing performance. In this paper, we stress that not only the e-marketing services themselves and their combinations may determine e-marketing performance for SMEs, but also different degrees of industrial knowledge complexity, dynamics of a specific industry and the ways of a firm's managing innovation could greatly influence e-marketing performance. The results of our study imply that, when other situations being equal, innovatively managing the five e-marketing services identified above, competing in a more sophisticated industrial knowledge environment, and picking up a faster-paced competition environment, will lead to better e-marketing performance. However, since the rates of performance improvements decrease as the degrees of e-marketing service innovation increase, firms may not be suggested to innovate further. "Overinvestment" in innovation perhaps will be not that cost-efficient in the end. This paper provides fresh angles for scholars wishing to investigate the e-marketing services to performance relationship.

IV. LIMITATION AND FUTURE RESEARCH

One limitation of this study may be the sample size. Also, although the literature review was conducted over internationally based work, the empirical study was restricted to China. Applying the findings to other countries may therefore require additional considerations of the environment in which the SMEs are located. The representativeness and generalisability of this research only applies to SMEs from China, and not necessarily to other countries and large-scale organisations. Nevertheless, this study makes a major step towards the systematic adoption of e-marketing to improve SMEs' business performance, which adds value to this research.

To further understand the e-marketing services that can be derived from the B2B e-marketplace, future work could be carried out at both an academic and a practical level. First, additional empirical studies could be conducted in other countries to look at cross-cultural differences. Such replications would help academics and practitioners to understand which geographical factors specifically influence this topic. Since the characteristics of SMEs differ from those of large companies in terms of business processes, with less standardised procedures, and less specialised and innovative structures, it is likely that SMEs use B2B e-marketing practices and information sources differently from large firms. Thus, a second possible area for future studies could be to place the emphasis on large-scale organisations and compare the results.

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