Case study

The role of organisational interdependencies and asset orchestration in business integration: A case study of M.com

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ABSTRACT

Business integration is an important determinant of business value and firm performance which enables a firm to respond to pressing competitive forces. Given its significant role, business integration in general has been an enduring research topic over the years. However, due to its complex nature, the ways to achieve this important organisational capability in firms are still not clearly understood. Hence, the present study is an attempt to 'open this black box' and examine the relevant issues through a case study of M.com, one of the largest e-commerce firms in China. The findings of this case study emphasise that the ability to coordinate organisational interdependencies and asset orchestration according to the needs of business processes is challenging but necessary in order to achieve business integration in e-commerce firms. It is found that asset orchestration in a firm is contingent on the organisational interdependencies such that different interdependence types demand different coordination methods at the very least. It also shows the significant role of IT in asset orchestration and the coordination of organisational interdependencies during business integration. With these capabilities, firms can experience growth and improve the quality of conformance to customer needs.

1. Introduction

In this ultra-competitive e-commerce landscape, the ability of an e-commerce firm to form a seemingly single function is an important determinant of firm performance and business value. This requires tight coordination among discrete business activities which ultimately enables the firm to respond to pressing competitive forces (Markus, 2000). As an industry moves toward real-time supply chains, the integration of external and internal business activities at both the front end (marketing and sales, customer services, outbound logistics) and the back end (operations, technology development, procurement) becomes critical. Interdependencies between front-end and back-end offices, that is, the extent to which organisational units depend upon each other for resources due to information complexity and resource scarcity, is an important capability needed for firms to achieve business integration. Effective organisational interdependencies ensure the appropriate configurations of firm processes and assets, and increase a

firm's capacity to respond quickly and effectively to market forces (Rockart & Short, 1989).

Asia will continue to lead global e-commerce growth. China alone will boast 269.4 million digital buyers this year (2014) according to independent market research firm, eMarketer. China's e-commerce market was worth an estimated US$210 billion in 2012 according to consulting firm, McKinsey. Driven by the increasing popularity of e-commerce and the dramatic increase in the amount of economic activity generated through it, China's e-commerce firms are locked in severe competition. The ability of firms and their underlying IT systems to work together (interoperate) seamlessly across a supply chain at the business and process level is important. This places more scrutiny on the system and business integration strategies adopted by these firms. The new economy provides a unique context for research on business integration in e-commerce firms, which in turn will offer valuable feedback to firms striving to survive and thrive in such competitive environments.

Given its crucial role, the concept of business integration in the e-commerce context has garnered research interest for many years. However, extant studies often focus on the integration of front-end and back-end IT systems to support e-business activities, reflecting an assumption that business integration is automatically enabled by IT systems and that, following IT system integration, cooperation

among departments would naturally ensue. However, according to management theories, different types of organisational interdependencies across a firm will shape the structure of the firm and its internal cooperation differently (Gözübüyük, 2013). In turn, the complexities of firm structure processes and cooperation are critical determinants of business integration. Hence, business integration and organisational interdependencies are tightly coupled. To date, many studies have posited the important antecedents for business integration and organisational interdependencies. Yet, despite the growing body of research on organisational interdependencies, the way in which these interdependencies are tied to business integration remains unanswered. Organisational interdependencies are complex and multifaceted phenomena embedded within a firm's context. Given the role of organisational interdependencies in contemporary business environments, it is imperative to investigate how to coordinate and support organisational interdependencies in order to achieve business integration.

The objective of this case study is to examine approaches to supporting organisational interdependencies to achieve business integration. Specifically, we use the literature on asset orchestration (Teece, 2009) to examine the phenomenon. Asset orchestration involves the managerial search, selection and configuration of resources and capabilities, and requires the ability to match resource investment decisions with congruent deployment decisions. Every organisation faces resource constraints, so resources tend to be allocated where they are needed most. Optimal asset orchestration reduces the uncertainty that will incur higher costs. For example, it is likely that firms that are uncertain about the state of their environment will spend a greater amount of time and resources on environmental scanning and forecasting. The deployment of IT systems also plays an important role by, for example, reducing the risk of loss of resource control. Hence, asset orchestration in organisations provides an important perspective to understand the management of organisational interdependencies in turbulent environments due to information complexity and resource scarcity. Our case study examines the unique composition of IT capabilities and asset orchestration required to achieve e-commerce front and back office integration. In the following sections, the case firm is described. The focal processes in the case firm are then discussed. The lessons learned are then highlighted, followed by the conclusion.

2. Case description

We selected M.com as our case firm. M.com is one of the largest electronic retailers in a very competitive business-to-consumer (B2C) market in China. The foundation of M.com dates back to 1998 when the firm was operating as a retailer. By the late 2000s, M.com had developed a reputation for being the de-facto '3C' (computer, communication and consumer electronic) online retailer. In a little under ten years, M.com pushed through to become one of China's most comprehensive and influential B2C platforms in terms of products, visits, click-through rates, sales and industry reputation. Its closest rivals are Suning and Amazon, according to an independent market research firm, Analysys International. Today, M.com offers approximately 31.3 million stock-keeping units across 13 categories of products including computers, mobile phones, home appliances, cosmetics, luxury goods, and child-care products. To fulfil its orders, M.com owns and operates seven fulfilment centres and a total of 82 warehouses across 34 cities in China as part of its extensive logistics and distribution network.

Despite its recent achievements, the firm's management faced a myriad of challenges during the early stages of its growth. At the time of the Severe Acute Respiratory Syndrome epidemic in 2003,

falling consumer confidence forced sales across its retail stores to plunge. The firm was faced with the decision to close all of the retail stores and risk changing its mode of operation from physical storefront to online. In late 2003, the CEO led a group of IT experts to develop a system to support the executive decision to transform to an online store. The online site was launched in 2004. Over the next three years, the business thrived; M.com began offering an extended range of products and services to an expanded customer base including raw material manufacturers, agents, distributors, retailers, stores and other online shops. A new platform was officially launched in June 2007.

Towards the end of 2007, M.com's strategies and capabilities to maintain its high transaction volume were in doubt. In four years (2004–2008), M.com had achieved a 340% sales growth rate. By 2009, M.com was handling close to 10 million registered users, with the order processing volume exceeding 70,000 orders in a single day. However, the growing volume of orders each year outpaced the IT capabilities, placing high demands on strategic planning and order processing and leading to large distribution channels on its infrastructure. Scepticism towards technical development issues and the robustness of the web technology grew among the managers attempting to leverage these technologies. In October 2009, M.com made a widely publicised announcement about the splitting of its 800-staff IS department into front and back offices, which posed another challenge to the firm's management.

Despite the various challenges, M.com flourished, taking advantage of China's rise in personal computing usage and changing customer behaviour. According to the CEO, buying goods on the internet had not been popular ten to twelve years earlier in China; but, as Taobao[1] and other platforms grew, people started to see the potential and promise of B2C. Another factor was the continuous creation and improvement of management functions and practices, which enabled the transformation of the firm. As well as relying on external allies and suppliers to speed up their movement to the web, M.com started rebuilding its technological infrastructure and increased efforts in internal business integration-related activities. One initiative reflecting the improvements made was the 211 Program whereby M.com guaranteed the delivery time for any order received by the morning deadline (11:00 am) and the evening deadline (11:00 pm). To fulfil the 211 Program guarantee, the firm improved many processes, particularly its focal processes of strategic planning and reporting, order processing, and product design and development. This required not just a fully optimised web interface, but also the support of a large-scale web content repository to enable its entire supply chain. The following sections discuss the company's business integration and the role of organisational interdependencies and IT asset orchestration in the context of focal business processes.

3. Focal processes in M.com

The three core business processes that must be well-coordinated in e-commerce firms are forecasting and planning, order processing, and product development and management (Kalakota & Robinson, 2001). The completion of these processes in the case firm requires sequential and iterative coordination among the business departments managing the front-end and back-end operations. This section highlights how strategies related to business integration influence performance in the case firm.

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[1] Taobao, founded by Alibaba group, is one of the largest online marketplaces in China.

3.1. Forecasting and planning

Forecasting and planning enables M.com to establish a resource base from which it can adapt and extend its operations. According to the managers of the M.com information control and business data warehouse, this process fundamentally requires the cooperation of all departments in the firm to report back on day-to-day operations and subsequently plan the strategies moving forward. This involves the pooling of resources when each department or office discretely contributes to the whole by collating (or pooling) its obtained information and knowledge without regard to another department's activities. The manager of the business data warehouse described this process as follows:

> "We collate data from every [one] of the six departments [at the back office], then based on the requirements of the business, create analysis and other reports. We need to report on total running costs, timetabling of delivery, marketing analysis reports, complaints, after-sales feedback, technical reports, external partnership information and results. Subsequently, we use data models provided by the data department at the front office and Western standards, such as ITIL [IT infrastructure library] to catalogue the data."

In turn, the departments use this information to communicate with the relevant operations levels. For example, the M.com data reveals that most customers are male and aged from 18 to 35 years; many are white-collar workers, civil servants, public sector employees, college students and technology enthusiasts, who do not have enough time to go shopping. Process improvements will focus on the consumers who tend to have a steady income, strong consumption ability and an understanding and taste for online shopping and are identified to more likely behave as loyal customers. As the manager of the M.com platform architecture research explained:

> "Our goods are now classified into 'A', 'B' and 'C' types. 'A' goods are those that we have eyes on or we think that will do well with them [a specific customer group], so the exposure is higher than the rest, they have priority when it comes to stocking. We decided to automate the procurement process for goods that are daily essentials; the 100 things that people use every day are automatically procured by the system."

Through these practices, the business data warehouse and information control departments of M.com were able to generate a large number of extended indicators to help identify the segments of customers using the site. As evidenced, the pooled data develops a profile of the consumer behaviours in the online environment and this has an effect on the firm's planning operations including the procuring of stock. This composite profiling of customers and products enables the managers to segregate and plan their marketing and service strategies specific to the particular demographic needs.

3.2. Order processing

When an order is confirmed, the order triggers the next system in each warehouse called the warehouse management system. When the warehouse system sees the job, it triggers another set of processes which sees goods packed, scanned and sent out of the warehouse. The relevant information also goes to a distribution management system at each delivery centre for delivery. At M.com, a range of IT systems were adopted to complete this sequential order fulfilment process and facilitate collaboration between departments, from the logistics system at its back end to the customer service system (supported by its National Customer Service Centre with 150 call agents) at its front end. The manager of the supply chain department explained the crucial role of IT:

> "Besides an in-house ERP, we have a series of systems to support the order processing centre. Systems allow us to monitor the distribution of sales orders to the warehouses for processing, and it will simultaneously report back information on [the] status of warehouse and delivery."

With a fully optimised web interface supported by a large-scale web content repository, M.com created a competitive advantage in order processing. This required the structure of the order, the selection of orders, the printing of orders, the payment systems, the sales systems and the logistics systems to be tweaked. The result was the 211 Program, as mentioned above. As the manager of the product management department (back-end operations) explained:

> "Competition has moved from front-end to back-end systems and logistics, have a look at [other e-commerce firms in China], their back-end delivery is bad so customer experience is bad, they don't have their own storage nor have their own distribution and logistics. The goods are not theirs, and the delivery is not them so no guarantee."

For M.com, the IT systems supporting the B2C platform ensure systematic back-office processes and sound front-end capabilities. The logic of these systems would need to be very complex, and whether it can be implemented properly depends on a detailed understanding of the fulfilment process. Because M.com owns and controls the supply chain end-to-end, many other popular e-commerce platforms in China are not able to compete on its scale in terms of shipping and distribution. As a result, M.com has developed a reputation in the industry as a technically enabled e-commerce company and an optimal logistics company.

3.3. Product development and management

Product development and product management processes are vital given the myriad of product lines in M.com. The mutual requirement for work and resources creates a unique reciprocal and highly interdependent relationship between product development and product management. The development of customer products (including working on the source code), the development framework and error checking are the responsibilities of research developers from the product research and development department. On the other hand, monitoring the sales of the products, finding innovative means to market the products and repositioning goods into new product lines where necessary are handled by product managers from the product management department. Hence, product managers create an important source of work for developers and product managers need developers in order to maintain their product lines. It is noteworthy that most of these product managers were once the core employees of the research and development department. In lieu of hiring new executives, M.com believes in moving employees up to management roles because of their familiarity with processes and domain knowledge, extensive contacts and trust built from prior relationships. As the manager of the software quality assurance department described:

> "They [project managers] are the bridge between departments working together. ROI, the length of [product] development process, potential conflicting resources, scheduling and discussion with our sales departments helps us determine which product line we should be focusing our efforts on."

On the other hand, as the manager of the product research and development explained:

> "Ultimately, different product managers tend to want to push for their product lines and safeguard their interests. There is

going to be a conflict for resource when product managers claim the importance of their programs."

Over the years, the rapid rise in the types of products and product lines introduced, coupled with the drop in the ratio of product managers to product developers, meant that there has been a growing scarcity of resources, particularly product developers. The role of the product manager is crucial for integrating the product development work, as the product manager determines which product line the firm should be focusing its efforts on and ultimately where to allocate resources. Over time, the identities of departments are re-established as a result of this dynamic. The manager of the platform architecture team research division explained:

"The research and development team is a train's engine. It heads the other cars [departments] behind and drags them along. If the R&D department is the train's engine, the product department hence is the signals on the tracks. Before 2009, it seems that sales departments were leading the business but things have reversed, we are led by IT."

4. Lessons learnt

Generally speaking, our case study shows that M.com is able to coordinate organisational interdependencies and orchestrate its assets and capabilities better than its competitors to achieve business integration and, with it, disproportionate profits and rapid growth. The lessons learned in our case study are discussed in this section.

Firstly, it is found that asset orchestration in a firm is contingent on the organisational interdependencies that arise from joint tasks between collaborating sides. This is consistent with previous findings showing that different interdependence types demand different coordination methods in terms of rules and operating procedures, adaptive planning and scheduling, and mutual adjustments. The case study shows that, for all three processes, the coordination mechanisms implemented by management to satisfy or fully contain the contingencies in interdependent relationships within a firm are different. For example, the process of pooling data from interdependent sides for forecasting and strategic planning requires the adoption of standards, the establishment of regulations and the observance of strict routines in order to overcome uncertainty. On the other hand, when there is recognition that common pool resources are finite or when resource uncertainty surfaces under such conditions, information requirements begin to outstrip the formal control systems. In the context of product development and management, this may involve actively promoting competition whereby previously competitive entities cooperate to manage the scarce resources and create a synergistic and strategically advantageous environment. Our case study shows that the challenge for interdependent sides is identifying how they will respond and adapt not only to the activities but also to the resources available to one another.

Secondly, this case informs us about the role of IT capabilities in achieving business integration. When order processing becomes more complicated due to customer cancellations and amendments, a firm must quickly move from maintaining a web presence to managing order processing transactions end-to-end online. With narrower business functions and specialisation, such that the ERP and ordering system become critical resources for integrating business functions, the distance between the functions conducted by each office reduces. The rapid expansion of the business and the growing transaction volume will also heighten the perception that the IT department plays a supporting role rather than the perception that it leads organisational changes. However, the growth and performance of a firm cannot be totally relegated to IT

mechanisms during firm transformations. IT-motivated improvements also involve the capacity for de-stabilising old sources of competitive advantage and dismantling out-moded capabilities and endowments. Our case study shows that the decoupling of the IS department into front-end and back-end offices ultimately led to better delivery. Optimisation within each functional office is the solution to counter overall process inefficiencies, as it captures intermediate achievements such as customer intimacy at the front end and operational excellence at the back end. Furthermore, our case study findings suggest that when business integration puts greater emphasis on back-end processes, it has a stronger impact on firm performance than front-end functionality, which seems consistent with resource-based logics.

5. Conclusions

While the significance of business integration in a contemporary e-commerce environment is apparent, the approach to achieving business integration remains elusive to many firms. The findings from our case study affirm that business integration in a complex e-business requires the effective management of its organisational interdependencies and asset orchestration, which has not been examined in previous research. We believe that the present study has practical implications for the attainment of business integration, which is especially significant for e-commerce firms competing to increase their capacity to respond quickly and effectively to changing market forces, to improve the quality of conformance to customer requirements or to reduce costs. With the aforementioned findings, we hope that the study helps managers to create structural synergies and manage the antagonisms arising between departments due to the differences created from interdependent relationships. Future research should be conducted to extend our understanding of how business integration is achieved through leveraging organisational interdependencies and asset orchestration.

Acknowledgements

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