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INTERDEPENDENCIES AND COLLABORATIVE ACTION FOR PLATFORM LEADERSHIP: A COMPARATIVE ANALYSIS OF TWO LEADING CHINESE MULTI-SIDED DIGITAL PLATFORMS

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Abstract

Asia continues to lead e-commerce growth worldwide, with multi-sided platforms like Alibaba.com, 360buy.com and Taobao.com leading the race. Despite their rising prominence, few studies articulate how these multi-sided platforms in Asia service and collaborate with its sides. It is important to learn how platforms encounter and adapt to changing suppliers-platform-customers interactions, to better understand the implications of e-commerce necessary to compete and lead in this digitally enabled landscape. Furthermore, scholars suggest research to discern between modernization of Asia and Westernization. To close these gaps, the authors conduct a case study of two of China's leading multi-sided digital platforms—A.com and M.com. The researchers cross-examine the development of the two firms since their establishing, focusing on collaborative strategies with their sides and within their business units, through interdependencies and collective action conceptual perspectives. The contributions of this paper are two-fold. Firstly, we introduce a framework that identifies four types (I-IV) of multi-sided platform collaborations. This framework prescribes guidelines to identify and manage different types of collaborative action for strategic planning and operations between platform partners. Secondly, we consolidate four lessons learnt from our data—teach, consolidate, co-opete and ultimately lead—a set of actionable guidelines for platform leadership in the marketplace.

Keywords: Multi-Sided Platforms, Interdependencies, Collective Action, Market Leadership.

1 INTRODUCTION

In its annual Internet commerce report, J.P. Morgan projected that worldwide e-commerce sales will reach \$963.0 billion US dollars by 2013. Fuelled by increasing adoption of broadband and growing middle class, Asia will continue to lead e-commerce growth worldwide, registering an estimated annual growth of 27.5% (over US-12.4% and Europe-13.2%) from 2010 to 2013 (Khan et al. 2011), with digital and multi-sided *platform* (Boudreau et al. 2008; Hagi 2007; Weyl 2010) retailers like *Alibaba.com*, *360buy.com* and *Taobao.com* in China leading the way. Backed by independent research from Goldman Sachs and Gartner Inc., anecdotal evidence anticipate a greater proportion of brick-and-mortar retailers and retail sales across major e-commerce adopters in Asia to shift online, driven by convenience, lower-price alternatives to traditional retail, and improved trust & safety.

Despite the prominence of these leading multi-sided e-commerce platforms, few studies have articulated how they lead, support and collaborate with its supplier and customer sides. Our review of e-commerce literature reveals a plethora of studies-to-date covering e-commerce technologies development and deployment issues (e.g. Phan 2003) assimilation (e.g. Chatterjee et al. 2002), services delivery (e.g. Cenfetelli et al. 2008; Éthier et al. 2006) and design implications (e.g. Zhu et al. 2010). However, we found publications in this domain have rarely (except Zhu and Kraemer 2005 to some degree) moved beyond these areas toward examining socio-technical issues between working units connected to a platform, that enables development and ultimately market leadership. Anecdotal evidence reveals how net-enabled retailers must adapt and be able to respond quickly with collaborations that the market demands (Khan et al. 2011). For instance, we found only a handful of studies that delve into the nature of *interdependent* relationships between firms (e.g. Lenox et al. 2007; Lim et al. 2011) and organizational mechanisms that underlie the performance of emergent retail platforms (e.g. Beynon-Davies 2010; Buenstorf et al. 2009). Clearly, collaboration is not just “cooperate” and “not cooperate” alone but the levels of collaboration are continuous (Mui 2012). This continuity is determined by several factors including the amount of trust between entities (Lim et al. 2011), nature of collective action (Olson 1965) and interdependencies (Lenox et al. 2007). Our research builds on prior work by scholars (e.g. Siggelkow et al. 2003; Teece 2009), to better understand how firms confront challenges of pursuing the appropriate configurations of firm activities given its environment, to achieve competitive advantage, market leadership or simply to survive.

Against the above backdrop, our research question is: “*How do multi-sided e-commerce platforms (in Asia) manage interdependencies and collaborative action to achieve market leadership?*” To address this question, we conduct case studies on two of China’s leading (Khan et al. 2011) e-commerce platforms A.com and M.com (pseudonyms). Our case studies capture how daily operations of these two platforms unfold and using highlights what else might influence the nature of collaboration between multiple sides of the platform. For this purpose, we adopt *interdependency* and *collective action* logics established in literature as lens and guidance to structure our data analysis. Our study establishes a *framework* to better understand how interdependencies between sides of platform influence collective action and in turn nature of collaboration between these sides. Besides a framework to identify collaboration in platforms, we postulate actionable guidelines that managers must adapt and to manage, to achieve competitiveness and to isolate sources of poor performance. Furthermore, our study reveals differential firm cultures, if any, to realize the modernization of China and of Chinese firms, which should not be equated to Westernization (Martinsons et al. 2009).

The paper continues as follows: section 2 presents the literature review. In this section, we compare the theories describing collaborations and introduce the collective action and interdependency logics. In section 3, we introduce the research method and the theoretical scaffolding with which to analyse our data. In section 4, we introduce the two cases and the operational, development and collaborative strategies of multi-sided digital platforms. In section 5, we discuss our findings, make comparative notes on the phenomena and we corroborate our findings with existing literature and make further recommendations to practice. Finally we close the study and consolidate the key contributions.

2 LITERATURE REVIEW

This literature review discusses (1) the reported effects of digital platform growth on collaborations, (2) consolidate the theories for studying collaboration and (3) introduce *interdependency* theory and the principles of an *agile firm* for studying collaborations within and amongst platform retailers.

2.1 Multi-Sided Platforms and Need for Collaboration

Dot.com platforms seeking *multi-sided effects* (Boudreau et al. 2008; Evans 2003; Hagiu 2007) on their business whilst capitalizing on the advances in IT have risen to prominence in recent times. Briefly, a multi-sided platform facilitates transactions among two or more *constituents* (sides like consumers, sellers, advertisers, suppliers) that it serves, such that members of one side are more likely to get on board the platform when more members of another side do so (Hagiu 2007). Case in point—online Yellowpages.com for consumers and advertisers, eBay.com for buyers, advertisers and sellers and Google.com for advertisers and Web searchers. These platforms provide infrastructure and rules that facilitate the (customer) groups' transactions. In today's global business landscape, we see platforms linking two or more interdependent groups of customers, in a bid to maximize profits and to gain competitive advantage over their rivals (Eisenmann et al. 2006; Rochet et al. 2003).

Platforms, like most firms are not established with specific and unyielding strategies. Depending on the situation, platforms may switch between different types of strategies in cooperating with its suppliers, customers, potential investors and other platforms. Mui (2012) distinguished several different approaches to cooperation. Using their analysis as a foundation and based on the assumption that inter-organizational cooperation and net-enabled firms are not mutually exclusive, we construct a summary of collaboration approaches. Table 1 summarizes these theories. These approaches explain why firms, business units and individuals select and must cooperate to survive some theories describe the power differentials in kinship relationships while others purport what resources are required for collaboration. In exploring collaboration, Mui (2012) highlights several shortcomings in existing studies including interactions reported are largely restricted to dyadic types, discrete actions in existing models, need to account for mechanisms in interactions involving more than just two sides. Due to the overlapping assumptions and implications, as illustrated in table 1, the article also claims that despite the approaches, we know little about collaboration using a unifying lens.

Perspectives of Collaboration	<i>Transaction-Based</i>	<i>Resource-Based</i>	<i>Reciprocation</i>	<i>Social-Learning</i>	<i>Kinship</i>
Concept of Collaboration	Collaboration based on costs necessary for an exchange	Collaboration based on otherwise unavailable resource access or advantage to sides	Collaboration based on reciprocating what (other) sides did in previous round	Collaboration based on dominant behaviour of sides embedded in social network	Collaboration based on relatedness of sides
Related Concepts	Transaction and Production Costs	Integration, Firm Value	<i>Direct</i> (e.g. Tit-for-Tat strategy) and <i>Indirect</i> (reward from others) reciprocation	Conformity, Willingness	Altruism, Nepotism
Representative articles	(Das et al. 2000) etc.		(Wincent et al. 2010)	(Simon 1991)	(Pittino et al. 2011)

Table 1. Summary of Collaboration Theories

Despite the reported growth and the continual development of retail platforms, e-commerce, Internet and other related technologies in recent years, most multi-sided market literature-to-date focuses on pricing and competition between platforms (Evans 2003; Rochet et al. 2003). Consolidating forces that shape marketplace competition, growth strategies and trade-offs is still largely a black box (Pettigrew et al. 2001; Suhomlinova 2006), fueling calls for a closer examination. This is especially important as a switch to digital retail platform creates dynamic changes in the way firms and employees cooperate,

share information and communicate with one another (Jackson et al. 2003). Besides cooperating towards a mutual end, retail firms must now contend with dynamic relationships between competing objectives as a result of fundamental operational and organizational change (Williamson 2002). In highly competitive economic markets, net-enabled firms and retailers must adopt and switch between different types of strategies in cooperating with other firms (Simon 1991). In summary, there is a lack of study despite the relative importance placed on collaboration within a platform's ecosystem.

2.2 Theory Development: Interdependency, Firm Agility and Collaborative Actions

From literature, it is recognized that levels of interdependence complicates the task of coordination and tend to affect planning and control between partnering units (Chenhall et al. 1986). Briefly, the concept of interdependency explores interactions between interdependent units (firms, business units and individuals) and how they should influence and adapt to the resources and activities of one another (Lenox et al. 2007; Munksgaard 2010; Sorenson 2003). Thompson's (1967) early work conceptualized three *types* of interdependence—*pooled*, *sequential* and *reciprocal*. Thompson's (1967) position is such that increasing amounts of interdependence pose increasing degrees of contingency to interdependent units where contingencies reflect the frequency and volume of communication and decision making activity between units. A potential mistake is to assume that the nature of interdependencies is deterministic and unchangeable (Barlow et al. 2011). Gerdin (2005) explains that *lower* levels of interdependence mean exceptions that can occur during task execution are relatively few and relative certainty about objectives. It also implies highly standardized processes where the decision-making process is straightforward, and the outcome fairly well predicted. A low level of uncertainty implies higher level of predictability and the information available typically meets requirements for programmable decision-making (Gerdin 2005). On the other hand, *higher* levels of interdependence, suggests that products or project tend to be highly customized and success rest on the availability and combination of capacities required by the individual or project (Thompson 1967).

According to Barlow et al. (2001), poor performance on projects is often the result of a mismatch between their chosen methodology and understanding their project's interdependencies. Similarly, understanding the types of interdependencies present in an organization and the costs of interdependency coordination can determine, in part, the appropriate development and coordination strategies that exist between project teams. For instance, Barlow et al. (2011) explains that to make effective use of planning, project managers need to fully understand the nature of all sequential interdependencies, the scope of the individual tasks required, and the resources needed to complete those tasks. Thereafter, the firm can seek to establish the IT infrastructure in place to support their chosen method of coordination. By reviewing interdependencies and coordination between working/cooperating units, the techniques for attaining *agility* and their success or failure can also be better understood (Ahuja 2000; Sammarra et al. 2008; Weill et al. 1989). From the above, we can only speculate that the concepts of firm agility (Iansiti et al. 1994; Williamson 2002) and interdependencies are closely intertwined with inter and intra firm collaborations, and ultimately impact firm success. Hence in organizational research, there are calls to give more attention towards the principal firm *actions* during the enactment of any strategy (Amit et al. 2001; Vargo et al. 2008). We consider one plausible theoretical preposition when studying actions and objectives of those actions during the enactment of a collaborative strategy- *collective action*. In an economic sense, collective action describes the (act of) provision of *public goods* (Olson 1965) through the collaboration of two or more agents in a group. These public goods carry two forms: *Inclusive* and *Exclusive*. When the collaboration seeks to provide "exclusive public goods", groups to try to keep their size as small as possible to try to get 100% participation. On the other hand, in the case of inclusive goods, the more members in an inclusive group, the more individuals who may be willing to share the costs of providing a good of general benefit to all. Olson suggests that bargaining and strategic interactions will be less intense in an inclusive group than in an exclusive one.

Applying these prepositions, we can examine principal actions undertaken by organizations during the enactment of an intended collaborative strategy, such as (1) formalities to start and finish faster (e.g.

contract negotiations), (2) communication and barriers within teams over processes and tools and (3) the allowance for teams to make changes and adjust to needs. These are scenarios that (Iansiti et al. 1994; Sammarra et al. 2008; Williamson 2002) suggests that one should look at when studying firms seeking agile practices to become more competitive, improve processes, and reduce costs.

3 RESEARCH METHOD

We conduct case studies of two leading retail platforms in China, *A.com* and *M.com*. The case first criterion is the firm should logically operate as a retail *platform* (Hagi 2007; Rochet et al. 2003; Weyl 2010). Secondly, the strategies for collaboration between and within its constituents (including its subsidiaries, alliance partners, customer groups) are cited and can readily be examined by the researchers. As identified earlier, case research on *how* Chinese multi-sided retail platforms develop and *how* collaborative strategies in platforms are developed and leveraged for organizational value are relatively scarce. Hence, an exploratory case study is appropriate. In addition, we assume all sides of a retail platform maintain rationality, a degree of objectivity and good business sense.

In our first data collection, we conducted twenty-three interviews with various stakeholders within *A.com*, as well as suppliers, retailers, merchants and individual users from late 2008. The internal informants, were predominantly senior and middle managers of the *A.com* group and its subsidiaries. The list of interviewees, titles of managers and description of topics discussed are summarized in *Appendix A-1*. We sought to leverage the depth of knowledge, experience and leadership, especially in championing IT use, with which managers are often associated (Bassellier et al. 2003; Cooper et al. 1993). Data collection at *M.com* started in early 2011, following nearly a year of preparations including literature review and case preparation. As part of the data collection, a site visit was conducted in late 2011, and we continued to observe the platform's progress over the last year. In all, we conducted seventeen interviews. We conducted thirteen interviews with the management of *M.com*'s IS department to better understand the strategies, operations and leadership of *M.com*. We conducted two further interviews with two resource managers from *M.com* head office to better understand the firm culture and ethos of the platform, and its human resources strategies. We interviewed two *M.com* users to gather insights of user experiences with the platform. The list of interviewees, titles of managers and description of topics discussed are summarized in *Appendix A-2*.

In both studies, the preliminary conceptual lens (Figure 1) and interview questions act as a *sensitizing device* (Klein et al. 1999). This was meant to initiate and guide the researchers in the interviews and further analysis. The interview questions aimed firstly to better understand the core activities and competencies of *M.com*. Subsequently, questions pertain to collaboration strategies and potential sources of interdependencies in activities. In both cases, we performed data analysis concurrently with data collection (Eisenhardt 1989) to compare the initial findings of the case against the initial statements and our theoretical lens to reach confidence (per Pan et al. 2011). Native Mandarin speakers were engaged to translate some material. We compared the revisions with subsequent interview data, sifting through empirical data, theoretical perspectives, relevant literature and other sources to build an explanation (Walsham 2006) of the collaborative strategies formed. If our findings appeared to extend beyond the propositions of the model, or if there were propositions that were unsupported by our empirical data, we would conduct additional interviews to build an explanation iteratively (Walsham 2006). A combination of *temporal bracketing*, narrative and visual mapping strategies is used to organize the empirical data (Langley 2009) in order to identify preliminary themes in the light of our initial propositions. Newspaper articles, books, and information from *A.com* and *M.com*'s corporate website were supplementary sources that we drew on subsequently to support the analysis. This reinforced the interview data and subsequent mapping descriptions against conceptual themes. Based on the emerging data, we triangulate patterns and develop further mappings (in tables 2 and 3) of the coded responses against theory. This is to capture *how* a spectrum of complexities in dynamic intra and inter-firm relationships and collective action affect them.

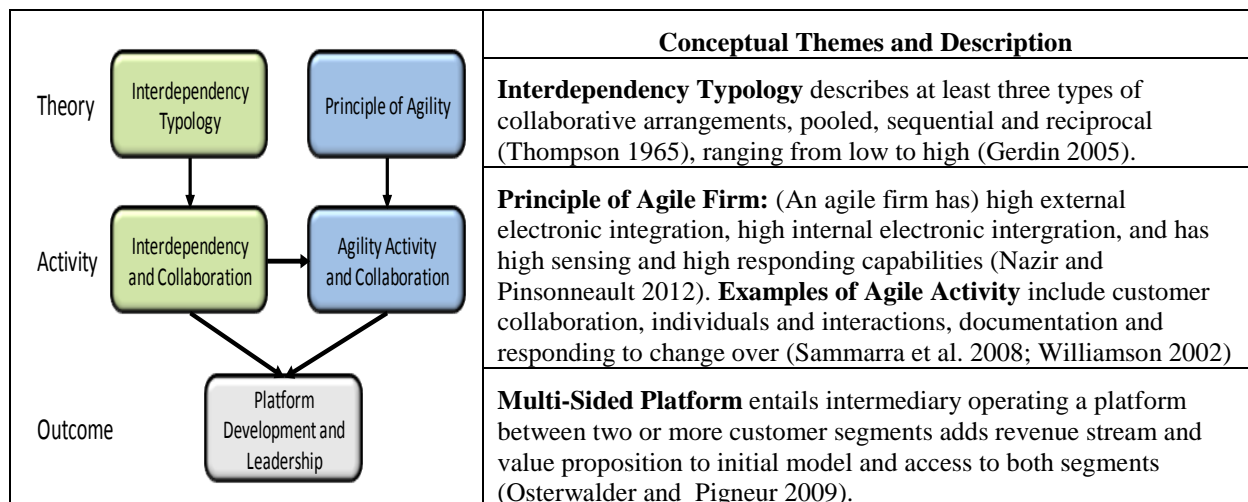


Figure 1. Summary of Preliminary Theoretical Lens

4 CASE STUDY AND ANALYSIS

4.1 Case A: A.com

A.com was established in April 1995, when its founder started a small e-business called ChinaPages.com. By 2008, A.com had become a global digital platform that provides e-commerce solutions (including software, Internet infrastructure and other export related services) for small businesses and is the flagship company of A.com Group. Estimates from independent Web traffic monitoring sites Quantcast.com and Alexa.com show that over 40 million users visit A.com monthly (Workman 2008) then. Today, A.com still ranks amongst the world's top 100 most visited websites. Besides e-commerce for small business (A.com in 1999), A.com Group diversified into platforms for online retail [TM.com (pseudonym) in 2003], third-party online payment [Apay (pseudonym) in 2004], advanced data-centric cloud computing services [A.com Cloud Computing (pseudonym) in 2009] and other essential Internet services (China Yahoo in 2005).

In the early years of its establishing, A.com positioned itself as a B2B e-Commerce company, providing a platform to pool SME (Small and Medium Enterprises) buyers and suppliers both in China and around the world. Buyers and suppliers at this early stage shared little interdependencies and differences in terms of operations and strategic planning with their counterparts, local and overseas. On the other hand, the targeting of SMEs is strategic, given two apparent reasons. First, the prices of commodities in China is very low at the time- the advantages of very competitive prices of commodities in China allowed more Chinese people to move from rural regions into cities to setup small businesses. Second, it is clear from China's negotiations with the WTO that linking Chinese business with foreigners were in the nation interests. Over time, A.com promoted exclusivity and built dependencies amongst its platform partners. The Director of International Relations explained: *"(e-commerce) knowledge is low, we ask companies to post their details and products via a Bulletin Board System (BBS)...As information builds and because we control it, we can help our clients find supplier information, product specifications, trading relationships... We then inform them of where to find this information on our site, via email. Hence, we can potentially connect buyers to sellers and vice versa."*

By 2004, the A.com brand and its payment solution had begun to gain recognition and maturity in the B2B market. Per our conceptual scaffold, A.com's is able to quickly establish inclusive relationships with selected partners, to build up its extended capabilities and reputation. The Vice-president, A.com Group explains: *"Before 2004, we have no intention of joining forces, after 2004 we have a strategy for who we want to work with...originally it was customer first, shareholders second, workers third. Now its customer first, partners second, workers third and shareholders fourth..."* A.com began negotiations with several financial institutions to streamline payment transactions. Co-operation with

Industrial and Commercial Bank (China), China Construction Bank, Agricultural Bank of China, China Merchants Bank and VISA saw Apay became an independent non-bank financial institution. In October 2005, A.com Group acquired China Yahoo! (www.yahoo.com.cn) with a focus on essential Internet services including news, email and search. In 2006, A.com Group makes a strategic investment in Koubei.com, which started in 2004 as a lifestyle services search engine to extend its search capabilities. A.com even engaged experts and invested in a research center to monitor the traffic on Apay and to conduct research on buying patterns and structures.

Soon after, partners and subsidiaries in the A.com network work to intensify the exchanges and interdependencies in its network, resulting in higher value added products and services. The Customer Relationship Director, KoubeiYahoo explained: *“In June (2008), the operations of ChinaYahoo and Koubei were integrated, forming KoubeiYahoo...a massive, convenient and trusted lifestyle service platform, (that operated) on the back of Koubei’s lifestyle services resources and YahooChina’s leading web search capabilities and significant member base. The platform now collaborates with other communities and media to serve sole proprietary build their own lifestyle e-business.”*

Collaborative Theory	Type 1: Low Interdependency, Inclusive-Collective Action	Type 2: Low Interdependency, Enclusive-Collective Action	Type 4: High Interdependency, Inclusive-Collective Action	Type 3: High Interdependency, Exclusive-Collective Action
Activity	Reduce barrier of entry for SMEs (early 1999)	Advisory and consolidation service for constituents (late 2004)	Partnerships with reputable financial, internet service, publishing institutions (early 2007)	Lifestyle and other exclusive product options (2009 onwards)
Outcome	Build critical mass of sides, educate masses	Intergration and consolidation between sides	Capabilities building and reputation building of sides	Intensify network exchanges, value-adding collaboration

Table 2. Analysis of Interdependencies and Collective Action- A.com

4.2 Case B: M.com

M.com is today the largest 3C online retailer—3C stands for *Computer, Communication, and Consumer Electronic*—in the B2C market in China. According to the survey released by Analysys International (EnfoDesk), M.com holds a dominant 37.8% share (and over 30% more than its closest rivals Suning and Amazon at 6.9% and 6.0% respectively) amongst independent B2C retailers operating in the Chinese market. In June 2007, M.com had only just established itself as a platform for the various raw material manufacturers, agents, distributors, retailers, stores or other e-commerce website quality shops. But M.com were rapidly able to tap into platform-exclusive revenue from advertising, brand promotion, starting special activities and other income offered by the e-commerce model, cumulating to approximately 30% of its annual profit to over 10 million yuan. The main difference from A.com is its offering improved supply chain management and assistance for a small fee. By 2009, M.com has already become one of China’s most influential B2C platforms, in terms of visits, click-through rate, sales and the industry’s reputation and influence. By this time, M.com has over 10 million registered users, with order processing volume exceeding 70 000 in a day.

M.com is different to A.com as it is not just a fully optimized web interface, but supported by a large-scale web-content repository that integrates its entire supply chain. At the hub of its operations is its in-house ERP system. With narrower business specialization, such that a system becomes the only critical resource for integrating business functions, the distance away from an existing conduct of functions by each office is minimal. Hence, there is little risk of exploitation from either business units in a defined value-adding chain. Specialization across multiple individual heterogeneous offices (inclusive action) in the single process yields overall efficiency. The Architecture manager (back office) explained: *“Once an order is received, the warehouse is informed (through an OSC system) and sends back a status of the stock levels. The customer and our order fulfillment managers are updated... goods bound for Beijing, the order is sent to our Beijing warehousing facility and system.”*

When collaboration ensues a chain-like structure of activities such that the product of one office is fully dependent upon the output of another, this procreate collaborations that ensue lower uncertainty. Hence, operations-induced problems occur when whole processes are fragmented or not visible.

With daily orders exceeding 1500 and an inventory turnover of only 12 days, the demands of sales and order fulfillment on its IS department is immense. Despite some resistance, the IS department saw that an expansion and division was necessary but risky. From late 2009, M.com announced a splitting of the IS department into two: front office and back office. Since the split, product managers we interviewed explained about the impact of emergent communication and cooperation problems between offices on operations. The manager, operations and maintenance (front office) explained “...*There are still many things then that required the co-operation of the 400 workers in the front IS office and the 300 workers at the back IS office...*” This reflects the need for integration, inter-department awareness and consolidation. According to our theoretical scaffold, M.com identifies the need for less interdependent business units to develop more exclusive actions. From its logistics systems at its back-end (with its ERP at its hub) to the customer service system at its front end (supported by its National Customer Service Center with 150 call agents with 7×12 -hour service at its front end), the lines between front-end and back-end offices remain blurry.

Highly interdependent collaborations requires offices interacting during the intermediate activity for resource exchange (equal), reroute, and up-skilling capabilities of both front end and back end. Where front and back offices interact for data mining and reporting purposes (both critical), they pose critical contingencies for each other that have to be resolved before taking collective action. Manager, Operations and Maintenance (front office) explained: “*when the sales team needs to record a certain type of consumer-related sales data but transactional systems at back office is not designed to record it, the front office would suggest changing it...In turn, we initiate the changes required for our mutual systems...Once the mutual systems allow the record, the data is recorded, and the front office may then absorb, clean and store the data. Once recorded, we will proceed with classifying the information according to a number of relevant themes...following that we will look into complementary and matching information to design a certain promotion. The promotion will be registered and distributed through EDM (Email Direct Marketing) for consumer response. And so it continues as a cycle.*” Depth of reciprocal relationships is determined by the IT resources, the information and the knowledge of employees in this case—that drives them. There is some risk of exploitation by a business unit over another and distance from existing activity is likely when that occurs.

When resources are scarce, highly (or low) interdependent collaborations can affect collective action. This next example looks at business unit pairs who cooperate on product management and inadvertently compete in product sales and resources. The Manager, Operations and Maintenance team (front office) explained: “*Different product managers tend to want to push for their product lines and safeguard their interests. A combination of 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.*” Although M.com product managers are working together to improve products, they are indefinitely working against each other.

The setup of the the M.com Research Institute in Chengdu not only provides a strategically advantageous cooperative environment between renown companies but companies are also in competition for supply of good university graduates in the area. Manager, Chengdu Research Institute explained: “*The research center being at Chengdu is advantageous for a number of reasons, firstly schools; Electronic Science and Technology University, Sichuan University, Jiaotong University (Southwest), Chengdu Institute of Technology provide a constant pool of talented students for IT corporations including us. Secondly, government invested heavily in the Chengdu Technology Park including the industrial and software park so the cost is significantly lower than in Beijing...the participating companies including Intel, IBM, Motorola and Tecent, are rather high-end...” In this instance, the inclusive public good (government investments) versus exclusive public good (talent pool) arguments become less obvious but nonetheless important for collaborative structures between firms.*

Collaborative Theory	Type 1: Low Interdependency, Inclusive-Collective Action	Type 2: Low Interdependency, Enclusive-Collective Action	Type 3: High Interdependency, Exclusive-Collective Action	Type 4: High Interdependency, Inclusive-Collective Action
Activity	Sales order processing activities through ERP (2008), Local shipping and delivery of goods to consumers (2006)	Product design and testing activity (2007); Centralized distribution centres (Early 2009);	Product line management activity (2009); Analytics and data warehousing (early 2009)	Research institute (2011); Recruitment (ongoing)
Outcome	Operational efficiency between sides	Integration and consolidation between partners and sides	Value-adding between partners and sides	Security and network capabilities between sides

Table 3. Analysis of Interdependencies and Collective Action- M.com

5 DISCUSSIONS AND LESSONS LEARNT

In this section, we discuss forms of collaboration in an e-commerce platform using interdependency and collective logics as our conceptual lens. The summary framework is shaped using the processual analysis (summarized in tables 2 and 3) conducted in the previous section. With it, we consolidate our processual analysis that shows the ebbs and flows between types of collaborative strategies adopted by multi-sided platforms. Its principles are discussed next. From the framework and further analysis, we consolidate four lessons learnt of leading multi-sided digital platforms in China, shaped by the roadmap of events of a collaborative context within and between sides (customers) of both platforms.

5.1 Analysis of Collaborative Strategy in China’s Multi-Sided Digital Platforms

We present a summary framework for the types of collaborative strategies observed in our case findings. The summary framework (in figure 2), consolidates four types of collaborative strategies evident in multi-sided platforms—Type 1 strategy describes platform partners in an agreed collaboration that exhibit low interdependency and inclusive-collective actions in their mutual activities (e.g. project objectives pertaining to improving functional efficiency). Type 2 describes platform partners in an agreed collaboration that exhibit low interdependency and exclusive-collective actions in their mutual activities (e.g. project objectives of increasing integration and consolidation). Type 3 strategy describes platform partners in an agreed collaboration that exhibit high interdependency and inclusive-collective actions in their mutual activities (e.g. project objectives relating to improving network and related security capabilities). Type 4 strategy describes platform partners in an agreed collaboration that exhibit high interdependency and exclusive-collective actions in their mutual activities (e.g. project objectives of customizing and value-adding).

There are several principles when one wishes to adopt our framework to study platforms. Firstly, it is postulated that different strategies demand different coordination methods in terms of rules and operating procedures, adaptive planning and scheduling, and mutual adjustments at the very least (similar to Munksgaard 2010). The nature of collaboration between net-enabled business units is determined by interdependency factors and collective action. Secondly, the framework does not suggest one form of collaboration over another, but just merely highlights the varying conditions in respect to our lens when managers encounter them. This is related to the first principle, such that the types of collaboration imply a continuum of productive activity that platforms must negotiate. Hence and thirdly, evidence from both studies suggests that a platform is not locked to one strategy at one point in time. One strategy maybe dominant as the platform migrates from one strategy to another, but pigments of other three forms are also evident and should not be ignored during a study.

Our results support *high* interdependence typically implies that mutual tasks are likely to create higher level of uncertainty in the decision-making context and to departmental objectives, given the information gap and the inherent pursuit of customization. However, a collaboration that is high interdependence is closely related but doesn’t necessarily mean deep. *Deeper* interdependence relationships on the other hand originate from extensive systematic and temporal linkages between the

trustor and the trustee such that each is heavily dependent on the other for his or her preferred outcomes (Lim et al. 2011). When interdependent relationships are *shallow*, they are more susceptible to risk of poor coordination whereby the trustee is unable to deliver on his or her promise at the request of the trustor (Sheppard et al. 1998). Against Kumar et al. (1996) that establishes a typology of inter-organizational systems using interdependencies, our findings apply interdependency lens to describe firms' collaborative strategies (differential strategies of M.com and A.com in this case).

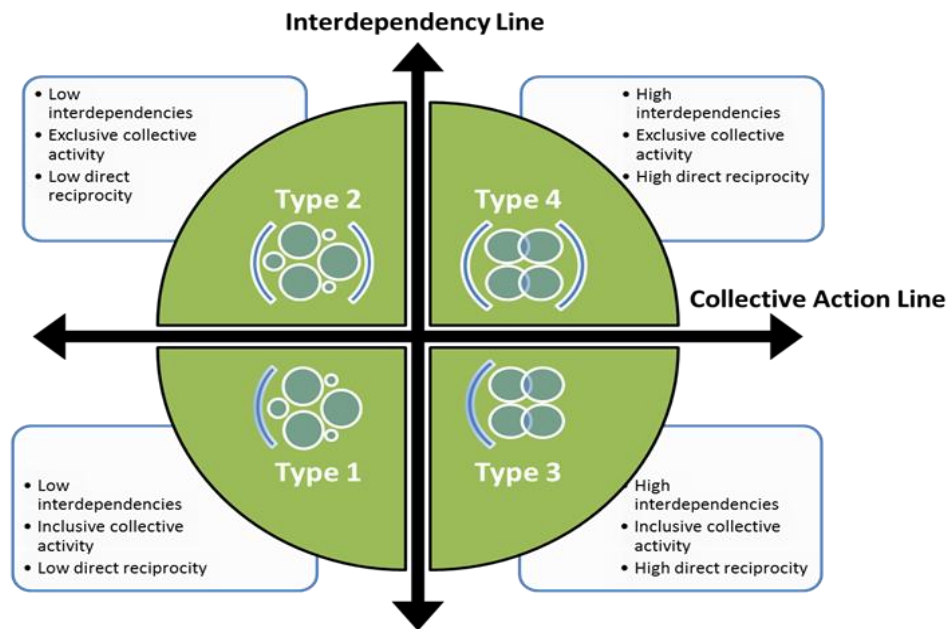


Figure 2. A Collaborative Strategy Analysis

5.2 Analysis of Market Leading Strategies in China's Multi-Sided Digital Platforms

“Teach, not Tell” — Multi-sided platforms should seek to tear down barriers of entry to the global marketplace for its sides, whilst building a large membership base. When a platform lower constituent barriers of entry, engage constituents' in learning activities that lead to higher levels of marketplace understanding and strategic resources; the benefits includes sides learning to address their own skills shortage problems and over time, the platform becomes the de-facto firm for sides. At a time when the knowledge and availability of commercial Internet connection was virtually non-existent, and that most citizens were predominantly Chinese educated, A.com serviced the certainty that is the online trading needs of the SME. As the Vice president of A.com Group aptly puts it, *“The strategy not to take on the rich but educate the poorer firms that can afford our services works.”* A.com was able to provide small businesses with the capabilities to market their products globally, something they desperately seek. When China eventually entered the WTO in 2001, A.com's reputation as a leader in B2B provider for small businesses flourished. Aligning with prior *cross-cultural* studies like the seminar work of Hofstede and the GLOBE study (House 2004) uncertainty avoidance and collectivism are still important factors for the Chinese (Lowry et al. 2011) such that both M.com and A.com prioritized the building of collectivism and trust amongst its constituents and the Chinese B2C market.

“Consolidate, not Consult” — Multi-sided platforms should seek to consolidate once critical mass is reached; such that it sides become the workhorse of interactive learning, allowing feedback from multiple perspectives. At A.com, SMEs were purported as potential resource when consolidated. The Vice-president, A.com Group explained: *“In the longer term, when SMEs grow, they become our partners and our source of innovations...they give back to us...”* Contrary to previous views of Confucian management styles (House 2004), A.com encouraged more participation, and promoted autonomy and community amongst constituents in latter stages. Some retail platforms use advanced packaged suites such as ERP to consolidate a range of business applications for an organization's core

of business processes, particularly its supply chain. With it, M.com offers more types of goods (over 30 000) than any of its competitors, maintains cost leadership, even offering rebates to manufacturers.

“Co-opetition, not Competition” — Pricing wars and competition amongst leading retail platforms have intensified in recent times (Osterwalder et al. 2010; Rochet et al. 2003; Weyl 2010). Paradoxically, the competitive landscape generates a new form of neologism whereby the business unit, firm and individual pairs who had previously compete now cooperates (Dagnino et al. 2002). *Co-opetition* occurs when firms knew that the recognition that firms may benefit in terms of knowledge sharing, from working together (Brandenburger et al. 1996). Co-opetition occurs at both inter and intra-organizational settings. In the case of M.com, product managers who cooperate on product management also compete in product sales and resources. In circumstances like product design and roll-out in M.com, the sufficiency of the resource pool to meet demands of exclusive collective action becomes an important consideration and must be managed. At the inter-organizational level, interdependencies between firms based on resources must be considered. For example, the management of banks agree that as Apay becomes an independent non-bank financial institution through their partnership, the mutual benefits in terms of new services provision outweighs being competitors. The Director of Strategic Planning, Apay explained: *“it is a co-operative yet competitive relationship. Mr Ma, branch president of China Merchants Bank agrees that the partnership with Apay is bigger than being competitors.”* Furthermore, A.com “kept” their once rivals competencies to provide platform and advisory services in the marketplace.

“Lead, not just Follow” — lastly, multi-sided platforms must seek to lead co-creation with their sides to build a distinct competitive advantage in their own field, as their sides would have gained the specific knowledge and expertise of it. Quinn et al. (2000) highlights the possibility and advantages of starting over and abandoning the mind-set and culture of the old organization by creating a brand new service-oriented culture that is capable of establishing excellent internal client service from favourable fiscal arrangements. M.com set up its own courier company to improve logistics and distribution speed, quality of service in a consolidated manner. To achieve this M.com relies on its own distribution system in four major cities while in the smaller cities; delivery is outsourced to local logistics company. Wang (2010) describes A.com in her book as a ‘*Chinese guerrilla*’ company. In 2004, when eBay had just entered China and was planning to dominate the China market; it made fatal mistakes of following a dated strategy. In contrast, the lessons for foreign firms became the opportunities that A.com leverage on. Originally set up as a defensive strategy to fend off eBay from taking away A.com’s customers, TM-A.com partnership became China’s largest online retail website (C2C) initiative and a one-stop platform for shopping, socializing and information sharing.

6 CONCLUSIONS

Case study findings demonstrate that substantial resource investments alone would not improve performance of business units in an e-business platform. Our study shows that a combination of resource contingencies shapes the collective nature of business activities between cooperating and interdependent parties. The contributions of this paper are two-fold. Firstly, we introduce a framework that consolidates four types (I-IV) of multi-sided platform collaborations for strategic planning and operations between platform partners. Secondly, we consolidate four lessons learnt from our data—teach, consolidate, co-opete and ultimately lead—a set of actionable guidelines for platform leadership in the marketplace. Our study offers new insights into how contemporary firms approach alliance and kinship (Levi-Strauss 1971) forming; furthermore it could be synthesized against resource-based and risk-based theories. Our framework is not yet extensively applied but contributes to work such as (Tornatzky et al. 1990) and (Thong 1999), to examine interlocking strategic, technological and organizational factors and barriers to IT adoption and organizational change. Due to further limitations of the study—including only comparing two case studies, and study conducted in the context of digital platforms in China—we seek to reach further theoretical saturation by conducting a comprehensive multi-case analysis and triangulating our study findings against extant literature (per Dubé et al. 2003).

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Appendix A-1: List of Interviewees and Topics Discussed- A.com

Interviewee	Topic Discussed
Industry Analyst A	The development of sellers trading on A.com platform, advantages and disadvantages of A.com Group, the embedding of Chinese culture in A.com's operations
Industry Analyst B	
Apay (pseudonym) Executive Vice President (Strategy)	Motivation for setting up Apay, competition between TM and ebay, customer relationship management, relationships between Apay and external entities, revenue model of Apay
TM Executive Vice President (Customer Relations)	Initial strategy of TM, evolution of TM, establishment of TM Mall, reputation system of TM, revenue model of TM
Amama (pseudonym) Senior Manager	Motivation for setting up Amama, business objectives of Amama, difference between Amama and Asoft, competition of Amama, marketing and services of Amama, role of Amama in the A.com group, revenue model of Amama
Asoft Executive Vice President	Strategy of Asoft, business objectives of Asoft, business model of Asoft, competition of Asoft, role of Asoft in the A.com group, revenue model of Asoft
A.com B2B General Manager	Initial strategy of A.com B2B, evolution of A.com B2B's strategy, A.com B2B's competitive environment, A.com's ecosystem, future development plans of A.com, revenue model of A.com
A.com Group Vice President	Motivation for setting up Amama, corporate structure of A.com, nature of A.com's ecosystem, evolution of customer needs, competitors of A.com, revenue model of A.com
Yahoo Koubei Customer Relations Manager	Motivation of acquiring Yahoo and Koubei, business objectives of Yahoo and Koubei, evolution of the strategies of Yahoo and Koubei, competitive advantages that stemmed from the acquisition of Yahoo and Koubei
A.com Gold Supplier	Alliance between suppliers on A.com's platform, changing customer needs, nature of A.com's business ecosystem, the embedding of Chinese culture in A.com's operations
Power Seller on TM	Relationships and interactions between customers and TM, entrepreneurship on TM, services provided by TM
Amama user and TM 5 Star Seller A	Services offered by Amama, relationships and interactions between customers and TM, entrepreneurship on TM, services provided by TM
Amama user and TM 5 Star Seller B	Services offered by Amama, relationships and interactions between customers and TM, entrepreneurship on TM, services provided by TM
TM User A	Experience of using TM, services provided by TM
TM User B	Experience of using TM, services provided by TM
TM User C	Experience of using TM, services provided by TM
TM User D	Experience of using TM, services provided by TM
Yahoo Koubei User	Experience of using Yahoo Koubei, services and functions of Yahoo and Koubei
A.com B2B User A	Experience of using A.com B2B, services provided by A.com B2B
A.com B2B User B	Experience of using A.com B2B, services provided by A.com B2B
A.com B2B User C	Experience of using A.com B2B, services provided by A.com B2B
Asoft User A	Experience of using Asoft, services provided by Asoft
Asoft User B	Experience of using Asoft, services provided by Asoft

Appendix A-2: List of Interviewees and Topics Discussed- M.com

Interviewee	Topics Discussed
FM1, Manager, Information Control (Front Office)	M.com's information and information systems strategy, the development of the Information Control department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from front offices, changing client needs and future development plans.
FM2, Manager, Research and Development (front office)	The development of the Research and Development department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
FM3, Product Manager (Front Office)	Product line development strategies, the development of the Product and Testing department (front office) in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from front offices, changing client needs and future development plans.

FM4, Manager, Operations and Maintenance (Front Office)	Profile of M.com client and suppliers, M.com supply chain, Management and operation strategies, the development of the Operations and Maintenance department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
FM5, Manager, Research and Development – Architecture (front office)	Platform and architecture research, the development of the Research and Development department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM1 Data and Business Warehouse Manager (Back Office)	Data warehousing strategies and client requirements, technologies used, the development of the Data management and business warehousing division in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM2, Manager, Architecture (development) (Back Office)	Architecture and infrastructure of IT and service in M.com, the development of the Architecture Development department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM3, Manager, Research Division (Chengdu)	Description of selected current research projects, the sites of the research divisions, the development of the Research department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM4, Product Manager (Back Office)	Description of M.com product sales, distribution and logistics, design of platform and marketing of products, the development of the Product Development department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM5, Logistics Manager (Back Office)	Description of M.com product supply chain and logistics management, the development of the supply chain and Logistics department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM6, Manager, Testing division (Back Office)	Description of product line/systems design development and testing cycles in M.com, the development of the Testing department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
BM7, Supply Chain Manager (development) (Back Office)	Descriptions of M.com procure-to-pay and also order-to-cash cycles, the development of the supply chain management department in the last five years, core competencies and operating model, current working relationship with other (back and front end) departments in M.com, competition for resources from back offices, future development plans.
MM1, Culture Manager (Head Office)	Ethos and vision of M.com, how to generate and manage corporate culture, how to ensure corporate morale levels is good, what can be learnt from other Western firms that have tried to establish themselves in China (such as Amazon).
MM2, Culture Manager (Head Office)	Ethos and vision of M.com, how to generate and manage corporate culture, how to ensure corporate morale levels are good, what can be learnt from other Western firms that have tried to establish themselves in China (such as Amazon).
U1, M.com User 1	Overall ease of use of M.com website and general experience with ordering and transactions.
U2, M.com User 2	Overall ease of use of M.com website and general experience with ordering and transactions.