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Abstract

In recent time, many Chinese firms have not only operated quite successfully at their home front, competing with those giant multinational companies inside China, they are also moving offshore. The short internationalisation process of Chinese firms looks both sudden and unexpected, causing many to wonder the success factors for Chinese firms. A dynamic innovation that combines strategic, organisational, cost as well as technological change was believed to have contributed to the fast growing Chinese firms in the global stage. This paper reviews the literature related to these areas of innovation. It also discusses reasons for firms to innovate or imitate, using institutional perspective and resource-based view (RBV). Intertwined with these discussion, empirical studies of innovative performance among Chinese firms are also analysed. The results show that in fact most Chinese firms still follow an imitative strategy, but there is a clear evidence of strategic cost innovation widely practiced among Chinese firms.

Key words: innovative, imitative, strategy, capabilities, performance, Chinese firms.

1. Introduction

To examine whether Chinese firms are innovative or imitative, we need to first understand what is innovation? According to the Oxford Advanced Learner’s Dictionary, the word ‘innovative’ means ‘introducing or using new ideas, techniques etc’. An innovative firm is the one who makes changes, initiates or adopts new things (Oxford Advanced Learner’s Dictionary, 1989, p. 645). From the surface, it would appear that many Chinese firms fit in this definition and would be regarded as innovative as they have indeed made
many dramatic changes under the unprecedented economic reforms; and they have had to use and adopt ideas and techniques largely coming from the West via multinational companies after the implementation of open-door policy in 1978, and especially since China’s accession to WTO in 2001 (Cheung and Lin, 2004).

But a close look at the definition renders innovation as something 'new'. Have Chinese firms brought out anything new? If they do, are the things made by Chinese firms new to themselves only, or to the country/region, or to the world? These are the important questions to ask, as the OECD (1997) especially measures the scientific and technological activities of the firm as novelty or innovative at these three different levels. Not to mention other aspects of firm innovative activities such as strategy formulation and organisational management practices (Chiesa et al., 1996; Xie and White, 2006). Have Chinese firms done anything new or even differently? The anecdotal evidence tend to suggest that what most Chinese firms are doing is really no difference to what has been done by leading American and European firms in the past or even in recent years. As commented by Steve Gilman, B&Q's CEO for China and Asia, ‘to be honest, it's difficult to say that there's anything specific new to China, anything that you don't see everywhere in the world. The only thing that is really different is the speed of change.” (cited in Desvaux and Ramsay, 2006, p. 90).

Indeed, changes are rapid and noticeable as China evolves itself to become a key player in the global stage. In particular, a recent surge of multinational companies from China has caught a great deal of attention and discussion. In some ways, the appearance of dragon multinationals such Huawei, Lenovo, Haier, ZTE etc. (Mathews, 2006) in the international business scene looks both sudden and somewhat unexpected, causing Americans and Europeans to ‘even fear’, particularly ‘through high visibility media coverage’ (Teagarden and Cai, 2009, p. 73). Among academics, the pique interest is to explore how these Chinese companies have done it; how they have shorten the internationalisation process
into a few years which took others decades to go through; and what innovative approaches they have taken when entering into the terrain already crowded with giants.

Some (e.g. Mathews, 2006; Williamson, 2009) argue that a dynamic innovation that combines strategic, cost, organisational, as well as technological change initiatives contributes to the success of fast growing Chinese firms in the global era. However, empirical evidence on such claim tend to be weak. In fact, according to a few authors (e.g. Xie and White, 2006; Altenburg et al., 2008), the impressive performance of Chinese firms and industries, even the electronics or automobile industries, has been the result of their excelling at an imitation strategy, not an innovative strategy.

So how do we know whether Chinese firms are actually innovative and imitative? By far, there is no integrative theory to guide our understanding about innovative capabilities and firm performance of Chinese firms. But the theoretical discussion of why firms innovate or imitate based on institutional perspective and resource-based view appear to suggest that firms could follow either/or and both innovative and imitative strategies. Extensive literature review of the empirical studies on innovation performance of Chinese firms, which this paper is based on, came to the conclusion that there is a mixed picture about innovation of Chinese firms. It is necessary to develop an integrative framework to properly assess whether firms are innovative or imitative. The rest of the paper is organised as follows. Section 2 provides theoretical justification on the reasons for innovation. Section 3 discusses contents of innovation. Intertwined with the theoretical discussion, empirical studies of innovation in China together with contextual issues are analysed with the view of distinguishing innovative or imitative intents of Chinese firms. Concluding remarks are made in Section 4 with a call to develop a conceptual framework to properly evaluate Chinese firms' innovative capabilities and performance.
2. Theories Explaining Innovation and Imitation

Why would a firm innovate or imitate? In another word, why does one firm consider taking an innovative strategy whilst another opts for an imitation strategy? The existing literature provides two theories to explain the drivers for firms either to innovate or to imitate. These are institutional theory and resource-based view (RBV). We discuss these theories respectively as in the context of China and its firms.

Institutional Theory

According to the institutional theory, firm’s innovative/imitative behaviour and strategic choices are driven primarily by isomorphic pressures embedded in formal and informal institutions (DiMaggio and Powell, 1983). A firm is motivated to enhance its legitimacy by either doing things dramatically different (‘innovative’ but economically, politically and socially acceptable) or conforming to others (‘imitative’) in the environment through isomorphism process such as coercive, mimetic and normative (DiMaggio and Powell, 1983; Zhou and Li, 2007; Yang, 2009). Briefly, coercive isomorphism refers to a firm’s response to political or legal authorities; mimetic isomorphism derives from uncertainties surrounding changes in technology and environment that force the firm to model itself on others; and normative isomorphism causes the firm to follow the norms and values defined to be socially and economically acceptable (DiMaggio and Powell, 1983).

In the context of Chinese firms, the state advocacy for enterprise modernisation since the economic reform and its drive to build national innovative capacity (see Hu and Mathews, 2008; Lu and Etzkowitz, 2008) has greatly induced coercive force at the firm level, pushing leading firms to be innovative, whilst coercing the rest to conform by drastically transforming organisational structure, especially among the state-owned ones, and permission by the state to establish other types of enterprises, such as privately-owned, wholly-foreign-owned or...
town-village-enterprises. Under uncertain environment and weak institutional framework (eg. lack of legal enforcement), it is safer for firms to mimic or model their own behaviour and practices on the leading firms, especially in the areas of technology upgrade and adoption of management know-how. For example, Deng (2009) discusses a number of formal institutional constraints such as inefficient legal framework, and weak intellectual property rights which discourage innovations, making businesses hard to invest in R&D or to build global brands. As a result, Chinese firms tend to acquire strategic assets by expanding overseas because the internal development of technology capabilities is time consuming and path-dependent upon the firms’ existing resources. Deng (2009, p. 77) hence asserted that Chinese firms rarely create new products and process; they typically compete on volume and low price, and often simply imitate each other’s products.

Without clear rules of the game, the imitation is the best strategy Chinese firms can adopt to survive at least for the short term, if not aim for the long term gains. We see here the mimetic isomorphism best explains the imitative behaviour of Chinese firms in their early stage of development when they are facing greater uncertainty in environment (eg. changing regulations by the state and membership to WTO). However, when firms become gradually established and are familiar with the rules in the competitive environment, the likelihood of breaking rules and being different (innovative) is possible. As reported by Yang (2009) in her longitudinal study of 1,004 cross-border mergers and acquisitions by 671 Chinese firms over a 20-year period, there has been a gradual decrease in conformity to the ways traditional mergers and acquisitions were conducted, signifying the shift to value the differentiation strategy among Chinese firms examined. It is nonetheless, not very clear whether differentiation strategy is necessarily to be innovative.

Lastly, norms and values are the desirable standards, which refer to how things should be done. The slogans such as ‘reforms, innovation, progress, wealth and power’ (gaige,
*chuangxin, jinbu, fujiang* would be seen in most Chinese enterprises when ones walk into their front gates. These may not mean much to visitors, but a lot to those owners, managers and entrepreneurs of the firms. The set of social values may have driven innovative performance of Chinese enterprises. However, one needs to be very careful when examining the innovative activities of Chinese firms, not simply by what they said but what they actually have done. As illustrated by Chen and Kenney (2007), the Chinese definition of ‘high technology’ or ‘innovation’ is very broad and only some of the activities would conform to the commonly accepted definitions of innovation in developed countries. They gave an example of ‘personal computer assembly’ to be considered as one of innovative and high-tech activities, whilst few in Europe or US would see it as such. Most importantly, Chinese firms would gain tax and other benefits if they are considered to be innovative. This vested interests push Chinese firms to present themselves (in some ways, disguise) as innovative, following the norms and values (especially those valued by the funding bodies or administrative agencies controlled by the communist party) so they could gain the government support in R&D funding and tax avoidance.

Norms and values work together with coercive forces in China. There is no doubt that Chinese government plays an important role in instilling innovation values and indirectly influencing the direction of firm investment decisions through taxation and loan schemes. According to Lu (2000), the government targets in certain industries and devises sophisticated tax concession schemes to promote innovations in products and processes at firm level. The uniqueness of this operation of re-distributive devices is the regulatory regime imposed upon firms by rhetoric reaction, such as granting high-tech innovative firms with a special legal status (Lu, 2000). Then the government would oblige them to meet certain requirements, which include specifying the number of technology personnel, the percentage of sales contributed by new products, etc. Therefore, it appears that the institutional devices and the
corresponding regulatory regimes (Lu, 2000) have generated incentives and induced firms to pursue innovative activities as necessary legitimacy, but not essential to achieve innovation. The potential driver for firms to be innovative perhaps is likely to be determined less by external forces but more by organisational internal resources. Do firms want to innovate themselves? If so, when and how to, despite the external push? The resource-based view discussed next will provide another theoretical explanation of why firms want to build innovative capabilities and actually have in place innovative activities essential to achieve performance outcomes.

Resource-Based View

According to Barney (1991), a competitive advantage of a firm lies in its abilities to allocate and deploy the bundle of valuable resources, which must be heterogeneous in nature and not perfectly mobile (p. 105). Central to the resource-based view (RBV) are that firms’ strategic resources must be 1) valuable in terms of its ability to add value which outperforms its competitors; 2) rare in terms of its ability to generate future above-average return; 3) inimitable in terms of its ability to create tacit knowledge and socially complex work environment which can not be copied by its competitors; and 4) non-substitutable in terms of its ability to continue creating new value that cannot be replaced.

Clearly, the application of RBV to innovation must address the fundamental questions of why a firm wants to be different or wants to adopt something new or even change dramatically; and how it deploys its unique internal resources to do so in order to achieve and sustain its competitive advantages. Here, firms’ internal resources can be both tangible (eg. financial, physical) and intangible (eg. knowledge, experiences and skills of employees, firms’ reputation, brand name and other organisational assets) (Barney, 1991; Wernerfelt, 1994). Innovative capabilities are arguably developed by a firm’s capacity to deploy and
coordinate these dynamic resources in combination. In some cases, re-combination is desirable to achieve the next level of innovation and value-creation. Galunic and Rodan (1998) argue that competencies/capabilities generated from recombined resources are the antecedents necessary for innovation, in particular for knowledge-based innovation to occur. Here Galunic and Rodan (1998) suggest that in order for innovation to occur, tacit, context-based knowledge should be formed along with firms' unique social organisation, that is the way competencies come to be formed and institutionalised. Paladino (2007) goes a step further to test this model of resource recombination and finds that although organisational learning is strongly associated with market orientation, which in turn impacts on various performance outcomes including customer value. But organisational resources and capabilities are the main anchors for new product development (Paladino, 2007).

It appears that dynamic interaction between resources, capabilities and strategic orientation are the antecedents for building an innovative system at the organisational level. Innovation does not come from external forces, but more likely from looking inside and developing the resource endowment, especially core human resource's competencies. The laters are the ones who will offer, in continuous manner, input for the development exploitation of the firms' innovation activities. So we see here that the RBV provides the explanation on the reason for firms to innovate (to maintain and sustain the competitive advantage) and on how to provide the fuel for innovative activities to occur in the first place (to build internal capabilities and competencies through investing in human resources).

If we combine the institutional perspective with RBV, organisational assets in the context of Chinese firms may go beyond those exist internally. Peng (2003) especially stressed the importance of considering institutional factors explicitly when evaluating strategic choices for those firms from emerging economies, as they may add in different dimensions to those rare, inimitable and non-substitutable assets. Potential connections
between technology advancement, institutions and innovation capabilities at the level of the individual were also proposed (see Nelson and Nelson, 2002; Nelson, 2008), but yet to be tested. It is possible that the combined assets would help firms be more capable of being innovative, instead of just being competitive as against conventional firms under the RBV. This is particularly relevant when examining the recent phenomena of rising multinational companies from China as it appears neither the institutional theory nor RBV alone could well explain the ways of internationalisation these firms have adopted (Buckley et al., 2007). It is argued that dynamic capabilities developed from the interplay of various actors inside and outside organisations might be in play. For example, Altenburg et al. (2008) found that innovation capabilities in China, as well as those in India were built via a combination of using national innovation system, global value chains and professional networks. Similar view was expressed in Mathews (2006) who argue that the rapid changing technological environments help latecomers tap into the technological resources much easier. Later entrants, such as those Chinese MNCs, were more able to learn faster, use linkage and leverage more effectively to develop and diffuse novel technology based on their abilities to draw all resources so as to push the innovation process Mathews (2006). Nevertheless, Altenburg et al. (2008) concluded from their analysis that the mounting innovation efforts made by Chinese national institutions rarely materialised in cutting-edge technologies at firm level.

Empirically, limited research have looked into the innovative capabilities of Chinese firms based on the RBV. Yam et al. (2004) studied 213 firms in Beijing with focus on assessing their technological innovation capabilities. Here, Yam et al. specified 7 technological capabilities as R&D, resource allocation, learning, manufacturing, marketing, organising and strategic planning capabilities without theoretical justification). Yam et al (2004) measured innovation performance in line with Chinese convention, which says that ‘an
innovative firm is one which has an innovation rate of greater than 20% in the last 3 years) (p. 1129) (note: this rate was not clearly defined. Is it the rate of new product creation in the given year?). They found that only 72 out of 213 firms (30%) could be categorised as innovative firms and only R&D capability could safeguard innovation rate among this cohort of rarely-picked Chinese firms.

Another interesting study carried out by Liu et al. (2009) focuses on the 10-year-long practice of mobilising key resources to build strategic capabilities to enhance technological innovation in a textile company in China. They found that the firm's technological-innovation-based strategic capabilities were broadly influenced by neither technological resources, nor innovation resources, but organisational culture, human resources and organisational structure, among which human resources is the most dynamic one (p. 411).

From the above discussion, both institutional perspective and resource-based view provide explanation on why firms innovate or imitate. But neither of them could well explain innovation among Chinese firms. It appears that the integrative theory using both institutional and RBV could better explain the innovation antecedents and consequences for Chinese firms. Yet very limited research were conducted to explore this. Furthermore, whilst theories explain the drivers of innovation, the contents of innovation activities, that is antecedents for innovation and outcomes, were not clearly marked. In the following section, it is intended to review the literature on explaining the contents of innovation.

3. Contents of Innovation

Most relevant to the recent discussion about innovation from the emerging economies such as China and India are those to do with strategic innovation (eg. Anderson & Markides, 2007), organisational innovation (eg. Garcia-Morales et al., 2006), cost innovation (eg. Williamson, 2009) and technology innovation (eg. Altenburg et al., 2008). We shall explain
these concepts respectively along with the discussion on the existing empirical studies on innovation in China.

**Strategic Innovation**

According to Markites (1997), strategic innovation is about breaking the rules and becoming industry revolutionaries. In the new era, companies are advised not to waste time on ‘breaking the competition’ but ‘breaking away from the competition’ and creating ‘uncontested market space’ – so-called ‘the blue ocean strategy’ by Kim and Mauborgne (2005). Strategic innovation also phrased as ‘value innovation’ is aimed at finding ‘new whos’ (new customers), ‘new whats’ (new products or services) or ‘new hows’ (that is new ways of promoting, producing or distributing) via innovation aligned with ‘utility, price and cost position’ (Kim and Mauborgne, 2005; Anderson and Markides, 2007). Anecdotal evidence (see Anderson and Markides, 2006; 2007; Williamson, 2009) suggest that companies from emerging economies such as China are particularly good at moving away from the red and bloody waters saturated with big giants and launching into new territories by offering customers with exceptional utility, affordable products and services, nonetheless earning considerable profits via strategic costing model. Systematic study of the strategic innovation among Chinese firms is yet to be explored.

But a related study on ‘strategic orientation’ by Zhou et al (2005) surveyed 2754 employees from 180 firms in China. They found that being aware of potential market, responsive to market needs, together with paying attention on innovation (note: the contents of innovation were not specified) are important strategic direction for firms to achieve long term success. In another study, Zhou (2006) compared 298 Chinese firms and found that those firms adopting an innovative strategy are more likely to have new product and service than the firms with an imitative strategy. Both imitative and innovative strategies were not
properly defined, though related items and scales were developed. Zhou (2006) suggested
that a firm with an innovative strategy would have invested substantially in R&D and
generally aimed to be the first to bring the new product to market. It appears here Zhou
(2006) used both innovation intent (‘aimed to bring the new product to market first) and
innovation antecedents such as R&D activity to evaluate the extent to which the firm is more
inclined to adopt an innovative strategy. However, Zhou (2006) did not assert that an
innovative strategy is all that good. As a matter of fact, Zhou (2006) reckoned that an
innovative strategy may not be the sound strategy for all. Imitation remains as a viable and
common strategy among Chinese firms (60 percent of all firms surveyed), because these firms
did not produce ‘me-too’ products but improved the existing product and makes it better,
affordable and accessible. Zhou (2006) called this type of imitation ‘creative imitation’,
which is closely in line with affordability and availability introduced by Anderson and
Markides (2007).

Williamson (2009) provided a few examples of Chinese firms with strategic
innovation in cost-cutting, marketing and advertisement but also illustrated with more global
firms who also deployed these strategies to push themselves successfully into the global
market. Similar anecdotal cases were illustrated in Anderson and Markides (2007). The
evidence appears to suggest that strategic innovation has been employed by Chinese firms,
but they are not doing anything new. They have imitated other global firms who are doing
just the same. Therefore it is hard to judge whether Chinese firms are innovative or imitative.
To explore further, organisational innovation is discussed next.

Organisational Innovation

Generally, ‘organisational innovation’ refers to the creation or adoption of an idea or
behaviour new to the organisation (Lam, 2004). Firms may imitate the idea or behaviour
exhibited in their competitors, but they are new to the organisation, hence regarded as
innovative (Garcia-Morales et al., 2006). For innovation to occur, however, something more
than the generation of a creative idea or insight is required. Amabile (1988) argue that the
insight must be put into action to make a genuine difference, resulting in new or altered
business processes within the organisation, or changes in the products and services provided.
Hence, organisational innovation, 'like many business functions, is a management process
that requires specific tools, rules, and discipline' (Amabile, 1988, p. 123).

There are many theoretical explanations to achieve organisational innovation. Lam
(2004) listed three, which are summarised here with some evidence from emerging firms.
First, organisational design theories emphasise changing organisational structural forms in
order to do something new. Under these theoretical guidelines, the unit of analysis is the
organisation and the main aim is to identify the structural characteristics of an innovative
organisation, or to determine the effects of organisational structural variables on product and
process innovation (Lam, 2004). Indeed, recent mergers and acquisitions of Chinese firms
and earlier latercomers’ firms from the East Tiger Economies such as Hong Kong, Singapore,
South Korea, Taiwan, who adopted a variety of global organisational forms tend to be treated
as innovative as they form highly unconventional global cellular clusters and integrated global
operations (Mathews, 2006).

Second, organisational cognition and learning theories tend to focus on the micro-level
process and examine how organisations develop and adapt new ideas for problem solving.
The focus of research is on the cognitive foundations of organisational innovation and on
understanding the capacity of organisations to create and exploit new knowledge necessary
for innovative activities (Lam, 2004). In assessing multinational companies from emerging
economies, many attribute to the success of these companies in the international markets to
their keenness, leapfrogging or springboard approach to fast learn and develop new ways of
doing things, which have to do not so much just with technology, but with management and organisational know-how (Buckley et al. 2007; Luo and Tung, 2007).

The third perspective is based on organisational change theories. In some ways, these theories are related to the first one, but emphasise on the processes underlying the creation of new organisational forms in the context of internal and external environments. The main focus is to understand whether organisations can overcome inertia and adapt in the face of radical environmental shifts, and whether organisations have capacities to respond to changes in the external environment, and to influence and shape it (Lam, 2004). Since the economic reforms, and more so after the WTO accession, Chinese firms have been under enormous pressure to change and innovate as a result of the government economic policies and changing market conditions. To survive in the fierce market place, firms must respond to changes. The responses may well be exhibited in creating radical new organisational forms, such as town and village enterprises, collective, joint-venture, private-owned, state-owned, foreign-owned, and more recently merged and acquired global network firms (Yang, 2009). Lam (2004) asserted that research on organisational change and adaptation in the literature tends to be fragmented with many organisational and management scholars examine only the process of adaptation at the level of individual organisations without taking new forms of organisation emerged from the dynamic interaction in the process as innovative activities themselves. An examination of these changing forms and how they relate to the organisational innovation process among Chinese firms is indeed new, yet to be explored.

A systematic investigation of the above mentioned three organisational innovation dimensions among Chinese firms is not available. Literature tends to focus on the outcomes of the organisational innovation in terms of capabilities, instead of assessing the organisational antecedents of innovation. Zhou et al (2005) argue that both market and innovation orientation can facilitate organisational innovation. However they did not consider
the specific organisational endogenous and exogenous factors for innovation. Similarly, Guan and Ma (2003) consider 7 innovation capabilities, of which some are related to organisational innovation, such as learning, organisational, strategic planning; some aren’t, such as R&D, manufacturing, marketing, resource allocating. They find that in fact R&D, manufacturing and marketing capabilities could not lead to sustainable export growth, but learning, strategic planning and resource allocation help technology enabling, creating a firm’s competency which make it possible for a firm to acquire sustainable international competitiveness.

Given the new development of Chinese firms, it is the time to test whether they are innovative at the organisational level by looking at the nature of the relationship from three different but interdependent perspectives as discussed earlier: a) the relationship between organisational structural forms and innovativeness; b) the relationship between organisational learning and knowledge creation and innovativeness; and c) organisational capacity for change and adaptation and how this creates space for innovation in the context of turbulent environment. Lam (2004) asserted that organisational innovation is a necessary pre-condition for technological innovation, and thus it is important to take greater account of the role of organisational forces in shaping organisational transformation and technological change.

**Technological Innovation**

Surveying the innovation literature, it appears that technological innovation dominates the discussion, often with a substantial confusion between technology innovation at national level and that at firm level. As discussed above, the idea of technological innovation can only be considered in an organisational context. Individual, organisational as well as contextual variables were found to be much better predictors of technological innovations (Kimberly and Evanisko, 1981). However often many previous innovation research have focused either on
macro variables such as tax or social policies or on micro variables such as characteristics of innovation adopters, to the frequent exclusion of the organisational contexts in which the effects of these variables are played out (see Tornatzky and Fleischer, 1990).

Technological innovation is the process through which new or improved technologies are developed and brought into use through the interaction among a number of organisational and contextual factors. The key is nonetheless people. Howell and Higgins (1990) describe five types of personnel in the firm’s technological innovation process. First, the gatekeepers are the ones who acquire, translate, and distribute external technological knowledge and advancements to their colleagues. Second group are project champions who distil creative ideas from information sources and then enthusiastically promote them within the organisation. Third are business innovators providing support, access to resources, and protection from organisational interference as innovations emerge. Four, technical innovators design and/or develop the innovation. Lastly, the user champions implement the innovation by training and providing assistance to the users (Howell and Higgins, 1990, p. 318). For a firm to be technologically innovative, a clear identification of champions and provision of mechanism to not only encourage creativity but also promote interaction of the champions from inside and outside is crucial.

Altenburg et al. (2008) explicitly define the innovation champions in modern Chinese and Indian firms as those highly mobile technically skilled engineers, scientists and entrepreneurs travelling between leading and late-comer countries, creating backward and forward linkages and promoting technology transfer and diffusion. It is believed that no longer the late-comer countries are fearful of ‘brain drain’, but they utilise this ‘brain circulation’ of entrepreneurs, scientists and engineers to quickly build up technological innovation capabilities (Altenburg et al., 2008).
Again the debate is on whether Chinese firms genuinely have technological innovation capabilities or they really imitate technology via taking advantage of global value chain established by many multinational companies operating within China and around the world (see Cheung and Lin, 2004; Altenburg et al., 2008). Under its 'market for technology' policy, China, at the national level, has been actively providing policy incentives to attract foreign direct investment in order to obtain advanced technology from developed countries for building its innovation capabilities at industry and firm level. Hence, there is in fact less incentive for Chinese firms to be technologically innovative.

In addition, as Teece (1986) argue, later by Matthews (2006) as well, first movers in technology innovation may not necessarily gain significant economic returns for three reasons. First, if firms, such as those multinational companies choose global collaborative and integrative business strategy via global value chain, they would allow newly developed technology to spread across borders and quickly diffuse to their local subsidiaries. Firms in the latecomer countries can take the benefits of technology diffusion and modify technology (creative imitation *per se*, not entirely innovative). Second, imitation is easy as both global multinational firms and local government allow, or to the large extent, greatly encourage their subsidiaries and local firms to do so. Relating to the second, there is a general lack of institutional protection of intellectual property, i.e. patent. Therefore, piracy can be rampant as it is witnessed as a common phenomena known in the developing countries.

In the context of China, it is understood that many multinationals are also willingly wanting to trade technology for market in China. The Chinese government though emphasising innovation, has in practice been more interested in simple quantitative statistics such as rates of growth, number of patents. Yet, it is generally accepted that many Chinese patent statistics are of dubious merit with increasing number of them filed by foreign firms seeking protection in China, and thus not Chinese in origin (Chen and Kenney, 2006).
Therefore, it is generally quite difficult to assess the technological innovation capabilities among Chinese firms, even though multiple indicators were used (Altenburg et al., 2008).

Altenburg et al. (2008) nonetheless investigate technological capabilities of several Chinese companies (e.g., Huawei Technologies, Lenovo and Haier) in the electronics and automobiles industries. They found that all these leading Chinese firms have dedicated substantial resources to innovation, together with the government support in industry targeted investments in innovation (e.g., electronics, computing and communication account for 78% of China’s total industrial R&D expenditure). However, the outcomes for innovation are yet to be impressive. The characteristics of Chinese firms’ innovation are so much context-based, hardly could be globally operational and generalised. In the electronics industry, innovative capabilities still heavily rely on export-oriented low cost assembly in global value chains and expertise in high-volume manufacturing. In the automobile industry, Chinese firms’ strength is mainly in labour-intensive auto component exports based on cost advantage (we shall explain this next). Even though Chinese automobile firms started developing their own car brands, there were nothing innovative about the car components and markets tend to be low-end ones with less quality concerns. Altenburg et al. (2008) came to an assertive conclusion that Chinese firms show “improved and expanded production capabilities rather than innovation capabilities’ and that their “production is almost fully carried out under licence from foreign manufacturers. Most product development is based on reverse engineering and no significant indigenous technological development has yet occurred” (p. 334).

Xie and White (2006) shared the similar concerns. There is still a long way to go for Chinese firms to compete with the creation (innovation) paradigm as many still are under “strict control over production process and cost-based decision-making” (Xie and White, 2006, p. 239). The innovation capacity for Chinese firms and technological level of China’s industries to independently innovate remains low (Lu and Etzkowitz, 2008). To excel in
innovation, the industry must address the issue of the disparity between high R&D expenditure and the relatively low level of industrial innovation. Firms would need to shift in organisational identity to focus on building formal managerial systems and informal organisational process and culture that will fundamentally change employees' value, priorities and behaviours for creativity and new product development (Xie and White, 2006; Lu and Etzkowitz, 2008). Until then, there appears relatively unconvincing sign for innovation among Chinese firms.

Taking together from the above discussion of empirical studies on various contents of innovation, at least empirically, we are not quite sure about the substances of strategic, organisational and technological innovation among Chinese firms. But one area of innovation seems uniformly agreed, and upon which many Chinese firms are famed is cost innovation discussed next.

**Cost Innovation**

Essentially, cost innovation is similar to what is described earlier by Anderson and Markides (2007) as strategic innovation in the areas of affordability, acceptability and availability, whereby consumers and customers are provided with exceptional utility, affordable products and services. Firms essentially use cost-reduction as a competitive advantage to achieve performance outcomes. Discussion of cost innovation appears to have been electrified with the recent book titled ‘Dragons at Your Door: How Chinese Cost Innovation is Disrupting Global Competition’ by Zeng and Williamson (2007). Here, the authors defined cost innovation in the context of Chinese companies as offering niche and customising products without premium. In another words, many Chinese companies, especially those offshore ones, have tapped into both upstream and downstream markets with ‘go mass market strategy’. They considerably reduced price, but still were able to sell
products contained advanced technology and R&D inputs. In his more recent publication, Williamson (2009) further describes three facets of cost innovation as 1) offering customers with high technology at low costs; 2) selling variety of customised products at low costs; and 3) shifting low-volume high priced specialty products to high volume and low cost of still high end products.

One however needs to be mindful that cost innovation can only be achievable when two conditions are met: one is the existence of global value chain to facilitate continuing technology acquisition and diffusion; second, downward pressure on global wages must continue. It is believed that Chinese firms are able to deliver high technology at low cost because they are more able to tap into the sources of technology that are available cheaper than elsewhere (Lu, 2000; Mathews, 2006; Williamson, 2009). This is because of the government's initiative of 'market for technology' and simultaneously foreign firms' willingness to trade technology for market. Additionally, supply of qualified local Chinese scientists and engineers are still steady; it looks like very unlikely in the short term these personnel, without organised effort, are able to negotiate higher wages. However, if, under any circumstances, these two conditions had changed, firms would have had to focus on actual organisational and technological innovation in order to find new ways to do more with less.

4. Conclusion

The extensive review of existing literature has given us little clue whether Chinese firms are overall innovative. At best, it is seen that some Chinese firms have obtained strategic innovation, especially in the area of cost innovation. Some forms of organisational innovation might be in place, but lack of empirical evidence certainly beckons further research. To a larger extent, it appears that an imitation strategy is much more easily adopted
among Chinese firms. Continuing global value chain and control on labour costs would, for the time being, help Chinese firms take the advantages of cost-reduction strategy and successfully share some niche markets internationally. In the long-run, it is suggested that only investment in human resources and changing organisational identity could help Chinese firms break the imitation cycle and move into the creative paradigm (Xie and White, 2006).

To properly assess innovative capabilities and performance of Chinese firms, an integrative framework combining the perspectives of institutional theory and resource-based view is required. In a separate paper, we have discussed in details the development of such conceptual innovation model to guide future research on evaluating innovative capabilities and performance of Chinese firms. The model could also be equally useful to test innovation of firms from other emerging markets whereby they share similar institutional and cultural constraints. When collecting data based on the integrative model, at least we can identify at which levels or what areas Chinese firms could be innovative. Until then, the assertion of innovation among Chinese firms cannot be substantiated.

References


Kim, W. C., & Mauborgne, R. 2005. *Blue ocean strategy: How to create uncontested market*


