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# ENTREPRENEURIAL SOCIAL ADAPTABILITY AND INNOVATION CAPABILITY IN CHINA

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## Abstract

The aim of this study was to propose a five-stage activity structure capable of accounting for the innovation capability in SMEs operating in China, the biggest emerging economy. The stages of the model run from social capability to social networking, to trust, to tacit knowledge, and finally to innovation capability. The proposition is examined in both theoretical and practical terms, with an overall awareness of the value of innovation in social terms, and an emphasis on features that may lead to further effective innovations. The adoption of a capability for innovation is not likely to happen by chance; it requires SME commitment to innovation as well as congenial circumstances.

**Keywords**: Social Adaptability, Innovation Capability, Trust, Guanxi, China

## Introduction

Since the 1978 reforms, China has moved from a centrally planned administrative system to a social market economy, but State-owned enterprises (SOEs) and state-controlled public corporations remain subsidized. The 1999 decision by the Communist Party and the State Council proclaimed that China must enhance technological innovation, develop high technology, and promote commercial production of S&T achievements. Accordingly, there was increased public investment in R&D. In 2005 the Party Central Committee and the Chinese government set out the Guiding Vision for the 11th National Economic and Social Development Program (2006-2010). The new strategy may be summarized as harmonious development through innovation and continuing reforms, but the issue of precisely how to achieve this is the focus of widespread debate (Gu & Lundvall, 2016).

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Despite discrimination against private enterprise and poor legal enforcement of contracts, the private manufacturing economy, based on small and medium enterprises (SMEs), has continued to flourish, and has shown itself very well disposed to innovation. With China's economy now veering away from dependence on exports and concentrating on the vast domestic market, the central government advocates innovation as a means to enable competitive growth, with endogenous innovation rather than adaptation of foreign technology being strongly advocated by employee socialisation behaviour, externalisation behaviour, and internalisation. Innovation capability is a strongly related antecedent condition of business 'know-how,' termed tacit knowledge, this is a general term for what is needed for practical business success (Opper & Nee, 2015; Berger et al.,2018).

Burrows et al. (2005) observed a preference in China for personal transfer of knowledge, despite the increasing application of IT (p.75). Contrastingly, tacit knowledge is in fact essential in business operations throughout the world. Its function in China is described below.

In order to trace the acquisition of tacit knowledge further back to an antecedent process, the social context has been chosen for this study. Small or medium enterprises may be examined in terms of their initial social capital, which in the OECD (2007) definition comprises 'the links, shared values, and understanding of society that enable individuals and groups to trust each other and work together.' Nahapiet & Ghoshal (1998) linked social and intellectual capital, while Martin & Osberg (2007) spoke of 'social entrepreneurship.' Taking social capability as the starting point, specific concentration on network participation as the next step is a prominent factor in contemporary commercial activity.

It is important to consider whether SME leaders, already participating in social networks, will think of tacit knowledge rather than explicit knowledge that is publicly available. This is quite probable as they receive chances to gain confidential hints from their peers as they present their own personal identity in society. To benefit from sharing tacit knowledge with others in a network, or through personal relations, *trust* is a necessary condition. Stear (2009) recognized the trust-based environment, evident in *guanxi* networks, as a useful basis to connect with the process of knowledge management (see also Burt & Burzynska, 2017). Brink (2017) discussed SME routes for innovation collaboration with larger enterprises. Throughout the present paper there is consideration of how each stage of the proposed activity structure coheres with the others, to form a logical progression. Furthermore, it is important that the process can be repeated successively and can be applied recursively.

There is a range of theoretical labels that can be applied when considering the processes referred to in this model: entrepreneurial theory, innovation, diffusion of innovation theory, network theory, and the precise nature of tacit knowledge. In this respect, various well-known names emerge from both past and current literature (Sovacool & Hess, 2017). In the proposed five-stage activity model, entrepreneurial impulse, along with employee motivation, stands out as a dynamic force, beginning with social adaptability (Berman et al., 2010; Ahlin et al., 2014; Scaringella & Radziwon, 2018; García-Villaverde et al. 2018; Xu et al., 2018).

The proposed model embodies positive values in terms of the economic system. It emphasises open competition on the basis of economically efficient production for the consumer, rather than simply a desire to make money. It reinforces the value of the SME within China's economic system. It enshrines the idea of positive modification of the existing system through innovation. It prioritises the role of active, flexible, tacit knowledge, as opposed to textbook knowledge and dogma handed down from above. This socially relevant model offers a path that SME's can take in order to acquire and develop innovation capability (Abele et

al., 2014). It is proposed that this five-step activity, conceived by Vygotsky, and later modified, is a realistic option.

Vygotsky conceived his cultural-historical activity theory in the 1920s and 1930s. Like his constructivist educational theory, his activity theory was developed within a socialist environment, in the Soviet Union; this may make it somewhat applicable to China (Fu, 1997). The idea was that 'a complex, mediated act,' or 'mediating artefact' directly connects stimulus and response: actions become object oriented, and objects become cultural entities. Leontiev later clarified the difference between individual action and collective activity, while Ilyenkov argued that internal contradictions in activity systems, were the driving force of development (Engeström, 2001). Coming to the 21st century, activity theory was developed further by Engeström. As with Vygotsky's work on constructivism, largely due to delays in translation, activity systems did not become popular in the West until much later. Various applications of activity theory began to emerge from the 1970s onwards (Holt & Morris 1993; Roth & Lee 2007). Engeström (2001) has argued that activity theory now requires conceptual tools to handle dialogue, multiple perspectives, and—as in the present concern—networks of interacting systems. At this point, activity theory takes on a set of five principles that will take some space to summarise. This five-point exposition of activity theory is not aligned with the five-stage activity of study, but it has a useful function of explicating the internal coherence of the 5-stage journey towards innovation capability.

1. Goal-directed individual and group actions must be understood in terms of entire productive activity systems.
2. An activity system is a community of multiple voices, traditions, and interests. This will produce innovation and negotiation.
3. Activity systems are formed and transformed over time and can only be understood against their own history.
4. Contradictions have a central role as 'historically accumulating structural tensions between activity systems' which can involve conflict between the new and the old, but which may result in innovative changes.
5. 'A full cycle of expansive transformation may be understood as a collective journey through the *zone of proximal development* of the activity' (Engeström, 2001, p.136-137), where the zone is defined as the difference between what the student knows and what he or she *could* know if the learning material were presented optimally. The progressive five-stage activity is in fact a learning process: each firm must acquire and maintain an innovative capability through these stages.

## Literature Review and Proposition Development

Activity theory will be further discussed after the five stages of the model have been set out.

This paper concerns innovation, yet Baregheh et al. (2009) have argued that there is 'no clear or authoritative definition of innovation' and 'the number and diversity of current definitions of innovation creates ambiguity and confusion.' Accordingly, they proposed the following general definition: Innovation is a multi-stage process whereby organisations transform ideas into new or improved products, services, or processes, in order to advance, compete, and differentiate themselves successfully in their marketplace (Baregheh et al., 2009, p.1334).

Definitions of innovation for specific disciplines are required, in order to form more precise formulas for use in contracts. Chen et al. (2017) discussed the factors influencing disruptive innovation in Chinese SMEs, while Chen et al. (2018) also discussed holistic innovation as an emerging paradigm.

In the socialist economy of China, with its extensive SME private industry, innovation can be usefully related to the

thought of Marx and Schumpeter. Marx' Das Kapital (1867) set out the historical tendencies in technology and distribution, concluding that innovation is difficult to achieve as it is hard to find new processes enabling both labour and productivity to increase at the same time (Duménil & Lévy, 2003). Marx (1818-1883) held that 'capitalism cannot succeed due to economic failure,' whereas Schumpeter (1883-1950) in his theories of entrepreneurship also held that capitalism is being destroyed, but 'because of its very creative success' (Elliott, 1980). For both Marx and Schumpeter, the large corporation, a result of capitalist development and technology, renders the small competitive firm more and more obsolete in economic and social terms (Elliott, 1980; Foster, 1983). The discussion below provides further information on the nature of innovation.

In virtually tracing developments in China year by year, with an emphasis on publications from the last few years, it is nevertheless essential to see what has been happening in a wider temporal perspective. Furthermore, to take into account the time between writing an analysis of developments in China and seeing it appear in a journal, a degree of generalisation is likely to come into the picture, even more so when relying on secondary sources.

**SME leaders' social adaptability**

The discussion begins with the social adaptability of SME leaders, defined here as SME decision makers, who are either owners or managing directors. Although the economic function of SMEs means that these enterprises must make profits, they also must have a valued economic function in light of the Central Government's decision to move from export-led growth towards serving the domestic economy.

Innovation is currently being advocated nationwide as China changes from export-oriented and export-led production, towards satisfying China's domestic market through innovative technologies that will increase production efficiently, while also helping to solve unemployment problems (Huang et al., 2009). The concept of social capital relates to an SME's identity in terms of the actions it undertakes, as well as its purposes in relation to enterprise development, relations with other firms, and progress in achieving its competitive advantage.

Innovation capability as described here exists in an essentially social framework. A valuable perspective on innovation may be described as goal-oriented 'activity research,' where activity-based social innovations are planned and implemented deliberately. However, a sociological view of activity research concerns 'emergent changes in social practices and structures such as new lifestyles' (Choi & Majumdar, 2015), though sociological and creative research views can include the economic (Martin & Osberg, 2007).

It should not be assumed that emerging conditions for SMEs will be the same as in the developed world (Bruton, 2008). The phrase 'with Chinese characteristics,' while a loosening of Marxist theory, is still implemented by decisions of the Chinese Communist Party Central Committee and is still subject to a specific Party definition. There is still a need to report upwards and have control imposed downwards; a concept of obedience to authority within the education system; compliance with the existing conservative Chinese social structure; and a collective concept of action and public good. There is a tendency to focus on specialist knowledge rather than lateral, generalist thinking (Huang, 2013, 2017).

Choi & Majumdar (2015, p.22-23) provided a chart which traces the definitions of 'social innovation' through the sociological and entrepreneurial and then to practice-led innovations, which are good for society, and also enhance society's capacity to act. Official expectations for enterprises to innovate may well result in innovations that are not justified, but are implemented for the record. Yet a pronounced disposition toward innovation is likely to result from working according to the proposed activity model, while the model would be more productive

the more participants creatively adopt critical approaches to each stage.

Prediction of economic effects must take into account non-economic aspects of social life, while economists in making their economic models, would be well advised to link in various aspects of other disciplines that 'have made considerable progress in unpacking the dynamics of social phenomena' (Granovetter, 2005, p.47). In this regard, it is proposed that:

*Proposition 1:* Funders' or CEOs' social adaptability is positively related to social network building in the Chinese context.

**Social Network, Trust and Tacit Knowledge Acquisition**

To understand the sources of innovation, organisational literature notes the importance of going beyond the individual entrepreneur and the individual firm to observe network effects, including social learning, normative influence, and non-price exchanges, as this leads to research and development that results in innovations at the firm level (Opper & Nee, 2015). Håkansson and Ford (2002) describe a network as a structure where a number of 'nodes' are related to each other by specific 'threads.' In a complex business market network, the nodes are business units—that is manufacturing and service companies—and the threads are the relationships between them. Complex interactions over time mean that each business unit is linked with many others through its various relationships (2002, p.133).

Nambisan and Sawhney (2011) observed a shift from firm-centric innovation to network-centric innovation, where in the hub-based model, a dominant firm defines an explicit innovation architecture for a group of firms. However, participation in social networks remains tentative and at some distance from the way *guanxi* are traditionally relied upon as a guide to investment or formation of alliances. Yet as firms progress towards a corporate network identity through conceptual combination of customer orientation, some competence in innovation and the makings of solid firm performance are already in evidence (Guo & Miller, 2010; Racela, 2014). Furthermore, Shua et al. (2018) observed a link between 'entrepreneur network capability and entrepreneurial opportunity discovery' in various networks.

Network effects on innovation capability are likely to occur. Social media has been a major fascination since the 1990s, while there has also been a vast expansion of internet use, which is measurable. However, an ubitiquous online presence must logically be balanced against a loss of prominence in relation to other firms: all firms are going online. Moreover, the popularity of social media should be placed against other forms of interaction. 'Innovation' may be seen as necessarily a sign of progress while in fact a good deal of innovation may be relatively trivial, or counterproductive. Yet there are the beginnings of potential online network relationships, as firms make their company known and acquire information about other companies. Huggins & Thompson (2015) see *network capital* in the form of investments in strategic relations with other firms to acquire knowledge, to gain access to knowledge, and as 'a key driver of regional rates of innovation and subsequently growth' (p.103-104).

Strategic R&D alliances enable access to other firms' technologies, joint product development, and cut time for innovation and market entry (Opper & Nee, 2015). It is important not just to look at individual entrepreneurs and firms, but to note network effects in innovation. Non-price exchanges, social learning, normative influence, and network externalities all facilitate firm development, market orientation, and customer orientation, which is important in developing marketable products. Conferences and trade fairs also have an important function (Opper & Nee, 2015). They note that the range of cooperative activities of private firms in the Yangtze Delta meant that entrepreneurs could participate in innovation 'independent of their resource conditions, size, and distinct technological needs' (Opper & Nee, 2015).

In a study of hotel employees in China, Ou et al. (2016) noted that all Chinese

employees are familiar with the *guanxi* concept but find that knowledge sharing through interactive systems does make a difference at work. They note that some employees have a preference for direct, explicit communication—a low context style that differs from the typical high context categorisation of Chinese culture.

Granovetter (2005) notes that in social psychology, 'the denser the network, the more unique paths, along which information, ideas, and influence, can travel between any two nodes.' Thus collective action with no free rider problems is more likely where groups have a dense and cohesive network, as actors there tend to internalise norms that emphasise trust. Larger groups tend to have lower network density as there is a limit to the number of sustainable social ties, and larger groups will tend to have less ability to 'crystallise and enforce norms' such as opposing free-riding.

Granovetter's 'strength of weak ties' occurs with acquaintances rather than close friends, as they move in different circles, while information and ideas are also more efficiently diffused in scientific fields, 'weak ties are much more likely to play the role of transmitting unique and non-redundant information across largely disconnected segments of social networks,' (p.34-35). Following this logic, individuals with ties into multiple networks mostly separated from one another will exploit 'structural holes' in the network as they are 'the only route through which information or other resources may flow from one network sector to another' (Granovetter, 2005, p.35, referring to Burt, 1992). Wang et al. (2016) noted how social media applications affect B2B communication and improve SME business performance. Xu et al. (2018) discussed a network approach to entrepreneurial orientation, acquiring network resources, and firm performance.

Guo et al. (2017) found that an SME's absorptive capacity is positively related to their innovative performance in technology adoption and innovative marketing. Perhaps more meaningfully, there may be two types of enterprise wishing to succeed in business. One is without many financial resources but with knowledge of business, partly explicit and partly tacit knowledge of certain processes, and an ability to manage a small business. The other is with the financial capacity to make a business work efficiently, but in need of workable ideas and a workable management situation. Social networks can bring such enterprises together to engage in a dialogue that may result in a satisfactory arrangement for both. At this point, however, there must be an understanding between the two enterprises that will enable them to proceed with some confidence.

The absence of a meaningful reference to *creativity* may be described in terms of an elephant in the room. Fundamentally, a pool of tacit knowledge already exists in industry (Phan et al, 2013), in the current national approach to innovation, but the most likely originators of truly original, creative innovation have not been singled out in our activity plan: these may be described as the creative SME leaders who not only have a social capability but constantly endeavour to follow up their own specific ideas. However, the proposed activity scheme is designed for general usage, and while in China references to creativity are being detected (see Discussion below), a stage, or an environment of creativity, may await further development as a flow-on from the media and culture industry to other industries.

In addition, investment in technology largely consists of accumulated explicit knowledge, but much useful knowledge may be tacit knowledge, which exists in peoples' minds as subjective experience (Holste & Fields, 2010). Referring to two kinds of trust according to McAllister, these are affect-based, meaning grounded in mutual care and concern between workers; and cognition-based, meaning grounded in co-worker reliability and competence. Holste & Fields (2010) explained how a person might be willing to respond to a request from a fellow worker on how a task could be carried out, and yet not be so willing to take the initiative to share knowledge if no request has been

made—and indeed employees might not know who in the organisation has the knowledge they need (Holste & Fields, 2010).

Internationally there are various business mechanisms to protect the interests of each party to an agreement, protecting intellectual property rights and investor and creditor interests. China however is still weak in company law and enforcement of property rights. Traditionally *guanxi* is relied on as a virtual guarantee of mutual trustworthiness, but Opper & Nee (2015) have explained how in addition to network participation, co-operation between firms in regional industrial clusters can enable entrepreneurs to develop business norms which are likely to reduce the risk of failure of a business agreement (p.283). Trust among members of an organisation is based on affect, institution, and cognition (Ding et al., 2015). Curiously, trust is crucial in the utilisation of tacit knowledge, and yet monopolisation is an element within tacit knowledge (Wang & Qin, 2016), while interpersonally agreed norms appear to stand in opposition to legally bound concepts of intellectual property rights and company laws protecting investor and creditor interests. Wang & Yang (2015) concluded that in relation to the sharing of tacit knowledge, trust will have a positive effect, along with self-efficacy (self-assessment that influences an employee's behaviour) and IT support. They hold that to make organisational knowledge creation possible, knowledge should be learned or extracted, and the extent of tacitness will have a negative effect on employee socialisation behaviour, externalisation behaviour, and internalisation with regard to the sharing of tacit knowledge, which opposes their finding that trust will have a positive effect on the same three employee behaviours (p.264-269). There seems to be an assumption here that the sharing of tacit knowledge is more important than its existence within a company, and that ideally tacit knowledge should be as communicable as possible, which appears to relate to the aim of knowledge management rather than actual innovation capability. However as far as trust is concerned, Wang and Yang assert that trust between employees is necessary for sharing tacit knowledge, and if trust is strong, socialisation such as direct interaction, brainstorming, and informal meetings' will be more intense as people who trust each other will not fear the loss of knowledge-based power (Wang & Yang, 2015; Zhao, 2018).

Human Resource Management is a crucial element (Chiu & Wang, 2007; Gagné, 2009): employees may not be disposed to share information if they are badly treated to begin with. Within the stage here labelled as Trust, staff members and workers who know their jobs well, demonstrably work within a hierarchical system where their incidental suggestions may be accepted by the firm, but how they will be rewarded for their comments is not clear, and more sweeping suggestions for change could land them in trouble. Furthermore, in employees eyes an employer might very well be expected to provide much better work benefits and conditions before demanding deeply thought out and incisive proposals that could benefit the firm—especially if economy of labour was an issue. On the basis of the above arguments, it can be logically proposed that:

*Proposition 2:* Social network is positively related to trust building in the Chinese context.

*Proposition 3:* Trust is positively related to tacit knowledge acquisition in the Chinese context.

## Tacit Knowledge and Innovation Capability

The proposed five-stage activity is fundamentally concerned with tacit knowledge and its flow-on to innovation. Internationally there has been a growing recognition that the performance of economies and firms is dependent on qualities and attributes that are tacit in form and that are acquired through informally applying learned behaviour and principles directly on site (Howells, 1996, p.91-92). Smith (2001) noted that tacit knowledge, like customer good will, is often underrated; face-to-face

contacts, like casual conversations, stories, mentoring, internships, and apprenticeships, result in the spontaneous exchange of ideas.

It is clear enough that the significance of tacit knowledge was recognised decades ago (Yu, 2003). One might speculate that the problem in assigning sufficient weight to tacit knowledge in innovation may relate to the scientific bias of Marxist central planning with its emphasis on the predictable outcomes of scientific research and development. On the other hand, Western business practices may be self-defeating: 'vital tacit knowledge vanishes when companies reorganize, merge, or downsize' (Smith, 2001, p.319).

Technical products or processes, strategic or organisational innovation, and the transfer of new knowledge, are dynamic processes in which explicit and tacit knowledge are complementary. However, it appears to be tacit knowledge that particularly relates to the development of a competitive advantage (Alwis & Harmann, 2008).

Given the broad view of a fairly current SME innovative activity in China cited by McKinsey (Woetzel et al., 2014), it is very important at this point to ask the reason for specifying tacit knowledge as the springboard for innovation applicability rather than the combined content of explicit and tacit knowledge. Lawson and Lorenz (1998) showed how collective learning can generate dynamic organisational knowledge, much of which is tacit. A form of organisational learning is involved; though individual members of the organisation may not be able to articulate precisely how what they know fits in with organisational aims. In high tech fields, tacit learning may be combined with various kinds of high-tech knowledge. Lawson and Lorenz see that tacit knowledge can be co-ordinated with technical knowledge to form a synthetic tacit-explicit vehicle for innovative conduct (Lawson & Lorenz 1998).

Kalotra (2014) noted the theory of organisational knowledge creation in Nonaka & Takeuchi's *The Knowledge Creating Company* (1995) and the concept of a knowledge spiral which proceeds from tacit to explicit, individual, team, organisation, and then becomes more general. Observation of innovation and knowledge management and diffusion is certainly necessary (Kalotra, 2014). This issue is taken up in the discussion below.

Regarding the value of the distinction between tacit and explicit for organisational science, Nonaka and von Krogh (2009, p.641-642) hold that 'knowledge may be explicit or tacit, along a continuum'. They hold that conversion of tacit knowledge into explicit knowledge is fundamental to their theory of organisational knowledge creation (Nonaka & von Krogh,2009, p.636-637).

Nonaka et al. (2003) regard the synthesis of explicit and tacit knowledge as more important than explicit knowledge management. Citing the experience of Nippon Roche, they hold that organisations benefit from receiving power from tacit knowledge, creating knowledge through 'capturing high quality tacit knowledge embedded in people, making it explicit, and incorporating synthesised knowledge into key organisational activities.' By incorporating synthetic knowledge into corporate leadership and collaborative efforts, this contributes to the firm's continuing innovation. The result is creation of management knowledge through the powers of tacit knowledge.

When it comes to the specific ways in which organisations can learn, Nonaka and Takeuchi's framework of cyclic knowledge creation (1995) is based on conversions between tacit and explicit knowledge (Engeström, 2001). Engeström's critique of this model is that it envisages knowledge creation—what is to be created and learned—in terms of management decisions that are outside the working of the local process; this assumption results in the first step of 'sympathised knowledge,' which amounts to 'smooth, conflict-free socialising'. In contrast, Engeström's expansive learning process demands 'conflictual questioning of the existing standard practice, leading to analysis and hopefully a new model or pattern of activity. The new model must be subjected to critical analysis, while a scientific concept may conflict with practical experience, for

example a change in directionality may occur as a sideways move involving a reformulation of basic issues of concern. This kind of lateral approach, that can also be seen in flatter organisational structure, is an example of the creative thinking that can result in innovation (Engeström, 2001).

Chen et al. (2017) put forth an interesting question: whether given the uncertainty of legal versus *guanxi* solutions to issues of innovation, a business may be able to see tacit knowledge as a kind of safety net for SME managers, who ultimately hope to avoid complex approaches to legal matters. In this picture, there might be a balancing perception that the law must be updated for economic and social reasons, but at the same time there is the fact of close links between economic and political elites (p.15). The *guanxi* concept and other Chinese informal institutions may be adequate in many everyday dealings throughout China, but at the same time the size of markets and the complexity of transactions requires formal, legal arrangements—even if such arrangements are not always applied in practice. This eclipses the need for a formal legal framework in many everyday dealings throughout China, but large markets as well as complex regulatory transactions with multiple players emphasise the importance of formal contracts and legal formalities, even when these only exist in the background and are not applied in practice. There could be some leeway as China's civil law approach may contrast with contracts from common law countries. However, as technology develops, information transmission and business interactions may make agreements more standardised and more convenient.

The greatest danger with this model may be that it will lead to an impression that tacit knowledge is in some way static knowledge, or that it can be readily transferred from one firm to another through prior conversion to explicit knowledge; or that it is one phenomenon rather than many business-related habits and procedures. The social capital, rationale and determination in its own circumstances will play a key part in whether an SME will achieve the capability to innovate and continue to innovate.

Furthermore, Jones & Leonard (2009) argue that to maintain innovative operations, a company must acquire explicit knowledge through the difficult process of conversion from tacit knowledge. Whether a company has an innovation culture that welcomes innovation and sharing knowledge among employees, will be decisive, as will a company's use of a formal knowledge management staff. Incentives for quality innovations and employee involvement in knowledge management issues are also positive factors (p.34-37).

Jones and Leonard (2009) proposed a model for knowledge management implementation in diagram form to show how knowledge management is derived out of organisational characteristics (innovation culture plus collaborative culture) and initiative characteristics (top management support; formal knowledge management staff; incentives based on quality; and communication relating to knowledge management) (p.32). Jones and Leonard (2009) argue that innovation cultures have more successful knowledge management implementation; their other listed conditions in the implementation of knowledge management are all compatible with the broad content of progression from tacit knowledge to innovation capability in this study's proposed five stage activity scheme, except that the model concentrates on the practical achievement of innovation through tacit knowledge, rather than a state of knowledge management to which tacit knowledge is expected to contribute, largely to be achieved through a process of conversion to explicit knowledge that may or may not be fully possible.

How then does a company maintain a level of innovativeness? A company could see the five-stage development towards an innovative capability as a model that can readily behave as an unending cycle. After a company has achieved a level of innovation capability, it should be able to act more forcefully in relation to customers and to the

industry in general. Innovating companies as well as new market entrants can benefit from market externalities stimulated in industrial clusters. A company should value customer feedback, as requests for quality improvements and cost reductions will tend to orient innovative activities in the direction of attractive market solutions. Conferences and trade fairs are opportunities for comparison with other companies and for gathering customer responses. With regard to R&D co-operation, difficulties arise from poor contract enforcement, high litigation costs, and court rulings, which are perceived as inconsistent. Industrial clusters enable joint searching for technical solutions as well as sharing of equipment. Local business networks also enable diffusion of new ideas and techniques, while digital networks enable informal co-operation on product upgrades, process adjustments, and new perspectives on management and quality control issues (Opper & Nee, 2015).

Informal collaboration is often followed by formal technology partnership agreements between companies that have taken the time to understand one another and are comfortable working together in a relationship based on a contractual agreement. Thus, despite financial constraints and poor enforcement of intellectual property rights it is possible for firms to co-operate and succeed. In this general picture, through collaboration in research within industrial clusters, private firms have taken market share from state-owned and state-controlled enterprise. A package of co-operative activities has allowed enterprises of varying resources, size, and technological profile, to take part in innovation activities. An innovative pattern of new processes and new products has widely become a feature of entrepreneurial culture, with strong implications for a globally competitive industry (Opper & Nee, 2015).

Government support for state-owned and state-controlled enterprise persists, while at the same time the Chinese characteristic catchword chuangxin, 'Innovation' echoes as a Chinese economic characteristic that the government recognises as a necessity for production capable of satisfying domestic economic demand.

Kesting and Günzel-Jensen (2015) have noted that SMEs and new ventures need business model sophistication. They observed a framework of business model sophistication strategies, in which there is engagement in one or more of the following strategies as secondary business activities designed as value-capturing opportunities with strong stakeholder involvement. The strategies uncover potential product functions, identify strategic benefits for third parties, take advantage of economies of scope, utilise cross-selling opportunities, and finally involve users and the 'crowd.' There are benefits in terms of higher revenues and lower costs (Kesting & Günzel-Jensen, 2015, p.290-292). This is a potential process of innovation which a Chinese firm could exploit to balance production and capacity in line with seasonal demand, for example, keeping one eye open to potential innovative developments. Based on the above arguments, it is thus proposed that:

*Proposition 4:* Tacit knowledge is positively related to an SMEs' innovation capability in the Chinese context.

## Theoretical Implications

Hau et al. (2013) found that an organisation's rewards to employees have a negative effect on their tacit knowledge sharing intentions, but a positive effect on their explicit knowledge sharing intentions. Reciprocity, enjoyment, and social relations, contribute significantly to enhancing sharing intentions for both tacit and explicit knowledge.

Hedesstrom and Whitley (2000) argued that tacit knowledge is used in knowledge management literature in an 'inconsistent and confused way.' Collins and Kusch (1998) reason that action is equivalent to behaviour plus intention, and it can be assumed that there is a direct link between knowledge and the action with which it is associated. Although mimeo graphic actions can be

learned in other ways, polymorphic actions can only be learned through being in society—through socialisation or apprenticeship, for example.

This presentation has shown the feasibility of a five-stage activity culminating in an innovative capability for small and medium sized enterprises in China. García-Villaverde et al. (2018) traced the effects of social capital on technological dynamism and entrepreneurial orientation. However, despite its administrative coherence and practical appeal, there may be complicating factors affecting the success of progress towards an SME's innovation capability at several points.

Fundamentally, a pool of tacit knowledge already exists in industry, and in the current national approach to innovation, but the most likely originators of truly original, creative innovation are not singled out in the activity plan. These people may be identified as creative SME leaders who not only have a social capability but constantly endeavour to follow up their own specific ideas (Golla & Kuckertz, 2018; Cao & Alib, 2018). In the face of the belief that comments on social issues may not be heeded by the authorities, and the potential for discouragement of radical proposals, Chinese intellectuals and workers alike may hesitate to propose genuinely creative solutions which they consider unlikely to be accepted.

## Managerial Implication

The activity model proposed here works toward innovation, but innovations would no doubt be more productive if participants adopted more creatively critical approaches at each stage of the model. On the other hand, official expectations for enterprises to innovate may well result in innovations that are not very productive but are essentially implemented for the record.

Polanyi relied on context or demonstration to validate his definition of tacit knowledge (Davies, 2015). Mirowski (1997) accepted the value of Polanski's distinction between explicit and tacit knowledge, while also noting the confusing approach by Polanski where in 1961 he saw technology as any research subject to economic variation, but pure science as entirely independent of 'any Change in the current relative value of things' (p.137). Ray (2009) demonstrated how a definite mystical element exists in Polanyi's thinking on tacit knowledge (p.77). With regard to Nonaka's approach, involving the conversion of tacit knowledge into explicit knowledge, Ray saw here that Nonaka was reinventing 'a problem that Polanyi was trying to avoid,' namely the definition of tacit knowledge as a real phenomenon but one that depends on the subjective perception of the observer. Ray argued that radical constructivism as proposed by Piaget has the value of the Polanyi model without his metaphysical conception (Ray, 2009). Hemmecke & Stary's (2004) repertory grids within a framework for the externalisation of tacit knowledge may be a valid way of pinning down just what elements of tacit knowledge may be most vital, or relatively effective within a company innovation environment. Similarly, Nicholls & Ziegler's social grid model for social innovation (2017) might support the social approach of the proposed five-stage activity model.

## Conclusion

This study indicates that creativity is an essential element in positive innovation. Greater emphasis on creativity in China's education system is required. Keane (2018) noted significant mobility in Chinese life, rapid urbanisation, and the impact of technology on traditional life—for example the ability to keep in touch with relatives living far away. Skill shortages are appearing. Knowledge capital can be seen as being comprised of human capital, customer capital, and structured capital, where structured capital covers systems, products, processes, and capabilities (Keane, 2018). With absorption (Guo et al., 2017) and spill overs from skilled labour markets and the movement of people, creative work in media and cultural production is precarious, but it is

nevertheless adding to China's knowledge capital. The injection of government funds into industrial clusters is driving competition for talent and investment. Online creative communities are part of this, but tend to be even more precarious. Thus, precariousness may be seen as the price that must be paid for a creative economy.

## Limitation

The proposed five-stage activity model with its social emphasis is a logical way to represent the challenge that small and medium sized businesses face today in China. Neither innovation nor tacit knowledge is defined adequately, but these are key features of the situation. The model aims to provide a map for firms that want to achieve a good level of innovation capability. The insistent call of genuine creativity, as well as an ability to listen to workers in the organisation, are existent but remain faint. Future research may provide empirical investigations to examine the casual effects among social adaptability, social networks, trust, tacit knowledge, and innovation capability in the Chinese context.

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