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Factors Influencing Technological Entrepreneurship in Chinese Enterprises: Preliminary Evidences from Guangdong Province

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Abstract: This paper presents the results of a preliminary empirical investigation undertaken to unveil the factors influencing Chinese enterprises technological entrepreneurship capabilities. Using Pearson correlation and independent-samples t-tests on data collected from 66 Guangdong province technology-based firms during the second half of 2010, the relationship between knowledge management, business model innovation, organizational culture, strong ties, personal relationship and IPR enforcement were investigated. The discussion of the results obtained highlights several possible explications as related to the relevance (or the lack of it) of such factors and identify avenues for further research. The extension to technological entrepreneurship of studies undertaken in related topics, the identification of technological entrepreneurship's role in the Chinese context and its operationalization, are main contribution of this work.

Keywords: technological innovation, technological entrepreneurship, influencing factors

1 Introduction

The transformation of China into an innovation-oriented nation over the next decade and a leading science power by the turn of this Century is now topping the agenda of Chinese government. Technological innovation is seen at the heart of this process and the business sector has been called to be the key driving force of this transformation [1].

Are we at the dawn of a "new world order of innovation" [2] in which a new breed of Chinese enterprises will be soon able to challenge traditional Western technological and innovation dominance in the same way they did (and successfully) with their manufacturing power? Or, seen from the Chinese perspective, will China be able to change its growth model and role in the international division of labour from the world "shop floor" to the one of a "knowledge factory?" [3]. No matter which perspective is embraced, these questions place the issue of technological innovation and entrepreneurship in Chinese enterprises higher in both international and internal debate. As a matter of fact from one side the always present Intellectual Property protection, the assessment of the likely impacts of China's scale up or whether and how to build strategic partnerships are privileged topics of China's westerners commercial partners; whereas on the other side the strengthening of domestic innovation capacity, the reduction of technological dependence (mainly from the West), and the need to fuel sustained and sustainable economic growth and social development, are the Country's main internal concerns.

However it may be quite impulsive to tackle any of the abovementioned issues without an assessment of whether and to which extent Chinese enterprises are capable to drive the Country innovation process and eventually challenge the established innovation order. Therefore the first basic question to answer is: are Chinese enterprises, overall, capable to do what is expected from them? And more in depth, what are the factors that might boost or hamper this capability?

According to relevant policy documents and relevant literature, the innovation capabilities of Chinese enterprises, except for some well-known cases such as Huawei, Lenovo or ZTE, have been portrayed as being weak [1], [4], [5], [6], [7], [8], [9], [10] or at best in transition [11], [12]. An interesting argumentation is the one developed by Liu [13], who espouse a contingency argument to highlight that the *"innovation indolence"* [4] observed in Chinese enterprises, beyond being a concern for the Country's policy makers, it is also the result of conscious responses of entrepreneurs and managers to the peculiar characteristics of the Chinese's market environment and catch-up model. As a matter of fact, the majority of Chinese enterprises seem to follow an incremental innovation model that is more cost and market-oriented rather than technology-oriented. This means that Chinese enterprises in general tend to focus on incremental adjustments or mere matching and assembly of existing (mainly imported) technologies to specific local market needs (in terms of product costs and product features) rather than developing new ones. And this not (only) because of their backwardness or disregard of intellectual property, but (also) because of a number of very practical reasons such as China's huge domestic market, its hyper competitiveness, the

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availability of foreign technologies and the current Country's export-based model.

Following these considerations the argument of this paper is that looking for technology innovation in China, at least in term of novelty and sophistication of own developed technologies and related products, might be not only kind of difficult but also misleading. Especially if the aim is to understand Chinese enterprises real potential, as in this specific work. In other words, the fact that the Chinese enterprises does not pursue, in general, technology-oriented innovation does not forcibly means that they are not innovative at all. Neither this means that they are and cannot be successful commercially. In contrast, Chinese enterprises have achieved large successes by adopting incremental innovation strategies. In addition tough their commercial success may hamper innovation efforts of short-sighted entrepreneurs, at the same time it can provide the necessary resources to engage in internal technology upgrading (both through internal development and acquisition). Hence, the shortage of technological innovation, does not mean that Chinese enterprises cannot adopt more significant, original and technology-oriented innovation strategies in the future.

On the other hand, if we recognize the centrality of matching (technological opportunities with market needs) as compared to novelty and sophistication in Chinese innovation practices, we should rather refer to the concept of technological entrepreneurship, where the concept of matching is central [14]. More specifically, if the distinctiveness of Chinese enterprises relies on their capabilities to recognize commercial opportunities of (mainly existing) technologies for the Chinese market and exploit them through fast integration with market knowledge and alliance capability, that is technological entrepreneurship capabilities, it is contention of this paper that this latter, more than technological innovation, proves to be a better concept to explain the kind and level of innovation activities and real potential of Chinese enterprises.

Following these arguments, the present study focus on technological entrepreneurship as a more appropriate measure of current Chinese enterprises scale-up and development potential. More specifically the objective is to undertake a preliminary empirical investigation of the relationships between the main factors identified in literature as influencing (technological) innovation and entrepreneurship and Chinese firms technological entrepreneurship capabilities, as defined above. In this aim relying on an integrated framework realized in a previous work [15], the paper present the preliminary results obtained through case studies and interviews undertaken in Guangdong between April and December 2010.

In which that follows the data collection, measures and analysis undertaken will be detailed. Then the results of these analysis – i.e positive relationships between knowledge management, personal relationships, integrative organizational culture and technology entrepreneurship – will be discussed. In addition some considerations concerning the non-supported relationships, especially with regards to business model innovation and the effects of Intellectual Property Rights (IPR) enforcement, will be developed. Finally the limitations of the study and further possible developments will be highlighted.

2 Methodology

2.1 Data Collection

Data collection was organized in two phases. The first phase concerned the identification of the factors to be investigated. The factors were identified referring to an integrated research framework collecting the factors influencing technological entrepreneurship capabilities in Chinese enterprises developed upon a full review of more than one hundred international and Chinese (in English) academic studies and policy documents [15]. The factors were arranged in the four categories below.

(1)Internal characteristics: entrepreneur's attitudes, knowledge workers management, research & development, capital budgeting, knowledge management, business model innovation, organizational culture.

(2)External network attributes: main actors, strong & weak ties, dense & sparse networks, personal relationships, relationships contents.

(3)Institutions: government support policies, IPR and Contract Law Enforcement.

(4)Environment: environmental munificence, local business context, national business culture.

These categories were used to define a case study protocol aimed at performing a preliminary exploration of the relevance of such factors in the Chinese context.. More specifically, the four categories of factors were used to define open ended questions to be used in face-to-face interviews. These questions were organized in a (English and Chinese) *Case Study Interview Guide*. The single factors under each category were used to define the items of a *Case Study Questionnaire* (in Chinese for distribution and in English for subsequent analysis) to be left after interviews for deepening specific issues without making the interview cumbersome. In addition, the same factors were used to define a *Case Study Template* for analyzing secondary sources (mainly company's reports and documentation) and cases (mainly on the web). Finally a one page *Case Study Information Sheet* was prepared to provide the necessary background to enterprise's contacts and respondents.

Overall 10 preliminary case studies, six field and four desk were realized in Guangdong Province. The sample of companies interviewed/surveyed was composed as follows:

- 6 Small and Medium and 4 Large enterprises.
- 8 private/incorporated and 2 public-owned.
- 5 new technology ventures – aged less than 8 years according to [16] – of which 2 in the

start-up stage, and 5 established technology-based firms.

– 4 operating in Information Technology, 3 in Telecommunications, 2 in New Materials and 1 in Pharmaceuticals; producing a variety of products and services, mainly for electronics, automotive, internet and healthcare sectors.

The interviewees were entrepreneurs, general and R&D managers.

Tab. 1 below reports in synthesis the results obtained from the analysis of the data collected through the case studies. '+' signs indicate a positive influence, '–' signs a negative influence and '0' signs indicate non relevance of the factors surveyed.

Tab.1 Factors influencing technological entrepreneurship in Guangdong enterprises (Case Studies)

Internal characteristics	External Networks Attributes
Entrepreneur's Leadership & Industry Experience (+) Availability (–) and R&D talents management (+) (Soft/people-oriented) Knowledge Management (+), Innovation Management (+), Business Model Innovation (0, +), Capital Budgeting (0) Highly integrative (internally integrated and externally adapted) customer- oriented organizational culture (+)	Domestic (mainly public actors) rather than foreign (mainly specialized components and management skills suppliers) Tendency to strong ties (–) but declining influence of informal networks and arrangements, i.e. guanxi (0), against contractual arrangements. Co-design and co-development (upstream) relationships managed by strong ties but with more and more flexible arrangements (downstream) for customization and commercialization.
Institutions	**Environment**
Specific – local or targeted – support policies (+), i.e. tax reductions, setting of R&D priorities and funding, talents attraction and mobility, *ad hoc* interventions IPR and Contracts Law enforcement influence not significant (0) but registered as slightly negative since its enhancement is believed to be beneficial to innovation & entrepreneurship activities in general (–) Instability of policies (–)	Environmental munificence (–), i.e. huge market and growth and accessibility of foreign technology Local (Shenzhen) context, (+) because of availability of technology universities, talents, specialized suppliers, exhibitions and fairs, foreign and domestic investment and professional service firms, entrepreneurial culture, proximity to customers and international markets (through Hong Kong). National business culture (–)

The results of the case studies were used to select the factors to be further studied and define a related set of hypothesis to be tested using a quantitative approach. The first decision was on the appropriate unit for the analysis. The decision was to study organizational level factors with in addition the impact of IPR enforcement. This latter was included on the basis of the mixed feelings registered in preliminary interviews and case studies, especially as compared to the strong relevance given to this factor in relevant literature, policy and cooperation. Therefore individual level factors and system level factors were not considered in this study. This done we further trim organizational level factors. As a result capital budgeting and innovation management were not included. As per the first factor no evidence about its relevance for technological entrepreneurship could be collected from neither literature surveyed neither case studies undertaken. In these latter interviewees described capital budgeting as being mainly either a decision of the entrepreneur/top management or a question of individual leadership (thus confirming indirectly the relevance of the positive effect of individual entrepreneur's leadership and experience), either a standardized process in the industry (in the specific case pharmaceuticals), so as to be more a kind of a due diligence rather than an opportunity seeking tool, as highlighted for example in [17]. However, it is not intention of the authors to underestimate or dismiss the relevance of this factor just on the base on a few case studies. Rather that it might worth to be studied at the individual decision-making level rather than at the organizational one. Concerning innovation management, because of the obvious conceptual overlaps with technological entrepreneurship – confirmed in the descriptions provided in case studies interviews, as well as the approach to measurement explained in the next section, it has been considered as a part of the operationalization of technological entrepreneurship.

Therefore, the following hypothesis were defined:

(1)There is a positive relationship between a performing knowledge management process and the level of technological entrepreneurship;

(2)There is no or just slightly positive relationship between a performing business model innovation process and the level of technological entrepreneurship;

(3)There is a positive relationship between an integrative organizational culture [18] and the level of technological entrepreneurship.

(4)There is a negative relationship between strong ties and the level of technological entrepreneurship.

(5)There is no significant relationship between the use of personal relationships and the level of technological entrepreneurship.

(6)There is no significant or slightly negative relationship between the weakness of IPR enforcement and the level of technological entrepreneurship.

To test these hypothesis a number of variables and related measures were identified through a review of relevant literature [15], which at the time of this study reached the coverage of 218 academic papers and 15 policy documents surveyed within the Entrepreneurship, Technology and Innovation Management, Strategic Management and related Social/Capital Network and Institution based perspectives. A ten questions survey instrument (in its final version) was defined to collect data. Questionnaires were submitted mainly through

face-to-face interviews undertaken at the 11th China High-Tech Fair. Also some e-mail submissions, followed by inevitable recalls, were made for respondents who could not or not were in position to respond on the fair site. Overall 68 Guangdong companies, in addition to the 6 interviewed for the case studies could be reached by the study. Preliminary interviews were also undertaken with some entrepreneurs enrolled in Sun Yat-Sen business develop programs to pre-test the survey tool.

The measures used and data analysis techniques used are defined in the following section.

2.2 Measures

A first clarification about measures concerns the decision on the criteria by which measures to be used were defined. Measures concerning *outcomes* (for knowledge management, business model innovation and technological entrepreneurship), measurable *characteristics* (for strong ties and personal relationships) and *real situations* (for organizational culture and IPR enforcement) were selected. Questions based on respondents evaluation of *process* performances and *perceived* impacts on technological entrepreneurship were discarded in order to reduce the occurrence respondent bias. That is measures identified and related questions did not aim or ask to evaluate the extent to which the enterprise was perceived performing as related to some specific process aspects of knowledge management (such knowledge acquisition, assimilation or exploitation) or business model innovation (such the changes to the business model undertaken overall or as related to its components). Rather measures and questions concerning the outcomes that such processes– when really performing – should have produced, were defined and asked. More concretely the reduction of time and costs as well as the increase in flexibility of capabilities development, which can be expected from a performing knowledge management process, or the frequency pervasiveness and continuity of changes in a business model were operationalized respectively as reduction of time, costs and increase in variety of technology/knowledge domains of patent applications and number of significant changes, components changed and planned changes to the business model.

According to the abovementioned criteria the following operationalization's were defined and used:

- Knowledge management was measured as the reduction of time and costs needed to issue a patent application and the increase of technology/knowledge domains diversification in the patent portfolio in the past three years, measured on a 1 to 5 agreement scale.
- Business model innovation was measured as number of significant changes brought about the company business model in the past three years, the components changed and whether other significant changes were planned;
- Organizational culture was measured using Tsui et al. [18] questions for measuring internal integration (i.e. harmony and employees development) and external integration aspects (i.e. customer and innovation) of Chinese enterprises organizational culture on a 1 to 5 agreement scale.
- Strong ties were measured on 1 to 5 points scale defined according to the number of (average) contacts per month with main partners and the strong or weak content of the collaboration referring to the categorization made by [19]. More specifically an average was made to synthesize the two indicators.
- Personal relationship-based governance was measured on a 1 to 5 points scale defined according to the extent to which the relationship was governed solely by contracts or exclusively by mutual trust and reciprocal commitment, with intermediate arrangements in between.
- IPR enforcement was measured on a 1 to 5 agreement scale based on the effective possibility to receive appropriate protection over IPR infringements.
- Finally, technological entrepreneurship was measured according to three components: an entrepreneurial, an innovation and a commercialization component. The first was measured relying on [20] and [2], as the ratio between the number of new to the world and new to the market product development projects on new to the enterprise or marginal modifications ones; the second was measured as the ratio of invention patents incorporated in new products on new products developed; the third was measured as the number of new products introduced into the market, the average time (in months or fraction) needed to introduce these products into the market, the share of turnover generated and the average customer satisfaction level using a 1 to 5 agreement scale. All measures referred to the past three years.

Overall the questionnaire was two pages long (three in English) including two questions asking for general information, i.e. enterprise's ownership, age, revenues, employees, market share and export revenues and strategy. Data analysis techniques are described in the next section.

2.3 Data analysis

Data analysis was performed following three stages. In the first stage a correlation analysis, using Pearson coefficient was made between the factors selected and technological entrepreneurship. Correlation was preceded by preliminary analysis aimed at checking possible violations of the main assumptions needed for its applicability, mainly linearity of the relationships, homoscedasticity and outliers. No significant violation was recorded, except a couple of outliers that, since

occurring in diverse variables, were eliminated, reducing the cases analyzed to 66.

In the second stage, because the small size of the sample, an independent-samples t-test was performed to test whether the results obtained with Pearson correlation could be reflected in (statistically) significant differences between cases that presented high scores on the investigated factors (i.e. higher performance, extent or effect) and cases that presented low scores as related to the level of technological entrepreneurship. For this analysis the variables were binned into two groups, representing high and low scores on construct measured.

Since the results of the independent-samples t-test confirmed the reliability of the correlations made, partial correlations were finally performed to further prove the results obtained through the estimation of the possible effects of third variables on the significance and strength of relationships identified. More specifically partial correlations were run controlling for size on all significant relationships found.

For all the analysis SPSS version 18 was used. It should be taken therefore for granted that an SPSS data file has been created and that the necessary (logarithmic) transformations were made to perform the analysis of which the results will be described in the section below.

3 Results

3.1 Analysis of results

Tab. 2 below synthesize the results of the first stage correlation analysis.

Tab.2 Factors influencing technological entrepreneurship in Guangdong enterprises (Pearson Correlations)

Factors correlation with	Tech-Entrepreneurship
Knowledge Management (H1)	.412**
Business Model Innovation (H2)	- .018 (not significant)
Integrative Organizational Cult.(H3)	.314*
Ties Strength and (H4)	- .143 (not significant)
Personal relationships-based (H5)	.379*
IPR enforcement (H6)	.061 (not significant)

** p<.001; * p<.005 (2-tailed)

According to the tab.2 only the relationships between a performing knowledge management process, an integrative organizational culture and a personal relationship-based governance of ties proved to have a positive and statistically significant relationship with technological entrepreneurship. Thus following these results hypothesis 1, 2, 3 and 6 were supported. Hypothesis 4, 5 were rejected. The rejection of hypothesis 5, that is the significant positive correlation founds between personal relationships as a tool to govern relationship with partners and technological entrepreneurship, was unexpected. Possible reasons and the implications of these results will be provided in the discussion section.

Then, considering the smallness of the sample, an independent-samples t-test were made to prove the validity of results obtained. The basic idea was to see whether there was a statistically significant difference, in terms of the level of technological entrepreneurship, between those companies that presents or reported low scores on the factors investigated and those that reported higher ones. Independent-samples t-test were undertaken variable-by-variable. The results obtained are synthesized in tab. 3 that reports group dimensions, with L indicating the number of cases with low scores (that is just below mean – i.e. IPR, or the median – i.e. OC) and H indicating high ones (that is just above the mean or the median); whether Equal Variance (EV) – according to the value of Levene's test – is assumed (yes) or not (no); and the alpha values (2-tailed).

Tab.3 Factors influencing technological entrepreneurship in GD enterprises (Independent-samples t-test results excerpt)

Factors compared	EV?	Alpha values
Knowledge Management (H1) L=26, H=15	No	.099
Business Model Innovation (H2) L=18, H=22	Yes	.973
Integrative Organizational Culture (H3) L=22, H=24	No	.098
Ties strength and (H4) L=16, H=16	Yes	.731
personal relationships-based (H5) L=24, H=20	No	.159
IPR enforcement (H6) L=19, H=19	Yes	.938

Taking into account the size of the groups (all around or below 20 cases) it can be seen that knowledge management, integrative organizational culture and personal relationship alpha levels, though beyond the .05 conventional threshold, are comprised (or almost for the latter) within the cut-off points of .10 or .15 suggested by [21] to compensate for the insufficient test power that might arise when groups of small size are involved. Therefore, the results of the correlation analysis were confirmed by the independent-samples t-test, which provides statistically significant differences between high and low 'performers' in knowledge management, integrative organizational culture and personal relationships on technological entrepreneurship's level.

Controlled that the correlations obtained were reliable, the third final check was performed to control for the possible effects of size (measured as both revenues and the number of employees) on the correlations found to be significant in the first stage and validated in the second one. The inspection of zero order correlations shows that:

- Size does not have statistical significant (and by the way very modest) effect on the strength of the relationship between knowledge management and technological support. Thus the support to hypothesis remain 1 unvaried.

- Dimension was found significantly augmenting the strength (from .314 to .498) and the significance (from .031 to .004) of the relationships between integrative organizational culture and technological entrepreneurship. This is comprehensible since organizational culture in large companies tends to replace the entrepreneur's vision of smaller ones, so that in general organizational culture influence augments (or co-varies positively) with the dimension (and the distance from the top) of the organization. Since this just means that organizational culture is more important in large rather than small companies, but its influence remain positive for both, support to hypothesis 3 remained unvaried.
- Finally, size effect was not found to be statistically significant on the strength of the relationship between personal relationships and technological entrepreneurship, leaving the rejection of hypothesis 6 unvaried. Therefore personal relationships in governing relationships counts, no matter the size of the enterprises.

At this point the calculation of the effect size of the three variables founds to have a positive correlation on technological entrepreneurship cold be calculated and is synthesized in tab. 4, below.

Tab.4 Factors influencing technological entrepreneurship in GD enterprises (Percentage of shared variance explained)

Factors	% of variance explained
Knowledge Management	17%
Integrative Organizational Culture	10%
Ties personal relationships-based	14%

3.2 Discussion

The results obtained can be discussed according to the three categories of factors analyzed.

As per internal enterprise characteristics only knowledge management process, when performing, (Hypothesis 1) and organizational culture, when integrative, i.e. characterized by both high internal integration and external integration [18] (Hypothesis 3), have been found to have positive relationship and moderate influence on technological entrepreneurship capabilities. These results are not surprising since both variables can facilitate enterprises absorptive capacity, which helps the speed, frequency, and magnitude of innovations activities and in particular incremental innovations, because such innovations draw primarily on enterprise's existing knowledge base [22], [23], [24]. Consistent with Hypothesis 2, Business model innovation has not been found to have significant influence on technological entrepreneurship. One possible explication can be related to the newness of the companies, as emerged from the preliminary case studies undertaken. For these companies the changes in the business model more likely reflected adjustments to the original business model planned when founding and launching the enterprise, rather than the expression of a real process or a capability. An alternative explication, may be that this factor is actually more relevant when radical, new technological development is involved, so that significant changes to the business model are required. This does not seem to be the case in the sample analyzed. Existing technologies and incremental modifications does not require neither significant (that is frequent, pervasive and continuous) business model innovations, neither the capabilities to do so. So that the changes required are a few and, as a matter of fact, entails more incremental modifications to the product/technology features or to the marketing/ distribution side.

As per external network attributes the non-support of both hypothesis 4 and 5 is a kind of evidence that strong ties, and especially the ones governed by personal relationship, though loosing silver as a business development mechanisms thanks to the reinforcement of market-based institutions underway, might still be relevant as network governance mechanisms. For example to ensure the necessary timely distribution or supplies flexibility which are required in a fast-paced and hypercompetitive market such the Chinese Therefore they represent one more way, and ad effective one, for getting the necessary resources for technology and entrepreneurial activities general in general, for which – especially in a still not perfect financial market – strong, personal ties still matter. But we cannot stretch too much the results of this preliminary study, so whereas these observations found grounding in case studies made, further quantitative studies should be surveyed or done.

Whereas expected, the substantial non-relevance of the weak protection of Intellectual Property Rights for technological entrepreneurship it is quite an interesting result to comment. As a matter of fact weak enforcement does not prevent the enterprises to innovate 'the Chinese way', i.e. incrementally. This results can be a preliminary signal that the quest for augmenting innovation, reducing imitation and the way to deal with it are probably outside, at least in part, from IPR field. The basic idea is that perhaps the reason for the diffusion of imitation and adaptation – at the expenses of others and its own innovation – is more likely to be found in environmental munificence, the high-level of performance and competition that Chinese enterprises enjoy or suffer, rather than merely or exclusively on weak IPR enforcement, as the insistence of the debates might suggest. In addition case studies (and actually theory) suggest that speed of introduction is another way to deal with the issue of getting the returns on innovation in environments that exhibit the same characteristics that the Chinese context currently displays.

4 Conclusions

The results obtained are consistent with other

studies made on Chinese enterprises innovation capabilities and performance, especially as related to the relevance of knowledge management [25], [26], [27]; the relevance of reciprocity, trusts and interpersonal relationships networks governance [28]; and integrative organizational culture [18].

However, given the limitations of this research, especially as related to the dimension of the sample analyzed and the techniques that must had been used, the considerations developed in this work could just incite further research rather than providing conclusions to such relevant issues. More specifically correlation analysis confirmed the significance of the relationships between knowledge management, integrative organizational culture and technological entrepreneurship. However, no reliable causal relationships and the predictive power of these variables could be ascertained. For this a multiple regression analysis needs to be performed and, considering the addition of new variables mentioned in the discussions above, a more numerous sample is required.

However to reduce the impact of such limitations two alternatives analysis were performed, both providing confirmation the results obtained. So, even if preliminary, it is possible to identify the possible influence of some internal and external factors to technological entrepreneurship at the organizational level. The extension to technological entrepreneurship of results found as related to (technological) innovation in Chinese firms and entrepreneurship in general; the conceptualization of technological entrepreneurship as being made of three components – an entrepreneurial component, an innovation component and a commercialization component – as well as the operationalization defined, represent the distinctive features and the main contribution of this work.

Also the work offers an alternative picture of the kind of technological innovation activities undertaken in Chinese technology-based enterprises. Far from being just absent or purely imitative, these are rather characterized by matching and adaptation. That is, in accordance with [13], Chinese enterprises in general tend to focus (for a number of very practical reasons, starting from the dimension and impressive rate of market growth, through its hyper-competitiveness, until the major performance associated to incremental innovation activities) on matching and adapting existing technologies to specific local market needs, in terms of either final product costs and/or features, rather than developing entirely new ones. So technological entrepreneurship – intended as the capabilities to identify potential entrepreneurial opportunities, which arise from technological developments, and exploit these opportunities through the successful commercialization of innovative products – seems to be a more viable direction to try to figure out what is really going on in Chinese enterprises in terms of innovation and catch-up.

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