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The role of Patent Information in the development of Innovation in SMEs - A focus on Chinese patent

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Abstract

After the presentation of various aspects of the patents, necessary for the comprehension of the article, the status of the intellectual property in China is presented. Is then introduced the concept of innovation and its two principal stages, which introduces the role of patent information to support the innovation. The APA (Automatic Patent Analysis) is then presented, which makes it possible starting from a broad interrogation to know the technological informative context of the subject as well as the positioning of its various actors, etc. Several examples are then developed and out of them the role of the Chinese patents may be better understood as well as the possible strategies developed in China in that field.

Keywords: patent information, Chinese patent, Chinese utility models, innovation, APA, Automatic Patent Analysis, Competitive Technical Intelligence.

Résumé

Titre en français à venir. Après la présentation de divers aspects des brevets, nécessaires pour la compréhension de l'article, le statut de la propriété intellectuelle en Chine est présenté. Est ensuite introduit la notion d'innovation et ses deux étapes principales, ce qui introduit le rôle de l'information brevet comme support possible de l'innovation. Est ensuite présentée l'APA (Analyse Automatique des Brevets), qui permet à partir d'une

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interrogation large de bien connaître le cotexte informatif technologique du sujet ainsi que son positionnement ses divers acteurs, etc. Des exemples sont ensuite développés, permettant dans ce contexte de situer le rôle des brevets chinois et les stratégies possibles développées en Chine dans ce domaine.

Mots Clefs : information brevets, brevets chinois, Modèles d'utilité chinois, innovation, APA, analyse automatique des brevets, veille stratégique.

Introduction

The patents are most of the time considered as a system to protect an invention (the intellectual asset of a company). But, because this field is relatively specialized and often restricted to its legal aspect, many people are making a lot of mistakes when they speak or intend to use patents (WIPO 2003). This is particularly true for academics where patents are almost never cited in the bibliography of scientific articles. The following information is done not to provide the exact patent status but to provide the necessary information which will be useful to understand the different parts of this article. This is the reason why we will not speak of trademarks, geographical indications, industrial designs and branding.

A few words about patents

- They are a protection of your intellectual capital, but only in the countries which have been designed in the patent (WO, PCT, EP), or in the countries where the original patent has been extended.
- It means for a SME which takes a patent in France, that if this patent is not extended to other countries, the invention will be protected only in France. If the invention covers a product which can be identified as coming from the French patent, this product will not be able to be imported in France. But this is to the patent owner to make the proof of the litigation.
- From the date of the first patent demand the interval to extend the patent to other countries is variable most of the time one year, but it may be longer for extension to United States or Europe for instance.
- Because the cost of the patents are important and because the globalization makes the competition worldwide, many firms consider that they must develop other strategies to protect their inventions
- The Utility Models often called "petty patents" are a good alternative to protect an invention for a smaller time but at a lower cost (Jewick 2013). The examination process is easy. In some countries only certain technological domains can be the object of utility models. In some countries also it is possible to take a utility model (availability in a very short time) and to extend it to a patent demand. They cannot be in force both in the same time. This is widely used in China.
- The life span of a patent is 20 years, after the patent falls in the public domain and everybody can use it freely. Many firms try to extend the life time of a patent by

patenting small changes. To agree with these changes falls under the competence of the national patent office or of the European Patent Office or WIPO or PCT. They can be denied sometimes then the patent falls into the public domain, example of the Tenofovir in Brazil (Barroso 2011)

- Often, because of the cost of the annuities which are increasing over the years (until the twentieth last one), the patents are abandoned after a shorter time. Some people indicate about 8 years in China, some other 10 years in Europe.
- The patent databases do not give information about the use of the patents. So it is difficult to know if the patents are really used or not.
- When a patent is granted for instance by the European Patent Office, the applicant (company or individual owning the patent) is send back to all the different European Patent Offices and then the applicant will decide which countries he wants to protect. This is the same for a WO (World) Patent. Then, if you see in a patent database a recent European Patent it is necessary to make a further search to see which European countries are really covered by the patent.
- Taking a patent can be done in three ways:

The National routes where you introduce a demand for each country concerned. This can be cumbersome and expensive. The demands are evaluated individually in each country.

The Regional routes where regional agreements allow you to have one examination and obtain a protection in various countries cover by the agreement. There are European Patent Office (EP), African Regional Industrial Property Organization (ARIPO)[1] (English speaking countries) , African Intellectual Property Organization (OAPI) (French speaking countries)[2], Eurasian Patent Office[3], Patent Office of the Cooperation Council for the Arab States of the Gulf[4]

The International route goes through the WIPO (World Intellectual Property Organization WO) or through the PCT (Patent Cooperative Treaty). The application is much simpler than going to the national routes. It may include a mix of world countries not cover by one unique Regional route.

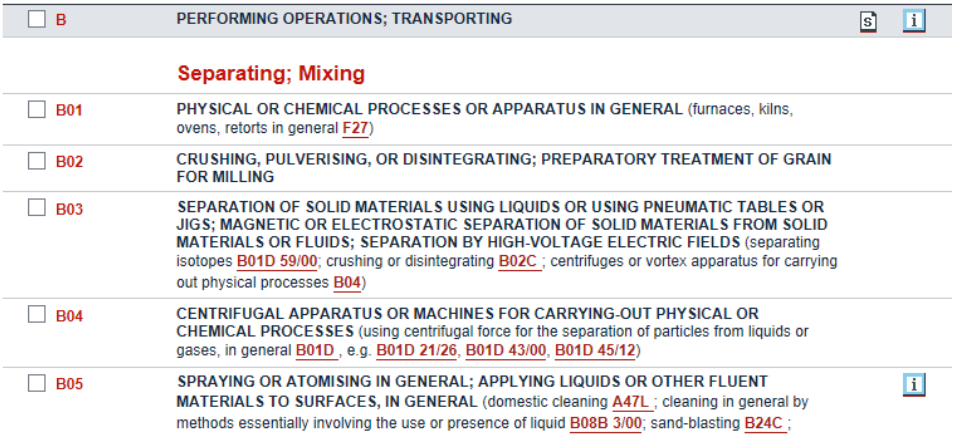
The International patent Classification

The International Patent Classification (IPC) is important since patents have no keywords. The only textual description available in patent databases such as the databases of the EPO (European Patent Office) or the WIPO (Patent Scope) are the words from the titles or the abstracts and the names of the applicants and inventors. This is the reason why to facilitate the classification of patents in various applications and domains the International Patent Classification has been created. Other classifications do exist such as the US, Japanese, European (ECLA), but because the International Patent Classification is always present in all patent types, this is the one that we will use. The IPC is done by a combination of letters and figures from one to eight digits. The classification remains constant in time (although

[1] http://aripo.wipo.net
[2] http://oapi.wipo.net
[3] www.eapo.net
[4] www.gulf-patent.office.org.sa

slight modifications may occur), so that this is a good way to use it in patent retrieval and in statistics. The classification is structured around series of letters from A to Y followed by figures and letters for instance the letters A to Y deal with different aspects of the technology such as A:Human necessities, B:Performing operation, transporting, C:Chemistry, metallurgy, etc. In most correlations the IPC with 4 digits is used and if the correlations must be more precise the full IPC may be used. The following figure indicates part of the classification.

Figure 1 : Example of IPC (4 digits)



B	PERFORMING OPERATIONS; TRANSPORTING
	Separating; Mixing
B01	PHYSICAL OR CHEMICAL PROCESSES OR APPARATUS IN GENERAL (furnaces, kilns, ovens, retorts in general F27)
B02	CRUSHING, PULVERISING, OR DISINTEGRATING; PREPARATORY TREATMENT OF GRAIN FOR MILLING
B03	SEPARATION OF SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS; MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS (separating isotopes B01D 59/00; crushing or disintegrating B02C ; centrifuges or vortex apparatus for carrying out physical processes B04)
B04	CENTRIFUGAL APPARATUS OR MACHINES FOR CARRYING-OUT PHYSICAL OR CHEMICAL PROCESSES (using centrifugal force for the separation of particles from liquids or gases, in general B01D , e.g. B01D 21/26, B01D 43/00, B01D 45/12)
B05	SPRAYING OR ATOMISING IN GENERAL; APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (domestic cleaning A47L ; cleaning in general by methods essentially involving the use or presence of liquid B08B 3/00; sand-blasting B24C ;

To search for an IPC can be done in different ways: from the Espacenet[5] web site you can access the IPC either via the IPC description (eg A61K for instance) or by the meaning of its textual description. Another way is to use the "catchwords"[6]. These words are significant words which are related to various IPC classes, for instance if you search for solar panels, you may search for solar or panel and see if one of these words are present in the catchword list. You will further choose the best related IPC. The last way to search for the right IPC is to take a meaningful patent and to see which classes are used in its bibliographic description. The IPC will be used in the following part of this presentation as search tools, and statistical elements to determine the technologies used in different domains.

1. Current Status of Chinese Patent Applications

1.1 The amount of Chinese patent applications

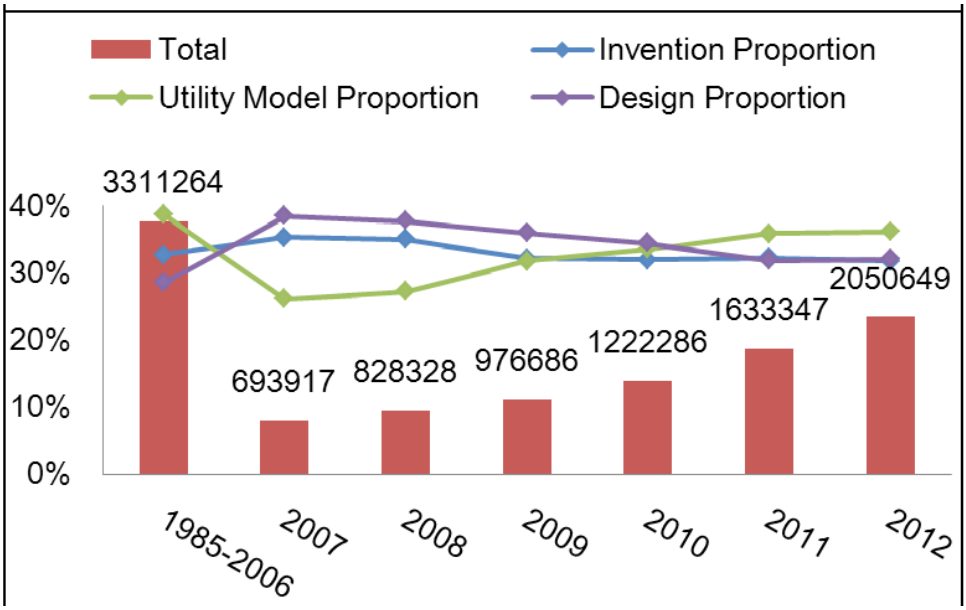
He has grown rapidly, especially in the last five years, but the quality of the patent applications doesn't improve at the same rate.

[5] http://worldwide.espacenet.com/classification?locale=en_EP#!/CPC=C09D5

[6] http://web2.wipo.int/ipcpub/#refresh=page

In the year 2012, the amount of patent applications in China has exceeded 2 million, and the total number of the Chinese Patent has been more than 300 million during 20 years from 1985 to 2006. Since the year 2007, the annual patent applications in China has maintained a growth rate of 24.32%, this situation has inspired widespread concern around the world. On the other hand, the proportion of the three types of Chinese patent applications has not changed apparently. Inventions which represent the direction of innovation and patent right protection are only 32% of the total, while the proportion of utility models (Jewick 2013) and designs is still high.

Figure 2 : Situation of the Chinese Patent Applications



1.2. Most Domestic Chinese patent applications are still Utility Models and Designs

According to the applicants' nationality we find that there are great differences between domestic patent applications and foreign patent applications. Since the year 1985, the Chinese domestic patent applications are mostly utility models, which account for nearly 40% averagely. Foreign patent applications in China are mostly inventions, which account for nearly 90% averagely. Namely, the average duration of foreign patent applications is longer than that of domestic patent applications, which means domestic patent applications are less stable and it may produce some problems of patent right protection.

Figure 3 : Distribution Applications for three kinds of Patents receive from Home[7]

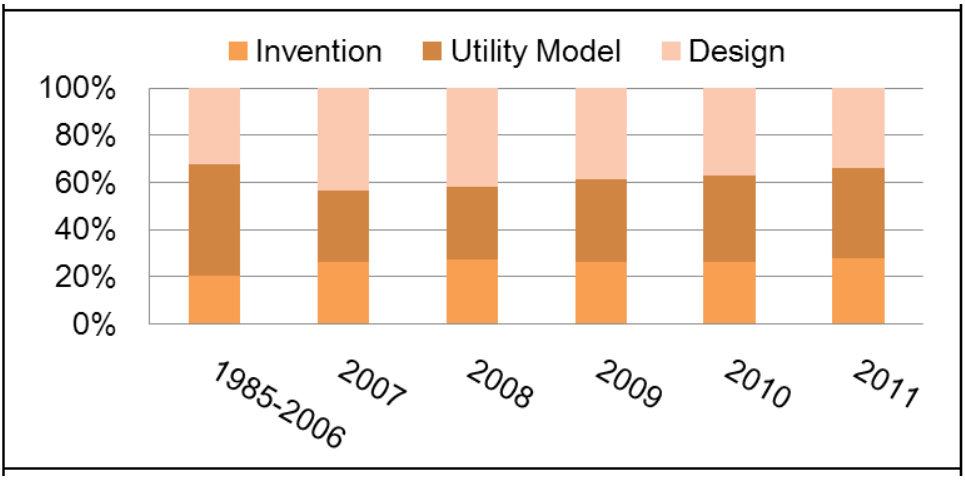
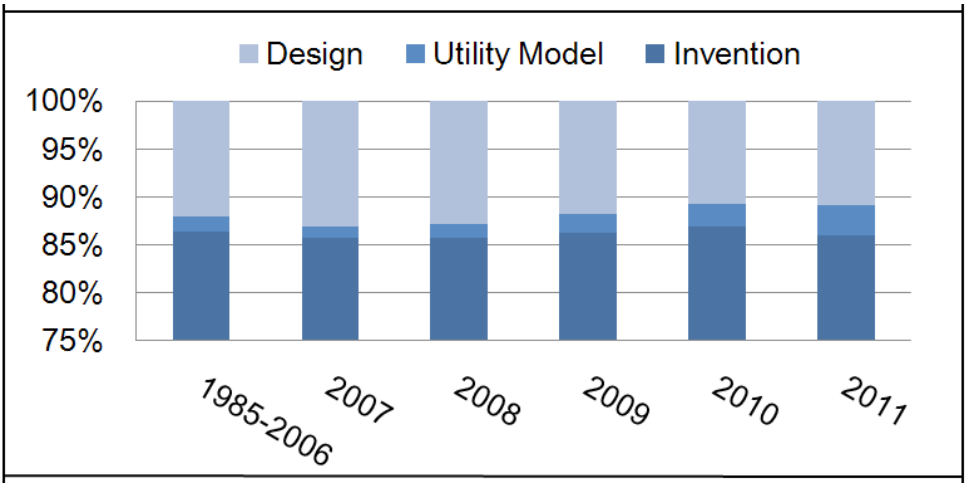


Figure 4 : Distribution Applications for three kinds of patents received from Abroad8



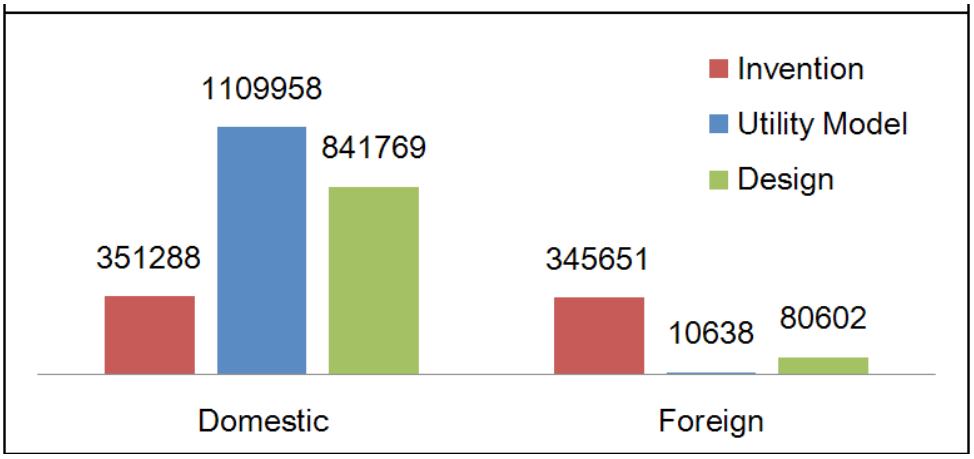
1.3. Domestic patents in force are less than foreign patents, and the quality is worrying

According to the amount of patent in force, domestic patent applicants also have many problems. Among Chinese patents in force, the domestic patent quantity and foreign inventions quantity are almost the same, which are about 350,000. The growth of domestic patents in force mostly comes from utility models and designs, and the amount achieves nearly 200 million.

[7] Source: www.sipo.gov.cn 1985.04-2011.12
[8] Source: www.sipo.gov.cn 1985.04-2011.12

If we compared the three types of Chinese patents, the rates of domestic patents in force and the foreign patent applications are about the same. Applications in China, even if a large amount utility models and designs are accounting for only about 35% of the two types of patents this should prompt for a special use of these two entities. The almost equivalent amount of Chinese and Foreign Patents should be of a great concern for Chinese Enterprises.

Figure 5 : Total in force for three kinds of patents received from Home and Abroad[9]



2. Innovation and SMEs

Most of the SMEs are small and they do not have a sufficient R&D potential to perform their innovation "in house". This is the reason why most of the time they have a policy (if any) turned to open innovation. The open innovation (Bianchi 2011) which consists to find out of the company the necessary knowledge and competences "readymade" can certainly be integrated in the companies faster than an "in house research" or a research coming directly from academics. This situation is also seconded by the "outbound open innovation" (Bianchi 2012) which consists for the companies which already have a large portfolio of technologies available to facilitate the conditions of joint ventures or cessions of these technologies. Innovation is a word which is used in many ways. It is important to give to this word the right signification before continuing this presentation. Many reports have been published those last years to emphasize the role of innovation in the development

[9] Source: www.sipo.gov.cn 1985.04-2011.12

of the state's economy. The well know Palmisano[10] report from the USA brushes the context in which innovation must be developed. Again, we will take the meaning of innovation from the work of the InterregIII program. (Erikson 2006)

Step 1: Generally most of the people (and mainly in research and especially in France) believe that the Government should subsidize the research and the education as a finality. Then knowledge will be created. This is common place and many people stick to this view without thinking how the money necessary for the research and the development will be found.

Step 2: Now if we consider the success stories of the Silicon Valley or Triangle park in the US and if we look to the mechanism which bring the success of these clusters, it is clear that the step 1 should be completed by another step which is fundamental, this is the INNOVATION step:

It is necessary to transform the knowledge which has been created in step 1 to money.

The better example of this process is indicated in the statement presented by Elias Zerhouni[11], Director of the National Institutes of Health (NIH) in the USA: *"The success of American scientific research depends on the existing implicit partnership between academic research, the government and industry. The research institutions have the responsibility to develop the scientific capital. The Government finances the best teams by a transparent system of selection. Industry holds the critical role to develop robust products intended for the public. This strategy is the key of American competitiveness and must be maintained."*

Do not forget also, that innovation is also a matter of spirit, of the will of the decision makers to move into an uncertain world. This means that the "culture" of the company of the people in charge of the governmental institutions, of the research centers of the universities are concerned[12]. As seen above innovation is to take all the knowledge and competences created in step one to transform them in MONEY. This will impact the research in the field of intellectual property, not only to protect the knowledge of a firm or a research institution, but also to know what is the development of the products and applications of different inventions in various fields. This will also means that a bridge should be created between fundamental research (the term does not fit very well here, since in our opinion the difference between fundamental research and applied research is becoming smaller and smaller). This means also that all progress not in your country but in the whole world must be analyzed, commented, weighted and integrated in the development strategy of the

[10] Analysis of the Palmisano Report by Tamada Shumpeter a fellow of the RIETI (Japan) http://www.rieti.go.jp/en/columns/a01_0158.html
http://www.amazon.fr/Competitive-Advantage-Nations-New-Introduction/dp/0684841479 published in 1998. Extract: Why do some Nations succeed and other fall in international competition? This question is perhaps the most asked economic question of our time. Competitiveness has become one of the central preoccupations of government and industry of every Nation. The United States is an obvious example , with the growing public debate about the apparently greater economic success of other trading Nations. But intense debate about competitiveness is also taking place today in such "success story" nations as Japan and South Korea.

[11] Presented in December 2006 during the congress organized by the American Society of Hematology. Cited in What model the French public research, Les Echos, wednesday January 10th 2007, Alain Perez

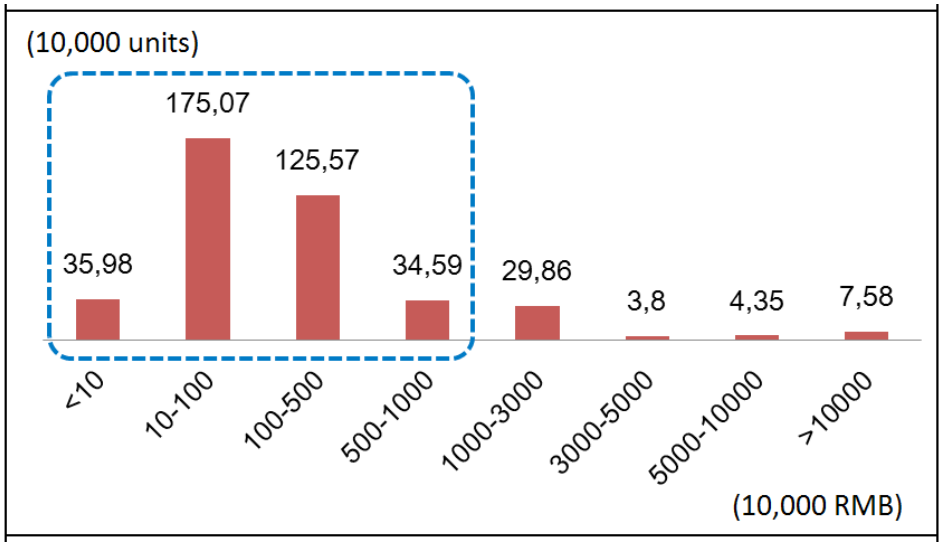
[12] Schumpeter 1911 farsighted visions on economic development, Thornjorn Knudsen and Markus C. Becker, American Journal of Economics and Sociology, April 2002

State, the Region, the Enterprises. To reach these objectives APA is one of the best methods available since the patent data are free and the facilities developed to perform the APA are ergonomic, easy to use and very rapid. The bibliometric treatments which are included in most of the analysis will give a good insight of the subject and will also provide the answers of various questions asked in the SWOT analysis, Porter's diamond and brain storming process. This allows the SMEs, individuals consultants, to reach the same performance than largest entities. This situation which was not possible ten years ago for instance facilitate not only the development of innovation but will also facilitate the pre-clustering process in the triple helix or pole of competitiveness (Leydesdorff 1998) by providing to the stakeholders a TTP type information. Much information has been provided in France and in Europe on the SME development, their integration in the pole of competitiveness and the idea to provide facilities to make them growth. We will not develop this aspect but we will introduce some aspect about the SMEs in China.

3. The countermeasures and direction of Chinese SMEs

According to the data of the State Administration for Industry and Commerce of the People's Republic of China, from June 2007 to June 2012, the growth of China's SMEs[13] become mainstream. 89.1% of enterprises growth in China was contributed by SMEs. The enterprises amount grows fastest whose registered capital is 10-100 million.

Figure 6 : Growth amount of different types of enterprises[14]



[13] China's SMEs are registered capital (gold) is 10-100 million.
[14] Source: www.saic.gov.cn 2007.07-2012.07

In June 2012, the minister of Ministry of Industry and Information Technology of the People's Republic of China Miao Wei gave a speech in the 4th APEC SME dialogue with the world's top 500 Fortune Global Forum that SMEs in China create about 65% of inventions patents, 75% enterprises innovations and more than 80% of new product research and development, which has become the main body and the main force of China's scientific and technological progress[15]. In recent years, many international organizations and countries were particularly concerned about the utility of the intellectual property system by SMEs. WIPO specially sets up SMEs Division and makes the intellectual property system more convenient for SMEs. Many countries established various systems and policy to develop small and medium enterprises. With the rapid growth of Chinese SMEs, patent application problems and developing direction also draw much social attention. (Xie 2012)

3.1. Government should be more supportive and set up some feasible policy

The Chinese government concerns about the development of small and medium-sized enterprises in recent years. For example, the SME Promotion Law was published and implemented in 2003. In 2009, some proposals about how to promote the development of SMEs were issued to create a good environment for the development of small and medium-sized enterprises. In year 2010, in order to enhance SMEs' ability about how to create, utilize, protect and manage intellectual property and promote small and medium enterprises the Chinese Government changes the development mode. The State of Intellectual Property Office and the Ministry of Industry and Information Technology jointly launched a SME Intellectual Property promotion strategy project which is greatly supportive to Chinese SMEs.

Though nowadays in China there are not still relatively practical or concrete solutions such as those reported on international patent right protection of small enterprises issued by the U.S. Patent and Trademark Office in the year 2012, then some local government intellectual property bureaus start to pay more attention to SMEs. For example, Intellectual Property Office of Tianjin city has proposed eight practical promotion measures and eight guarantee measures, which is so called 'Double Eight', to make SMEs realize the important role of intellectual property play in technology innovation and business evolvement, and let them take an active role in preserving their rights from being violated, Tianjin is planning to publicize basic IP knowledge and cases by delivering IP courses. The eight guarantee measures include[16]:

(1) Provide financially aid to the SMEs which are tech-oriented.
(2) Provide assistance about intellectual property right protection to reduce trade risk; a pre-warning mechanism is necessary for SMEs, particularly for those doing export business, to avoid potential danger.
(3) Set up patent information system and free patent information service for the SMEs.
(4) SMEs are also encouraged to study international IP regulations and advanced experiences to enhance their IP competitive edge; strengthen intellectual property training and cultivate more professional talents.

[15] SMEs in China create about 65% of inventions patents,www.tetime.com,2012-06-23.
[16] Intellectual Property Office of Tianjin city has proposed 'Double Eight' to promote SMEs' development, http://ips.tjip.net.cn/xwdt/dt/201212/t20121220_32306.html,2012-12-20.

(5) Organize some social forces to provide all-in-one services including patent agent, consulting, information utilization, training, trading and other services.
(6) Compile some guidebooks on the IP field and provide them to the SMEs.
(7) Enhance policy establishing and coordinating, and perfect the linkage mechanism of bureau and industry group.
(8) Establish the IP service team; provide one-to-one services to the SMEs.

Even so, the Chinese government including local governments should make more efforts to aid small and medium enterprises, adopt some advanced experiences of other countries, and combined tem with the practical situation of China.

3.2. Enterprises need to improve patent awareness and build their own unique technology innovation mode

With continuous improvement of patent awareness, many companies have become increasingly aware of the importance of patents and have gained some experience in the actual competition. Since the SMEs lack human and financial resources and other restrictions, in practice, there are still various problems. For example, Unis Jiesi Valley Technology Co., Ltd. is a SME which set up in 2008. Its main product is an intelligent robot which calls "family parent-child robot". It was so popular in many exhibitions, but failed to apply for a patent in time. The product was imitated immediately after getting into the market. The manager was so helpless because there were only a few individuals in his company, and these people should not only do technical research and developing, but also do the marketing. What is more, they didn't have enough money and knowledge to deal with such affairs. It was so difficult for them to concern the inventions right protection.

In fact, these problems are common challenges faced by many small and medium enterprises in China. Many small and medium enterprises have to judge and weigh the patent applications, the cost required to maintain and the legal and market risk. Finally, they decide to reduce cost, not to apply for patents. But on the other hand, a lot of small and medium enterprises patent have been infringed. So for the SMEs, because of their small scale, the patent right protection is particularly essential. Therefore, for the SMEs, even if human and financial resources are limited, they still should not give up the development of their own patents.

(1) Small and medium enterprises should firstly strengthen the awareness of intellectual property right protection, and try their best to perfect the management of their technology inventions.
(2) SMEs should seek for the innovation mode suitable to their own circumstances and enhance their invention ability. Patent work can be gradually carried out, and the managers can also accumulate experience.

3.3. Rely on external professional service organizations, expand patent operation mode

Even with the government's support and their own development, the Chinese SMEs are still in a relatively weak position when they are facing the increasingly tough competition at home and abroad. So relying on the external professional service is a good choice for them to reduce market risk. First of all, the SMEs can try to cooperate with some professional

patent services organizations, which are composed of a lot of professional officers major in intellectual property services, and long-term research and practical work in the field of intellectual property. They can provide SMEs with the training, strategic consulting, and system designing, right protection of intellectual property. For the SMEs it is undoubtedly a shortcut to save time and effort. Of course, because Chinese current level of intellectual property services varies greatly, the SMEs should know how to choose an appropriate service agency. This means the SMEs themselves should equip with the responsible officers of intellectual property rights who are able to screen.

Secondly, the SMEs can also try to expand the patent operation mode though many channels such as IP pledge financing and cooperating with some research institutions and so on. However, there are still several difficulties. For example, inventions can hardly achieve industrialization, patent management talents are still so limited, and unified open patent trading platform is lacking. Therefore, with the government support, the SMEs themselves should also actively cooperate with the relevant financial institutions, seek patent technology trading platform, in order to purchase or sell the patent technology.

4. Automatic Patent Analysis

The possibility to select large amount of patents from free access patent database opens the way to the realization of different bibliometric analysis[17]. A patent notice includes various patent fields such as Titles words, Applicant(s), Inventor(s), Abstracts words, Patent dates, Patent number, Priority number, IPC (One to 8 digits), Patent country, Cited Patents, for the most important. All the data from these different fields may be combined to obtain lists, matrix, networks. This will answer questions that almost everybody asked when they deal with patent information: who is doing what, where, when, with whom at what time, what is the trend in technology, etc. In the same time this technique widely described may provide an insight of the Chinese patent status. The two following examples show part of it.

4.1. Solar photovoltaic panels

This subjects was choose to show the difference in strategy when a subject is directly link to the Chinese economy and export. The search was done by using the IPC (International Patent Classification) (IPC 2013). We used the IPC

H01L 31/042 were H01L =**SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES** and 31/042 including a panel or array of photoelectric cells e.g. solar cells

The search was limited to the year 2012 for the purpose of the example. The total patents retrieves is 907. Results are summarized in table 1.

[17] Most of the APA is performed by Matheo-Patent http://www.matheo-software.com

Table 1 : Analysis of the Chinese Solar Photovoltaic panels

Type of patents	Number of patents	Number of families
Patent number CN	188	188
Patent priority CN	128	128
CN patent not extended	119	119
Utility models CN	0	
Utility models (total patents)	0	
Foreign patents extended CN	69	69
CN patent extended	9	9
Total number Patents	907	

4.2. Honeysuckle

This field has been chosen because it concerns directly China. Honeysuckle derivatives are used in beverages and Chine medicine. The search was done using the term HONEYSUCKLE in title and limited from 2000 to December 2011. The total number of patent is 284. The results are summarized in the following table.

Table 2 : Analysis of the Chinese Honeysuckle patents

Type of patents	Number of patents	Number of families
Patent number CN	217	217
Patent priority CN	217	217
CN patent not extended	217	217
Utility models CN	10	10
Utility models (total patents)	10	10
Foreign patents extended CN	0	0
CN patent extended	0	0
Total number Patents	284	284

Chinese patents represent about 76,40% of the field. The utility models represent 4,60% of the total of the Chinese patents and Utility models. There are no Chinese patents extended to foreign countries neither foreign patent extended to China. The Patents with Chinese

priority represent about 4.11% of the total patents. There is no utility model. The foreign patents extended to China increases about 7.70% of the amount of foreign patents. The ratio of extended Chinese patents being 7.05 % .The number of patents extended by other countries to China indicates a certain degree of dependence of China versus these patents: this is the concept of strategic dependence which is not the subject of this paper, but which has been detailed recently. (Dou 2011).

4.3. Comparison of Chine R&D and Foreign R&D

The APA offers the opportunities to extract from a local patent database various amounts of patents related to technology (IPC) countries, Applicants, etc. The use of these strategic groups allows the automatic benchmarking of companies, the R&D comparison between companies (China or Abroad) the R&D comparison between China and other countries. For instance the comparison of the trend in R&D between China and USA has been done in the field of Avian Influenza (Dou 2007).

The following example presents one of the ways of China versus xxx comparisons. (This example will be presented at the Franco-Montreal symposium of Competitive Intelligence [18] The searches done dealt with the words aquaculture for one search and fish and breeding for the other. From the results (the two searches were concatenated) we selected from the titles and abstract words various groups of patents dealing with technical aspects and other groups from patents selected from various countries (Priority number from these countries). The matrix built up from these two types of groups is the following:

Figure 7 : Shows the involvement of various countries in strategic domai

Matrix: Group 2/Group

	chemical	cucumber	energy-sutainable-dvt	oxygen	algae_grass_eeds	cage	method	WO_EP
China	15	13	13	5	8	17	23	
Korea			1	1		1	6	
Germany	2							2
US	1							2
japan	2		1		1		3	

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[18] Shippagan, New Brunswick Canada 18-19 Octobre 2012 - 2e Rencontre d'Intelligence Compétitive(RIC) Information stratégique et coopération régionale moteurs pour le développement économique

The same types of treatments may be extended to different domains, comparisons between companies, technology, etc. Even beyond the scope of the presentation, this shows how the APA can be used as a probe in information patent analysis (Dou 2005)

4.4. Tentative explanation

One important point much be recalled before any explanation tentative. This is the concept of strategic dependence (Dou 2012). This means that if a foreign country extends some of its patents in another country, this later will be technological dependent of the invention described in the foreign extended patents. To avoid a too large dependence, many countries such as China analyses the sectors of dependence (Patents with the priority in the country, versus extended foreign patents). Then, to avoid such a dependence the strategy is to patent (only with the Chinese priority) many inventions related to these sectors. This will build up a sort of barrier, and if you want to extend a patent or to import in China various products or services, they will face the local Chinese patents and then you will not be sure to win an action in front of a Chinese court.

Conclusion

In domains where the domestic concurrence is high the profile of Chinese Patents versus utility Model is different than in domain where the foreign competition is larger. It is also noticeable that the role of the universities as applicant is important. It is also important to see that in the sectors concerned only by a domestic competition no foreign patents are extended to China and that he number of Foreign patents if very small. The same is true for Chinese patents which are also not extended in other countries. These domestic areas participate idely to the global amount of Chinese patents, but they mot of the time did not concern the technology, kow-how and competencies of the western countries, Japan and Korea.

In domains which are more technical, such as the photovoltaic panels the situation is different. The global amount of patents in the field increases and the amount of Chinese patents (priority Chinese) seems to decrease according the level of the technology. The most sophisticated the lower numbers of Chinese patents for instance honeysuckle 76 %, photovoltaic panels about 5%. In the same time the amount of foreign patents extended to China increases when the level of the technology involves.

In the same time, the percent of Chinese patent extended to other countries increases when this is a technical domain more or less related to export: about 7% for both panels applications, 1% for fireworks for instance which is a domain very manpower consuming and without almost no competitors in the development of the cracks and fireworks themselves, and 0% for the Honeysuckle where there is no international competition at all.

But, the large number of Chinese priority patents as well as the large number of utility models in certain fields, suggest a strong internal competition since they are not extended to other countries or the building of domestic patent barrier to outbound foreign competitors to China.

Sometimes, people speak for patents which are filed to USA, Japan and Europe of triadic patents[19]. They are now more or less replaced by WO or PCT were these former countries are cited for protection. The number of Chinese patents concerned with this three type of protection is remains rather low.

It is also not possible to speak of Chinese patents without speaking of the foreign patent infringements by Chinese Companies. A recent report of (Tanner Okun, 2011) of the US International Trade Commission points out that infringement of foreign patents is still going on in China but that the innovation potential of Chinese Companies becomes also a barrier to US export[20]. This latest fact may explain the large amount of Chinese Patents and Utility Models. These "small patents" are also a problem since they may slowdown the examination process of foreign patents in China (Smith 1999).

[19] Triadic patents are a series of corresponding patents filed at the European Patent Office (EPO), the United States Patent and Trademark Office (USPTO) and the Japan Patent Office (JPO), for the same invention, by the same applicant or inventor.[1] Triadic patents form a special type of patent family. From Wikipedia http://en.wikipedia.org/wiki/Triadic_patent

[20] SMEs in China create about 65% of inventions patents, www.tetime.com, 2012-06-23

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