Young Researchers' Section

The Key Drivers behind Novo Nordisk's Growth in the Diabetes Market in China

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Abstract:
To enter the Chinese Pharmaceutical market, "Big Pharma" has adopted different strategies to tackle the challenges specific to the country in terms of size, demographics, specific sales channels and logistics adjustments. While the majority of Global Pharmaceutical players have opted for an aggressive M&A approach to penetrate the Chinese market and gain local insight; the Danish Novo Nordisk has instead chosen a strategy focusing on innovation and developing its R&D structure to capitalize on the local talent pool. To illustrate Novo Nordisk's growth strategy in the Mainland, we analyzed its competitiveness in the diabetes market by demonstrating the key drivers behind this success. We applied a various set of tools for this research: Novo Nordisk, Dong Bao Pharmaceutical executives' interviews and personal observations accounting for the primary data, we also reviewed secondary data to perform a PEST analysis in addition to Porter's competitive advantage model in order to extract the reasons behind Novo Nordisk's marching success in the Mainland.

Keywords: China, Novo Nordisk, diabetes, competitive advantage, PEST analysis

JEL: F21, F23

1. Diabetes Treatment Market in China

China recently became the world capital of diabetes surpassing the United States for patients diagnosed with either diabetes or pre-diabetes condition. A preliminary study conducted in China by International Diabetes Federation estimates that the number of people with diabetes in China has raised in excess of 92 million. The most prevalent being type 1diabetes but there is an increasing threat of diabetes type 2 due to the major changes the Chinese society has undergone these last 2 decades.

In 2007, China's diabetes epidemic accounted for more than 14 percent of healthcare expenditures and cost the country at least 0.6 percent of GDP in lost productivity, according to the Economist Intelligence Unit (2007). They based their assessment on the assumption that 4.3 percent of Chinese have diabetes, but new estimates place the rate at around 10 percent, meaning that the costs of diabetes on China's economy from productivity losses are probably closer to 1.5 percent of GDP. Atop this, the International Diabetes Federation estimates that in 2010, China directly spent around US$6.9 billion on diabetes treatment (IDF, 2009). China's diabetes problems highlight the twin challenges of chronic diseases stemming from changing consumption habits enabled by China's economic boom and from the greying of its society, which is also a source of substantial healthcare costs (Dong *et al.*, 2011).

As China urbanizes and becomes wealthier, diets are shifting from the traditional rice and vegetables and toward meats, sweets, and processed foods. In the past decade, per capita sugar consumption in China has risen by 48 percent, according to the US Department of

Agriculture. As in the U.S. and other countries, sweet beverages are a significant and growing source of sugar consumption. Greater wealth has led to sweeping diet changes, including eating heavily salted foods, fatty meats and sugary snacks — boosting obesity rates, a major risk factor for Type 2 diabetes, which accounts for 90 percent to 95 percent of all diabetes cases among adults.

It is estimated that by 2030, 40 million more will have the condition in China, where diabetes causes 173.4 billion Yuan ($28 billion) a year in medical costs (Yang *et al.*, 2011). Prevalence of Type 2 diabetes has more than tripled in China over the past decade, fuelling 20 percent-a-year growth in drug sales and straining health services.

A key difference is that an average of $194 a year is spent treating each diabetes patient in China, versus more than $5,000 in developed countries such as the United States according to the International Diabetes Federation. Even as China's health spending is forecast to almost triple to $1 trillion over the next eight years, surging rates of diabetes mean China is struggling to detect cases and provide basic care, according to a McKinsey& Company report (McKinsey & Co, 2012).

China's pharmaceuticals market overall will increase 15-to-18 percent a year to reach as much as $165 billion over the same period (Garber, 2012). It's also stoking need for newer, costlier medications from Merck & Co. (MRK), Novo Nordisk A/S (NOVOB) and Sanofi that help avoid blood-sugar spikes and complications such as heart attack and stroke. The mainstay diabetes treatment worldwide is 'Metformin', available free in China through the government's national health insurance program. Doctors want to augment the 50-year-old pill with newer medicines, such as 'Januvia' from Merck, which helps to stabilize blood-sugar, according to an April 2012 paper in the journal Diabetes & Metabolism. 'Victoza', sold by Novo Nordisk, offers 'minimum risk of hypoglycemia', according to company - sponsored research in the Lancet in 2010 (Green *et al.*, 2003).

> Merck's 'Januvia' was approved for use in China in 2009 and costs 9.6 Yuan ($1.50) per 100-milligram tablet, typically taken daily. Merck has applied to have the medicine added to China's National Drug Reimbursement List.

It takes as long as five years for a new product to be added to the reimbursement list, McKinsey & Co. said in an August report. Addition makes it available to the masses and can bolster sales, with 12 of the top 15 multinational drug makers deriving more than half their sales in China from subsidy- eligible medicines. Some provinces of China are introducing their own pharmaceutical subsidies to improve affordability, encouraging drug makers to target markets outside major urban centres.

This encourages major the big Pharmaceutical players to move deeper into the country in tier 2 and 3 cities and rural areas where the growth potential is exponential as it targets unmet needs in terms of healthcare solutions for diabetes due to lack of healthcare facilities and lower-incomes to afford a proper diabetes management scheme.

2. Novo Nordisk in China - A long term commitment

> "*The rise of the Asian giants fundamentally changes the strategic landscape for MNCs*" (Hansen *et al.*, 2010, p.11).

The recent crumbling of the Euro zone economies with debts and public deficits in addition to the fiscal cliff in the USA all affected Chinese economy as its growth is tightly linked to its major trade partners. Despite these issues, China continues to witness remarkable growth mainly due to its gigantic domestic market and it is expected that it will have a stronger position vis-à-vis other countries after the crisis (Hansen et al. 2010). The economic development and democratization witnessed in China has had a major impact on MNCs global strategies, as many cannot ignore the vast market opportunities it represents in terms of size and specific needs.

In addition, China's industrial development has affected the global competition, putting pressure on global players (Novo Nordisk, 2009). The Pharmaceutical industry is no exception to this trend, as the biggest pharmaceutical companies see the appeal of China, not only because of its market size, but also thanks to the R&D innovation opportunities it can offer at lower costs than in the West. That is if, the global companies such as major pharmaceutical companies manage to tackle the challenges of opting for the right entry strategy and find optimal sales channels to pave its way deep inside the rural areas in China.

The booming economy in the Mainland China during the last two decades has enticed several countries like Denmark to tap this market and play an active role in it. The following *factors* have accelerated this trend:

1. Liberalization of requirements for foreign investors
2. The establishment of Special Economic Zones (SEZ)
3. Large reductions in tariffs
4. Investments in infrastructure
5. Rapidly growing purchasing power. (Hansen *et al.*, 2010, p.13)

Thus, recent development both on a global level and in China has increased and diversified the Danish involvement in China in order to understand the market in the Mainland and acquire the flexibility to adapt to local demand (Brødsgaard *et al.*, 2000). One of the heavy weights of the Danish industry, the pharmaceutical company Novo Nordisk made its first move in the Mainland in 1962 where it introduced its first product line, but the real first decisive step was taken in 1994 where the Danish Pharmaceutical giant opened its first sales office - The Novo Nordisk Beijing Co. Ltd - and initiated the production there in 1996. The main reasons to enter the market then were the cheaper labour costs and the size of the local market, it moved its production facilities to Tianjin Economic development Area (TEDA) to benefit from lowered taxes and improved infrastructures.

Novo Nordisk keeps expanding its operations and its involvement in the country with a specific emphasis on R&D efforts in the last years through investments and infrastructure development in their Tianjin facilities. When making such operational changes, the Danish company chose to lower its operating costs by relocating to Tianjin but at the same time ensured the continuity it terms of quality and safety that Pharmaceutical products require by bringing its own global quality standards to China. Its good working conditions also made it easier for the company to ensure a lower turn-over of their

employees and has raised its local productivity in China with the various benefits it offers its staff in the Mainland (Birkmose and Popovici, 2011).

Table1. Timeline of Novo Nordisk's commitment to changing diabetes in China

Year	
2012	▪ First batch of Penfill from Filling plant Tianjin
2012 - 2011	▪ China independent region
2010	▪ Shared service centre
2009	▪ NovoPen® 4 manufactured in China only ▪ 2nd Public-private partnership with Ministry of Health: Hospital community ▪ integrated diabetes education program co-funded by WDF and Novo Nordisk ▪ Executive hospital managers MBA programme ▪ Three research partnerships ▪ Diabetes leadership forum 2009 China (Public affairs)
2008	▪ Chemical compound library licence to National centre for drug screening ▪ Changing diabetes®, 60 Cities tour ▪ Cornerstone set for DKK 4000 million filling plant
2007	▪ Partnership with Chinese Academy of Sciences a Research Foundation ▪ Clinical development centre Beijing ▪ DMDP - expanding diabetes care to smaller cities
2006	▪ Changing diabetes bus ▪ Major expansion of Novo Nordisk Tianjin Plant ▪ Complete transfer of NovoPen® 3
2005	▪ Health-Star search involves General public
2004	▪ Expansion of packing and warehousing
2003	▪ 1st Public private partnership with Ministry of Health: National diabetes ▪ program funded co-funded by World Diabetes Foundation and Novo Nordisk ▪ Novo Nordisk Tianjin Plant: First NovoPen® 3 released
2002	▪ Novo Nordisk Diabetes Update for physicians ▪ Inauguration of R&D centre, Beijing
2001	▪ Novo Care club education team ▪ Launch of STAR diabetes training with Steno Diabetes Center
1995	▪ Opens Production facility, Tianjin
1994	▪ Novo Nordisk Biotech Co., Ltd, Beijing
1962	▪ Introduces the first line of products in China

Source: Novo Nordisk (2011): The Blueprint for Change Program

3. The Driving Forces behind Novo Nordisk's Success in China

3.1. Chinese macro environment

China reunites the perfect macro environment for Novo Nordisk to thrive and further expands its presence in the mainland. The country presently offers several political, economic, legal and socio-demographic factors in favour of the expansion of innovation driven enterprises whether local or foreign.

3.1.1. Political environment

The 12th 5 year plan has been marked by a strong emphasis on innovation, in order to transform China from the low-end products manufacturers to one of the leaders in science and technology producing high-end goods for both an ever growing domestic market and a global market (Miura, 2013). Xi Jin Ping has also recently emphasized the need for China to develop its talent pool and its high-technology focused industries in order to remain competitive on global scale and ensure a sustainable development for the upcoming generations (China Daily, 2013).

Recently, the Chinese Manufacturing sector that helped the country's economy expand at an astonishing pace in the last two decades is now facing a major crisis with the increasing costs of raw materials worldwide, and the rising competition from neighbouring countries with cheaper labour costs such as: Cambodia, Bangladesh. China is transitioning from industries like textile or mass electronics and heading towards more complex industries with a stronger focus on R&D. This policy is already paying off with China becoming one of the top three manufacturers of API in the world (KPMG, 2011).

One other important aspect of the government's support for Pharmaceutical sector is the comprehensive healthcare reform initiated in 2009. This reform has been set to close the gap between rural and urban health by widening the healthcare coverage throughout the Chinese territory. In addition, this new set of laws and regulations aim at providing a better, more accessible and affordable healthcare service to its population and achieve a total healthcare coverage by 2020.

3.1.2. Legal environment

China has introduced a set of laws and tax incentives to boost innovation and work towards achieving the goals of its health care reform initiated in 2009. Among the most relevant laws and regulations we find The Anhui model. This new set of laws and regulations compiled in the Anhui model represents an aggressive tendering system enforced by the Chinese government that resulted in the slash of drug prices by at least 30% of key drugs (part of the essential drugs list). Although this reform has resulted in the shrinkage of the profit margin of these companies they are still profitable and this reform would eventually be profitable in the long term for foreign pharmaceutical companies as it will drive demand up resulting in growth through the increase of sales volume. This would benefit Novo Nordisk as it capitalizes its growth strategy in the country by increasing its sales volume and market share in a sector that witnesses an exponential growth, namely the diabetes market in China.

In addition to the Anhui Model, the government has enforced a series of regulations and laws in favour of the development of innovation oriented enterprises. Hence, the new Company Income Tax Law introduced in January 1st 2008 that provided tax incentives to boost R&D and gave preferential income tax rates in addition to turnover tax exemptions for R&D centres providing research services to overseas companies (Eggleston *et al.*,

2008). Pharmaceutical manufacturers are eligible for reduced income tax rate if these enterprises qualify as “Advanced & new technology enterprise” which is in the same line as HNTE incentive standing for High New Technology Enterprise being taxed at the preferential rate of 15 percent instead of the standard 45 percent. This adds up to the other tax incentives such as the ones in the SEZ within Mainland in addition to technology incubators such as TEDA in Tianjin where Novo Nordisk pursues its R&D efforts and enjoys lower taxes.

1.1.3. Socio-demographic environment

In recent years it has been estimated that the current global prevalence of type 2 diabetes amounts to about 150 million patients. Projections suggest that by the year 2025 the number of prevalent patients in the world will reach approximately 300 million. It is assumed that the increase in the number of patients will be most pronounced in nations currently undergoing socio-economic development including increasing urbanization. Urbanization has been linked to obesity and its consequences on the individual’s health deterioration.

The rapid economic development has changed of the Chinese society to the core, transitioning to a more sedentary population with a higher buying power able to afford more food products. Combining these factors with the increased carbohydrates intake per person in China through the profusion of fast-food options within big cities and with lack of physical activity have resulted in a society exposed to the threat of diabetes and metabolic disorders which will further increase the burden of healthcare spending of the Chinese government.

China's large population and rapid economic development have made it an epicentre of the epidemic. Asian populations tend to develop diabetes at younger ages and lower BMI levels than Caucasians. Several factors contribute to accelerated diabetes epidemic in Asians, including the ‘normal-weight metabolically obese’ phenotype; high prevalence of smoking and heavy alcohol use; high intake of refined carbohydrates (e.g., white rice); and dramatically decreased physical activity levels. Poor nutrition in-utero and in early life combined with over nutrition in later life may also play a role in Asia's diabetes epidemic. Nonetheless, interactions between Westernized diet and lifestyle and genetic background may accelerate the growth of diabetes in the context of rapid nutrition transition (Hu, 2011).

The current development of the Chinese society, especially in urban areas have resulted in a more health-conscious society, as this fringe of the population tends to be more educated and increasingly aware of the risks it is exposed to health wise. Compounded by growing disposable incomes and consumer preference for safe and quality products, these factors are driving the growth of China's health and wellness market.

Denmark’s reputation among Chinese citizens as a country with a clean and green environment and an unequalled food safety record might mean that Danish products may already have an advantage. This contributes to driving drug sales up in the country; China’s over-the-counter market is growing fast and has become the fourth largest OTC market in the world. Foreign enterprises have been closely monitoring the expanding OTC market. Merck announced the launch of OTC program in China in September 2003. Roche listed China as one of its 10 core OTC markets, with the aim of growing its OTC drug sales by 50 percent in the next five years and reaching 1.3 billion in 2008. Novartis is expanding its OTC market share in China, and Wyeth has also entered OTC market.

1.1.4. Technological environment

China is increasingly relying on a growing local talent resulting from heavy investment in higher education and exchange programs with universities abroad. The number of PhD degree holders and scientists has been increasing steadily and China ranks among the top 3 publishers of scientific articles in the world. In addition, the mainland starts capitalizing on the 'brain gain' through the Chinese returning from overseas attracted by the dynamism of Asian economy and the benefits reaped from their rise on the global scale (Simon and Cao, 2008).

This trend has been integrated in Novo Nordisk's expansion strategy. Instead of the sole reliance on their R&D centres in Denmark, Novo Nordisk has decided to relocate its R&D operations in Tianjin to fully utilize the local talent pool and nurture it locally by providing infrastructures equipped with the latest technologies and a close collaboration and synergy between its different R&D centres worldwide.

Another major asset China could benefit from is the modernization and integration of Traditional Chinese Medicine (TCM) to Western Medicine to achieve new drug development. GlaxoSmithKline Plc is testing botanicals compounds extracted from plants for immune disorders, Sanofi plans to turn traditional Chinese medicines into alternative diabetes and cancer therapies, and Nestle SA teamed last month with billionaire Li Ka-Shing to develop a drug derived from ancient Chinese approaches to cure inflammatory bowel disease.

The confluence of China's growing middle class and the drought of Big Pharma pipelines crystallized for them the need to integrate Western drugmakers the 2,500 year-old form of medicine they once scoffed at. (Gao et.al, 2007).

3.2. Internal drivers to Novo Nordisk's success in China

According to Novo Nordisk China's former senior executive "Time, money, experience and efficiency" are the key determinants for Novo Nordisk's success in the Mainland. For him, Novo Nordisk has been here longer than most other Pharmaceutical Multinationals, they have been more involved in the country, they have hence accumulated a wealth of knowledge and experience in China and they had and still have the financing to back aggressive growth.

3.2.1. First mover advantage

The motivations for Novo Nordisk appear to be largely related to the increasing size and importance of the Chinese market as China is set to take the lead and become the leading economy in the world by 2050 (Harksworth, 2006). A long-term and holistic approach is emphasized, which is supported by their development in terms of commitment in China.

This success may be due to the first-mover advantage achieved by being present in China for decades and furthermore by Novo Nordisk's recognition of the importance of local government collaboration (Tellis, 1993). This have earned the company the precious edge over its competitors to deeply penetrate the Chinese market and get valuable knowledge about the changes the country has undergone in the last four decades (Bakerma *et al.*, 1996).

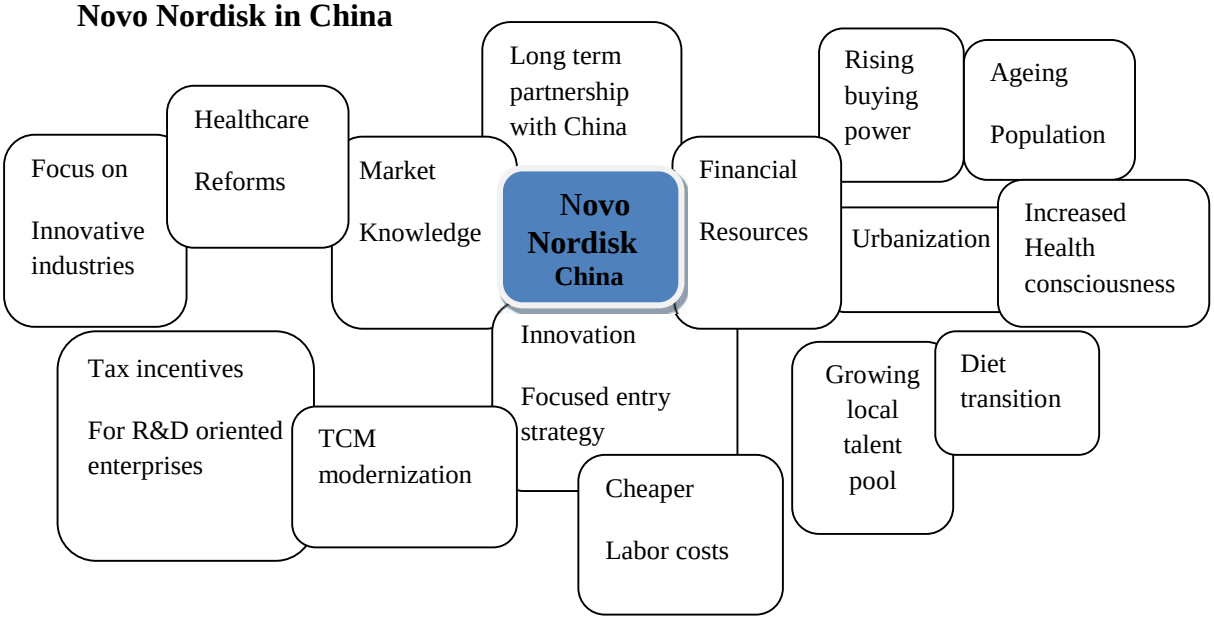
In addition, the strategy of Novo Nordisk in China has been characterized by their supporting roles to their business, e.g. the training of pharmacists and awareness campaigns / patients' education programs, the extensive work benefits to attract, motivate and retain a sustainable and productive workforce (Wang and Boel, 2006). These training

programs and consumer education have been essential – also due to Novo Nordisk being one of the first players in the Chinese market (Lasserre, 2007), we can conclude in this case the first-mover approach appears to have been beneficial for the Danish pharma giant.

In addition to its early entry to the Chinese market in the 1990s, Novo Nordisk distinguished itself from the other pharma giants by opting for a holistic approach with an emphasis on R&D and innovation within its Chinese headquarters. Whereas, most of the other Pharmaceutical Multinationals have chosen the aggressive M&A strategy buying out local Chinese pharma manufacturers to capitalize on their market knowledge and their sales channels in urban but more importantly in tier 2, 3 cities and rural areas which still represents the Achilles heel of pharma giants in the country (Kang *et al.*, 2009).

Through its differentiation and shift in focus, Novo Nordisk's strategy is paying off especially to capture the lion's share in the Diabetes market in China. By 2010, Novo Nordisk had an impressive 63% market in China, and the country represents its third biggest market (Novo Nordisk, 2011).

Figure 1. Opportunities created by the external and internal environment of Novo Nordisk in China



Source: own conceptualisation

As we can see from Figure 1, the Danish pharma giant is actually benefiting from a series of factors. Novo Nordisk products have been present in China since 1962. In 1994, an affiliate was established and a long-term strategy for diabetes in China was crafted. The first production facility was opened in 1995 in Tianjin – a packaging site. In 2002, Novo Nordisk opened a research and development centre in China, the first pharmaceutical company to do so. In 2003, the company began transferring the production of their NovoPen 3, an insulin device, to Tianjin. By 2009, NovoPen 3 and its successor, NovoPen 4, were entirely produced in China. In 2008, Novo Nordisk began constructing a new plant that will produce insulin filling in Tianjin. The company estimates that the plant will start production in 2012. By 2015, Novo Nordisk expects to have built the entire facility range in order to serve the Chinese market.

Novo Nordisk products had been present on the Chinese market for 32 years, when the company opened an affiliate named Novo Nordisk Biotech in Beijing in 1994. One year later, the first production facility opened in Tianjin. In 2002, the research and

development centre also opened in Beijing. This helped the Danish company establish their pioneer position in China which earned them a preferential access to the market and helped them set up strategic partnerships with various actors of the industry at different levels: policy makers, local manufacturers, healthcare providers and of course patients.

Throughout these 50 years, Novo Nordisk has acquired a deep knowledge of the Chinese market and its evolution throughout the years. Hence, it has been quickly reactive to the Chinese social structure changes and lifestyle transformation for the local population and its impacts on their health. It also earned the trust of the Chinese government by delivering quality products and being involved in sponsoring national prevention campaigns that turned out to be a win-win for both parties. It increased and still increases the awareness of diabetes in rural China and other remote areas which have little or no access at all to healthcare facilities or healthcare professionals to inform them, educate them and screen the disease's incidence to better manage it and avoid the complications related to the affection.

Novo Nordisk plans to tackle diabetes in China on several fronts. Due to the complexities of the disease, a combination of measures is necessary. On the one hand, physicians need to be engaged and informed about medicine. On the other hand, patients have to be informed about diabetes management. According to the company's website, a holistic strategy is required – one that focuses on "physician training, patient education, strengthening the healthcare system, public awareness, local production and R&D" (Novo Nordisk, 2011).

Novo Nordisk engaged the World Diabetes Forum and the Chinese Ministry of Health to create the National Diabetes Program, which consisted of several private-public partnerships focused on health system integration and educating both physicians and patients. The approach used with medical staff focused on "prevention, screening, optimizing treatment and patient communication" (Novo Nordisk, 2011). Around 55,000 doctors participated in a series of seminars and conferences with leading diabetes researchers around the world. The participants ranked the training as very important in improving the relation with their diabetes patients. Novo Nordisk estimates that its programs reached and educated around 280,000 patients since 1997. Such programs include the Novo Care hotline, which connects patients with diabetes management specialists, or The Changing Diabetes Bus, which provides mobile education to various communities. Patient education increases sales by DKK 3,400 per patient.

Finally, local production and R&D has given the company greater flexibility and a quicker response time. Novo Nordisk uses a range of suppliers from China (Tianjin and Shenzhen) and from Thailand, which adds to the benefit of producing in this region. China is currently the third biggest market for Novo Nordisk. In 2010, their market share was 63%. In addition, Novo Nordisk created 14,600 jobs, directly and indirectly.

3.2.2. Global Innovation rather than the M&A approach in China and globally

Rather than focusing on a M&A strategy to reinforce its presence in the country, the company focuses on innovation and make considerable R&D investments using local talent working in state-of-the-art facilities in Beijing and Tianjin to get the full potential of the existing talent pool in China. In addition, the company is also heavily involved in prevention and information campaigns targeting healthcare personnel and patients to raise awareness about a disease that is set to become a burden for the country's healthcare spending in the upcoming years considering the socio-economic factors characterizing China.

The fine slicing of the value chain (Buckley and Ghauri, 2004) can be a risky procedure, given the increasing cost of transportation and general transfer costs. However, the pharmaceutical industry seems to be remarkably adept at this practice, partially because of the lengthy and complex research process. In fact, research and development is the area most prone to slicing. Yale Global Online counts as many as 18 steps that can be undertaken and thus outsourced during research (Contractor, 2010). Some of these steps are highly sensitive – genetics, phase 0 and phase 1 clinical trial, in addition to administrative steps such as regulatory measures. They are normally undertaken in the research centre pertaining to HQ. Others, such as IT-related matters, can be easily off shored to companies in traditional outsourcing nations. Medium-level processes can take place offshore, on the sites of subsidiaries or of affiliates.

While there are advantages to fine slicing, the coordination costs can be daunting. One must also take into account the degree to which information needs to be coded and communicated across sites and internalized within the company. Vernon's product life cycle can be called into question when analyzing Novo Nordisk's case. The old model is being challenged, since emerging markets are no longer imitators, but innovators on their own. In this case, Novo Nordisk is not simply relocating the manufacturing of mature products in China, but moving research altogether. However, it is important to notice that it is still an advanced country company that runs the operations and not a local one. The benefits to the local economy are highly dependent on linkages, as are knowledge spillovers and the learning process.

Novo Nordisk's research centre is found in Beijing, where 60% of R&D facilities in China is located (Zhou, 2004). The company can thus take advantage of a research cluster and can integrate into a global R&D network. The advantages of such a situation are learning, access to low-cost and fine quality scientists and quicker responses. However, there are also disadvantages, such as critical mass constraints and communication constraints. In the case of China, it is perhaps premature to claim overcrowding of laboratories and research sites. Communication constraints can remain a problem; still, Novo Nordisk is aiming to integrate the Chinese zone, which means that the research centre in Beijing will connect primarily to the plant in Tianjin (Buckley *et al.*, 2004).

While the company as a whole can be described as a value chain, its intensive technology activities qualify it as a value shop (Stabell and Fjeldstad, 1998). In the case of the value shop, the company's resources are used to find solutions to a particular problem. With a value chain, the purpose is achieving economies of scale with relatively standard products.

As it was mentioned in the case, diabetes in China follows an entirely different dynamic than in the industrialized countries. It can be inferred that the problem is unique and needs a special, localized solution – hence, local research. In addition, Novo Nordisk tackles these new challenges through its parallel physician training programs or through its patient education measures. One of the main characteristics of the value shop is that there are limited advantages in dealing in large volumes – location is much more important. (Stabell *et al.*, 1998). Given the rise of diabetes in Asia, it is possible that Novo Nordisk will combine the two concepts: treat a disease with Asian lifestyle specificities, from an advantageous position, but in large numbers and possibly even achieving economies of scale.

3.2.3. Novo Nordisk's local commitment in China

Novo Nordisk claims that "although the Chinese culture is significantly different from

that of the West, there is no major cultural barrier for success of a Western style R&D organization in China, because Chinese employees are amenable to changes" (Wang and Boel, 2006). However, this statement indicates two things; firstly, that Novo has made a cultural observation in terms of the Chinese employees being open to change and secondly, Novo Nordisk has employed resources for training of their employees. This could indicate that Novo Nordisk has been successful in terms of creating an environment which suits the Chinese culture, e.g. though clear objectives (ibid.). Additionally, Novo Nordisk emphasizes that their management style is rooted in Chinese traditions. This example entails recognition of accomplishments and clear orders (ibid.).

In terms of both team work and innovation, Novo Nordisk has met some challenges in their Chinese operations. As team-work is not customary in the Chinese culture, but it is crucial for the working processes of Novo; therefore, the local management teams have been given the task to motivate team work. Novo has found that there is a low level of PhD training in innovation in China, which represents a challenge for an innovation focused company. However, Novo sees great potential which may be exploited by bringing in western scientists.

Local impact and socioeconomic improvements are high on the list of priorities for Novo Nordisk, in addition to seeing a huge business potential in China (Novo Nordisk, 2004) "Diabetes poses a growing social, educational and economic challenge for the Chinese society and the people and families affected by diabetes. An estimated 40 million people in China have type 2 diabetes in 2010, a number expected to reach 80 million over the next 15 years" (Novo Nordisk, 2011).

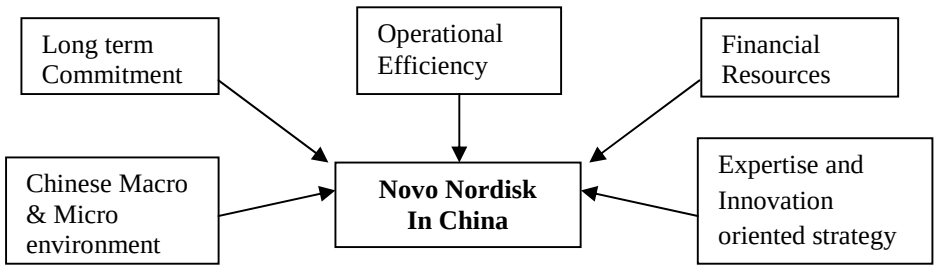
When presenting its operations in China, Novo Nordisk, thus, has great emphasis on the CSR aspects, such as local job creation, strengthening the health care system and the education of employees (ibid.). This correlates well with China's status as a developing country, with insufficient institutions and infrastructure (Hansen *et al.*, 2010). In order for Novo Nordisk to be successful, it is highly relevant for the company to train the scientists and educate the consumers, and its positive impacts on the Chinese society not only creates legitimacy but also represents a great importance in regards to the relationship with the Chinese governments and society. Proof of Novo Nordisk preferential position in China, Recently Eli Lilly and Sanofi have both been asked by the Chinese government to lower prices on some of the products in their diabetes lines, though Novo Nordisk escaped this unscathed.

3.2.4. Financial resources

Novo Nordisk raised its full-year sales and profit forecasts after reporting second-quarter earnings that beat analysts' estimates. The shares rose to a record. Revenue will jump 9 percent to 12 percent this year in local currencies, compared with a previous forecast for an increase of 8 percent to 11 percent, the Bagsvaerd, Denmark-based company said. Operating-profit growth in local currencies will be about 15 percent, compared with a previous prediction of at least 10 percent.

Having secured a steady growth rate, the company has hence decided to reaffirm its long-term commitment to China by investing an additional 100 million US dollars to expand its state-of-the-art science facilities in Beijing. The new 12,000m^2 centre will make it possible to increase the number of science employees from the current 130 to 200, with extra space available to accommodate additional future growth. With this expansion, Novo Nordisk also fulfils its key strategic objective to ensure the full range of protein research capabilities in China (Deloitte, 2013).

Figure 2.The key drivers behind Novo Nordisk's growth in China



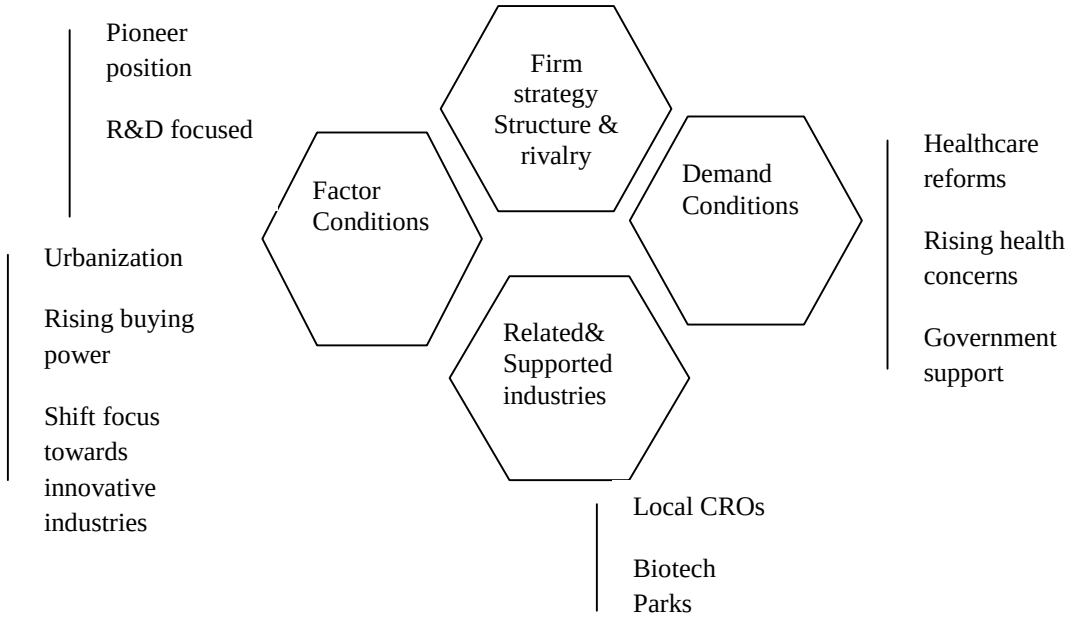
Source: own conceptualisation

Analysts point that the site in Beijing has already contributed significantly to the company's research and development portfolio in both diabetes and biopharmaceutical target disease areas. The new, expanded facility will enable even stronger contributions from the science team in China across the range of Novo Nordisk's protein technology, biology and pharmacology research activities. The main focus of Novo Nordisk in China therefore differs from its other competitors.

4. Findings

From the data collected through the various sources and the personal observations we could deduct the reasons behind the Novo Nordisk's success in the Chinese Market. Using Porter's diamond of National competitive advantage applied to the Chinese diabetes market we can observe the following (see Figure 3):

Figure 2.Porter's Diamond of National Competitive Advantage for Novo Nordisk in China



Source: own conceptualisation

We can deduct from Figure 3 above the main factors that lead Novo Nordisk to gain competitive edge over its competitors in the diabetes market landscape. The focus on innovation and emphasis on R&D in China differentiates the Danish group from its other

”Big Pharma” counterparts opting for consolidation through a series of M&A activities in the Mainland.

The Danish pharmaceutical giant has proven to be in possession of the necessary financial resources to set up state-of-the art facilities in the Asian continent to spur innovation in the field. It has also gained a consequent advantage by gaining valuable market knowledge by setting their operations in China before any of their foreign competitors which saw in China a sole outsourcing destination rather than a real market to seize until recently. It has spent consequent efforts to ‘Glocalize’ the company’s in the country by adapting to the market’s specific needs in terms of treatment, hiring local talent and blending corporate values with the local cultural values and beliefs that would serve the company’s productivity and competitiveness in the Chinese market (Bakerma *et al.*, 1996; Johansson, 2006).

Novo Nordisk has also benefited of the thrive of supporting industries in the country as the China is one of the major API manufacturers on one hand and actively supports the development of CROs and biotechnology companies in high-technology parks acting as incubators for innovation in the industry across the country.

The Danish Pharmaceutical company also benefits from the government’s ties it had established by showing its commitment to the country decades ago and hence yielding the results of those previous efforts by escaping the drug price slashing wave that hit many Pharmaceutical companies following the Anhui Model reform. Especially since the government has launched a series of healthcare reforms to achieve universal coverage by 2020. This helped spur the demand for better healthcare service and hence better solutions to manage diabetes in the country. The rising purchasing power of their ever increasing urban, educated middle class and its increased awareness about health issues is creating new sustainable market opportunities for Novo Nordisk in the Mainland.

5. Conclusions and Recommendations

According to a new market report published by “Transparency Market Research”, the global diabetes devices and drugs market was worth USD 50.8 billion in 2011 and is expected to reach USD 98.4 billion in 2018, growing at a CAGR of 9.9% from 2011 to 2018. In the overall global market, North America accounted for the highest share worth USD 19.9 billion in 2011 followed by Europe. However, with the continuous population and economic growth of the Asia-Pacific region, especially India and China, it is expected to witness the highest growth rate in the next six years. This shows the growing importance of the Chinese diabetes market that will further increase in the upcoming years due a combination of an ageing population, a rising urban population and changes in diets and lifestyle that are all in favour of a rapid development of pre-diabetic and diabetic conditions.

The healthcare reforms, the rapid socio-demographic changes transformed the Chinese drug market from a tertiary one to the fastest growing in the world and it is set to represent the biggest diabetes market by 2020.

Novo Nordisk stands out from the other big pharmaceutical companies in the country with its long term commitment to the country benefiting from the first mover advantage in the diabetes market. This helped them build solid ties with the government ever since

and had the privilege of partnering with the highest authorities in their efforts to tackle the diabetes in China throughout the sponsoring of prevention and treatment campaigns.

When other big pharmaceutical companies are still opting for aggressive merger and acquisitions as their dominant entry strategy into the Chinese pharmaceutical market, the Danish giant has shifted its focus on innovation to benefit from the local R&D potential and at the same time lower the costs of drug research and speed up the discovery process, it has implemented this strategy by joining forces with local partners in academia and local research facilities to support their state-of-the-art R&D facility in Tianjin.

Novo Nordisk is benefiting from its pioneer's position in the diabetes market in China (First mover's advantage) but has also taken advantage of the macro environment factors that are helping to leverage its growth in the country. Most prominent factors being the country's new focus on innovation, and development being in line with Novo Nordisk's overall growth strategy in the Mainland not only relying on foreign expertise but also increasingly using the local talent pool. The choice to set their R&D center in Tier II city in China (Tianjin), not only illustrates their strategy to lower operating costs but also to localize their efforts in the country by hiring local talent and leveraging the R&D capabilities in that region and therefore get additional support and incentives from the government for making such decisions.

China will also provide an increased diabetes market share for the Danish giant as the socio-economic factors are pushing the number of pre-diabetic and diabetic patients up in the Mainland and a set of external factors in the country will drive the sales growth considering the westernization of the lifestyle in China, the healthcare reforms and the rising awareness about health issues such as Diabetes (Hitt *et al.*, 2003).

The combination of an early entry into the Chinese market, their reactivity to the changes undergone by the country on a political, socio-economic level that lead them to switch from the outsourcing destination mindset to the establishment of a local R&D hub in the region to cater for the specific needs of the local market make Novo Nordisk gain competitive advantage for the diabetes market in China.

The future battleground for "Big Pharma" will be the ability to penetrate tier II, tier III and rural areas in China where local Pharmaceutical manufacturers such as Dong Bao who controls 10% of the human recombinant insulin market in China and Shanghai Fosun are growing quickly in these remote areas thanks to well established sales channels and deep market knowledge that is still lacking in "Big Pharma".

This is particularly the case for supply lines settings ,due to the country's size and various logistical and geographical barriers especially in Western China make these supply lines problematic to establish and maintain and that is where local manufacturers still have the upper hand but we speculate that it will be just a matter of time before big Pharmaceutical companies tackle this issue considering the importance of the Chinese market in the near future and its role in providing sustainable growth for Pharmaceutical giants.

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