
Investing and joint ventures

Huawei Technologies
competing in an
international market

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Introduction

Twenty years ago hardly anybody had ever heard about Huawei Technologies Co., Ltd. That is not so strange because Huawei was founded in 1988 in the Chinese province Shenzhen with 14 employees and \$3000 of capital (Xu & Girling, 2004). In 1992 they already had sales revenues of \$12 million per year and a profit of more than \$1.2 million a year. At that time founder and director Ren Zhengfei decided to reinvest all profits in research and development because he believed in the telecom-market. The roots of Huawei were in the poor, rural areas of China where they gained a big market share. In 1997, Huawei developed an effective organizational structure which was driven on research and development. At the end of 2002, Huawei had 22.000 employees and was a big and respected player on the global market of telecommunication (Xu & Girling, 2004).

We want to analyze the internationalization process of Huawei Technologies in this paper. Therefore, we have prepared the following research question:

How does Huawei Technologies compete in an international market?

We want to answer this question by dividing this question into three sub-questions:

- What is the profitability of the industry where Huawei Technologies is in?
- What is Huawei Technologies' approach to competition in foreign markets?
- Does Huawei Technologies has a comparative advantage because of the country where it started?

Profitability of the industry

Introduction

In this chapter, we make an analysis of the rivalry on the global telecom market and look whether the global telecommunication market is a profitable market. This analysis will be based on the 'five forces model', written by Porter (1979).

Five Forces model

Michael E. Porter published the Five Forces model in 1979. It is a helpful model to analyze the profitability of a market. This model is based on five forces that taken together determine whether a business is attractive or not. These forces are: threat of entry, threat of substitutes, supplier power, buyer power and industry rivalry.

Threat of Entry

When it is easy for a new company to enter a market, the competition in that market will be higher. New entrants bring new capacity with them and have the desire to gain a market share. To analyze the threat of entry there are several factors that play a role. These factors are:

- Economies of scale: especially in a highly capitalized industry, potentially new entrants have to produce on a large scale to be a serious competitor. They will have a big cost disadvantage if they do not produce on a big scale. For new companies, this can be hard because they might have a low market share.
- Product differentiation: in a market where the products are highly differentiated, new entrants have disadvantages in comparison to the established companies.

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Their products are widely known and respected whereas new entrants need to earn some loyalty and brand recognition first.

- Capital requirements: entry will be harder when new entrants have to invest a lot of money and therefore first have to buy capital.
- Cost disadvantages, independent of size: established companies know how the business works. Their learning curve plays a role in this respect. The location can be an advantage or disadvantage for a certain company. For example, an Arabian oil company will have a location advantage in comparison to an American oil company, because they are much closer located to oil (Grant, 2008). Also the economies of learning may be an advantage. For example, Sharp entered the LCD market very early and moved the learning curve very quick (Grant, 2008). While other companies were awaiting Sharp explored the possibilities and knew the technique better than their competitors. When the LCD-television market became bigger, Sharp had a cost advantage through their experience.
- Access to distribution channels: customers need to find the new products while the capacity of the distribution channels is limited. It can be hard, for example, for new entrants to get a place in the shelves of a supermarket (Grant, 2008).
- Government policy: the government in a country can forbid the entry of an industry in order to protect the national industry. Governments can also have different rules about the environment and safety standards. New entrants can have an extra disadvantage through these rules because they tend to weigh heavier for new entrants than they do for established firms.

Supplier power

Suppliers can be very powerful in a market, especially when there are only a few suppliers and they have got much bargaining power. Also, when its product is quite unique or differentiated a supplier can be powerful. When a certain company has a lot of fixed cost when switching from supplier, or when a supplier is not dependent on a certain industry, suppliers have a good negotiation position, which makes them very powerful.

Buyer power

The power of the buyers can also play a big role in a specific industry. Buyers who buy large amounts of products can have a lot of market power, since the company will be increasingly dependent on these buyers. If a product is standard or undifferentiated, it is easy for buyers to find a substitute, which is intensifying competition driving the prices down. If buyers earn low profits when buying a product, these products will be price sensitive. Buyers are likely to shop for other prices when important products are significant part of their total cost. When an item is not so important for a buyer, these products will be more price-sensitive.

Substitute products

The price that consumers are willing to pay for a product is partly dependent on the presence of substitutes. In case there are none or not many substitutes for a specific product, consumers are willing to pay higher prices for the available products. For example, in the case of the gasoline or cigarettes market, there are no good substitutes. This makes that consumers are: “Comparatively insensitive to price (i.e., demand is inelastic with respect to price) (Grant, 2008, page 72-73).”

Industry rivalry

The competition in a type of industry is dependent on four factors. The more of these factors are present in the type of industry, the bigger the competition will be. To give some examples of these factors:

- Concentration: if the number of competitors increases, the competition in the industry will increase. The size and distribution powers of those competitors will also play a big role.
- Growth of industry: a growing industry will attract more new possible entrants
- Product differentiation: when products are less differentiated and the differences between the products of companies are low, it is easy for customers to switch from supplier. This makes the level of competition between those companies higher.
- High exit barriers: in case of high exit barriers, a company keeps competing in the industry, even when the earnings are low. This happens often when there is an excess capacity. When those companies keep producing, the losses will be smaller than in case they will leave the industry.

Five Forces model: The case of Huawei Technologies

We will now apply Porter's model to the case of Huawei Technologies by analyzing the competitive position of companies in the global telecom equipment market.

Threats of entry

The global telecom market is a market with a few big companies. Some of the biggest competitors for Huawei Technologies are Cisco, Zhongxing Telecom Equipment Corporation (ZTE), Ericsson and Nokia-Siemens (Xu & Girling, 2004). Huawei's products are quite differentiated and they have a good reputation in the market. New entrants need

a lot of capital investments to become a competitor. Huawei has cost advantages in comparison to the other giant companies because their home market is the Chinese market where the loans are low and the people are well-educated. It can also be hard for other companies to enter the Chinese market due the government policies.

We can state that threat of entry is not big for Huawei.

Supplier power

Huawei is a manufacturer of telecom equipment. They have a large research and development division so they are able to develop their own products. To make those products, they are mostly dependent of raw and widely available materials. Therefore, suppliers do not play a big role for Huawei.

Buyer power

According to Xu and Girling (2004), Huawei had a lot of trouble to enter the Russian market. When salesmen visited Russia for the first time, the Russian companies did not believe that a Chinese company could produce the products they needed. In 1997, Huawei decided to set up its first joint-venture with Beto. After five years of hard work, Huawei's strategy of Low Cost and Multi-Service (LCMS) was broadly accepted on the Russian market. At December 31, 2002, Rostelecom, the Russian national telecommunicator, signed a final engineering acceptance test report for the national optical backbone project. (Huawei Helps Rostelecom to Complete Russia's National Backbone, 2003). Nowadays Huawei is also a big player on the Russian market.

If we look at the buyer power we can conclude that when Huawei entered a foreign country the buyer power was high. The first joint-venture that Huawei set up was not very successful but it made Huawei better known in Russia. Huawei was unknown in Russia

and was dependent on some big telecom-companies to sell their products. These Russian companies had a lot of buyer power. That is changed: now Huawei is bigger and known worldwide. Huawei is not very dependent of the big buyers so the buyer power does not play a big role anymore.

Substitute products

The telecom market is a very fast developing market. All competitors invest a lot of money in research and development to develop new and better products. This makes the risk for substitutes and new products larger.

Substitutes play a big role for Huawei. In order to prevent having outdated products, they invest at least 10 percent of their yearly revenues in research and development and more than 37.000 people (43 percent of the total workforce) are involved with research and development (Huawei Annual Report, 2008).

Industry rivalry

To resist the competitors on the market, Huawei set up a lot of joint-ventures. This is what they call the win-win strategy (Xu & Girling, 2004). One of the most important joint ventures was the joint venture with 3Com. Also Huawei set up a lot of joint-ventures and has a lot of contracts with other companies. Not following the agreements of the contract is often not an option due to high penalties made in those contracts to make sure the other company follows the agreements. Overall there are a lot of big and powerful competitors, the Chinese telecom market is still a very fast growing market and the exit barriers are high due the contracts. This makes the telecom market a difficult market to be in.

Reflection on the theory

Porter (1979) stated in his model that five forces influence the profitability in a certain industry. In the case of Huawei Technologies this is the telecom market. Two of the five forces of Porter play a big role for Huawei. The risk for substitute products is big and there is a lot of industry rivalry at the Telecom market. One of Huawei's solutions is the so-called win-win strategy to set-up a lot of joint-ventures to enter foreign markets. The threat of entry is low in this case. Mainly because, there are not very much players on the global telecom market but all of these companies are big and new entrants need a lot of capital to enter the market. Suppliers are a big problem for Huawei neither. They produce most of their products themselves and they mostly need raw resources which are widely available. Buyer power played a big role for Huawei when they were small and unknown at the global market. Nowadays Huawei is a big player on the global telecom market and they are not very dependent anymore of some big individual buyers or companies.

In sum, there are two forces that play a big role for Huawei and three that do not. It is hard for companies in the telecom market to expand their market share because the competition is big and the risk for substitutes is high. Also they need to keep investing a lot of money in research and development to prevent selling outdated products.

This makes the telecom industry a highly competing industry where it is possible to gain profit, but where you need to keep investing to keep up with competitors and stay ahead of possible entrants.

Development of the internationalization process

Introduction

We want to analyze how Huawei Technologies' internationalization process developed. We will use a model that has been created on the basis of empirical research which focuses on the gradual acquisition, integration and use of knowledge about foreign markets and operations, and on the incrementally increasing commitments to foreign markets. This model is called the 'Uppsala model' and created by Johanson & Vahlne (1977). Johanson is member of the faculty of the Center of International Business Studies at the University of Uppsala, therefore, this model is called the 'Uppsala model'.

Within this chapter, we first describe this 'Uppsala model' and then we apply this model to the case of Huawei Technologies by analyzing the model's factor in the case of Huawei.

Uppsala model

Johanson & Vahlne (1977) state: "A model in which the same basic mechanism can be used to explain all steps in the internationalization would be useful (Johanson & Vahlne, 1977, page 26)." They state that the main structure is given by the distinction between the state and change aspects of internationalization variables. The present state of internationalization is one important factor when explaining the course of internationalization. Resource commitment to the foreign markets and knowledge about foreign markets and operations are described as the state aspects of this model. Decisions to commit resources and the performance of current business activities are the change aspects of this model. The mechanism that Johanson & Vahlne (1977) describe is illustrated in figure 1.

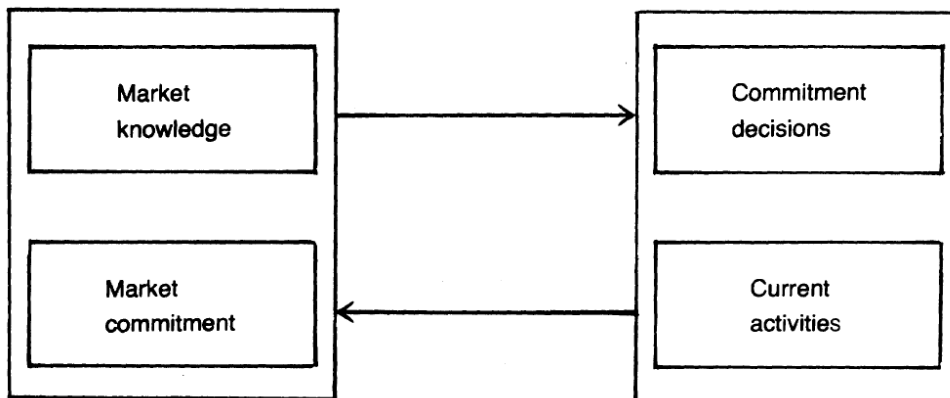


Figure 1: The Basic Mechanism of Internationalization - State and Change aspects

Next, we discuss the four aspects of the 'Uppsala model' separately.

Market commitment

The market commitment is composed out of two factors: the amount of resources committed and the degree of commitment. When resources are located in a certain market or industry, this can be considered as a commitment to that market or industry. This is possible but certainly not a must because some resource can be easily sold and in that way transformed into money making it easily transferrable to other markets or industries. The amount of resources committed can be described as the size of investment in the market: investments in marketing, organization, personnel, and other areas.

Johanson & Vahlne (1977) give an example of Volvo cars with high market commitment: Volvo cars has got a large part of its production capacity located in the United States. This capacity cannot be easily used for production in other parts of the world and the engineers employed, can certainly not be highly profitable in other markets.

Market knowledge

Within this model, the authors classify knowledge into objective knowledge and experiential knowledge. According to Johanson & Vahlne (1977), the experiential knowledge is the critical kind of knowledge in the present context, because this type of knowledge cannot be as easily obtained as objective knowledge. Another distinction is made by making classifications of general knowledge and market-specific knowledge.

Johanson & Vahlne (1977) state that there is a relation between market knowledge (both objective and experiential) and market commitment since market knowledge can be seen as a resource. They state that the better the market knowledge is, the higher the level of market commitment will be.

Current activities

The current activities are described in the Uppsala model as the prime source of experience. This experience can also be gained by hiring people with experience or by gathering advice from people with that certain experience. This factor is used in the model because the market experience is a resource that can only be slowly built up since it is mostly gathered through a long learning process in connection with current activities (Johanson & Vahlne, 1977).

The fact that the market experience only can be built up slowly is a combination of the long learning process with a lag between the current activities and their consequences. The authors state that: "The longer the lag, the higher the commitment of the firms mounts (Johanson & Vahlne, 1977, page 28)."

Commitment decisions

A decision within the firm depends on the alternatives available and how the firm chooses between these alternatives. Decisions are made in response to perceived problems and opportunities in the market. Whether the decision between alternatives is made in response to problems or in response to opportunities, they will be raised in relation to operations currently performed in the market.

Additional commitments will be made in small steps, unless the firm has very large market resources or if the firm has experience with other markets with similar conditions (Johanson & Vahlne, 1977).

Uppsala model: The case of Huawei Technologies

Next, we apply each of the state and change aspects of the Uppsala model to the case of Huawei Technologies and describe each of these aspects in this case within a different paragraph.

Market commitment

Based on the paper of Xu & Girling (2004), we state that Huawei Technologies has got a large number of market-specific resources. As mentioned before, in 1992 Huawei reinvested all profits into research and development. Huawei still invests a lot of money in research and development. This has resulted in Huawei now owning fourteen research and development centers. Huawei Technologies also has a percentage of 43 of its employees working on these research and development centers (Huawei Annual Report, 2008). This can be seen as a high level of market-specific (and experiential) knowledge, since these research and development centers are used only to develop products for the telecommunications market.

Other resources that are highly market-specific within Huawei Technologies are the design of the chips that Huawei makes itself and the production facilities that make production of these chips possible within Huawei. They use these production facilities to make chips for the telecommunication industry. We cannot say, based on the paper of Xu and Girling (2004) that these production facilities can be easily used in other industries. If these production facilities cannot be used in other industries, we can state that the market commitment of Huawei Technologies should be high.

Market knowledge

Huawei Technologies gathered a high amount of market knowledge. Xu and Girling (2004) described the background of Huawei as a small company creating telecommunication products for the poor, rural regions of China just after foundation. Just after founding, Huawei was not able to create products that could compete in an international market because it had not matured yet. Huawei gathered its experience mostly by developing its products in the rural regions of China.

Nowadays, Huawei is still gathering market knowledge by a number of joint ventures with companies in the telecommunications market all over the world. The type of knowledge that they gathered in the past and still gather nowadays, can be best described as experiential knowledge.

Current activities

The current activities of Huawei Technologies can be, according to the paper of Xu and Girling (2004), best described as developing and producing products for the telecommunications industry. Aside making products, Huawei puts a lot of effort in research and development of products in its industry. Therefore, we state that most of the

decisions are made to create more and better possibilities within the telecommunications market. This increases the level of market commitment, according to the model of Johanson and Vahlne (1977).

Commitment decisions

As mentioned before, in 1992 Huawei put all of its profits into the research and development of new products. This decision making is still actual nowadays (Xu & Girling, 2004). As the research and development is focused on the telecommunication market, we state that Huawei makes its decision with a high level of market commitment.

Reflection on the theory

We can conclude that the level of market commitment to the telecommunication market of Huawei Technologies is high. This is caused by the high level of market knowledge and the production facilities that (as we assume) cannot be easily used in other industries.

Comparative advantage

Introduction

China was in a market-oriented reform in the period of the founding of Huawei Technologies, causing the economy of China to exponentially expand with more than ten percent annual GNP growth. One of the aspects of this market-oriented reform was the decentralization of decision power from the central government to local authorities and production agents (Yu, 1998).

Another aspect of the changing environment within the market-oriented sector which especially applied to the telecommunication market was the so called “Open Policy” that was introduced by the Chinese government in 1979. This open policy consisted out of an export promotion strategy and an active policy to attract foreign investment. The Chinese telephone market was a special case in the open policy, since the government was the only player at the time (Loo, 2004).

Within this chapter, we analyze whether Huawei Technologies has got a comparative advantage because of the country where it started. This analysis will be based on the theory of comparative advantage, which is discussed in the first part of this chapter.

Comparative advantage

“Comparative advantage, whether driven by technology or factor endowment, is at the core of neoclassical trade theory (Costinot, 2009, page 1165).” Grant (2008) states that a country has a “relative efficiency advantage” in those products that make intensively use of resources that are relatively much available in that country. He states that when exchange

rates do not have a negative impact, comparative advantage leads to competitive advantage.

Based on this statement of Grant, we derive that a company located in a country that has a relatively high availability of a certain source of a product, also has a relative advantage in manufacturing products that make use of that certain source. To adapt this theory to the Huawei Technologies' case, we separate the remainder of this chapter into determining the resources that Huawei uses, the availability of these sources in China and a reflection on the theory.

Comparative advantage: The case of Huawei Technologies

The resources for Huawei's products

According to Xu and Girling (2004), Huawei Technologies manufactures products in wireless, fixed and optical network, service and software, datacom and wireless terminal industries. The company is one of the few Chinese companies that are able to design and manufacture its own chips used in its products. This ability is, once again, the result of the high investments in research and development. Huawei Technologies has created a comparative advantage because its labor costs are relatively low, compared to more Western companies, even for highly educated personnel within the research and development departments (Xu & Girling, 2004)."

The availability of these resources in China

As discussed before, Huawei Technologies was founded in the first Special Economic Zone (SEZ) of China. This location gave Huawei the possibility to gain personnel with a low tax rate on labor costs. It also gave Huawei access to other related companies within the same industry because they were located in the same area, since software and

telecommunication industries were the main pillars of the SEZ when Huawei was founded. (Liu, Heilig, Chen & Heino, 2007) The advantage of having companies operating in the same industry in their region did not only give Huawei Technologies the possibility to exchange information and knowledge about their products, it also gave Huawei the possibility to easily search for suppliers of resources (Xu & Girling, 2004).

Another advantage of the fact that Huawei started in the first SEZ was the attractiveness for people with a technical background or education to move to this region. This gave Huawei Technologies a good access to well-qualified personnel.

Huawei Technologies had the advantage of building up experience by selling its products to the (mostly poor) rural regions of China in the first years after foundation. Its first product, an own-programmed switch, was a product that was not directly matured and therefore a good product to sell in these poor, rural regions of China. This experience gave Huawei a comparative advantage. (Xu & Girling, 2004)

Reflection on the theory

Xu and Girling (2004) describe several factors that determine the success factors of Huawei Technologies when starting its international operations. One of the success factors is the fact that they were based in a special region of China where the telecommunication market was one of the pillars of the local economic environment. This gave Huawei not only access to knowledge and experience of other companies in the same industry but also gave them access to qualified employees who were attracted by this Special Economic Zone.

We described the advantage that Huawei Technologies had with selling their first (not always mature) products to the mostly poor and rural regions of China. Because of the

existence of these poor and rural regions in China, we can state that this existence can be also seen as a comparative advantage which helped Huawei Technologies in competing in an international market.

These advantages can be called comparative advantages, since they give the country and Huawei Technologies a relative efficiency advantage compared to other countries or other companies within different countries. Based on the success story of Huawei Technologies that Xu and Girling (2004) described within their article, we can conclude that these advantages were not only comparative advantages but also lead to competitive advantages since they gave Huawei Technologies an increased competitive position within the international market.

Conclusion

We have been analyzing the international position of Huawei Technologies and the telecommunication market where they are part of. We can conclude that the telecommunication market is an industry where making high profits is possible but only through investing in research and development. Since this is a market with a continuous change of needs of customers and continuous change of substitute products, this investment in research and development should be a continuous process and not a single event. We can state that Huawei Technologies is acting well in reaction to the statement made above since they are highly investing in research and development and making a high number of joint ventures as reaction to the risk that consists out of substitute products.

We have also applied the 'Uppsala model' to the case of Huawei Industries and, based on this analysis, we can conclude that Huawei has a lot of market-specific knowledge that consists out of thirteen research and development centers, 43 percent of their personnel working in these centers and a lot of self-developed chips. This is affecting Huawei's commitment decisions in a way that they keep investing in research and development and that they keep gathering market-specific knowledge by making joint ventures in this market. Their current activities are also affecting their market commitment since a lot of their products and their position is relying on a high level of market-specific knowledge which fixes Huawei to keep operating in the telecommunication market.

Next to this, we have been analyzing the advantages that Huawei had in times when they started operating international. This so called comparative advantage consists out of the fact that Huawei Technologies had a lot of experience by operating in the country of China where they had a lot of possibilities to experiment with their no mature products in the poor,

mostly rural regions of China. This gave Huawei the advantage that they had more mature products when they started to operate on the international market. Besides that, Huawei Technologies had the advantage that they were located in China's first Special Economic Zone which gave them the access to a high number of well-educated people moving to that area and a number of companies with experience in the same market who could act as partner, supplier or even buyer.

It might not be surprising that we can conclude that Huawei Technologies approaches the international telecommunication market with a strategy where investing in research and development and setting up joint ventures with firms in the same market but located in other countries are key elements.

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