

Sony corporation: car navigation systems essay sample

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Sony was the first company in the 1990's to launch the car navigation system. Sony was the market leader with a 60% market share in 1993. Sony had also led a group of 40 companies in an industry standard called Naviken which enabled consumers to benefit from mutually compatible digital map software while manufacturers reduced their risk by sharing development costs. However, competitors not in the NaviKen group were able to introduce new and improved products more often and more rapidly by developing or acquiring proprietary digital map technologies. Sony could not keep up with this development and the market share dropped to 15% in 1996. In Europe and the US, Sony was also the first one that introduced the navigation system, but local manufacturers in Europe started to launch competing products aggressively. Other Japanese competitors were expected to enter the Europe and the US market by 1997.

The problem definition is the following:

How can Sony boost sales and recapture lost market share in the highly competitive Japanese market and at the same time expand to Europe and the US in order to stay ahead of the growing competition and the technological development?

The concept of the car navigation system had been around in Japan since the early 1980's, Honda claimed to be the first company to put a navigations system on the road. The Japanese market for car navigation systems was the world largest in 1995 with sales of 580, 000 units and \$840 million. Sony's competitors in Japan were Pioneer, Mitsubishi, Matsushita and Alpine.

The European market stood behind the Japanese market for five years. The market began to develop when major companies like Bosch and Philips introduced products in Germany and France, which became Sony's competitors in Europe.

In the US, car navigation systems were not known by everybody. The US market was behind both Europe and Japan. The value of car navigation systems was not that obvious for US drivers due to the well- organized system with traffic signs, street names and highly developed highway.

The strategic options for Sony can be divided into three parts: the geographical focus issue, the product options and the option whether to continue with Naviken or not.

We have chosen the option to develop a low-priced model for the three markets. For Europe and the US, it will be an effective way to introduce the car navigation system of Sony. In Japan it will be a way to gain the mass market. Although the market is in its maturity phase, there are still enough potential clients for Sony. They are either sensitive for the price or they do not know how to use it properly. For them we will introduce an easy to understand, low-priced model.

We also recommend Sony to innovate consistently and faster in Japan, because the competition is far ahead. This needs managerial persistence and financial commitment for the development of the product and for the marketing as well.

The distribution of this car accessory will be the after market retail channels.

We suggest that Sony should stay with NaviKen. But NaviKen must develop and innovate much faster than it currently does. Only in that case will it be fortunate to stay with NaviKen.

Introduction

Sony was the first company in the 1990's to launch the car navigation system. Sony was the market leader with a 60% market share in 1993. Sony had also led a group of 40 companies in an industry standard called Naviken which enabled consumers to benefit from mutually compatible digital map software while manufacturers reduced their risk by sharing development costs. However, competitors not in the NaviKen group were able to introduce new and improved products more often and more rapidly by developing or acquiring proprietary digital map technologies. Sony could not keep up with this development and the market share dropped to 15% in 1996. In Europe and the US, Sony was also the first one that introduced the navigation system, but local manufacturers in Europe started to launch competing products aggressively. Other Japanese competitors were expected to enter the Europe and the US market by 1997.

Problem definition

The problem definition we can conclude from this situation is the following:

How can Sony boost sales and recapture lost market share in the highly competitive Japanese market and at the same time expand to Europe and

the US in order to stay ahead of the growing competition and the technological development?

To answer this question we will take the following steps. First, we will give you an overview of Sony Corporation, which you will find in chapter 1. In the chapters 2, 3 and 4 we will describe the Japanese, European and U. S. market. You will find the analysis in chapter 5, which shows Kumar's 3 V's and the value curve. In chapter 6 you will find an overview of the strategic options. And finally, chapter 7 will give our recommendations and at the end you will find our conclusion.

Chapter 1 Sony Corporation

The Sony (Sony stands for sonus, sound) Corporation was founded in 1946 by Akio Morita and Masaru Ibuka. With only 500 dollars the founders realized they would have to differentiate themselves from their larger competitors by developing more innovative products. They were especially focused on consumer needs. Sony was often the first mover to markets with technological innovations. Examples are the color television market, of course the famous Walkman and the compact size camcorder with video camera. Through experience, Sony learned that technological innovation alone did not insure market dominance, the match between hardware and software was critical. As a result, Sony was cooperating more with competitors to develop industry standards. The company was very market driven. To develop future top managers, Sony appointed promising young

executives as president of each company with substantial autonomy. Morita was president of the Personal & Mobile Communication Company.

Car Navigation Systems

A car navigation system plotted a driver's current location on a dashboard mounted LCD monitor by calculating signals received by satellites and/or utilizing a dead reckoning system fed by speed and gyro sensors. The system also told the driver the best way to his or her destination by employing a digital map database stored on either a CD-ROM, a computer hard disk, or an IC-card. A typical model consisted of hardware such as a satellite signal receiver, a CD-ROM player, an LCD monitor mounted on/in a car dashboard, a digital map software in the form of a CD-ROM. Later on, recent models could inform a driver of his/her current location at all times and deduce the best route to a destination automatically by taking into account current traffic conditions. Some systems could even communicate verbally with the driver and provide turn-by-turn instructions on the LCD map or through voice.

Hardware

Car navigation systems were facilitated by the Global Positioning Satellite (GPS) system. The central concept behind this was triangulation. It used four signals from four different satellites to locate the position of the antenna. There was also a back-up dead-reckoning system of speed and gyro sensors that could take over seamlessly and relay the car's speed and direction to

the navigation system. In car navigation systems, there were many variations.

Software

The software database technology used in a car navigation system was the offspring of GIS, Geographic Information System, a digital database. As many data layers as desired could be added to the digital map, like postal zip codes and phone numbers. But collecting and digitizing all the road related information and the point of interest data were labor intensive, because it had to be updated all the time. The cost of digitizing the cartography of the US was estimated at 1 billion dollars with an additional 100 million a year for updating. The payback time was therefore 10 years.

The data storage media varied. Some devices used the digital map stored on a CD-ROM, while others on computer hard disk or IC card. CD-ROM based navigation systems were popular in Japan and Europe, hard disk and IC card were acceptable in the US.

Distribution Channels

Car navigation systems could be sold on an OEM basis or through after market retail channels. In the OEM channel, car navigation system producers contracted with car assemblers to supply car navigation systems to the automaker's specifications. The systems were pre installed by the car manufacturers or installed later by dealers. After market models were

usually distributed through wholesalers to auto parts retailers and electronics outlets.

Chapter 2 Japan

2. 1 The Japanese market

The concept of the car navigation system had been around in Japan since the early 1980's, Honda claimed to be the first company to put a navigations system on the road. The Japanese market for car navigation systems was the world largest in 1995 with sales of 580, 000 units and \$840 million. Car navigation systems were installed in 10% of new Japanese cars in 1995. The penetration rate for all cars registered in Japan was 2%. With competition among 30 companies, the average retail price per unit decreased dramatically from \$4, 000 in 1990 to \$2, 500 in 1995. As competitors vied to introduce new models with the latest technological features, market shares fluctuated dramatically. The Japanese road system was very complicated in, therefore the Japanese happily welcomed the navigation system.

People relied on maps and landmarks for finding their destinations because not all the streets had names and road signs were few and far between. The car drivers were usually young people, who would like to invest over \$2, 000 on electronic accessories. The most important factors for Japanese consumers for buying a car navigation system were accuracy of road map, automatic route calculation, easy-to-set-up destination and speed of route calculation. The most important information the consumers wanted were real time traffic jam information, one ways and real time parking space.

The government also invested in improving the efficiency of the Japanese road system, by developing a real time traffic information system called VICS (Vehicle Information and Communication System). With this system, the next generation of navigation systems would be able to add real-time traffic and weather alerts, so that drivers could avoid gridlock, accidents or washed out roads. Exhibit 1 gives a forecast of the demand for car navigation systems divided by after-market models and OEM models and exhibit 2 gives an overview of the expected annual sales revenue.

2. 2 Competition in Japan

In November 1990, the first GPS-based after market car navigation system was introduced by Pioneer Electronic Corporations. Because the system was not highly developed yet, Pioneer emphasized the innovative and entertainment aspects of the product, rather than its practical capabilities as a navigation device. Pioneer sold over 20, 000 units annually at a high retail price of \$5, 000 in the early 1990s.

In 1993 the market changed. Sony introduced the ' Digital Map Car navigation System'. Sony did emphasize the practical benefits and advertised the product as a problem- solving device for drivers, who did not want to face traffic jams or get lost in unfamiliar towns or be late for appointments. This product based on GPS only showed the driver's current position on the digital map screen, but did not provide route guidance toward the destination. However, the price of \$2, 500 attracted a lot of

consumers. Through 1993, Sony sold 10, 000 units monthly achieving a 60% market share.

For further development in the market, Sony established an industry standard for digital map software. In 1988, 40 companies, car companies, electronic firms and digital map developers had formed the Japan Navigation Research Association, known as NaviKen. Because Sony was the active member of the Navigation Research Association, Sony set the NaviKen format for CD-ROM based digital maps. Due to this standard setting, entry barriers were lowered resulting in 15 new entrants by 1995.

The market growth attracted competition. In 1994 and 1995, once every six months a competitor would launch a new more sophisticated product.

Pioneer (14), Sony (14) and Mitsubishi (9) were the companies with the most number of product introductions. Matsushita was the first one that introduced a hybrid model that could calculate and communicate the best route to a destination.

In October 1994, Alpine launched the first hybrid model that could provide turn-by-turn route guidance. In the beginning of 1995, Pioneer introduced a new hybrid model which could be upgraded by just installing a new CD-ROM.

NaviKen members, including Sony, did not respond quickly enough because it took the 40 members more than a year to agree on standardized software upgrade. In addition, NaviKen members saw little room to differentiate their products from each other. However, Sony did try to launch newer models, but all were modified versions of the original GPS-based products,

which did not provide automatic route calculation or turn-by-turn route guidance. The competition was also faster.

Sony turned its products strategy back to the GPS-based model, by introducing portable navigation systems and released in December 1995, a portable navigation system called Handy Navigation System GPX-5, the world's first detachable model. It could also be used outside the car and consumers could add additional features to it.

The price for this product was \$2, 000 with an option to convert the system into hybrid for an additional \$300. A customer could also add a home station kit for \$200; this could connect the navigation system to a TV and enable a customer to plan a route before going out to drive.

As shown above, Sony's market share declined from 24% to 7% in 2 years. Obviously, competitors were reacting faster to customer demands and expectations. Competitors were faster in developing technological features as well. By 1995 only 20% of the navigation systems had no turn-by-turn route guidance. Sony did have one, but this system provided turn-by-turn guidance too infrequently. 70% of the navigation systems had a route calculator; however Sony's was too slow.

Chapter 3 Europe

3. 1The European market

The European market stood behind with the Japanese market for five years. The market began to develop when major companies like Bosch and Philips

introduced products in Germany. The market was expected to grow from annual sales of 30, 000 units and \$60 million in 1995 to 600, 000 units and \$600 million by 2000. Exhibit 5 gives an overview of the expected annual sales revenue. And exhibit 6 gives a forecast of the demand for car navigation systems divided by after-market models and OEM models.

We will sum up some facts considering the European “ car navigation market”:

- *European roads were complex, especially in historic inner cities but most streets had names and road signage was good.

- *Opinions differed on whether a car navigation system needed to show a digital map on an LCD monitor or if right/left arrow signs and voice guidance were sufficient.

- *Car navigation systems in Europe needed to provide multi-lingual guidance, because Europeans frequently drove across borders.

- *Digital map software also had to correspond to different traffic rules and road regulations from country to country.

- *The European Union’s DRIVE program analyzed how the car should relate to the road infrastructure, while the PROMETHEUS project involving all major European manufacturers examined how cars could communicate with each other. We can see these technologies in Philips’ and Bosch’s development of navigation technologies such as route calculation and guidance.

3. 2 Competition in Europe

In late 1994, car navigation systems were first installed on an OEM basis in luxury cars. There were two competitors in Europe.

Philips

In October 1994, Philips developed its first system as an optional accessory to BMW's 7- and 5-Series models. Philips' model had:

- a hybrid system with GPS
- dead-reckoning sensors
- provided route guidance by either map, arrows or voice
- used the CD-Rom based digital map software developed by EGT, a subsidiary of NavTech of the U. S.

The first model sold 10, 000 units in 1995 and the retail price was DM6, 900 (\$4600). In September 1995 they started marketing the same products at the same price through after-market channels in Germany and France, but sold only 400 units in the last three months of 1995.

Bosch

Also in October 1994, Bosch began supplying car navigation systems for Mercedes S-Class models. Bosch's model had:

- the same as Philips

-except that it provided route guidance only with arrow signs and voice direction, with no maps on the display

-used the CD-ROM based map database developed by Etak

The product sold 8, 000 units in 1995 and the retail price was DM4, 000 (\$2, 700). Bosch introduced in June 1995 (three months earlier than Philips) a model with a map on the monitor for the after-market segment in Germany and France. The model sold 1, 800 units by December 1995 and the retail price was DM6, 500 (\$4, 300).

Besides Philips and Bosch, only Sony competed in the after-market segment. Sony started test marketing its GPS-based model in France in late 1995, but sold only 300 units by April 1996. The model showed a driver where the destination was located, but the driver had to plan the route. Companies like Alpine, Matsushita, Pioneer and Mitsubishi were also planning to enter the European market by 1997-1998. Car manufacturers such as Jaguar and Volvo were thinking about OEM installation of car navigation systems. Volkswagen, Audi and Opel were looking for OEM suppliers of low-end models with voice navigation for around DM600 (\$400).

Chapter 4 U. S. A.

4. 1The US market

In the US, car navigation systems were not known by everybody. The US market was behind both Europe and Japan. The value of car navigation systems was not that obvious for US drivers due to the well- organized

system with traffic signs, street names and highly developed highway. In order to attract people, the car navigation systems had to provide sophisticated functions such as turn-by-turn route guidance.

However, it was expected that the US market would grow and surpass the European market by 2000 with annual sales of \$720 million and 900, 000 units. By 2005 the US market would bring up sales of 2. 4 million units valued at \$1. 2 billion each year. Exhibit 7 gives an overview of the expected annual sales revenue.

Different research studies have indicated that consumers are getting more interested in car navigation systems. They have mostly heard about it through television or published material. Most of them were interested in buying an after-market, on-dash model with a monitor. As a second choice they would buy an OEM, pre-installed, in-dash model with display and there was a smaller group who will choose for a lower-end, voice navigation model with no display. Those who would buy an in-dash OEM system would do this because of the perceived better quality and system reliability resulting from more professional installation and better integration with the car's electric system. The reasons for those who would buy an after-market model are the portability and lower prices. The price the consumers were willing to pay is \$700 to \$1, 000 for a pre-installed OEM model, \$600 to \$700 for the after-market model and \$500 to \$600 for the lower-end model. In the long term it was expected that OEM models will exceed after-markets sales, especially if the price decreased substantially. Exhibit 8 gives a forecast of the demand for car navigation systems divided by after-market models and OEM models.

Price reductions would be a critical factor before demand for car navigation systems would take off. Auto manufacturers had told the car navigation makers that they needed prices to drop to \$500. This was not expected until 2005 after further investments in mapping, data storage and route guidance were completed.

According to a survey by J. D. Power and Associates , US drivers find real-time traffic information very important but they also have an interest in having access to more points-of-interest information, such as telephone numbers and business hours. The survey respondents also said they like to be able to get automatic software updates.

The ease of use of the navigation system is very important and touch screens and voice recognition inputs rank higher than other methods in rankings of satisfaction. Exhibit 9 shows the main sources for navigation system satisfaction.

In 1992 the US government started a six year program to invest in smart highway technologies to monitor city traffic and relay traffic conditions to central computers. Technicians would be able to alter freeway signals and stoplights to reroute traffic, and relay advisories to cars equipped with more sophisticated navigation systems.

An important issue was that safety regulations in thirteen major states including California and New York prohibited any in-car visual devices, except for security purposes.

4. 2U. S. competition

The first company that brought car navigation systems to the US was Zexel, a Japanese auto parts supplier. In 1994 Zexel began supplying OEM systems for GM's Oldsmobile Eighty Eight. The products were hybrid systems with GPS and dead reckoning sensors and gave route guidance by map, arrows or voice. The price was \$ 1, 995 which is very expensive for US consumers. In 1995 only 2, 500 units were sold. This was due to a lack of marketing expertise and due to the fact that digital maps were only available for a few major cities.

In late 1994 Sony introduced in California and Florida the NVX-F160, the US version of the Japanese model NVX-F16. This was the most advanced model in Sony's product line, however it lacked of route guidance capability. Sony launched this product at a price of \$2, 995 and was the first company with an after-market model. By the end of 1995 only 800 units were sold.

In 1995 Zexel gave the license of its product technology to Rockwell for after-market sales. Rockwell sold the system under the name GuideStar to rental car companies and they rented them for \$5 to \$7 a day. Rockwell and the rental car companies didn't put a lot of marketing efforts in GuideStar.

In the end of 1995 a low-end navigation model named AudioNav was launched by Amerigon. The system was bundled with car stereos and sold under car audio brand names by manufacturers such as Alpine, Clarion and Kenwood. The price was about \$600 without including stereo and installation, the price would be then between \$1, 000 and \$1, 500. This

navigation system didn't have GPS but relied on a dead-reckoning sensor and didn't have a monitor, only a voice system.

There were more competitors expected within two years. Alpine and Nippon Denso were going to supply OEM models to Honda and Toyota factories in the US. Pioneer, Alpine and Matsushita were expected to enter the US after-market segment with modified versions of their latest models.

Chapter 5 Analysis: 3 V's and Value Curve

5. 1 The 3 V's

By determining the 3 V's of Kumar it is possible to see what values and benefits Sony car navigation systems brings to the customers.

Valued Customer – Who to serve?

Value Proposition – What to offer?

Value Network – How to deliver?

JapanEverybody who has a car and don't want to face traffic jams, get lost in unfamiliar towns or be late for appointments due to the complicated road system. A portable navigation system which can also be used outside the car and people can add additional features to it. The CNS is distributed through major auto parts chains and electronic chains.

EuropeEverybody who has a car

and would like to get to their destinations easily. People who are on the road a lot, like business people and truckers.

Also people that go abroad often (cross borders) A GPS-based model which can show a driver where the destination is located, but the driver has to plan the route. The CNS is distributed through major auto parts chains and electronic chains.

USEverybody who has a car

and want to get to their destinations easily. People who are on the road a lot, like business people and truckers. A GPS-based model which can show a driver where the destination is located, but the driver has to plan the route. The CNS is distributed through major auto parts chains and electronic chains.

5. 2 Value curve

In the exhibits underneath you can see a value curve for Japan, Europe and the United States. We have compared the car navigation systems of the competitors including Sony on four important aspects for the customer: easy to use, price, portability and accuracy.

Japan has a lot of competitors. Therefore we have chosen the main competitors which are Pioneer, Matsushita and Alpine. The products that are compared are Pioneer's AVIC-XA1, Matsushita's CN-V700, Alpine's NTV-W055V and Sony's GPX-5 .

For the European market we have chosen France to compare the competition with each other. The products that are compared are Bosch's Travel Pilot, Philips' Carin and Sony's NVX-160 .

The competitors in the after-market in the USA are Rockwell and Amerigon. The products that are compared are Sony's NVX-160, Rockwell's GuideStar and Amerigon's AudioNav.

Chapter 6 Strategic options

The strategic options for Sony can be divided into three parts: the geographical focus issue, the product options and the option whether to continue with NaviKen or not.

6. 1 Geographical focus issue

Some managers believed that it was time for Sony to focus much more on markets outside Japan such as Europe and the United States. These markets were expected to grow as large as the Japanese market within 10 years. Sony should be the company to create these markets as they did in Japan. On the other hand, there were managers who believed that Sony should focus on recover its competitive position in Japan.

6. 2 Product options

There are three product options for Sony:

1)Launch the Handy Navigation System GPX-5 (the portable GPS model most recently introduced in Japan as a global product)

Pros:

- *Should appeal to a much broader population including consumers interested in outdoor camping, bike touring and marine sports
- *Consumers can also use it to enjoy regular TV channels while traveling
- *Since the product is detachable, it is not strictly an automobile device so auto safety regulation and product liability issues may not apply
- *It also reduces the risk of theft in the car, because you can take it with you whenever you get out of the car. In that way it will not get stolen from the car.

Cons:

- *To succeed in the US, they need software with geocoded information specifically for camping sites, fishing locations, mountain skiing routes, and the like, all of which currently do not exist
- *The costs will be at least \$1 million and it would take 9 months to develop software for each recreation activity
- *By the time they are done, the competition could be on a different basis
- *The price of \$3, 000 is too high
- *It would require 5 engineers working for six months

2) Modify the hybrid NVX-S1 for Europe and/or the United States

Pros:

- *The turn-by-turn route guidance capability

- *The current GPS model only shows the driver's position on the map and adds little value to drivers. The hybrid NVX-S1 would be more sophisticated, which can be upgraded to accommodate future advances such as a real-time traffic information

Cons:

- *Sony lags far behind its competitors overseas when it comes to turn-by-turn route guidance

- *The product modification option requires Sony to reinvent its digital map software for the U. S. and European markets. When competitors launch more sophisticated route guidance systems, the present system will quickly become old

- *It will take 2 years and cost \$100 million in initial development costs and \$30 million for annual maintenance and content upgrades.

- *It would require 50 engineers to work with Etak in the U. S. and Europe.

- *NavTech, Etak's competitor, will soon digitized 100% of the U. S. and European maps for turn-by-turn guidance.

- *A switch from Etak to NavTech could have a risk of losing competitive advantage

3) Develop a new low-priced model for overseas markets

Pros:

- *A model designed to meet local needs

- *European and U. S. drivers will be happy with some simple arrow and voice guidance at a price of \$1, 000 or less

Cons:

- *Stimulates the market in the short run, but gain a little in the long run

- *Price competition

- *It will shrink the market in value terms

- *The product will not be adaptable to future developments

- *It will decrease Sony's leadership image in car navigation systems.

- *It would require 60 engineers to work for a year

- *Given the competition we face at home, they cannot divert them

6. 3 NaviKen: Continue or not?

Since the late 1980's, Sony had led a group of 40 companies in establishing an industry standard, called NaviKen. NaviKen enables consumers to benefit from mutually compatible digital map software while manufacturers reduced their risk by sharing development costs.

At this moment, the question rises whether to continue with NaviKen or not. Some managers said that Sony should leave NaviKen or at least develop proprietary digital map technology in parallel in order to compete head-to-head with other companies.

One of the managers said that Naviken was helpful before, but product introductions are now so frequent that they need their own digital map technology to respond quickly to the market's needs. Another manager said that they've put into establishing the NaviKen standard, so why should they quit now? Standardized software will always benefit the consumer as well as the industry. Finally other managers took a compromise view. While supporting NaviKen in Japan, they proposed to establish different digital maps formats for Europe and the U. S.

Chapter 7 Recommendations

7. 1 Product

As you could see in the previous chapter, we had the following three product options:

- 1)Launch the Handy Navigation System GPX-5 (the portable GPS model most recently introduced in Japan as a global product)
- 2)Modify the hybrid NVX-S1 for Europe and/or the United States
- 3)Develop a new low-priced model for overseas markets

We recommend Sony to develop a new low-priced model for overseas markets. This means that Sony should create a product which is simple in use and which provides the driver guidance at the road. Their goal should be to make the Sony navigation system portable so you can transfer it easily from car-to-car, or carry it with you when you are walking. This system has CD-ROM, GPS and dead reckoning sensor. The product should have a simple detachable LCD-monitor with some simple arrow and voice guidance. We recommend this product option because it is an excellent way to make our way into these markets. When customers adjust to this easy to use-low price product, Sony can add more features to it step by step. And then the product can be more expensive. But customers should get a chance to adjust and trust this program in their vehicle, only then they will be willing to pay more for a better product.

7. 2 Distribution

We suggest Sony should stay in the after market. Because the navigation system is portable Sony can sell it on the after-market retail channels, so consumers can buy it separately.

7. 3 Price

To interest the customer, the attractiveness of the price is always an issue. The market is very crowded with high competitors who release every six months a more advanced product. The price will be adjusted to technological innovation. That's why we suggest Sony to create a reasonable price for the consumer. We suggest launching a beginner's price of \$800. This price is

lower than the competitors at the moment. Through this way Sony can regain its market share in Japan and also create a market share in Europe and the United States.

7. 4 Naviken

Another issue that was important was the continuation of the NaviKen consortium. Some managers were against Sony leaving NaviKen or at least develop proprietary digital map technology in parallel in order to compete head-to-head with other companies.

We recommend a collaboration strategy, which can lead to speed of selling high progressive navigation system. The collaboration strategy is divided into the following two parts:

1. NaviKen in Japan

Sony uses the NaviKen standard which is a cooperation of 40 different firms that shares development costs by cooperating in the creation of this system in Japan. It's not logical at the moment to leave NaviKen. Because NaviKen has also a head lead in Japan on the creation of the digital map technology which can lead to compete head- to-head with other companies. Sony must go further in Japan with the collaboration of NaviKen and also because it already invested in the creation of the digital map in Japan. That's why it's not the best strategy to invest in a new company that designs digital map technology; this only slows down the process of the speed you come up with a progressive advance navigation system in the market.

2. Establish digital maps for Europe and U. S.

It is necessary to develop a digital map of Europe and US if Sony wants to go to international borders. There are three digital map companies working in Europe. Etak has focusefocused its European operation on the United Kingdom and had so far covered cities accounting for 80% of the population. EGT, NavTech's European subsidiary, had covered 80% of Germany and 70% of France. A third company, TeleAtlas, was digitizing Italian maps. These companies had developed independently non-compatible digital map software. The cost of digitizing the cartography of the United States was estimated at \$1 billion with an additional \$100 million a year for updating.

There were two major digital map companies in the U. S. competing independently. As of early 1996 Etak, a Sillicon Valley division of Rupert Murdoch's News Corporation had covered 80% of the U. S. population. NavTech, another Silicon Valley start-up, had covered 90% of the U. S. population. Because al these companies are division of Silicon Valley and have a head lead in the countries we want to take our product to, we suggest making collaboration with the divisions of Sillicon Valley on the Europe and U. S. market. This will speed the process for Sony to introduce the navigation system in these markets.

7. 5 The new Sony car Navigation System shown by PLC

In the exhibit above you can see that in the 1st phase Sony is launching the new portable version of the car navigation system. In the second phase the car navigation system is able to give directly updates of traffic jams because

of the direct connection with the satellite and thereby recalculate the route. It can also show the driver where parking space, ATM's, service stations and restaurants are. The car navigation system is then in the growing phase and consumers are willing to pay more for more technological developments. In the third phase Sony can add an LCD-touch screen and also sell PDA models with this CNS installed and mobile NS with hands-free car kit using blue tooth. Sony can also add an MP 3 player to the CNS. Traffic camera's and speed limits are also shown on the screen of the CNS. By adding one by one more technological development to the car navigation system, the consumers stay interested. It is also very important to keep listening to the consumers' wants and needs. For Europe and the US, we can say that they are in the first phase. Japan is in the third, because it is a stable and mature market.

Market & business development plan for Japan

The market for car navigation systems is very crowded in Japan. There are at least nine providers of these high-tech car accessories. The market is also stable; we can say it has reached the maturity phase.

To get a clear picture of the Japanese market, we will begin with the BCG Portfolio Model.

In the Japanese market, Sony is a dog according to the BCG Portfolio Model. The car-navigation industry is a low growth industry, the market grows with an average of 200 million units per year, so it is a stable market. And Sony

has a relative low market share of only 7%, while it was first a pioneer and market leader.

There are a few options for Sony to regain some of the lost market share:

***Envisioning the mass market**

This is a way to fully exploit the potential of the product. Sony can do this by lowering its price, by reducing distribution channels. Customers should have the choice to combine their product with all the features they want, or don't want. They determine the price in this way. (Another company who successfully imply this strategy is Dell computers) When customers can buy the product directly from Sony, perhaps by using the internet, it should lower the costs and Sony will also attract the mass market.

***Managerial persistence**

Sony needs time and persistence to develop better, faster, and more sophisticated products. The management of Sony should not quit developing the product because they face bad times now, but have the strength to survive in this highly competitive market. Also, they need to take risks in order to be successful again.

***Financial commitment**

Sony should have access to financial resources and use them to develop new strategies and develop the product as well. The marketing costs will also be high, so Sony needs the cash to recapture some lost market share.

*Relentless innovation

Sony has to innovate again to compete successfully. The latest introduced product is the portable navigation system. Sony is focusing on a new target group now; it includes the car market, but also people who like to travel by bike for instance. The new product can be used everywhere, not only in the car. This is a great step for Sony, but they have to innovate continuously, because competition will catch up.

*Stay with NaviKen

When Sony stays with NaviKen, the development costs and knowledge can be shared. However, Sony must not be hold back because of late decisions or slow innovation. When this would be changed, it would be a mistake for Sony to leave NaviKen. And in this crucial time, Sony needs to share costs in order to stay profitable, also in the future.

NaviKen can also maybe be used on other future products of Sony, like the mobile phone or lap top for instance. The NaviKen group is very helpful for Sony; to develop this program on their own would take quite some time and financial resources, Sony lacks both now.

Market & business development plan for Europe and U. S.

Europe

European roads are complex, especially in historic inner cities but most streets had names and road signage was good. Car navigation systems in

Europe need to provide multi-lingual guidance, because Europeans frequently drive across borders.

Digital map software also has to correspond to different traffic rules and road regulations from country to country. The target group Sony should focus on is travelers and truckers in Europe. Sony could first launch the new product in Germany and France, then the rest of West-Europe. And after the product is adopted in these countries Sony can go on in other parts of Europe like Spain and Italy.

U. S. A.

The United States is well-organized with street names, traffic signs and highly developed highway systems. Therefore, the valued customers are people who have a car and would like to get to their destinations more easily. Especially people, who are on the road a lot, like business people and also the truckers. People are travelling more and more and a product like the new Sony Navigation System would be very useful. There are a lot of trucks in the US; 75, 940, 206 in 1996 and it will increase with 3. 8% by 1997. This is a target group Sony should definitely focus on. We will start launching our new product in California; it is a major state and has the largest amount of trucks. After the product is adopted in California we will go further with other major states like Texas and Florida and so on till we have cover the whole United States.

4 P's

Product

The new Sony Navigation System is a portable model with CD-ROM, GPS and dead reckoning sensors which can give route guidance by map, arrow or voice. The advantages of this product are the portability; you can transfer it easily from car to car and the route planning; it plans the route and guides you to your destination. Since this product is detachable, it is not strictly a car device so auto safety regulation and product liability issues may not apply.

Price

The price for a car navigation system in the U. S. and Europe is a crucial factor. Therefore we will launch the new Sony Navigation System as a low-priced model which will meet the needs and exceed the expectations of the European and U. S. consumers. European and U. S. consumers will be happy with a car navigation system with arrow and voice guidance at a price of \$1,000 or less. We will offer a more advanced system with a map for the price of \$800.

Place

The new Sony Car Navigation system will be distributed through different channels.

We will distribute the product through parts and accessories wholesalers and these wholesalers will sell it to auto shops. Through these auto shops the product will be sold to the consumers. We will also deliver our product

through large electronic retailers and electronic wholesalers who will eventually sell the product to the customers.

Promotion

Up till now, the European and US consumers have heard about car navigation systems through television or published material. To create awareness about the new Sony Car Navigation system we will focus on those promotion tools. We will launch a TV commercial which will show the advantages of the product. We will also publish the product in car magazines and send promotional material to electronic stores.

Conclusion

The problem definition in our case was:

How can Sony boost sales and recapture lost market share in the highly competitive Japanese market and at the same time expand to Europe and the US in order to stay ahead of the growing competition and the technological development?

We have chosen the option to develop a low-priced model for the three markets, which is portable. For Europe and the US, it will be an effective way to introduce the car navigation system of Sony. Consumers can adjust to this product and Sony can build trust and loyalty with the customers. When they adjust to the system, Sony can add more features to it and customers will be willing to pay more for it.

In Japan it will be a way to gain the mass market. Although the market is in its maturity phase, there are still enough potential clients for Sony. They are either sensitive for the price or they do not know how to use it properly. For them we will introduce an easy to understand, low-priced model.

We also recommend Sony to innovate consistently and faster in Japan, because the competition is far ahead. This needs managerial persistence and financial commitment for the development of the product and for the marketing as well.

The distribution of this car accessory will be the after market retail channels. In Japan, Sony is now focusing on the market outside the car market. Sony realizes that people not only need route guidance when they are driving but also when they are biking or camping. This is a good progress. However, if Sony wants to stay active on this market, they should keep on innovating.

We suggest that Sony should stay with NaviKen. This is to share development costs and share knowledge about the program. But NaviKen must develop and innovate much faster than it currently does. Only in that case will it be fortunate to stay with NaviKen. Perhaps it also will be profitable for future products that include a navigation program.

For Europe and The US, Sony must learn from its mistakes that it made in Japan and be ready to be a market leader again.

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