

Carrier corporation case study analysis essay

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During the 1990's the Carrier Corporation was working on a highly innovative new global chiller under 300 kW, called Aquasnap.

The new design would integrate a Hydronic Kit inside the chiller, all previous versions required installation of the kit outside the chiller. While the new design would cost less, require less installation time, and save floor space, it did raise some concerns. Carrier was becoming deeply invested in the design and was worried if the world was ready for such an innovative product. The following sections answer some of the issues; what should Thierry Jomard's (lead engineer) decision be, should the hydronic kit be integrated and how does Carrier address future environmental regulations, what are the challenges in creating a global chiller, and how does Carrier reduce market uncertainty. 1. Thierry Jomard's decision: Thierry Jomard needs to weight the pros and cons about releasing Aquasnap. One of the positive aspects is that Carrier would increase their market share of chillers under 300 kW.

By integrating the hydronic kit into the chiller Carrier would save the customers about \$833 in installation costs, cut the installation time in half, and save floor space, as the buffer tank would be eliminated. . The negative aspects of releasing Aquasnap are; original software would need to be modified and relationships with installation specialists are expected to weaken. Also parts production and price will decrease, therefore raising demand and creating inflation.

This will raise the cost of maintenance. Jomard should release Aquasnap with the integrated hydronic kit to expand the company's market. The potential outweighs the associated risk. As stated in an article by John Lord, " success

and failure can be measured, but it depends on one's definition of 'failure' and 'success'. Obviously, a new item's sales cannot be tracked unless the product is launched, at least into a test market. " This is just the situation that Jomard is in; the product needs to be launched at least into the test market to see if more investment is worth it. In the article Lord also states, " This problem takes on more importance in an era of more and more precise target-marketing, with product variations created to serve very specific consumer (and even trade) niches in search of very specific product benefits. " This is exactly what Jomard and Carrier are trying to accomplish with the integrated hydronic kit.

They would be directing/targeting this product to customers who need a smaller less expensive 300kW or smaller chiller in their home or business. New products will be successful if they are planned out and executed with good management and full delivery on product concept. Chart 6 (right) shows the success of a new product over the course of weeks.

It also illustrates the failure of a new product. The light gray line (inclining) is successful products, the dark gray line (declining) is a product that had rapid failure after it was launched. This study is one that shows that research and knowledge of the market and potential users are key factors to launching a successful product. These failures will appear shortly after the launch date of a product – and failure according to Horban can be compiled into a complete set of reasons including poor planning, poor management, poor concept, and poor execution. Overall Aquasnap is a great opportunity for Carrier, they have executed and planned out scenarios, their concept is strong and the

installation and changes in manufacturing have been reconfigured to allow the integration to be possible. Jomard should go ahead and push for the launch of this product and take the risk of it being a success. 2. Integrating the Hydronic Kit and Environmental Regulations Jomard should push this design because the projections that have been made would make it seem irresponsible as a company to not integrate the hydronic kit into the aquasnap project.

In the late 1990s, Carrier France faced extremely high labor and overhead costs relative to smaller Italian competitors in one segment. The only way Carrier could compete was by designing a product with low labor costs” (Gibbons, and Ramdas) (i. e. the aquasnap). The implementation of the integrated aquasnap, will increase at a slightly greater rate each year, and will allow Carrier to earn about \$8. 6 million dollars more in 2002 alone, and \$22. 5 million more from 1997 to 2002. Also mass production will lower the overall cost of manufacturing due to various factors (i.

. cost of materials, number of parts, number of operations, assembly time, assembly cost, selling price, and overall price will all be reduced). The share projections are a steady 14% until 1998. If the delay bleeds into 1999 the overall loss on that entire year would be \$6.

8 million, but the overall market share would still increase \$15. 7 million through 2002. Scenarios similar to Aquasnap can be found in gaming consoles. The integration of the DVD to the PS2 game console allowed Sony to set itself apart from Nintendo, making it the highest selling game console ever.

The PS2 saved the customer space, time, and money by not having to buy a dvd player. Even though the PS2 was \$100 more than the Nintendo N64, it dominated the market because of simplicity and convenience (Playstation website). Aquasnap also creates simplicity and convenience for the customer but is cheaper than the competitor; therefore similar market dominance can be expected. The chart on the right shows the sales of the N64 and the above chart shows the sales of all the PlayStations. In 97' and 98' PlayStation sold more consoles worldwide than N64 did its entire history. The playstations integration of the cd player was a factor in this landslide. Date ending| Quarterly sales| Total sales| Source| 1997 fiscal year sales(ending Mar 31, 1997)| 5.

80| 5. 80| [3]| 1998 fiscal year sales(ending Mar 31, 1998)| 9. 42| 15. 22| [3]| 1999 fiscal year sales(ending Mar 31, 1999)| 7. 86| 23. 08| [3]| 2000 fiscal year sales(ending Mar 31, 2000)| 6.

49| 29. 57| [3]| 6 months (Apr00-Sep00)| 0. 80| 30. 37| [3]| 6 months (Oct00-Mar01)| 2. 05| 32.

42| [4]| 2001 fiscal year sales(ending Mar 31, 2001)| 2. 85| 32. 42| [3][5]| 6 months (Apr01-Sep01)| 0.

9| 32. 71| [6]| 6 months (Oct01-Mar02)| 0. 21| 32. 92| [7]| 2002 fiscal year sales(ending Mar 31, 2002)| 0. 50| 32. 92| | Sales are driven up by integration but the PlayStations didn't make as much profit (shown by the chart on the next page) as possible because the cost of the machinery was more than the competitors. So if Carrier was able to make this integration

and save money on machinery cost then sales as well as profit would rise.

Users tend to enjoy products that are combined into one because of the convenience factor (i.

e. boom box with both a cassette and CD player); if something is easier then people will see that as an advantage, especially if the retail price is the same or lower. In some cases they may even be willing to shell out more money if the product is better (i. e. the original PlayStation was priced at \$300, 100 more than the N64 but PlayStation sold more consoles worldwide).

Carrier can also learn from the Xbox where the integration of the hard drive, allowing people to save without needing a memory card, made the machine more user friendly, but the bulkiness of the system turned some people away. So Carrier needs to be careful that the integration isn't hurting the simple needs of the product. As for the sustainability issue; using the 407c gas, a blend of R-32, R-125 and R-134a, will also give them a leg up on competition in the environmental regulations department because " It, 407C, has no effect on the ozone layer and can be used as a replacement for R-22 in air conditioning applications with small and medium capacities. " This is a plus because " R-22 is a greenhouse gas and the manufacture of R-22 results in a by-product (HFC-23) that contributes significantly to global warming" and the depletion of the ozone. So if the company is in need of a change of gas use then why not integrate it into the Aquasnap in order to look forward to more successful environmental adaptations beyond 2002 (Air-to Water...). Carrier must ask themselves...if Carrier has successes integrating in the past then why not do it now? As in 1925 when the Carrier Corporation introduced

the “ Weathermaker” (H-VAC Timeline) (the name still used today) which is a high-efficiency residential gas furnace incorporating a blower and filter that was invented by Carlyle Ashley that help define heating units of the future and boost Carrier sales. If the company has the capability to take this leap on the competition then they should jump on it.

Any market is competitive and if new ideas and technology get leaked then there is a chance for a competitor to come in and steal the advancement and make it their own if action isn't taken soon. If one is to look toward the future beyond 2002 then trends show that technological advances involve the integration of parts for the ease of the consumer. If this company doesn't follow the trend then the Carrier Corporation will be a company living in the past and not look towards the future; the risk is worth the reward. As Carrier once stated “ A man with the power of will could make himself anything he wished no matter what the circumstances” (Deagon), and in this case the circumstance outlook is positive.

3. Challenges Some of the challenges in designing a “ global” product like Global Chiller would be creating a product that is universal in design to meet the needs and demands of its customers. With the Global Chiller serving the high-cooling capacity end of the market and the AquaSnap being created for smaller commercial applications the demand for Carrier products is becoming more extensive. Two of the major markets that Carrier works with are the United States and European. With the product footprint being a big issue within the United States, Europe had a larger concern about noise. And again U. S.

customers would rather have a technician come and work with the machines, whereas Europeans “ demanded a more user-friendly interface with unit controls” (Gibbons, and Ramdas 1-3) that indicated the machine was working correctly. Designing a single universal product for all markets can allow the company to be organized more vertically and allow for potential discounts which in turn can increase profits and lower costs (Gibbons, and Ramdas 1-3). Compared to other companies, Carrier’s most prominent weakness is labor costs, rates in France are much higher than in Italy. To bring the cost down in creating the Global Chiller, Carrier needed to contract work to outside vendors which made the cost of creating the product themselves expensive by aving outsourced the production.

But this was only the case where, depending on location [Italy], the vendors were located in a less expensive market. An example of other outsourcing done by Carrier is the Australian market. They have a very unique and diverse market that in order for Carrier to serve it they needed to import products from just about every other Carrier factory in the world. This is because the country has unique codes for the chillers that command having a unique design for that specific market (Babiyak 2). In cases such as this, Carrier will take certain products and adapt them to fit the specific needs of their clients. By allowing for this adaptation of their products it gives them an upper hand in the global market. A constant threat Carrier deals with is its competitors being able to create similar designs at a lower cost because the competitors are located in such places that labor is less expensive.

One way to benefit the company may be to create manufacturing plants in places with lower market rates in order for them to be able to compete with locals at the same level. Some organizations and other changes that can help manage these challenges are to standardize the product development process. They should formalize and standardize the product process to improve the performance of the company. These processes should be reevaluated and extended to take advantage of global design, and to manage the added complexities that it brings with it.

Standardization helps companies incorporate delivered designs into lead assemblies and downstream processes. This reduces variability and promotes continuous improvement. Carrier is not static, what worked for them before such as the reciprocating compressor technology didn't work past the lifespan of the product, they had to change to the screw compressor technology after 25 years and will potentially need to change to the new technologies that are being created every day. They need to look for new opportunities and adopt strategies for market expansion, faster design cycles, new sources of innovation and local requirements ("The Global Product Design Benchmark Report").

4. Market Uncertainty Market Research:

New innovative products can be very risky investments.

Sales and market shares must exceed investments made in research and development (R&D). Establishing and maintaining a timetable and budget for R&D is essential for future product profits. Creating this timetable and budget is often difficult due to uncertainty of market acceptance. Therefore, it is important to conduct market research. During the late 1990's the Carrier

Corporation planned to announce the release of the new AquaSnap chiller. There was much uncertainty about market acceptance due to radical new features, such as the integrated hydronic kit within the chiller. Carrier wasn't sure if consumers would catch on to their new innovation. Research shows certain countries prefer specific features over others, Europe favors less noise and more user interaction whereas the US favors size and technician interaction.

While Carrier was only designing one primary model of the AquaSnap, it was crucial that it meets the wants and needs of consumers in Asia, Europe and the Americas. To understand if the new AquaSnap is going to be effective in the global market, Carrier must conduct market and consumer surveys. Prior to product launch, (preferably during R&D to be able to adjust to concerns) Carrier should create a small building model with a scaled AquaSnap installed vs. the leading competitor, highlighting the strengths in accordance to a cultures wants and needs. For instance if the Italian market is concerned with noise, the model showed in Italy would explain the reduced noise level.

Concerns and compliments based on the model will help influence changes as well as confirm market acceptance. Other companies, such as Microsoft and Apple, use a similar approach. Both companies give their new products to employees to test.

Each company receives feedback on how to fix problems or enhance the product. While test installing the new AquaSnap chiller on multiple buildings wouldn't be financial viable, giving potential customers a preview and test model will help. Recovering additional R&D costs: New tooling costs and

additional engineering will cost \$141, 660 on top of Carrier's typical product development. Unsure of market acceptance, Carrier must figure out how to make up for the additional costs. Labor costs are the biggest financial burden in the manufacturing process. To change this, it is recommended that Carrier create manufacturing in Italy. By doing this, Carrier will cut labor cost in half, \$724 to \$362. Savings from only 392 units will offset the additional R&D costs.

Furthermore, Carrier expects to increase market shares in chillers under 300 kW from 14% to 24% from 1997 to 2002; that's a production increase of 171%. With the future in mind, Carrier will need to expand manufacturing capabilities over that time period. Communicating to the Market: Having always been a leader in the HVAC industry, Carrier Corporation needs to continue to prove to the world that their products are superior and universal to use. Not only will they need to continue to provide their users with excellent products and service, but communication is key to a successful marketing strategy for Carrier Corporations. Through increased customer service, by using online help, making visits to high demand areas and phone help, they too will be able to gain acceptance of AquaSnap. Many countries, especially in the middle east, are resistant to change. Carrier Corporation needs to target these countries.

By creating a marketing strategy to group countries by " market similarity and interdependence, at the macroeconomic level (i. e. based on economic, cultural, and trade conditions as well as geographic proximity). Douglas and Craig [1996] describe similar markets as ones"... where customers have the

same tastes, interests, or purchase behavior, and where market environments are similar regarding, for example, product or advertising regulation or media and distribution infrastructure”(Darden; p. 96).

By honing in on similar markets it would allow Carrier Corporation to solicit AquaSnap pertinent to each country. Looking at the consumer demands, similar to refining the various features of the AquaSnap across each market, would be beneficial in defining a marketing plan. “ European consumers high higher concerns for noise issues, a demand for a more user-friendly interface, customization and urge for environmental responsibility”(p.

4). Taking these needs of the consumers and implementing them into advertising strategies and increased communication and education on their new product would surge market acceptance. Advertising is a significant attribute to success and market acceptance of AquaSnap. To devise a plan for advertising spending, it is recommended that Carrier Corporation evaluate each countries gross domestic product per capita. Spending more money in wealthier countries and following the trends of countries that have similar geographic distance and current trading relations, could help determine which countries to target to increase market acceptance as seen through a study done on the automotive industry. Motorola is also another company that was faced with a challenge to make improvements to its company to “ maintain their position as one of the leading providers of wireless communications, semiconductors and advanced electronic systems”(Rucker).

In a fast past, competitive market it is imperative to keep on top, and one way of this is through education. Not only of the customers and the employees, Motorola set up programs that imbued “ communication, content, expertise, learning methodologies and technology to provide customers with timely and relevant integrated education solutions”(Rucket). Located all over the world, these Motorola University sites were located at 99 different locations, in 23 different countries. What Motorola has done is create a “ virtual reality” methodology and architecture to create simulated learning, through the use of 3-D live models, graphics, video, text and audio. It allows all participants to have equal, quality learning time, as well as individualized instruction” (Rucker).

This would allow Carrier Corporations to reach a wider audience in less time and bring consumers up to speed on the new technology. Customer outreach and education is crucial especially when introducing a new product. If the consumers are able to develop familiarity and comfort with AquaSnap through reliable learning tools and customer service, customer loyalty and satisfaction will increase. Conclusion: Carrier has high expectations for its new global chiller, Aquasnap. Potential benefits outweigh risks. Thierry Jomard should without a doubt release Aquasnap in 1998 as scheduled. The hydronic kit needs to be integrated as Carrier expects to see sales increase by \$22.

5 million from 1997 to 2002. Using the new refrigerant 407c, Carrier will lead the path in environmental standards. While introducing a global product into such different markets is a challenge, correct market research, market

communication and efficient manufacturing operations help create product certainty.