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# MBA Assignment– A Case Study on DELL

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# Case Study



Every day, thousands of Dell engineers and product development groups are hard at work around the globe aggressively pursuing new and better answers to customer technology challenges. The result of their work is often first-to-market products that guide innovation industry-wide. While its principal headquarters and design centers remain in Austin, Texas, Dell has expanded its operations over recent years. The company has established innovation facilities throughout the world, each with its own areas of specialization:

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## **What are the advantages to Dell of having manufacturing sites located where they are? What are the potential disadvantages?**

Companies generally drive to multi country manufacturing and expand into different countries in order to achieve advantages such as reduce transport and distribution costs ,avoid trade barriers or non-tariff barriers ,Secure supplies of raw materials or markets and last but not least the low labor costs. These will ultimately result in Cost advantages on manufacturing. Therefore it is evident that Dell too enjoys a mix of above advantages, taking into consideration of their locations. In the Dell's case, its manufacturing sites have provided them the location advantage to meet its core operation strategy to pioneer in the "configure to order" approach to manufacturing and delivering individual PCs configured to customer specifications.

The Location Strategy and Production model (Hill, C.W.L and Jain, A.K. 2007, p 692) under Product Factors suggests that, when the value to weight ratio is low of an industry it favors the decentralized production thus Dell gains the advantage on logistics by having the sites located where they are.

Dell's strategy helped minimize delays between purchase and delivery. Therefore Dell has a general policy of manufacturing its products close to its customers which give them obvious advantage. This also allows for implementing a more realistic and reliable "just-in-time" (JIT) manufacturing approach, which minimizes inventory costs. Low inventory is one of the core success factors of the Dell business model. The locations facilitated an effective use of JIT concept to Dell thus is successful in achieving many advantages, such as,

- Lower holding costs helps, fund that were tied up in inventories be used for expansion and improvements of the firm. For an example the information flow between the customer, supplier and the firm play a critical role in the Dells' case. More investments were possible in the ICT – Information Communication Technology due the heavy saving on inventories. Fully automated high tech assembling facilities were commissioned from the funds that otherwise would have been spent on keeping high inventories. On the other hand, the areas previously used to store inventories were used for other more productive uses.

- Throughput time is reduced, resulting in greater potential output and quicker response to customers.
- Defect rates are reduced, resulting in less waste and greater customer satisfaction.

Another advantage of Dell's location is that it improves Cash Flow, because inventory is immediately used. While companies usually are able to invoice quickly and get paid faster, Dell's order from customers is placed even before the inventory is supplied thus company gets paid double quick time. Essentially, they receive payment from their customers at the same time they can pay their own suppliers.

The governments wherever they are usually extend the maximum support for Dell due to above understanding.

Firms are likely to be viewed more favorably if they contribute to the local economy.  
(Doole, I and Lowe, R., 1999)

In order for successful operation under the given Dell's model in different locations, it requires a committed workforce with the tools to immediately solve any delays or delivery problems. Having the workforce from each location facilitates a smooth process eliminating language, cultural and other social barriers and even time zone differences.

Dell's Push Pull supply chain approach is predicated on having key suppliers within close proximity to their production line. This allows them to turn around orders with minimal lead times by only pulling in those parts and materials needed to complete the job. It's a form of JIT but with the added benefit of being able to provide a custom made part with immediate delivery. Johnson, I. (2010)

Most companies find, however, that simply reducing inventories is not enough. To remain competitive in an ever changing and ever competitive business environment, must strive for continuous improvement and expansions. Dell's manufacturing sites are in Brazil, China, Malaysia, Ireland, India, Poland and the U.S and their country ranking in the GCI- Global Competitiveness index 2010-2011 are 58,27, 26,29, 51, 39 and 4 respectively. Advantages of these locations are that some of them are low cost (Brazil, China, Malaysia and, relatively, Ireland), they have educated work forces that are highly productive, and they are near large regional markets.

While it is not possible to justify the locations merely based on the GCI alone, there are other critical factors that Dell may have considered beneficial. A country wise analysis is given below that highlights the sources of advantages that Dell derives.

### **Brazil**

Brazil holds the lowest position of 139 among 139 countries in the GCR- Global Competitiveness Report 2010-2011 “Burden of government regulations” under pillar one- Institutions. It also ranks the 31<sup>st</sup> position under business sophistication. Also the market size is ranked at 10 which is a positive factor when considering the Dell’s strategy of “Being Direct”.

### **Ireland**

Ireland holds the top position with regard to the component of FDI and Technology transfer in the above GCR and also placed very strongly under “Strength of investor protection” at fifth rank. The extent of staff training is also comparatively strong and holds the 23<sup>rd</sup> rank which is obviously necessary given the type of industry they are in.

### **China**

The 10<sup>th</sup> pillar of GCR reveals the market size where China holds the rank two which is another advantage Dell derives from the choice. China also ranked number seven with regard to buyer sophistication thus Dell should be gaining its due advantage for the company.

### **India**

Similar to China, India is ranked at a very lading position of 4<sup>th</sup> place with regard to market size while holding 15<sup>th</sup> position with regard to “Availability of scientists and engineers” another vital factor in the computer industry.

### **Poland**

Poland holds the lower position of 111 among 139 countries in the GCR- Global Competitiveness Report 2010-2011 “Burden of government regulations” under pillars one- Institutions and maintains 50th rank with regard to business sophistication.

### **Malaysia**

Malaysia is strongly positioned in the fourth rank for “strength of investor protection” and sixth rank with regard to “pay and productivity” countries business sophistication is ranked at 25<sup>th</sup> among 139 world economies while responsible for the 29<sup>th</sup> place for the market size.

The reason that may could have been taken into consideration by Dell in choosing Malaysia as part of its globalization are the following: 1. China may have been a part to the success of the company, the fear of the Company to the image of China in infringement of intellectual property; 2. It chose Malaysia, to have a more extensive branch working in the South Eastern part of Asia and 3. Dell has been recognized by the Prime Minister for its Hibiscus Awards. (Source: Thinking made Easy, 2010)

## **DISADVANTAGES**

Dell faces over dependency on one product, leaving aside the extensive customization of that product. If the firm has centralized operation, more different products can be manufactured in one location. When the plants are dispersed, the number of different product that can be manufactured in a given location, potential of gaining economies of scale, will be less.

There can be issues related to repatriation of profits with regard to some domestic policies of those locations and exchange rate fluctuating risks associated even if there are no legal constraints.

Krugman,P.R and Obstefeld,M (2003) suggest that The theory of location is not a difficult one in principle. The factors that determine a multinational corporation's decisions about where to produce are probably not much different from those that determine the pattern of trade in general.

Possible failures to effectively scan the international environment failure to manage and resource both market and operations expansions can be another disadvantage.

Although still considered a leader in logistics and low-cost manufacturing, Dell began to see its market share erode in 2005 because of complaints about poor customer service, among other factors. (Kanellos, M., 2008)

Therefore, common disadvantages of decentralized manufacturing such as potential communication barriers building up as a result of present geographical locations such as language, culture and social issues. Intellectual property issues as explained under China/Malaysia as well as uncertainties on the political climate in all the locations should not be undermined.

## **Why does Dell purchase most of the components that go into its PC from independent suppliers, as opposed to making more itself? (Dell does little more than final assembly of components into PC)**

In order to compete globally, Dell should look at efficiency and cost containment. Unlike certain companies who strictly focus on revenue increases; Dell has made use of emerging concept of outsourcing even at early stage while adding value to it through the advanced ICT.

As companies seek to enhance their competitive positions in an increasingly global marketplace, they are discovering that they can cut costs and maintain quality by relying more on outside service providers for activities viewed as supplementary to their core business. (Monippallil, Matthew M. 1998)

Firms usually derive two main advantages by outsourcing; i.e. strategic flexibility and lower costs. Dell outsources because it enables Dell's business model to be successful. Dell believed that their comparative advantage is in pricing, customization and rapid order fulfillment. They also realized that they can explore more advantages through supply chain management and logistics than focusing on manufacturing of components. It may be true that Dell does little more than final assembly of components into PC under such concept but the fact remains that it facilitated Dell to focus on the most critical factors in customer satisfaction and retention. Dell very correctly focused on core areas where they are good at while allowing their suppliers to do the rest in other areas of the process.

Outsourcing, in general has become one of the most important and popular strategies in an increasingly competitive marketplace. This concept has proven results for Dell considering their global success which is a prime result of development of and recommitment to the core competencies of the company. Dell was able to do this by delegating most of work to their suppliers who independently contributed their share in completing "Dell total product" for mutual benefits. Because Outsourcing allows companies to focus only on their most successful work and enjoy the benefits of allowing their outsourcing partners to do the same in whatever their core areas.

According to the Outsourcing Institute, companies are realizing a 9 percent cost savings and a 15 percent increase in capacity and quality, on average, through outsourcing. There

is enormous pressure on major corporations to establish competitive positions in a global marketplace. Monippallil, Matthew M. (1998)

Through this concept, Dell eliminated the risks connected to inventory such as obsolescence, maintain flexibility in its manufacturing, and Dell has lower coordination costs than if it were vertically integrated, producing its own parts.

Dells, outsourcing relationships have been focused from cost savings to multidimensional partnerships that support the core business of client corporations. This type of outsourcing relationships have delivered lucrative results for Dell to engage in more and more outsourcing activities as partnerships. Therefore Dells /component providers are taking increasing responsibility in improving service standards. Dell is so big that the suppliers want to be associated with them badly thus they revisit their corporate strategy, information management, business investment, and internal quality initiatives to be on par with Dells needs.

Accordingly, in consideration of several advantages that Dell gains through purchasing most of the components from independent suppliers, it can be concluded that outsourcing allows Dell to focus on what it does best and leave their component suppliers to do the rest at their best for Dell.



## What are the consequences for Dell's cost structure and profitability of replacing inventories with information?

As Michael Dell has said: “Just as the internet increase customer intimacy, it can also be used to enhance supplier intimacy”. And “The link between the day-to-day demand trend and the incoming material is absolutely critical to your success- so the shorter you make that link, the better off you are.” (Holzner, S., 2006)

Dell has been able to achieve the lowest inventory levels in the industry. In 2004, that was only three days of inventory on hand, compared to 30, 45, or even 90 days' worth at competitors. This is a critical advantage in the computer inventory because it is estimated that approximately 75% of the revenue is spent on the components. Suppose a machine gives revenue of USD 500 to the firm; considering the disparity on the obsolescence between Dells who keeps one week inventory versus other companies that holds four weeks inventory, following can be observed.

<b>The case of one unit</b>	<b>Dell</b>	<b>Others</b>
<b>Value of Components at purchase</b>	Usd 375	Usd 375
<b>Value of Components at the time when sales of computers are effected</b>	Usd 371.25	Usd 360
<b>Value written off for 100,000 units</b>	Usd 375.000	Usd 1,500,000

Replacing inventory with information has contributed greatly to Dell's business model; it is the cornerstone of their cost structure. Reducing inventory also reduces the need for working capital. Therefore replacing inventory with information boosts profitability.

The contributions of Dell's IT investments to the firm's performance are difficult to disentangle systematically from the other inputs to production and from the many process innovations continually made at all stages of the value chain. However, it is clear that IT and the information it provides, along with process improvement, have contributed to Dell's exceptional performance. (Kraemer, K.L., Dedrick, J., Yamashiro, S. 2000)

Dell accordingly maintains a two percent advantage on the bottom line against competitors. They neither take the risk of finding buyers after the manufacturing of PCs, nor buys components before the order is placed by the customer. This concept permits it to be called as “replacing inventories with information facilitating the cost advantage that may have resulted through obsolescence.

Dell surpassed its industry peers as they offer its customers a better deal compared to the deals available from its competitors using a lower cost structure.

Kraemer, K.L., Dedrick, J., Yamashiro, S. (2000) reveals consequences on the concept under four parameters. I.e., procurement and inventory, manufacturing, cash management, and administrative overhead.

- Procurement and inventory: Dell's days of the inventory dropped from 32 in 1994 to just 6 end of 1998. This inventory level is the lowest in the industry.

Inventory turnover, 1998

	Dell	Gateway	Compaq	PC industry
Inventory turnover	55.5	27.9	12.9	23.6
Days cost of goods sold in inventory	6	13	28	15

*Note: From Hoover's Online (1999).*

Above table reflects the aggressive supply chain management strategies noted earlier. These strategies are made possible by the on-line, real-time sharing of information on orders and production throughout Dell's supply chain. This extensive and timely sharing of information through linked computer systems for procurement, supply, and order fulfillment essentially enables information to substitute for inventory.

- Manufacturing: Dell's production cycle time is 7 hours, on average, while its order turnaround Time is 7 days, on average. The automation of production processes contributes to the speeded-up cycle times.
- Cash management: According to CFO Thomas Meredith, Dell has a cash conversion cycle of - 8 days. This is because Dell often receives payment from a customer on an order before it pays its suppliers for parts used to fulfill this order. On average, Dell converts a sales transaction into cash in less than 24 hours (McWilliams, 1997). In contrast, indirect PC sellers must buy components to produce PCs, then push the PCs into the channel and wait for payment.
- Administrative overhead: While Dell has grown tremendously in revenues, it has continually reduced its administrative overhead, defined as SG&A, such that it is among the most efficient firms in the industry.

*(Source: Kraemer, K.L., Dedrick, J., Yamashiro, S., 2000)*

## **Do you think that Dell's model can be imitated by other PC manufacturers and manufacturers in other industries?**

The simple answer to above question is, yes. Dell's model can be imitated, but the managerial skills that require operating the model are difficult to build. Dells model is not something that a consultation team developed for his company to overcome a management issue, but rather it is part and partial of the entire firm's existence today. There are so many associated factors that made possible the Dell's success through the model.

Many text books explain how the Dell's model emerged and the vast knowledge personally gained by Michael Dell himself while it is being administered and regarding hands-on experience on how the model could put in operation with least breakdowns.

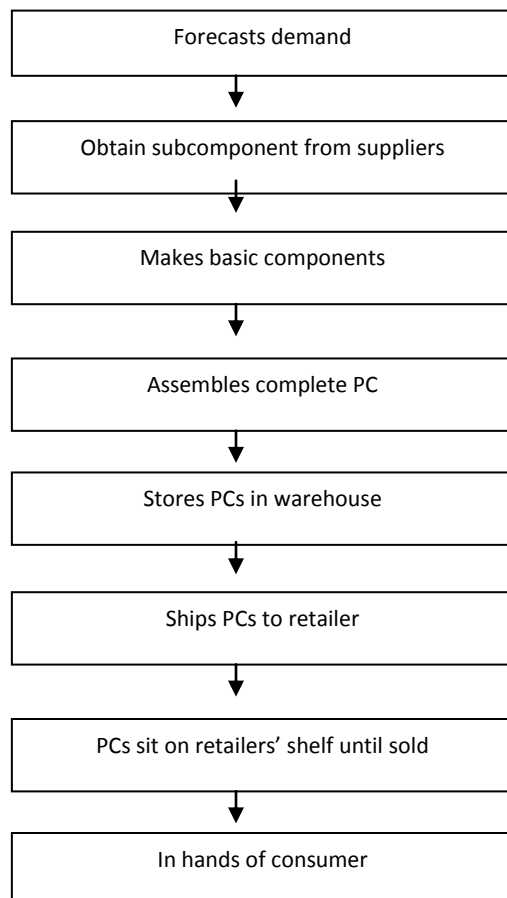
As a college student, Dell began selling computers out of him dorm room. First he looked at the way computers were sold and saw that by the time a computer passed through the hands of a manufactures, s distributor, and a retailer , a machine that contained only about \$600 worth of parts cost the customer \$2000. Second he realized that it was impossible to buy a computer with that latest technology because it took about a year for a new technology to be integrated into the computers that were sold in stores.(Barringer,B.R. and Ireland, R.D. ,2006, p 99)

Therefore a lot of hard work at grassroots level would have done by Michael Dell by himself in developing this model thus anyone else imitating it better than him is rather unusual. The mistakes that he would have done when the company operates at small scale may have provided him with strong structural foundation to avoid similar mistakes when Dell operates at lager scale. Another firm who imitate this model will naturally make similar mistakes at a greater scale causing possible blunders.

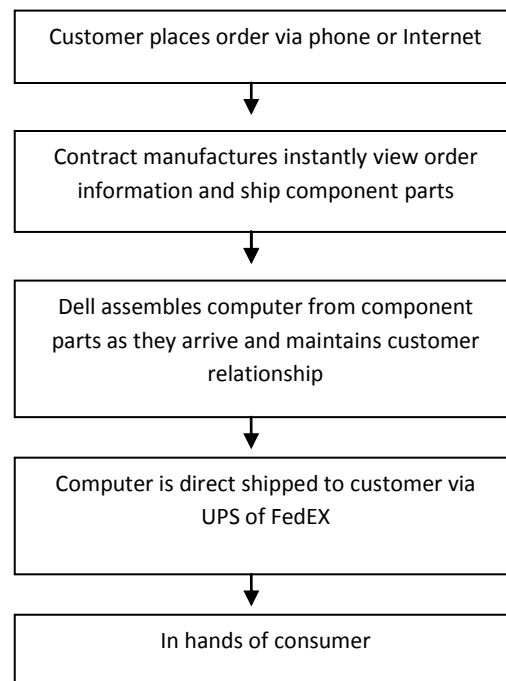
Therefore, it would be worthwhile to compare the traditional model used by other PC companies with Dell model to assess the validity of above conclusion made at the beginning of the answer.

## Dell's approaches to selling PC versus Traditional manufactures'

Traditional Manufacturer  
(E.g. Hewlett-Packard or IBM)



Dell



*Source; Barringer, B.R. and Ireland, R.D., (2006)*

If the Dell model to work successfully it needs the corporation of its supplier's shippers, customers and many other parties' commitment and cooperation and holistic approach. If the suppliers aren't willing to up-to -date parts to the company on a just in time basis the company adopt this model will be compelled to have higher inventory cost and would fail in delighting the customer by delivering the customers state of art product. The company consequently will not be price competitive as well.

At different times other firms (e.g. Gateway) have tried to imitate Dell's business model. But to date no company has been able to come close to doing so. (Barringer, B.R. and Ireland, R.D., 2006, p100)

### **Other Industries**

From the outset it is a rather simple approach to inventory management that takes control of both the supplier of parts and the end customer with finished product. It focuses on only purchasing what is guaranteed to be used and sold so that it doesn't remain in inventory for extended periods. Therefore theoretically the model may be imitated by any industry. However the context in which the industry operates play a significant role on how well it suits and provide better results to other industries. Other manufacturing companies wish to use the model should assess whether all the benefits that Dell gets can be derived by that particular industry also. For an example, Dell gains a substantial competitive edge due to obsolescence of stocks which may not be the case for some other industry. Sometimes not having inventories of raw material may lead to financial disadvantages for an industry that raw material prices are in the increasing trend. What if the raw material prices are volatile and always have an upward tendency? Such industry may not necessarily provide a competitive edge like in the case of Dell.

However other companies such as Wal-Mart, Target, Best Buy, and Circuit City have reasonably managed to adapt to similar concept and delivered results too. Auto manufacturers also have been making strides in this direction.

Lowering month to month inventory costs allowed automotive manufacturers like Honda to compete with their North American counterparts, who by the way, had large amounts of inventory holdings. Johnson, I. (2010)

Thus is obvious that any industry can imitate the model provided all the positive and negative consequential possibilities are comprehensively contemplated prior to application. if a given industry has its own inherent characteristics that the negative contribution such as highly volatile raw material prices etc supersedes the positive contribution through nil inventory, it is not worthwhile persuading this type of high cost ,high risk model.

## What factors might make it difficult for other PC companies to adopt Dell's model?

The firm that wishes to adopt Dell Model will have following fundamental challenges to meet.

- Work closely with suppliers and Keep them motivated to participate in the process. This factor work well with Dell due to the size of orders anticipated as its orders account for major portion of the respective suppliers' production. Otherwise the supplier may find it is not profitable to work closely and no future prospects.
- Should treat the suppliers as partners and be loyal. Should be good paymasters and not create disruption in their cash flows by delays of payments etc.
- All the partners in the model should equally participate in the process eliminating any bottle necks which is a killer in such model. Especially Dell's model is heavily dependent on internet. Therefore time discipline on prompt update of data could be a major issue even if the partners agree to participate in principal. An example is that online beauty retailer Eve.com. The company, as reported, struggled largely because the many of the high profile suppliers of women's beauty products wouldn't sell their products on its web site. The suppliers were concerned that if they sold through Eve.com, they would offend their traditional channel partners, such as Nordstrom and Saks.

One of the main factors that makes it difficult for other PC firms to adopt Dell's model is the managerial know-how.

Commenting on the early years of Dell computers and its direct sales approach, Michael Dell wrote. "We screwed up all kinds of things , but there was so much inherent value in what we were doing that it masked all the mistakes we made , Still we didn't make a lot of the same mistakes over and over again We learned from the mistakes and figured out how we could progress. (Barringer, B.R. and Ireland, R.D., 2006, p100)

Therefore even a PC company, though it operates in a similar platform should realize that knowing what to do is simple but knowing *how to do it* is immensely complicated thus it is usually easier said than done.

## **What is the source of Dell's competitive advantage? How secure is this advantage?**

What's Dell's secret? How has the computer maker managed to defy the naysayers and turn a classically low-margin mail-order operation into a high-profit, high-service business that's the envy of the industry? In a word: speed. Dell has long been a model of just-in-time manufacturing, but now it has upped the ante by applying the same brutal time standard to its supply chain. (Williams, G. M., 1997)

Customer intimacy at Low cost is the source of Dell's competitive advantage. Rather than competing on equal factors that were common in the industry, Dell thought "out of the box". Dell seems to be able to counter competitive challenges, innovatively which evidences management capability.

This indicates a relatively secure advantage with the huge experiences they would have gained since its implementation time at small scale. But, just because it is imitable in principle, it is not fully secure too. The concept is so simple and any PC company also may initiate a subsidiary company to follow the same model as a separate profit centre. They may attract suppliers using the prestige of the parent company for competitive pricing and other terms. They may attract customers using their high brand image. The IT infrastructure of the parent company may provide a fast information flow to match even the Dell's approach. In that manner if the competitor start operation at a smaller scale and gradually gain the hands-on experience for some time (Smaller scale will mitigate possible loss due to trial and error) such company can gradually increase volumes under the subsidiary firm while gaining experience. If they manage to head hunt some key people from Dell the situation might be even worse.

Apart from the possible imitation, there is not much threat for Dell if other firms continue to work on "demand forecast based production" because the only certainty in forecasting is that you will never be 100% accurate. Forecasting sales is never easy. Forecasts are often missed due to many reasons such as the economy, misunderstood sales pipeline, customer budget cuts, competition, market shifts, product inadequacies, supply shortages, etc. and most critically, the customer needs and wants in the ever changing computer industry. Forecasts drive manufacturing line production, which in turn drive inventory, supply, costs, and ultimately revenues. Therefore, most supply problems result from poor forecasting.

Dell's innovative approach came into light with accurate timing when the computer industry is booming thus they managed to capitalize on the model.

Today, a custom order placed at 9 a.m. on a Monday can be on a delivery truck by 9 p.m. Tuesday. What's more, this speed has allowed Dell to slash inventories and keep parts costs down so low it can under price its rivals by 10% to 15%. How does the company's just in time system deliver lower costs? While machines from Compaq and IBM can languish on dealer shelves for two months Dell does not start ordering components and assembling computers until an order is booked. By ordering right before assembly, Dell figures its parts, on average, are 60 days newer than those in an IBM or Compaq machine. That can translate into a 6% profit advantage in components alone. (Williams, G. M, 1997)

Therefore, the advantage will be secure as long as, the suppliers & vendors turn around parts quickly, suppliers & vendors are in close proximity, and companies have Strong Purchasing Power. Because parts must be available at very short notice, thus requires strong vendor relationships with strong contractual agreements on supply. Companies running this system must have strong purchasing power in order to remain their vendor's number one priority.

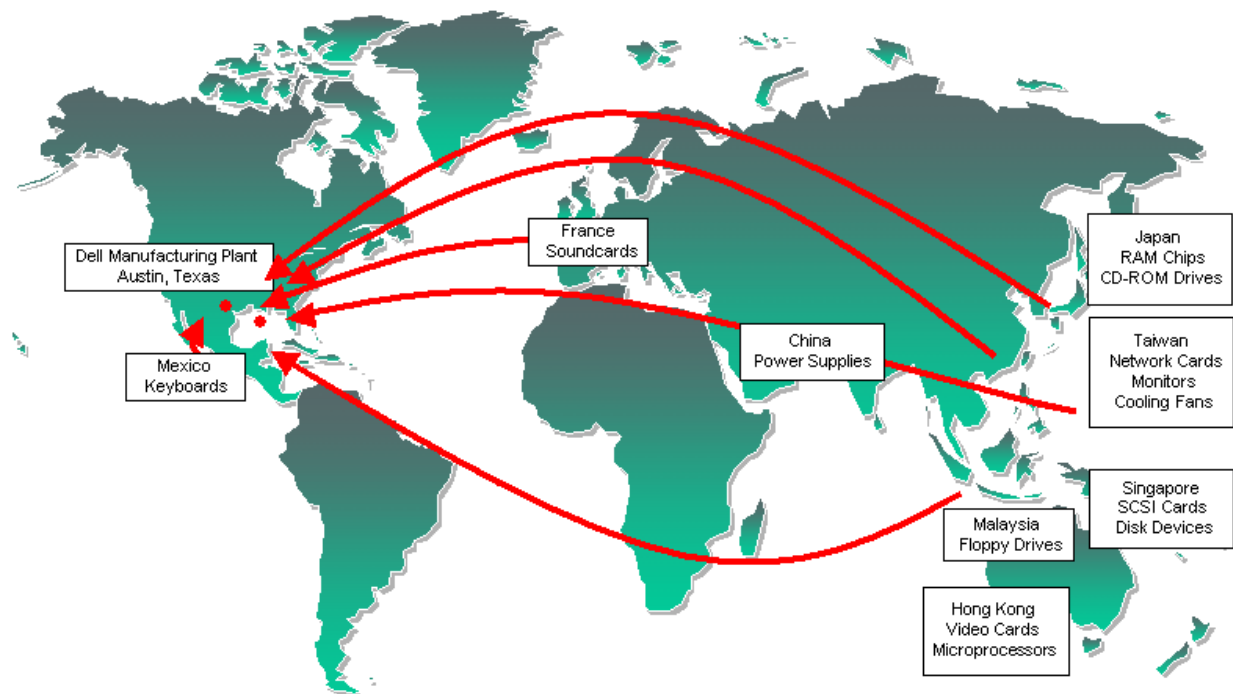


## What are the potential risks associated with Dell's global supply chain strategy? How can these risks be mitigated?

Despite the transport and logistics industries had remarkable improvements shortening the delivery time there are practical issues and natural or environmental reasons that cause delays frequently. JIT manufacturing exposes Dell to a number of risks, such as sudden issues those associated with the supply chain. With almost no stocks to fall back on, a very slight delay or contingent disruption in supplies to Dell from just one supplier could force production to cease at very short notice.

As illustrated by Dell Computer's global supply chain (see Figure 1) these industries rely extensively on international air cargo shipments of parts and components. In fact, by year 2000, the value of U.S. exports by air substantially exceeded that by vessel, with approximately 85 percent of air cargo imports and exports passing through the nation's ten largest hub airports (U.S. Department of Commerce, 2002). When the high-tech bubble burst in early 2001, air freight started to decline. The events of 9/11 accelerated this decline, with U.S. air exports dropping by nearly \$33 billion in 2001.( Abby, Twist and Koonmen,2001)

Figure 1



(Source: Abby, Twist and Koonmen, 2001)

Dell is highly dependent on JIT procedures which involve a major overhaul of business systems. Thus it may be difficult and rather expensive to introduce and maintain the whole process in a foolproof manner. The Dell Direct model does not only involve a direct relationship with customers but also includes suppliers. Through the use of the World Wide Web, Dell has been able to integrate both customers and suppliers into its manufacturing and logistics function. Therefore Dell is invariably heavily depending on the ICT –Information Communication Technology. Unfortunately Dell or any other firm for that matter has a least control of global ICT infrastructure at macro level. In case of global political or technological reasons that have a negative impact of the ICT, at least for a very shorter duration that impact for a model in this nature will be drastic. This factor makes Dells operation vulnerable with the possible failure on the internet etc.

There are many other risks too associated with Dell's supply chain management. If the transportation links are disrupted (work stoppages, port congestions, terrorism, etc.), Dell's approach will be badly affected. Also, they are vulnerable to problems their suppliers have. Dell is also vulnerable to IT issues (even if the infrastructure is well up and running smoothly) such as hacking, internal system failures, leaking out market intelligence. Their competitors would be facing the same issues, though; the impact on Dell will be comparatively higher due to the nature of the model.

The risks that need most to be mitigated are the supplier related ones because they would not be reflected on competitors who follow the traditional model. These can be mitigated by integration with the supplier, and Dell has integrated with the supplier's supplier as well in order to face such challenges.

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