

**E-retailing,
As a Channel of Product & Service Innovation
- from manufacturers' viewpoint**

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Abstract

This paper is concerned with characteristics of Internet retailing and manufacturer's product development strategy using Internet retailing. First, this paper reviews the current status of Internet retailing companies and explains some barriers to taking advantage of Internet retailing. Second, this paper gives a few suggestions for manufacturer's strategy for product innovation and development which is based on Internet retailing. The suggestions are (1) Product Innovation (2) Target Costing (3) Eliminate Design Mistakes.

1. Introduction

Today, managers need a new way to think about managing change. When they can't get superior ideas about the new way, they will lose much of their share. Thousands of corporations disappeared because they couldn't manage changes correctly. Then what are the most important changes these days? They are "changes on the Internet". This paper reviews the rapidly changing business environment and suggests manufacturer's product innovation strategy using Internet. The first chapter deals with two points related with the Internet

First, this chapter shows Internet related statistics. This statistics includes the Internet users, Internet business industry size. Second, the characteristics of Internet technology are explained. The most important characteristic of Internet technology is said as "Disruptive". Everyone knows managing change is absolutely related with the

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future of a firm, but managing “Disruptive Technology” is not only important but also dangerous.

1.1. Forces that Cause Changes

Frances Hesselbein(1997)² categorized changing forces like technology (such as the Internet), deregulation, privatization, open trade. All of these make firms do innovation to survive.

What is the most powerful force among the four forces? It's Internet technology. Every company wants harness Internet technology to survive in this rapidly changing environment.

1.2. The Size of Internet Users and Internet Business

According to the Computer Industry Almanac the U.S. has an overwhelming lead in Internet users with over 110 million projected for year-end 1999, which is nearly 43% of the total 259 million worldwide Internet users. The rankings are based on year-end 1999 estimates.

These estimations show us that Internet media will be a basic infrastructure through which we communicate with other people and with various companies. This is one reason every company should place much more emphasis on Internet related strategies.

1.3. Current Status of Internet Retailing

There are number of estimations on the size of Internet economy. According to Center for Research in Electronic Commerce (CREC), the Internet Economy generated an estimated \$301.4 billion U.S. dollars in total revenue in 1998, and was responsible for 1.203 million jobs as of 1998. Worldwide sales of Internet-related products and services by U.S. based companies were considered in this measurement.

² Frances Hesselbein and Marshall Goldsmith, (1997), *The Organization of the Future* (Drucker Foundation Future Series)

The component indicators at each layer are shown in below table.

[Table 1] Revenue and Growth Summary by Layer and Total Internet Economy³

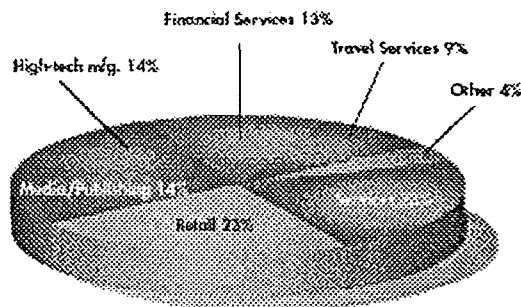
	Q1 1998	Q1 1999	Growth
Layer 1 Infrastructure Indicator	\$26.795	\$40.139	50%
Layer 2 Application Indicator	\$13.925	\$22.487	61%
Layer 3 Intermediary Indicator	\$10.992	\$16.666	52%
Layer 4 Internet Commerce Indicator	\$16.508	\$37.540	127%

(In billions, U.S.A. Case)

Shop.org/The Boston Consulting Group released definitive market figures in the third in a series of industry benchmarking studies. On this report online retailing in North America reached \$33.1 billion in 1999 and is projected to top \$61 billion in 2000⁴.

1.4. The Size of Internet Business by Industry

What kinds of businesses are running on the Internet? Business 2.0⁵ analyzed top 100 Internet business companies and grouped them according the industry.



[Figure 1] Business 2.0 100 by industry⁶

The result shows that 45% of Internet business companies are involved in service industry, 23% retailing, 14% High-Tech Mfg.

³ Source: Center for Research in Electronic Commerce, Graduate School of Business, University of Texas at Austin, © 1999

⁴ shop.org <http://Shop.org/nr/00/041700.html>

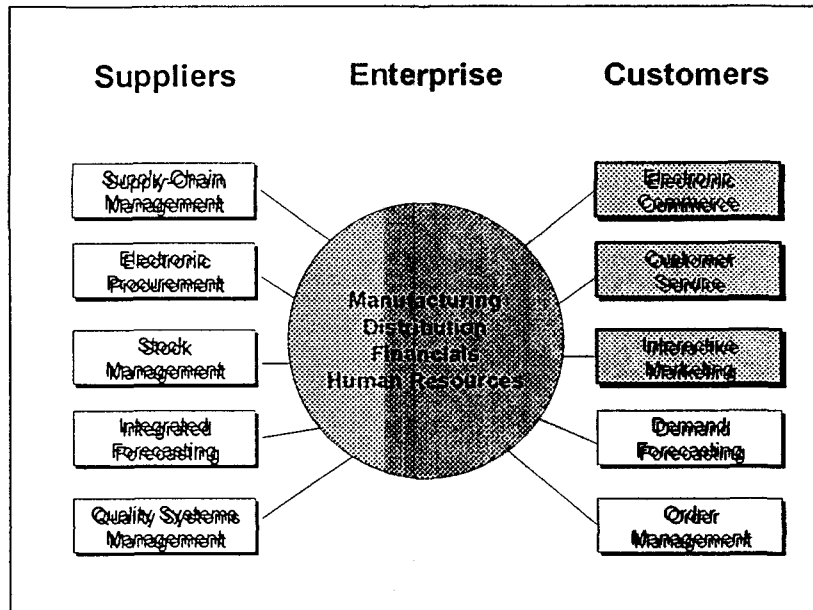
⁵ Business 2.0 <http://www.business2.com/>

⁶ Business 2.0 http://www.business2.com/articles/1999/05/content/b2top100_1.html

2. Frames Related to This Research

This paper focuses on the manufacturer's product innovation strategy using Internet retailing.

All products must reflect the customer's needs and product designers should know customers value. We hope Internet retailing can serve as a channel to get customer's needs. The following diagram shows manufacturer's view on the Internet technology.



[Figure 2] Infrastructure of the Extended Enterprise⁷

Internet helps manufacturers to get customers needs through electronic commerce, customer service, interactive marketing. And all of them, electronic commerce does a basic role. Through electronic commerce, manufacturer can get lots of customer needs and ideas for product innovations.

First, this paper shows that there are many difficulties in Internet retailing. These difficulties can be grouped as Internet retailer's viewpoint and manufacturer's viewpoint. From the viewpoint of Internet retailer, cost transparency, high marketing cost, product limitations are major difficulties. And from the viewpoint of manufacturer, channel conflict and cannibalization are difficult problems to solve.

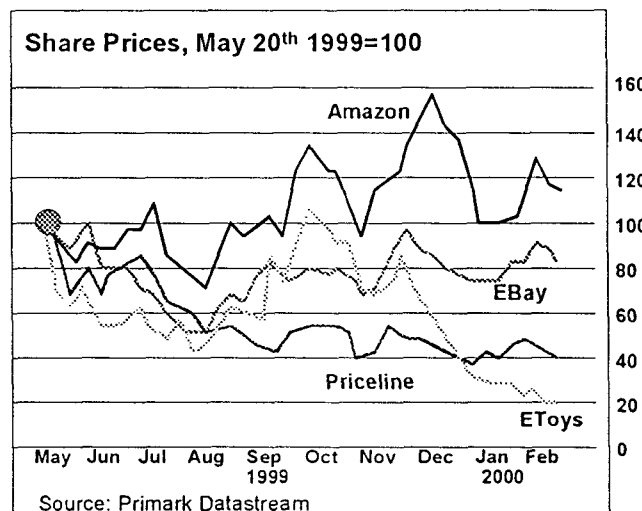
⁷ Source: Cambridge Technology Partners

Second, though Internet retailing cannot much profit, its easy and powerful communications ability enables brick and mortar firms to get much information about product innovation and service improvement.

3. Internet Retailing

3.1. Falling Stock Prices and Low Margin of Internet Retailing

Though the market size of Internet retailing is exponentially increasing, there is little company, which earns money. And share prices of these companies are dramatically decreasing.



[Figure 3] Share Prices of Major Internet Firms⁸

Especially, the share prices of Etoys and Priceline dropped to 20% and 40% of the level of May 1999. If we use the e-commerce matrix and business models, we can think like this.

- Pure B2C Internet retailing without retailing shop in the real word is not competitive (Etoys).
- C2B is not so attractive than we thought a few years ago (Priceline).
- C2C is still useful business model. (Ebay)

⁸ See The Economist February 26th 2000

- The first mover and big company size can attract investor (Amazon)

Though, it may be possible to explain the falling share prices of Internet retailers using business model approach, it is not enough.

3.2. Reasons of e-tailer's Falling Share Prices and Amazon.com's Case

Why some of these Internet based retailers have such a hard time? Though Amazon.com have many customers⁹, it doesn't seem customers themselves produce profit. As the following graph shows us, Amazon.com's performance on balance sheet become worse.

3.2.1. Cost Transparency

Everyone knows that the Web makes price comparisons much easier. But that's just one aspect of a far deeper problem. The real threat is what economists call cost transparency, a situation made possible by the abundance of free, easily obtained information.

All the information on the Internet has a way of making a seller's costs more transparent to buyers – in other words, it lets them see through those costs and determine whether they are in line with the prices being charged.

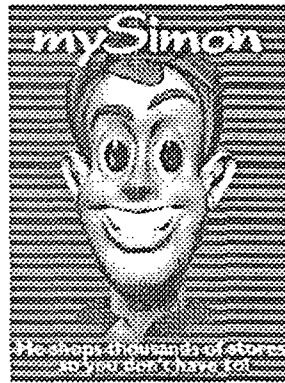
As cost transparency increases, so will the problems it causes for companies. These problems usually take four forms¹⁰.

- Cost transparency severely impairs a seller's ability to obtain high margins.
- Cost transparency turns products and services into commodities
- Cost transparency weakens customer loyalty to brands
- Cost transparency can damage companies' reputations by creating perceptions of price unfairness.

⁹ Amazon announced it had gained 3.1 million new customer accounts in the first three months of the year, increasing its customer base to more than 20 million people on April 26, 2000.

¹⁰ Indrajit Sinha, (2000), Cost Transparency: The Net's Real Threat to Prices and Brands, pp.43-50

There are many Web sites, which increase price comparison. MySimon¹¹ help customers shop for millions of products at thousands of online stores. MySimon isn't an online store. It doesn't sell anything. It's not a generic search engine either, so it doesn't simply list the names of every store on the Web. It offers an unbiased service that helps users decide what to buy and where to buy it.



[Figure 4] 'intelligent agents' help users to search for lowest prices and online store

Though there are some ways to avoid price war¹², it is not easy to use those strategies for Internet retailers. So low margin and endless process optimization/innovation and cost reduction are unavoidable to pure Internet retailers.

3.2.2. High Marketing Cost

Building a real brand takes years of effort that involves creating an identity for a product or service at every point of contact with the customer.

The cost of establishing and sustaining an Internet brand is high by traditional standards, even for the lucky few that have broken into the world's most recognized brands.

[Table 2] The Cost of Building a Brand¹³

¹¹ MySimon, www.mySimon.com

¹² Akshay R. Rao, Mark E. Bergen and Scott Davis, (2000), How to Fight a Price War, pp.107-116

¹³ See the Business Week, "The Name's The Thing", pp.50-53, November 15, 1999,

Rank	Brand Name	Brand Value \$Millions	1999 Marketing Budget \$ Millions	Marketing As A Percent of Revenue
Established Branders				
1	Coca-Cola	\$83,845	\$4,000	20.5%
2	Microsoft	\$56,654	3,752*	16.7
3	IBM	\$43,781	1,000	1.1
Internet Branders				
35	America Online	\$4,329	807*	16.9
53	Yahoo	\$1,761	206*	35.9
57	Amazon.com	\$1,361	402*	25.9

* Sales and Marketing

Data: Interbrand Group, Analyst Estimates

3.2.3 Product Limitation

It is said product characteristics such as sight and sound determine responsiveness to electronic shopping.¹⁴ Computer hardware, books, white goods are grouped as adequate products for electronic shopping.

These limitations come from the limitation of Internet communications. We cannot smell and touch through network. Therefore, we can't know the surface of a goods and the smell of food when we do shopping over the Internet

Many adventurous online merchants, however, now reckon there may be no such thing as a product that is unsuitable for being sold over the web.

3.3. Manufacturer's Viewpoint

There are much of another difficulties in get profit through Internet retailing. Such as relatively low entrance cost also cause severe competence in doing Internet retailing. But when it comes to manufacturers, there are another kinds of difficulties in using Internet as another retailing channel – channel confliction and cannibalization

¹⁴ Michael De Kare-Silver, (1999), E-Shock: The Electronic Shopping Revolution: Strategies for Retailers and Manufacturers,

3.3.1. Channel Confliction

Channel conflict is one of the main concerns of companies as they add e-commerce. This can occur within a company, as the direct sales force of a firm may feel very threatened by a direct web approach with preferred and “national” accounts.¹⁵:

There are some cases related to channel confliction

(Case 1)

Levi Strauss & Co.¹⁶ announced in October 1999 that it would halt sales of its own products on Levi.com and Dockers.com.¹⁷ At that time, Levi's took the position that the high cost of running a first rate e-commerce operation was not manageable for them.

It is said that bad feelings among some of its retail partners who had previously been barred from selling Levi's and Dockers products on the Internet, caused problems

(Case 2)

Some e-tailers, for example, are directly stating to manufacturers that they may choose other vendors to deal with if the manufacturers continue to sell directly to consumers online. Not atypical is Home Depot's¹⁸ proactive step to stop manufacturers from selling their goods online. Home Depot plans to unveil its own mega-site sometime this year.

(Case 3)

Some manufacturers, like Black and Decker, are considering selling a product line that is only sold on the Internet.¹⁹

(Case 4)

Rather than abandon bricks and mortar in the Internet age, Gateway plans to build a

¹⁵ Ward Hanson, (1999), Principles of Internet Marketing, pp.377

¹⁶ Levi Strauss & Co <http://www.levi.com> <http://www.levi.co.kr/>

¹⁷ Anne Stuart, (2000), Clicks & Bricks

¹⁸ Home Depot <http://www.HomeDepot.com>

¹⁹ See Paul A.Greenberg, Manufacturers Beset by E-Commerce “Channel Conflict”, E-Commerce Times, January 7,2000

total of 300 to 400 stores by 2002. The Internet, in turn, provides a more effective medium for support, order-taking, and ISP service. Taking a hybrid approach creates more options for building competitive barriers.²⁰

(Case 5)

Others with well-known brand names may take advantage of the power of online sales by selling products under a different brand name. Still, manufacturers are likely to tread cautiously in moving their operations online.²¹

One of the great questions of e-commerce is whether manufacturers can use the Internet to bypass their traditional distribution channels. If they can, it raises the specter of no longer needing their distributors.

3.3.2. Cannibalization

If a company, which has retailers in the real world, set up Internet retailing shop, there will be some trade off between real retailers and Internet retailing shops. Therefore if there is no increase in total revenue and just store change (between real and Internet, the result of running online store is only cost increase.

Nevertheless, there is critical reason Kyobo bookstore should run Internet store. If it is not prepared to embrace change, to cannibalize its own sales and to disintermediate its own intermediaries, somebody else surely will.

3.4. Manufacturer and Internet Retailing

Though Internet retailing use off-the-self technologies, it is not easy to open well organized, world level Internet retailing shop.

There is low margin through Internet retailing too. Then why they should do Internet retailing?

Retailing on Internet can reduce distribution and service cost. One estimate suggests that although only 2.7% of new-car sales in America 1999 took place over the

²⁰ Richard Wise and Richard Christner, (2000), *On Again, Off Again*,

²¹ See Paul A. Greenberg, *Manufacturers Beset by E-Commerce "Channel Conflict"*, *E-Commerce Times*, January 7, 2000

Internet, as many as 40% involved the net at some point, with consumers using it to compare prices or to look at the latest models.²² Leading companies, such as Ford, Wal-Mart, DELL, Compaq, Barnes & Noble, etc. want make their homepages as one of the main channel for customers services and retailing.

What's the main purpose of Internet retailing? Is it for retailing margin? As this paper said, it is not easy for a company to get much profit through Internet retailing. Though DELL gets much profit as an Internet retailer, it is because DELL has used Internet for product innovation and service development not just for Internet retailing.

4. Product Innovation Through Internet Retailing

4.1. Start point of Innovations

Many recent studies indicate that the design process exerts the most influence over a product's life cycle: approximately 60 percent of a product's cost is fixed early in the process of design.²³ So designing new product is sometimes very risky process.

What is the starting point of product innovations? When firms do product development there are two main starting points. One is customer needs and the other is technology possibilities.²⁴

Business analysts often focus on the amount a company spends on R&D as an indicator of its competitive strength. But a company's process for rapidly and efficiently translating its R&D efforts into products that excel in satisfying the market's needs is much more important.²⁵

Sometimes Information technologies create new business and opportunities.²⁶ But without analyzing customer needs, it will guide wrong ways. Therefore estimating

²² See the Economist February 26th 2000, Survey E-Commerce,

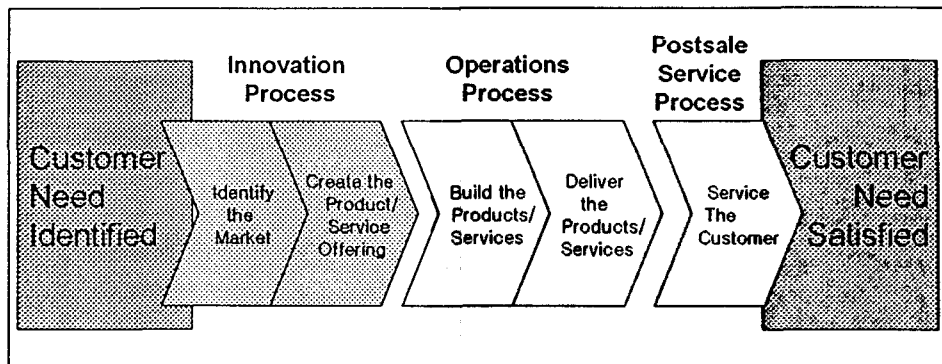
²³ Amit K. Maitra, (1996), Building a Corporate Internet Strategy: The IT Manager's Guide, pp.34

²⁴ Ward Hanson, (1999), Principles of Internet Marketing, pp.229

²⁵ Marco Iansiti and Jonathan West, (1997), Technology Integration: Turning Great Research into Great Products

²⁶ Ravi Kalakota, Marcia Robinson, Don Tapscott, (1999), E-Business: Roadmap for Success (Addison-Wesley Information Technology Series)

customer's need and choose adequate technologies and set up a way to acquire them is regarded as standard step.



[Figure 5] The Internal-Business-Process Value-Chain Perspective²⁷ - The Innovation Process

4.2. Internet and Customer Information

4.2.1. Let Customers Design Their Own Products

Customers can make their own products, when they use producer's Web interface. DELL has used this strategy to improve their customer satisfaction. Ford had set up BuyerConnection Web site and joined MSN Carpoint, where consumers can order custom assembled cars, track their progress, and apply for financing.²⁸ Ford's teaming up with Yahoo!, TeleTech, CarPoint, iVillage, and bolt.com to monitor the interests and buying patterns of Web-surfing customers.²⁹

This means that customers can buy a product what they want and producer can sell more products.

4.2.2. Monitor Customers' Trend Through Internet Retailing

Dell gets a lot of attention as a pioneering e-business because it sells \$15m worth of computers from its website each day. Because Dell's suppliers have real-time access to information about its orders via its corporate extranet, they can organize their production and delivery to ensure that their powerful customer always has just

²⁷ Robert S. Kaplan and David P. Norton, (1996), *The Balanced Scorecard: Translating Strategy into Action*, pp.98

²⁸ See Business Week February 28, 2000 At Ford, *E-Commerce is Job 1* pp60-63

²⁹ See Business Week February 28, 2000 At Ford, *E-Commerce is Job 1* pp60-63

enough of the right parts to keep the production line moving smoothly.

By plugging its suppliers directly into its customer database, Dell ensures that they will instantly know about any changes in demand. And by plugging its customers into its supply chain via its website, Dell enables them to track the progress of their order from the factory to their doorstep, thus saving on telephone or fax inquiries.³⁰

If you catch the customers' trend, companies can (1) develop new products quickly and can (2) choose better suppliers. It is also possible for them to (3) manage R&D budget more efficiently.

Furthermore, if a company can use first move advantage and de facto standards, they can do great leap through product innovation.

4.2.3. First Move Advantage and Standards

The starting point of de facto standards is large installed base. And if a company catches customers' trends and makes new products based on those, there are more chances to set up new de facto standards.³¹ Examples include Microsoft, Oracle, and American Airlines; SABRE system. The companies that lose the battle to establish a standard (e.g., Apple or Sybase), experience diminishing margin over time³²

4.2.4. Product Development Process

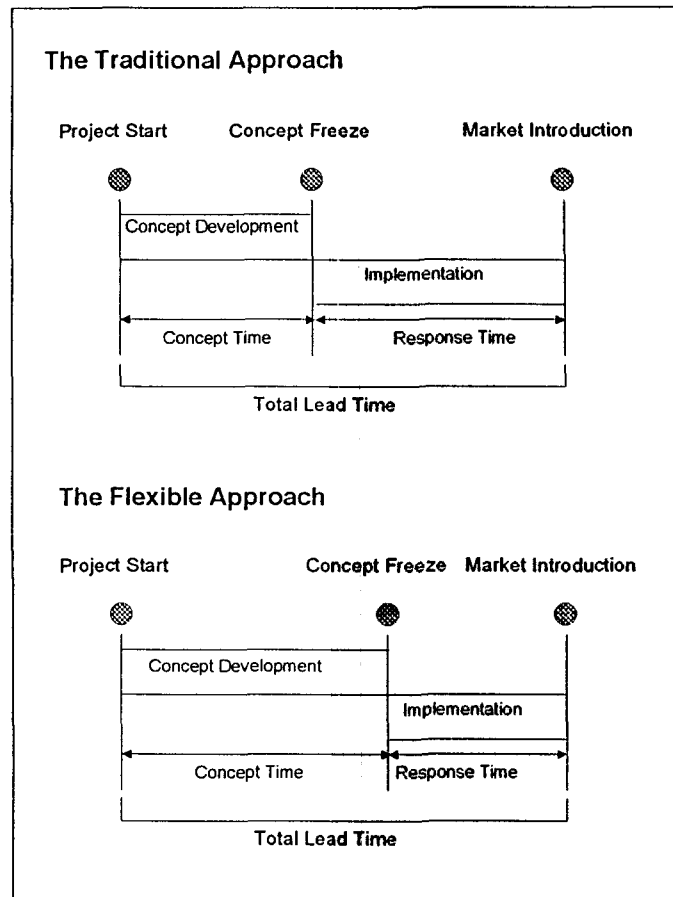
If a company can get frequent interaction with customers, it can improve product development process. This concept is not new one. Concurrent engineering is very similar with this process. But actually with the Internet retailing channel, a company can do as the idea.

The following diagram shows differences between traditional approach and flexible approach in developing process.

³⁰ See The Economist June 26th 1999 Business and The Internet Survey

³¹ Peter Grindley, (1995), Standards Strategy and Policy: Cases and Stories, pp.27

³² Adrian J. Slywotzky, David J. Morrison and Bob Andelman, (1998), The Profit Zone: How Strategic Business Design Will Lead You to Tomorrow's Profits, pp.35-70



[Figure 6] Two approaches to product development³³

Because customers' needs change rapidly, companies have little time to implement their needs. So they should change their product development process more flexibly and streamline their inner process (product design – manufacturing – provide service processes) and make the loop more fluently.

4.3. Target Costing

First mover companies have assumed that they would have time to scale up to mass production and introduce serially cheaper versions of products for increasingly broader segments of customers.

Target Costing drives a product development strategy that focuses the design team on the ultimate customer and on the real opportunity in the market.

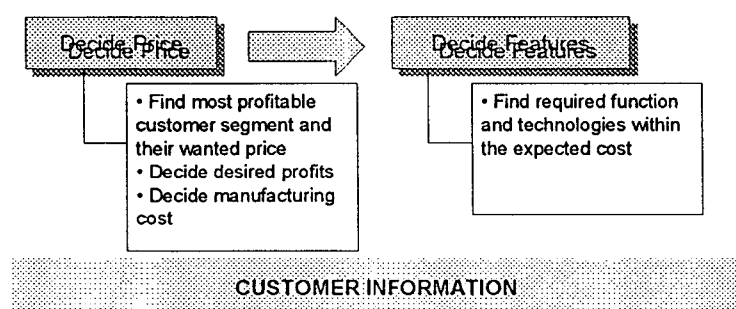
³³ Marco Iansiti, (1997), "Developing Products On Internet Time", pp.110

The logic of target costing is simple. Looking at tomorrow's marketplace, the organization maps customer segments and targets the most attractive ones. It determines what level of quality and functionality will succeed within each segment, given a predetermined target price (and volume and launch date). The organization then designs the sourcing, production, and delivery processes that will enable it to achieve its desired profits at this target.

First, organization should try to establish a clear picture of what features future customers would value in new product families.³⁴

Target costing is (1) driven by market price and desired profits and (2) performed only early in the product life cycle.³⁵

So, concept of target costing can be presented like the following diagram. And as you see, all of these decisions (price and feature) are based on customer information.



[Figure 7] Two steps to target costing

4.4. Reducing Product Defect and The Role of Community

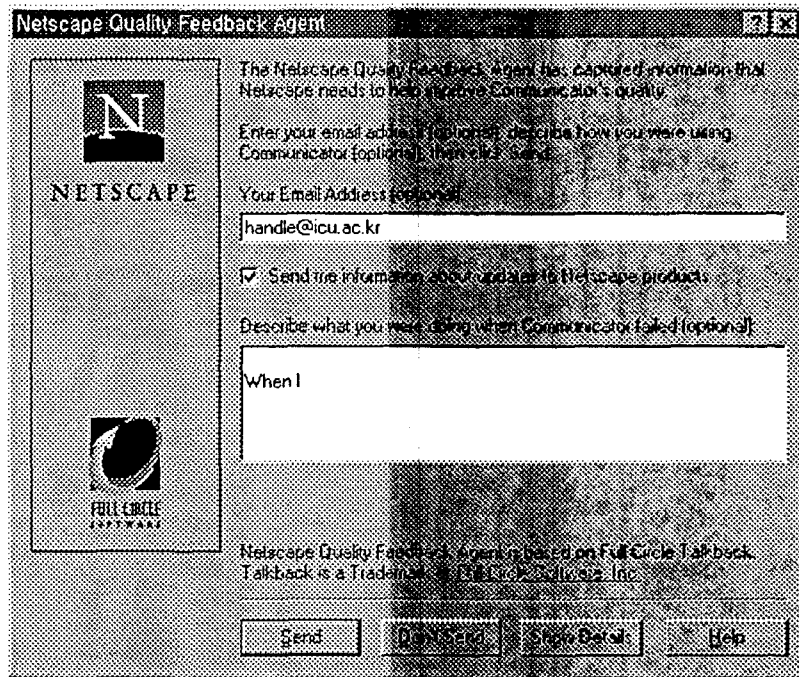
4.4.1. Quality Feedback

Although, designers do their best to make the product perfect, there are always some points to be improved. So, after launching a product into a market, companies should monitor customers' complains. This process is called quality feedback.

³⁴ Robin Cooper and W. Bruce Chew, (1999), Control Tomorrow's Costs Through Today's Designs, pp.88-97

³⁵ Jihn K. Shank and Joseph Fisher, (1999), "Target Costing as a Strategic Tool", pp.73-82

A good example of quality feedback is “Netscape Quality Feedback Agent”. When Netscape is terminated abnormally, that agent pops up, and asks user the situation. This process enables Netscape to improve the quality of S/W (Netscape® Communicator).



[Figure 8] Netscape Quality Feedback Agent

4.4.2. Community: an Expert Group for Manufacturer

When a company make S/W, it is easy to get feedback like Netscape Quality Feedback Agent. But for goods like computer, car, white goods, it is difficult to get feedback on Network.³⁶ Such a system like bulletin board system (BBS) on Internet homepage is weak strategy.

Manufacturers should building good communities for their products and services. People who have much interest in specific products will get together and make good information about the new products. Sometimes they may evaluate products and find some fault in sponsor's products³⁷, it is a bitter medicine.

The value of communities is dramatically increasing. In February 1998, Tripod, a

³⁶ It may possible when IP V₆ comes true.

³⁷ Online forums can magnify and accelerate the spread of bad information

vibrant Net community, sold itself to Lycos for \$61.5 million. But now the similar GeoCities valued at more than \$3.4 billion.³⁸ Though community itself makes no money until now³⁹, people think community will do essential role in future Internet Business.

CISCO is good example of Internet community. Community is a group in which people have same purpose and do positive activities for the community. Though people know the value of community, there is little research about harnessing Internet community for manufacturer's competitive advantage.

5. Conclusions and Future Research

5.1. Conclusions

Internet has already built a new world these days. A businesses related with the Internet are explosively increasing. And retailing through Internet is hot issue these days. This paper reviews some difficulties in Internet retailing and gives ideas for using Internet retailing for product and service innovation. Difficulties in Internet retailing are like the followings.

- Internet retailer's viewpoints
 - Cost transparency
 - High marketing cost
 - Product limitations
- Manufacturer's viewpoints
 - Channel confliction
 - Cannibalization

Though it is not easy to run Internet retailing and bring low margin, manufacturers cannot avoid accepting Internet retailing. Customers' needs are changing rapidly and Internet retailing is the best way, which can provide much of information about their needs and trends. This paper suggested 4 steps for product innovations using Internet retailing. And it also presented some ideas for target costing and reducing

³⁸ Business 2.0 <http://www.business2.com/articles/1999/05/content/editors.html>

³⁹ Their budget depends on advertisement income.

product defect.

5.2. Limitation and Future Research

Though this paper saying manufacturers should use Internet retailing, there is little idea about building retailing shop on Internet. Manufacturers should choose their policy among various alternatives – build their own Web sites, contract with pure Internet retailers, build another brands on Internet and do not use Internet retailing.

Smart manufacturers are creating new business models to capture profits at the customer's end of the value chain⁴⁰. So, more researches on service innovation are needed.

Customer-centric thinking⁴¹ and constant change⁴² are still difficult problems for almost every manufacturer.

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⁴⁰ Richard Wise and Peter Baumgartner, (1999), *Go Downstream*

⁴¹ Adrian J. Slywotzky, (1998), pp.19

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